The Impact of Deep Democratic Decision-Making on Multidisciplinary Intercultural Student Team Conflicts

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ABSTRACT,

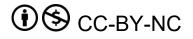
As the number of multidisciplinary and intercultural teams grows due to globalisation and today's work cultures, the need for ways to mitigate conflicts in such teams is also increasing. This research aims to explore how deep democratic decision-making can be used to deal with conflicts in multidisciplinary and intercultural student teams by facilitating inclusive decision-making in groups. Through interviews with participants of such teams, this research sought and explored the underlying conflicts and the decision-making methods currently used in the field. Finally, the research analysed the outcomes of using deep democratic decision-making in a multidisciplinary and intercultural student team context, proposing possible ways to implement deep democratic decision-making and giving interpretations for possible future research.

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Keywords

Multidisciplinary teams, Intercultural teams, Deep democracy decision-making, conflict management, team inclusion

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1. INTRODUCTION

As the number of student teams with team members from multiple disciplines and cultures is growing, the need for management approaches and learning approaches for both is increasing. By nature, due to the mixture of multidisciplinarity and interculturalism, many challenges arise, such as individual information seeming less important, information getting lost, and problems being overlooked, which overall affect individual performance and team dynamics (*Kirk-Lawlor & Allred, 2017; Jackson, 1996; Stahl & Maznevski, 2021;* Abbasi et al., 2017).

We witness the growth of multidisciplinary teams in all areas of life. For example, multidisciplinary learning is addressed in medicine, urban planning, sustainability research, and education (Taberna et al., 2020; Jovanovic, 2013; Lary et al., 1997) Örnekoğlu Selçuk (2021) and Bovenmars (2016) mention multiple positive effects of multidisciplinarity in the field of education concerning students. These include expanded student understanding, enhanced communication skills, and the importance of new information flow. Although working in a multidisciplinary team has many advantages, multiple sources discuss the negative side of multidisciplinarity, which might affect the team's planned outcomes. The negative aspects include conflicts of interest, controversy (Jones, 2006), time pressure and differences in expectations, knowledge and values derived from personal background (Tang & Hsiao, 2013; Zajac et al., 2021). To enhance the team's efficiency and effectiveness, it is essential to lighten these conflicts.

Similarly, due to globalisation, the number of intercultural students is growing in today's society. Therefore, intercultural student teams are constantly growing (*Favier & Wijsenbeek, 2023*). Hence, the need for knowledge on managing a multinational team is also constantly growing (*Krajewski, 2011; Humes & Reilly, 2007*).

Intercultural student teams bring pros and cons to working in a team (*Strauss et al., 2011*). An advantage of such a team would be the diversity in stance and opinions. However, communication and culture-related challenges might arise within teamwork, which is crucial to address for the improvement of working in these teams (*Popov et al., 2012; Deardorff, 2019*).

As multidisciplinary and intercultural students mix and new teams form, the benefits and conflicts from both teams add up. These later on positively and negatively influence the team dynamics, team efficiency and outcome by introducing conflicts from both sides into the teamwork. With this, the research on conflict management in multidisciplinary and intercultural student teams is becoming increasingly important (*Tabassi et al., 2018; Behfar et al., 2008; Luo & Lu, 2020*).

A significant amount of literature has been published on conflict management in multidisciplinary teams as well as in intercultural teams. However, to this date, there has been little agreement on the ideal method to solve the difficulties that originate from multidisciplinary international student teams.

As a proposed method to deal with team dynamics and conflict, deep democratic decision-making and investigations on its use have continued ever since (*Bouckaert, 2023; Mindell, 2008; Mindell, 1995; Lewis, 2023*).

The tool focuses on co-creation and the importance of hearing out the minority's opinion *(Mindell, 2008),* which poses a solution to the rising conflicts and promotes the inclusion of every member of the team by achieving consensus (*Christoffels, 2021*). This method emphasises addressing underlying tensions

openly and calmly, which is essential to fostering a healthier and more inclusive group environment.

As none of the previously mentioned articles had a clear focus on researching the use of deep democratic decision-making within the combination of multidisciplinary and internationally diverse student teams, I believe it could present a positive outcome on such teams working as it can influence the previously mentioned conflicts.

1.1 Research Objective and Question

Through observing and interviewing members of multidisciplinary, intercultural student teams, the following research seeks to close the knowledge gap in how deep democratic decision-making affects conflicts arising in such teams.

Consequently, the primary question that this work seeks to address is:

What are ways to use deep democratic decision-making to solve conflicts in multidisciplinary and intercultural student teams?

1.2 Academic and Practical Relevance

The initially discussed perceived significance of enhancing team relations in multicultural international teams suggests that the previously mentioned deep democracy tool deserves greater investigation.

It is essential to understand how to improve the decision-making process of student members in multidisciplinary, intercultural student teams. By introducing the framework of Deep Democracy, Mindell (2008) offers to navigate the introduced conflicts, including misunderstandings, communication barriers and conflicts of interest by inclusivity and acceptance. This primarily addresses team equity and social justice (*Khalili et al., 2024*). Secondarily, it helps broaden the diversity of individual perspectives and enhances the effectiveness and efficiency of teamwork (*Amiel, 2023*). Thirdly, it enhances the motivation and engagement of individuals (*Ly, 2024*).

Additionally, to focus on a possible long-term application for the deep democratic decision-making tool, this research aims to investigate real-world dynamics, close the knowledge gap, and demonstrate the potential of using deep democratic decision-making in a multidisciplinary and intercultural team setting.

1.3 Outline of the Report

This report has been divided into five main parts.

Chapter 2 begins by laying out the research's theoretical dimensions. It then looks at how the arising conflicts are addressed by differing decision-making frameworks and tools used by intercultural and multidisciplinary teams and compares the use of deep democracy as a framework.

Chapter 3 describes the research design. It explains the method, sampling data collection, and data analysis phases and includes the research's limitations.

Chapter 4 assesses the results of the interviews conducted, dividing the findings into three major topics.

Finally, Chapter 5 discusses the research findings, addresses the theoretical and practical implications, and identifies the limitations of the research. It also gives recommendations for possible future research.

While a variety of definitions of the terms inter-, multi-, and trans-disciplinarity have been suggested, this report will use the definition for multidisciplinary teams suggested by Choi & Pak

(2006), who saw multidisciplinarity as a function that "draws on knowledge from different disciplines but stays within the boundaries of those fields."

Additionally, throughout this report, the term intercultural will refer to communities that have mutual understanding and respect for each other's cultures (*Schriefer, 2020*).

2. LITERATURE REVIEW

This chapter is divided into three subsections that can assist the reader in gaining an understanding of the topic in question. First, it dives deeper into the status quo on conflicts in multidisciplinary and intercultural teams. Then, it introduces currently used decision-making tools and how the previously mentioned conflicts relate. It continues with the explanation and significance of deep democracy as a method of making decisions in teams, and lastly, provides an example of usage.

2.1 Conflicts in Multidisciplinary and Intercultural Student Teams

To have a deeper understanding of the research question, first, it is crucial to know the current status quo on the conflicts present in intercultural and multidisciplinary student teams.

As stated in the introduction, addressing the conflicts arising in a team is important to enhance its dynamics and efficiency. As multidisciplinary and intercultural students mix and new teams form, the benefits and conflicts from both teams add up, which later on influence the team dynamics, team efficiency, and outcome. To get ahead of the negative effects, we first need to be aware of the possible conflicts. For this, the report will separately evaluate previous research on multidisciplinary and intercultural student-team conflicts.

Additionally, it is essential to understand what conflict is. There are many definitions of conflict, and most of the literature assumes a negative connotation with it (*Tjosvold*, 2006). This report will use the definition of Jehn and Bendersky (2003) defined conflict as "perceived incompatibilities or discrepant views among the parties involved" (p. 189). In the following, the report will analyse the root causes of these incompatibilities and discrepant views in multidisciplinary and intercultural student teams.

2.1.1 Conflict in Multidisciplinary Student Teams

A considerable amount of literature has been published on multidisciplinary student-team conflict. The existing literature reveals a common thread of conflicts, which include communication gaps, disagreements over ideas due to differing perspectives, and hierarchy differences correlated to competency questions. But where does the source of these conflicts lie?

Every studied discipline has a different curriculum and different elements to study, and the terminologies in each discipline are different. As such, studies have different words for different theories. Additionally, the difference in the workload of each discipline also poses a conflict as it can represent a discrepancy in the competency of the participants. These can cause a source of conflict in multidisciplinary teams as it can hinder communication between the participants. This conflict is showcased in a multitude of papers concerning multidisciplinary teams, including the papers of Tyastuti et al. (2017) and Fleischmann (2015).

In group discussions, various disciplines will approach problems with different perspectives due to their experience and expertise. These experiences and perspectives all bring different ideas to a discussion in the teams, which could result in conflicts between the team members regarding the source of the best idea, causing further conflicts between the members (*Smith, 1999*).

Based on Broukhim et al. (2018), this also introduces a new element of conflict, which lies in the hierarchical differences between students and disciplines. It also raises the issue of the lack of conflict management tools.

In the end, the studies mentioned contribute to a deeper understanding of the variables surrounding conflict within multidisciplinary student teams. While each presents insights into these conflicts, further research is needed to explore emerging issues and existing processes for conflict resolution.

2.1.2 Conflicts in Intercultural Student Teams

In the past years, there have been multiple research addressing the conflicts in intercultural teams. While a multitude of authors have explored the causes of these conflicts, multiple commonalities emerge among them.

The root of these conflicts and discrepant views, aside from speaking different languages, is that people from different cultural backgrounds hold different values and have differing experiences regarding important culture-influencing factors. For example, these factors and dimensions include different underlying understandings of power distance and motivation toward achievement and success. Hofstede first researched these dimensions in 1980, which later on gave a basis for understanding cultural differences in teams.

Currently, around 7,000 languages are spoken worldwide (*Anderson, 2012*). Nowadays, it is not uncommon to have two people who speak different languages in the same group or even on the same team. If a team has at least two people from differing cultures and languages, the team will have to find a common language to talk to be able to work together. This means that at least one individual must talk in their second language. Consecutively, multiple conflicts can arise from not communicating in an individual's mother tongue.

The most common conflicts or causes of conflicts that can arise are misunderstandings due to a lack of vocabulary or different accents. This affects the attitudes and engagement of participants as it can impact the individual's interpretations (*Spencer-Oatley* & *Dauber*, 2017; Popov et al., 2022).

The language barrier between members of an intercultural team can also result in free-riding, which can be caused by insufficient communication (*Popov et al., 2012*).

Perceived language incompatibilities additionally lessen contributions to group discussions and end products, group management, and peer feedback amongst intercultural teams. They negatively affect group cohesion efficiency and effectiveness (*Popov et al., 2022*).

The cultural differences between students further raise conflict points as cultural differences affect the prioritisation of challenges, with collectivist cultures emphasising culture-related issues more than individualist cultures. Therefore, based on the culture simulator of Hofstede (1984) and the theory of Popov et al. (2012), a Dutch individual would emphasise culture-related issues less than someone from Indonesia, which can result in conflicts in task prioritisation or decision-making.

Additionally, when discussing intercultural student teams, it is important to raise awareness of the possibility of overlooking potential influences of organisational cultural differences on student perceptions and outcomes and note that it can limit the generalizability of findings. This was also noted in the research of Spencer-Oatley and Dauber (2017).

2.2 Challenges in Decision-making

It is difficult to choose the perfect decision-making tool that would cover all arising conflicts in multidisciplinary and intercultural teams. Therefore, it is important to address the rising challenges of currently used decision-making processes and assess them in relation to the previously discussed conflicts of multidisciplinary and intercultural teams.

The currently used decision-making tools often fall into the same difficulties. These can be summed up with time constraint issues, personal bias, insufficient reliable data provided, an abundance of options, and participants' inability to adapt to posed changes (*Cranston, 2001; Dale, 2015; Mezias & Starbuck, 2009; Chu & Spires, 2001*).

Current decision-making tools try to bridge these posed difficulties. Time constraints can be addressed by structured time management techniques and prioritisation methods such as task management tools. Structured debates and anonymous voting can mitigate personal bias. Pre-establishing data collection rules can influence the difficulty posed by insufficient data. A systematic approach to decision-making tools can address the abundance of options. Finally, a facilitator can enhance adaptability by changing management techniques within the team.

Although proposed solutions are available for mitigating the difficulties, integrating such tools into the decision-making process can make decision-making more effective.

2.3 Deep Democracy Decision-making Processes Explanation

Based on Schoemaker and Russo's paper (2014, pg.1), decisionmaking is defined as 'the process whereby an individual, group or organisation reaches conclusions about what future actions to pursue given a set of objectives and limits on available resources'.

Lewis's deep democracy framework offers a tool for diverse teams to decide on various topics with actual consensus by giving space to all ideas, emphasising the process part of the aforementioned definition. Arnold Mindell mentioned the original idea in 1988, and Myrna Lewis refined it in the team context. It mentions that powerful decisions develop when the diversity of knowledge, talents, experiences, and emotions present are combined.

This method aims to hear every voice in the group without prejudice and incorporate every idea into a conclusion. It focuses on empowerment through shared leadership, incorporating all experiences and ideas, and resolving conflicts by building a base for decision-making.

Based on the book by Kramer (2019), the first step that a decision-making team should undertake in deep democracy is the creation of an atmosphere where team sharing is welcome. The creation of the atmosphere is underlined with seven baseline principles. These focus on not monopolising truth, highlighting the importance of engagement, willingness to learn, the ability to slow down and consider the answer of others, active listening, and the acceptance of the chaos of the conversation.

After the basic principles are agreed upon, the framework builds on five main steps, dividing them into two main parts. These steps ensure that a consensus is reached on the solutions to the defined problem. The first four steps are involved in the conscious, and the last is involved in the unconscious process (*Bouckaert, 2023; Mindell, 2008*).

- 1. The first step is actively collecting all views by asking, Who has an idea? This step ensures that a central idea is brought to the discussion.
- 2. The second step searches for alternative opinions, in other words, the 'Contrary voice'. Asking who has a different opinion/experience.

- 3. The third step encourages people to distribute and acknowledge the alternate voice by asking whether others think the same way.
- 4. In the fourth step, the group adds the minority opinion to a majority decision and votes on the decision. In this phase, the question of what is needed for the individual to vote for the majority is asked. This step requires adding the minority opinions individually while reformulating the decision for everyone to agree. This point is successful if a unanimous decision is reached. Although Deep's democratic decision-making does not require a unanimous decision, it ensures that all group voices are heard and considered.
- The fifth step deals with the unconscious part of the discussion. It focuses on and addresses unresolved issues. This step is presented and subdivided into four parts.
 - a. Create rules
 - b. Say everything
 - c. What hit?
 - d. Solve

Although this process allows for collective decision-making, it raises the issue of time constraints. It assumes great motivation from each team member to be part of the group and accept the basic principles.

Additionally, multiple books based on the idea of deep democratic decision-making were discovered during the preliminary literature search on applying the decision-making tool (*Mindell, 1995; Mindell, 2008; Bouckaert, 2023*). However, the search ran into a dead-end because close to no research papers had been published on the usage of deep democratic decision-making in teams, which further increased the importance of the research and its effectiveness.

The literature review addressed the conflicts in multidisciplinary and intercultural teams, highlighting the relevance of conflict management tools in teams. Lastly, the review elaborated on the deep democracy tool and highlighted its growing relevance in multidisciplinary, intercultural environments within the context of arising conflicts in such teams. Exploring this could significantly contribute to understanding how team decisionmaking can be used in the context of conflict management in a multidisciplinary, intercultural student-team environment.

3. METHODOLOGY

3.1 Research Design

This research uses a qualitative research method involving primary data to collect data and identify ways to use deep democratic decision-making to solve conflicts in multidisciplinary and intercultural student teams. This method was chosen because it allows for a detailed description of the involved human aspects, including human relationships, cultures, and values (*Cypress, 2015*).

As the goal of the research is to gain first-hand data, for this research, within the qualitative research method, interviewing and the semi-structured approach were chosen. The semi-structured interviewing approach has several useful features, including in-depth data collection and flexibility for the interviewer and the interviewee to explore the researched topic. Which is beneficial for further understanding the underlying multidisciplinary, intercultural student teams (*Gill et al., 2008*).

3.1.1 Research Context

The research was conducted at the University of Twente, which is located in the Netherlands. The University is known for its commitment to fostering multidisciplinary and intercultural learning through accessibility to diverse teams within its curriculum and extracurricular activities. Therefore, it was an ideal setting for this research (*Broekman & Tuinbeek, 2022*).

Given that the unit of analysis for this research is student teams, the target population comprises the multidisciplinary and intercultural student teams at the University of Twente.

The sampling part of the methodology will provide further elaboration on how to select such teams based on their size and composition.

3.1.2 Sampling

The following researched teams consisted of students working in multidisciplinary, intercultural teams. The research's sampling frame is the student population currently enrolled at the University of Twente.

For this report, consecutive sampling, which is within nonprobability sampling, was used. This sampling, similar to convenience sampling, is non-time-consuming and ideal for exploratory research. Although it is prone to sampling bias, it uses all available elements of research, making sure that the bias is as small as possible. (*Van Den Broeck & Brestoff, 2013; Thewes et al., 2018*). As the consecutive type of sampling requires pre-determined criteria for the sampling, the criteria for selecting the subjects were as follows.

Criteria for selecting teams:

- 1. To ensure multidisciplinarity, the team should include at least two different disciplines.
- 2. To ensure interculturality, the team should include at least two different nationalities.
- 3. The team should consist of 4 to 8 members.
- 4. All team members should be enrolled in the University of Twente.

Criteria for selecting interview participants:

1. The participant should be a part of the previously mentioned criteria-bound teams.

In conclusion, the team trials included three teams, and the final interviews included eight interviewees from a total of 5 different nationalities and five different disciplines. The five nationalities included Dutch, Polish, Turkish, Ukrainian, and Ciprian. The five disciplines included Mechanical Engineering from the faculty of Engineering Technology (ET), Electrical Engineering, creative technology, Business Information Technology and Technical Computer science from the faculty of electrical engineering, mathematics and computer science (EEMCS).

3.1.3 Data Collection

Based on the paper of Adeoye-Olatunde and Olenik (2021), the data collection part of the research will have four subparts: preparation of the interview, interview modality and recording considerations, transcription and checking, and securely storing data.

The semi-structured interview preparation includes a guide for the interviewer, consisting of open-ended questions, subquestions and probe questions for the interviewee. This prepared guide will be included in the report appendix. The preparation of the guide is based on previous qualitative research in conflict research and the suggestions of Adams (2015). The preparation also includes consent from the participant for recording the session and an explanation of the commonly used terms throughout the interview. Appendix A showcases the developed interview guide. Some relevant questions asked during the interview include: 1. Which conflicts do you perceive/experience in multidisciplinary teams? Could you give an example, please? 2. How do you address conflicts in intercultural and multidisciplinary teams? 3. What are the steps to resolve a conflict in teams? What do you need to solve a conflict in such teams? 4. What was the effect of the deep democracy decisionmaking process on your team conflicts, in your opinion? 5. What were there moments when you perceived the tool to be ineffective/effective?

In accordance with recording considerations and the need to collect the least amount of demographic data, the interview will only include the participant's study and nationality.

Before the interview, the participants were explained the decision-making tool in detail, highlighting the seven underlying values and the five main steps it follows; in addition, the students were encouraged to trial this decision-making process in their intercultural multidisciplinary team environments to gain preliminary experience with the tool. This step ensured that the respondents fully understood the concept of deep democracy decision-making and could think critically about the tool.

The data was recorded on a digital audio recorder and transcribed using Google Live Transcribe.

After that, the transcription was checked and coded, and the audio recording was deleted.

3.1.4 Data Analysis

The transcripts had to be coded to analyse the data acquired through the interviews. The research used open coding, mixing inductive and deductive coding. This was done by uploading the acquired data to ATLAS. ti coding software. This software was chosen as it is a common coding application in qualitative research; it allows for determining and assigning codes to the uploaded voice recordings and transcripts, which later helps the researcher acquire the needed results.

The deductive approach analyses the collected data's relation to the predetermined themes, while the inductive approach allows for self-determined themes in the research system based on the collected data (*Kasmad & Azungah, 2020*). Using both approaches, a more in-depth coding and analysis was possible for the interview.

The deductive approach determined six underlying themes for the research, including perceived intercultural conflicts, multidisciplinary conflicts, pre-used decision-making, ideal decision-making, deep democracy decision-making positives, and deep democracy decision-making negatives. These themes were determined by the goal of the research and the concepts represented in the report.

Multiple self-determined codes were applied during the interview's coding, including misalignments in argument structuring, skill differences, and expectation misalignments. The coding tree shown in Appendix B indicates the main six elements of the deductive approach and the examples of the inductive approach, with additional quotes from the participants.

4. RESULTS

The following section showcases the information from the interviews and details the three main topics discussed.

The first major topic explores the conflicts perceived by the students in multidisciplinary student teams, intercultural student teams, and multidisciplinary and intercultural student teams. The second topic elaborates on the students' previously used and ideal decision-making methods. Finally, the third main subject investigates the perceived effects of the deep democracy decision-making tool on team conflicts with the additional benefits and negatives students perceived. When referring to quotes mentioned by specific interview participants, the abbreviation IP with the number of interviewees will be used.

4.1 Perceived Conflicts in Intercultural and Multidisciplinary Teams

The first topic the interview touched upon was the interviewee's experience with conflicts in multidisciplinary and intercultural teams.

4.1.1 Multidisciplinary Team Conflicts

Conflicts in multidisciplinary teams can stem from various sources. In the interviewee's description, three main sources of conflict were identified: language barriers, approach to problems, and skill differences.

One of the major conflicts in teams was the language barrier caused by the jargon (Jargon is discipline-specific vocabulary.) used by the different disciplines. This makes it difficult for members to understand their teammates. This conflict arose in the interview of IP1 and IP2: "We would refer to something and try to bring it up to other people, and they do not understand what it is because it is not a term that they are familiar with" (IP1).

Secondly, in every disciplinary background, the approach to a problem will differ due to different methodologies and priorities, further complicating the conflicts in such teams. IP2, IP3, IP4, IP5, IP6, and IP7 all mentioned an underlying conflict which further connects to these differences. These interviews further divided the conflicts that arose from different priorities. The main arising subtopics included the decrease and increase of conflict due to the similarity and dissimilarity in the discipline (IP4, IP7), the difference in argument structuring, and structuring of the scientific paper (IP2, IP3, IP4, IP5), and finally, the differences that are rooted in the assumptions towards other disciplines (IP1, IP2). In conclusion, all of these conflicts are under the umbrella of differences in how disciplines approach a proposed problem/task.

Lastly, the differences between these skills and the disciplines can initiate further conflict (IP1, IP5). These conflicts raised by multidisciplinary teams with the incorporation of a team's fixed goal might question a team member's perceived usefulness. In multiple cases, one team member might have a better skill set than another to finish a task as they cover the subject at different levels throughout the studies.

4.1.2 Intercultural Team Conflicts

The conflicts divided the participants into three main areas within the intercultural team context.

The language barrier was found to be one of the conflicts mentioned by the interviewee participants (IP1, IP2, IP6). In the case of IP6 and IP1, the different cultures used different phrases that did not exist in the team's common language. In the case of IP2, they differentiated between the emotionality of the speakers, which made the languages have high or low context. To provide an example, IP2 mentioned that a high-context cultural speaker would base their ideas on premade assumptions that other people are aware of the context they are speaking in, and people from low-context cultures elaborate on ideas and concepts, making the team's understanding easier. The Interviewee emphasised that conflicts arise when the group has more members from highcontext cultures.

IP2 and IP7 mentioned the directness of participants based on their cultural background as a second underlying theme. Some members might not be culturally okay with engaging in conflicts, which can further enhance these issues. IP 4 additionally mentioned the proactiveness based on culture. As an elaboration, they mentioned taking and approaching a leader or follower role where someone gives the tasks, or you have to take the task yourself, which is different. For example, they mentioned that their colleague from an East Asian country was not proactive in taking up tasks as they were not as upfront as Dutch colleagues, who are more open.

The last conflict the participants perceived was the different time perceptions of cultures (IP3, IP5, IP7). The team members' culture allowed different timeframes for meetings in all examples. As a description of IP7, for example, in the Dutch culture, 'on time' means 5 minutes earlier to the meeting, but in other cultures, 5-10 minutes is acceptable. IP3 mentioned that, in their case, different time perceptions influenced team dynamics if people were not familiar with other cultures or had no expectations set. In the case of IP5, the different time perceptions did not result in further conflict within the team but rather in the team's decision-making regarding the decision that had to be made.

4.1.3 Multidisciplinary and Intercultural Team Conflicts

Multiple participants highlighted that it is difficult to think of a mixed conflict as the group is so complex that they sometimes cannot differentiate where it originates from. 'I do not think I would be able to tell necessarily whether issues with time management are due to one or the other.' (IP5)

Generally, the interview participants' answers could have been divided into two groups, including the addition of conflicts from multidisciplinarity and interculturalism or the enhancement of conflicts as they are present in both team compositions.

As an example of the addition of conflicts, a participant highlighted the following: 'I feel like the conflicts that come from each are kind of different. For culture, it is more about the expectations you have of the other in general and how you expect people to act, and the multi-disciplinary is more about your approach to the things you do.' (IP7)

The enhanced contribution amount elaborates on conflicts that are present in both teams but can become more significant when combined. An example is the jargon from the multidisciplinary teams and the language difficulties from interculturality (IP1, IP2). Additionally, IP2 mentioned the possible clash of arguments and communicational difficulties. IP4 highlighted the process of value creation within the teams.

In conclusion, Table 1 collects the mentioned conflicts into an overview focusing on the 3 team compositions and the main underlying conflicts perceived by the interview participants. This overview can be later used to assess the effects of deep democracy tools on these conflicts.

Table 1	l
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Perceived conflicts

Team	Conflicts	Examples
S	Jargon/ Language Barrier	
Multidisciplinary Teams	Approaching of problems	Misalignment in writing structuring The usefulness of members regarding a task Underlying value differences Misalignment in argument structuring

	Misalignment goal	of the	project
	Misalignment expenditure	of	time
	Misalignment planning	of	process
	Assumptions		
Skill differences			

	Skill differences	
	Language barrier	
Intercultural Teams		High and low context language
al Te		Different words
ltur	Directness	
ercu	Work culture	
Int	Time perception	
	Proactiveness	
	Additive conflicts	
Multicultural and Intercultural Teams		Expectation (interculturality)
		Approach (multidisciplinarity)
	No specific conflict was mentioned.	
I pu	Enhancement	
ral a		Language
Multicultu		Value creation
		Clash of arguments
		Communicational difficulties/ argumentation structuring

4.2 Decision-making in a Multidisciplinary and Intercultural Team Context

In this section, I will elaborate on how conflicts in multidisciplinary and intercultural teams have formed the decision-making of such teams in the past and how they formed the ideal decision-making of the participants in such team environments.

4.2.1 Decision-making in Action

This part elaborates on the decision-making processes used in the past by the interview participants, as well as their influence on the team's dynamics, decision-making, and results influencing conflicts, which are also discussed.

To address the language barriers caused by multidisciplinary and intercultural teams, the IP1 team came up with a term that suits everyone and will use it in the future for easier decision-making. In their group environment, to make a decision, everybody stated their mind, and somebody tried to combine the decisions. Similarly, in the IP3 approach, the team predefined and established team norms, which helped put aside the differences in later decision-making stages. However, they also tried a different approach, where the team established expectations and agreed to erase the differences between cultural norms instead of having team norms. In this case, team members had to explain individual expectations and their roots. In the group of Interview Participant 4, as the conflicts could not be effectively resolved, the team found a minimum ground and allowed participants to explore without requiring team decisionmaking. This way, conflicts were avoided in such teams.

In the case of interview participant 5, the conflict's effect was to rethink the importance of decision-making. Their team questioned when the decision should be made. They elaborated that the conflict created a situation where the team had to sit down and think whether the decision was important enough to warrant everyone's presence. In this case, the team focused not on resolving the issue but on reframing the thinking about the issue.

In the case of Participant 7, the team made a plan for what the team wanted to do, and members were allowed to address their conflicts. However, IP7 mentioned that people sometimes are unwilling to talk about conflicts within a team. Therefore, they end up frustrated but do not discuss conflicts.

In summary, the participants' past decision-making tools created common norms, addressed barriers, found minimum ground, and reevaluated perceptions of tasks' importance.

4.2.2 Decision-making Improvements of IPs

All interviewees highlighted important details regarding multidisciplinary and intercultural teams in the decision-making process.

For IP1, the improved decision-making process would build on a deep understanding of different viewpoints within the team. They emphasised the importance of collectively defining the problem to ensure everyone has the same baseline understanding of the project. IP1 prioritised the inclusion of different disciplinary perspectives, looking at how individuals can apply their unique views and values to the project. They found that creating an environment where all viewpoints are seen and understood, and conflicts can be resolved more effectively is highly important.

Throughout the interview, IP2 focused on eliminating emotionality from the decision-making process. They emphasised that team members can more easily focus on argumentation and reasoning. This involves stating opinions clearly without engaging in heated debates, thus maintaining a calm and rational atmosphere, which enhances effective decision-making, focusing on constructive argumentation.

In IP3's description, stable decision-making ensures that every team member understands the rationale behind decisions and the decision-making process. They emphasised the importance of clear communication free from disciplinary and cultural jargon and the understanding of values between team members, including reasoning behind decisions and motivations. IP3 mentioned understanding, clarity, and openness as among the most important characteristics for discussion and decisionmaking. They highlighted that it is important to differentiate between conflicts that arise in teams, whether they come from the same values and different solutions or different values.

For IP4, the decision-making process in multidisciplinary and intercultural teams could be more value-centred as opposed to end-centred. In their opinion, this process starts by getting every participant on the same page by exploring team members' values and discovering their approaches to expectations and processes. In their description, this helps with leveraging people's inclusion in decision-making. Additionally, in decision-making, they found a facilitator's inclusion crucial. IP4 mentioned that a facilitator's role is to help uncover the source of conflicts and to guide the team to reach a consensus.

In the description of IP5, the way to make decisions and resolve conflicts in teams is decided based on the project's goal. For example, they mentioned that if the project's goal is to be efficient and effective in a short period of time, and the conflict is not essential for the project, solving it will not always be a priority, which can free up time. In their case, decision-making additionally included the importance of individual agency and independence of the members, where they can establish themselves and contribute effectively.

IP6 found that it is important to find a balance between communication and decision-making. Good communication is a balance of not going into too many details and not being too strict, in that everyone needs to know everything, but everyone has a basic understanding of how the team functions. However, they also mentioned that it is important to be able to look at where the conflict originates from by communicating throughout the process. If someone proposes a solution, make sure everyone grasps the idea and reacts to it.

IP7 found that making a space for people to communicate their conflicts is the most important aspect of multidisciplinary, intercultural team decision-making. They value being open and proactive about solving underlying conflicts to improve the team's results and being able to speak up. In their view, this process improves team conflicts and team dynamics.

Although the ideal improved way to solve conflicts arising in such teams had different elements for each participant, some underlying topics could be found in multiple of them.

The first underlying theme was the understanding and inclusivity of the members, their views, values, and the team's common goals, values, and motivations. IP1, IP3, IP4, IP6, and IP7 mentioned this. IP3 and IP4 are additionally addressed to determine where the underlying conflicts come from within the team discussions.

IP2, IP3, and IP6 prioritised clear and rational communication. They mentioned the importance of stating their opinions clearly and logically, which results in fewer arguments but rather discussions in the team.

IP3, IP6, and IP7 mentioned psychological safety and creating an understanding environment as priorities in team decision-making when identifying the sources of conflict.

Additionally, IP 4 mentioned the role of the facilitator, and IP 5 mentioned the importance of independence and individual ability.

4.3 The Effects of Deep Democracy Decision-making

4.3.1 Beneficial Traits of Deep Democracy Decision-making

The beneficial traits of deep democracy decision-making perceived by the interview participants can be divided into three main topics. These include inclusivity and representation, conflict resolution, group dynamics, and effectiveness in various contexts.

The inclusivity and representation topic includes any remarks from the participants in which they felt more included or represented by implementing the deep democracy tool. Multiple participants mentioned the lack of monopolising the conversation as an example. (IP1, IP2, IP3) The lack of monopoly resulted in an increase in the ability to speak up for many participants, such as IP1, IP2, IP3, and IP7. IP1 and IP3 mentioned that as a result of speaking up, people became more considerate of others whose voices were not heard, which improved the overall active listening of the group. This effect on the team's decision-making ensured that every opinion was heard and incorporated into the end result of the decision as perceived by IP1, IP2, and IP3. IP3 highlighted that the team participants seemingly became more active in conversations and discussions, which provided a space to address the present conflicts within the team.

Conflict resolution and, as a result, a shift in dynamics have been mentioned multiple times during the interviewing process as benefits of the deep democracy decision-making tool (IP2, IP3, IP4, IP7). Next to the tool helping mitigate conflicts, interview participant 4 highlighted that this tool provided an environment in which the group could become a team, where conflict is tackled together instead of individually. This made sure that it was, therefore, the team against the conflict. They additionally mentioned that the tool helps find the underlying reasons why people have opposing ideas and their sources. An interviewee who trialled the tool in a facilitator's position mentioned that it allowed them to perceive better when teammates had something to say or wanted to speak up (IP3). On the other side, IP7 mentioned that the tool lowered the barrier to participation, which took away the frustration and conflict sourcing from working with someone else. Additionally, they mentioned that it is easier to let go of the idea of an individual opposing my idea but focus on the other individual who has an idea that is opposing mine. IP 4 addressed that in this team environment, the tool can help opinionated people feel more challenged and quiet people feel more heard.

Lastly, multiple participants contemplated the context in which deep democratic decision-making could be the most efficient or effective. Interviewee 2 mentioned that they find the tool effective in small groups, which include strong-minded participants, as the conflict that arises from the different approaches to the problems could be easily resolved. In the trial of IP2 and IP3, the tool helped to put more weight on the factual information rather than the emotional side of the participants, resulting in easier decision-making within the team. In the perception of IP5, the tool was most beneficial in situations where the team participants do not have enough motivation to move past the forming stage of the group, where the participants can lean on the framework of this decision-making. They concluded that the tool is most helpful in low-stakes, short-term collaborations. Interviewee Participant 4 mentioned that the tool is growingly helpful in more multidisciplinarity and interculturally complex teams as the conflicts that arise are easier brought up due to the common understanding of baseline values.

4.3.2 Negative Traits of Deep Democracy Decision-making

The negative traits associated with the tool were divided into four main areas for the participant's answers. These topics touched upon the situational effectiveness of the tool, the practical challenges and limitations, inclusivity and trust, and the quality of the outcomes.

Multiple participants highlighted that this tool's ineffectiveness could come to light when the opinions of the participants of a discussion are either too far from each other or too close to each other, as in the first situation, it is a possibility to not come up with a conclusion to the discussion and linger on semantic differences or conflicts caused by the language barriers. Additionally, in the second situation, it is possible to unnecessarily spend too much time on a discussion with which everyone can agree (IP1, IP2, IP5, and IP7). Additionally, IP3 mentioned that dependent on the size of the issue'the tool can be dismissed.

Multiple participants mentioned that the tool's usage has practical limitations. As mentioned in the tool's benefits, it is perceived as effective in smaller teams. IP6 perceived that this tool might not be ideal for bigger teams. The most highlighted limitation of the tool was its time consumption, as mentioned by IP1, IP3, IP4,

IP5, and IP6. The tool additionally has base assumptions, such as a facilitator being present at the discussions and the participants agreeing to the baseline principles. IP4 highlighted that the facilitator's expertise is crucial for the practical usage of the tool. As it is a requirement, it poses a practical limitation that most teams could have difficulty with.

Multiple participants reflected on the tool's inclusivity and trust from a negative perspective. IP5 voiced that this kind of decisionmaking can force participation out of participants who do not necessarily want to be involved. They incorporated that it can seem like a crude form of inclusivity and involvement. They discussed that if the idea of collaboration comes from the members' intrinsic motivation, it can yield better results than trying to impose this framework. IP4 said that for the tool to be effective, it requires the participation of everyone and trust towards one another.

Additionally, IP5 and IP7 addressed that the quality of decisions might decrease with the effort to combine all of the views. IP5 elaborated that creating something that satisfies everyone just enough to agree can be easy. Finding something that polarises a team that team members have a strong opinion on, even if it is not necessarily in their favour, ultimately produces something of a higher quality. IP7 mentioned that if people have completely opposite views from each other and have to come up with a compromise, it might negatively affect the overall quality of the outcome. IP5 added that the most gratifying work begins when it stops being in place.

In conclusion, the participants highlighted the benefits the tool could hold for teams, which was addressed by higher inclusivity and representation in the team, a better approach for conflict management, and highlighted effectiveness in various contexts. Additionally, the possible challenges and limitations of the tool include situational challenges, practical challenges, difficulties with trust and forced inclusivity and a possible decrease in decision quality. The combination of the feedback offers multiple perspectives and situations in which the deep democratic decision-making method can address conflicts in the student teams.

5. DISCUSSION

By interviewing participants of multidisciplinary and intercultural student teams, this research aim was to answer the following research question:

What are ways to use deep democratic decision-making to solve conflicts in multidisciplinary and intercultural student teams?

This chapter will be divided into sections on the interpretation of the results, the theoretical and practical implications of the research, the limitations of the research, future recommendations, and the conclusion, which will allow us to discuss the findings of this report.

5.1 Interpretation of Results

In this section, the research results will be analysed and compared to the literature review following the three main segments of the findings: team conflicts, decision-making, and deep democracy tools.

The conflicts analysed within the literature review were somewhat consistent with the findings of the interviews. The multidisciplinary conflicts and skill differences problem approaches are due to the discrepancies in curriculum and the use of specific jargon by the different disciplines (Tyastuti et al., 2017; Fleischmann, 2015; Smith, 1999; Broukhim et al., 2018). The interdisciplinary conflicts aligned through the mention of differences in language barriers, team directness and

proactiveness (Spencer-Oatley & Dauber, 2017; Popov et al., 2022; Popov et al., 2012; Hofstede, 1984).

The literature on deep democracy addresses underlying values that the participants also acknowledged in the interviews through their perceived importance in decision-making.

Interviewees reflected that it addressed conflicts arising in multidisciplinary and intercultural teams by providing a safe environment for conflict resolution. To create such an environment, based on the book by Kramer (2019), deep democracy approaches the first step that a decision-making team should undertake by agreeing to seven base principles. This environment allows powerful decisions to be made, conflicts to emerge, and conflicts to be openly discussed while focusing on the inclusivity of the members. Although, in the participants' view, the tool's inclusivity was a double-edged sword. On one side, it created transparent, open, and rational communication in some teams. This environment resulted in fewer arguments within the already-established team. On the other hand, in different teams, it forced the integration of participants where the project goal did not demand such inclusion of each participant. In addition, the process elaborated discussions for the members, enhancing their understanding of their team members by bridging language difficulties and fostering elaborate reasoning.

Table 2

Possible ways of conflict mitigation by deep democracy decisionmaking

Possible ways to utilise deep democratic decision- making	Addressed conflicts
Enhancing inclusion by creating a psychologically safe environment	Conflicts due to different cultural and multidisciplinary approaches to teamwork (expectation, approach)
	Skill differences
	Proactiveness of members
Elaboration of discussions through team inclusion and shift in team dynamics	Misunderstanding due to language differences
	Misunderstandings due to jargon
	Misalignment in problem approaches

The literature review considered constraints regarding the tool, including possible time constraints and a base motivation assumed from the members. The interviews, in addition to the limitation of motivation and time constraints, highlighted the importance of considering the need for a facilitator and the process by which the tool is integrated into the team. Lastly, it raised the limitation of the tool in different team development phases and different team goals.

Ultimately, the tool poses solutions for rising multidisciplinary and intercultural conflicts. However, further research is needed to elaborate on how deep democratic decision-making can be used regarding conflicts in teams and how it can be incorporated into real-life scenarios.

5.2 Theoretical Implications

The findings from this research make several contributions and raise several implications for the current literature.

First, this research aimed to assess ways to use deep democratic decision-making to solve conflicts in multidisciplinary, intercultural student teams. A base understanding of conflicts and current and ideal decision-making was obtained by reviewing the literature and interviewing students from these teams. The findings further confirmed the existing research on conflicts within multidisciplinary and intercultural teams.

Secondly, the research has contributed to the expanding of the research on the implementation and effects of deep democratic decision-making in multidisciplinary, intercultural student teams by offering insight into possibilities where the tool can provide a base for conflict management within teams, such as the creation of a psychologically safe environment and an open, clear forum for discussions.

In summary, the results of this research support the idea that deep democratic decision-making can positively impact the decisionmaking processes of multidisciplinary and intercultural student teams and expand on a new area in the research of deep democratic decision-making.

5.3 Practical Implications

It is essential to understand how to improve the decision-making process of student members in multidisciplinary, intercultural student teams. By introducing the framework of Deep Democracy, Mindell (2008) offers to navigate the introduced conflicts, including misunderstandings, communication barriers, and conflicts of interest, through inclusivity and acceptance.

The evidence from this report suggests that this tool can be used for teams to establish a clean, open, inclusive environment where participants can address conflicts, facilitating team inclusivity and formation. By this, deep democracy allows for addressing conflicts from multidisciplinarity and interculturality in teams. For example, it can address differences in approaching problems by building an environment where team members can share their ideas without repercussions, and it can address conflicts arising from team inclusion as it facilitates hearing every opinion.

Although deep democratic decision-making can benefit team conflicts, its limitations must be considered during implementation.

5.4 Limitations

Finally, several significant limitations need to be considered for this research.

The chosen participants were all from the same university, which can cause bias as the participants are used to a similar institutional culture. The lack of diversity in educational perspectives might influence the applicability of this research as the base institution of the participant's central values, and the educational model includes innovative ways to approach teamwork, which enhances the comfort and reflection of the participants with the proposed tool and the underlying principles.

The second limitation of the research is that the interviews were semi-structured, which might have resulted in differences between the question structures and, hence, the interpretations of the questions by the interviewee participants. Although this allowed the interviews to be flexible, it introduced a degree of variability into the research that must be considered when interpreting the results.

Lastly, potential limitations caused by the researchers' bias must be addressed. As one researcher conducted the research, the data collection, analysis, and assumptions may have been influenced by the researchers' perspectives on the subject, making the research less objective.

5.5 Recommendations

To eliminate the limitations posed by this research, it is recommended that future research use nonconsecutive sampling. It is recommended to include different institutions, including professional facilitators and planned team discussions, and involve multiple researchers for external validation. Several possible directions emerged for future research that could expand the conclusions and extend the findings of this research.

Future research could investigate the impact of different team compositions and roles, their contributions to deep democracy decision-making, and their influencing factors on conflict within teams. This research could also investigate the opportunities and threats the tool poses in different environments.

Additionally, a study on students' intrinsic and extrinsic motivations in decision-making scenarios would address how motivation affects participation and whether the usage of the deep democracy tool affects the general motivation of the participants.

A third possible field of research is exploring the group size for using the deep democracy decision-making tool or the tool in the context of working teams rather than student teams. By changing these variables, future research could evaluate the tool's benefits in different team contexts.

In the fourth proposed recommendation, further research could address the integration of deep democracy decision-making with group phases, as mentioned in Tuckman's study of the stages of team development (forming storming, norming, transforming, performing and adjourning), researching how this tool affects the different stages.

The last recommendation encourages the researchers to conduct a study that uses deep democratic decision-making over a longer period. This could provide deeper insights into the tool's strengths and weaknesses in diversely constructed teams.

5.6 Conclusion

This research addressed and closed the knowledge gap in how deep democratic decision-making affects conflicts arising in multidisciplinary and intercultural student teams. Following the aim, the primary question that this work addressed is:

What are ways to use deep democratic decision-making to solve conflicts in multidisciplinary and intercultural student teams?

Conducting semistructured interviews with the members of multidisciplinary and intercultural student teams, analysing the perceived conflicts and the participants' perceptions on the use of decision-making in such teams and the use of the deep democratic decision tool, multiple possible ways were identified to use deep democratic decision-making to the benefit of such teams. Ultimately, the research provided an overview and a base for future research on conflict management through deep democratic decision-making in multidisciplinary and intercultural student teams.

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8. APPENDIX

8.1 Appendix A

Explanation before the interview included:

- Refresher of the deep democracy decision-making tool
- The aim of the research and who I am
- The structuring of the interview
- Confidentiality and anonymity
- Possible risks
- The possible results of the interviews

During every interview, respondents were first asked for their consent to the processing of data and recording of the interview. Thereafter, the number of the interviewees, their study, and their nationality were recorded.

1.1 Perceived Conflicts in intercultural and multidisciplinary teams

1.1.1 Intercultural teams

- What is your experience of working in intercultural teams? Which conflicts do you perceive/experience in intercultural teams? Could you give an example, please?
- In your experience, what is the impact of these conflicts on the project's outcome and team dynamics?

1.1.2 Multidisciplinary teams

- What is your experience of working in multidisciplinary teams? Which conflicts do you perceive/experience in multidisciplinary teams? Could you give an example, please?
- In your experience, what is the impact of these conflicts on the project's outcome and team dynamics?

1.1.3 Multidisciplinary and Intercultural teams

- Can you think of a situation in which you have worked in a student team that was multidisciplinary and intercultural at the same time? Which conflicts do you perceive/experience in intercultural and multidisciplinary teams? Could you please give one or two examples and elaborate on them?
- In your experience, what is the impact of these conflicts on the project's outcome and team dynamics?

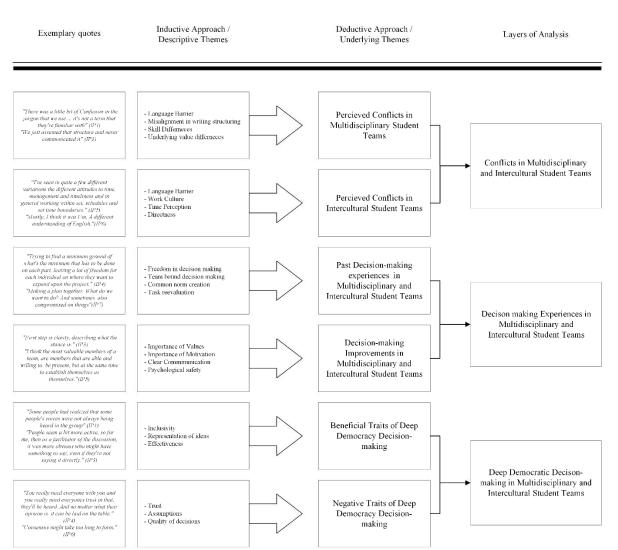
1.2 Decision-making tool in a team context

- How do you address conflicts in these teams?
- What is missing to address these conflicts better?
- What would you need to make decisions in a multidisciplinary, intercultural student team?
- What are the steps you usually take to resolve a conflict in teams?
- What do you need to solve a conflict in such teams?
- Please explain in what way decision-making could be improved in a multidisciplinary, intercultural team.

1.3 The effect of the deep democracy decision-making tool on previously discussed conflicts.

- How does deep democratic decision-making compare to previously used decision-making tools you have used in multidisciplinary and intercultural teams?
- What was the <u>effect</u> of this kind of decision-making process <u>on your team conflicts</u>, in your opinion?

8.2 Apendix B



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effective?

conflicts?

to be ineffective/effective?

How did you manage the conflict? Can you think of a

conflict that was effectively managed? Why was it

What did you observe about the team dynamics

when/after resolving/effectively managing team

What were there moments when you perceived the tool