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M.I.S.O. – Motion In The Science Ocean - Erasmus+ project - Use of Powtoon, Easyclass and Mentimeter in a High School Debate using the the WSDC model

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Abstract: SdDESM, "Sociedade de Debates da Escola Secundária da Maia", is a local school debate society led by the actual student members, teachers and a teacher coordinator. Its purpose is to think critically about issues in logical and unbiased ways in order to provide solutions and debate them to find the best one, making students love understanding all viewpoints and perspectives, but also teach them how to criticize in a respectful and rational way. The main goal of this work was to train high schoolers from 6 countries involved in the MISO Erasmus+ Project (Romania, Germany, Spain, Norway, Portugal, Turkey) in the World Schools Debate Competitive Model (WSDC) skills and competences. One of the objectives of the Erasmus+ MISO project is to attract more students to science in general through new methodology using new ICT applications/ e-learning tools. The students used various digital tools such as Powtoon to do tutorials on the debate model, Easyclass to do a course ("How to debate"), and Mentimeter for evaluation of the international debate, with the motion "This House believes that overfishing and ocean pollution will compromise our survival on a long term basis" that took place in Maia High Secondary School, integrated in the Portuguese mobility in the 7th February 2019. This debate also met

one of the project competences which is understanding scientific content and foster structured international cooperation objectives.

Keywords: WSDC, Science, E-learning tools, Education

Introduction

Why Debate

Debating or not debating may be the question! Some authors point out the debate as an "interesting-people-magnet" and a complement to the academic work improving the teaching-learning binomial, with positive impact on the school results, namely, in the way students analyze tests questions as well as the performance in an oral or written work, through the critical thinking learning ability and improvement of communication skills (Ferreira da Cunha, A, 2013).

Other authors reinforce the idea of substantial cognitive gains that students can achieve by engaging in participatory educational activities such as debate, pointing out to research developed by educational psychologists (Bellon, J., 2000).

Knowing how to listen and understand better, developing greater tolerance and increasing the ability to better understand the other's point of view are also pointed out as reasons for debating, beside the possibility of increasing the scope of knowledge with the topics debated and boost self-confidence (Ferreira da Cunha, A, 2013). Policy debate specifically teaches students to adopt multiple perspectives – one of the most important problem-solving skills (Bellon, J., 2000). From a point of view of classroom work, author Andrew L. Oros (2007) states that the use of structured discussions as a teaching strategy can increase the number of students who engage actively in a classroom discussion as well as the quality of their participation and, again, the significant improvement of students' marks on oral and written school work. The structured debate is thus seen like a tool for the development of critical thinking and for teachers to obtain more productive students participation in classroom environment.

About debating in an Erasmus+ project, we can use the statement of the International Debate Education Association (IDEA), which emphasizes that "Debates are a way of fostering international understanding, cooperation and the free and lively exchange of ideas". Also, IDEA, mentions that debate events can "offer much more than a mere contest of formal argumentation" and is important to note that debates can bring a significant connection between people of different cultures and backgrounds while exploring opposing perspectives.

WSDC Model

A debate is basically an "exchange of arguments between two teams" that approaches a topic from different points of view (Sanchez, 2012).

The WSDC (World Schools Debating Championship) format embodies a minimum of three speakers per team. There is a team known as the government (or affirmative) and a team known as the opposition (or negative). One team will propose a change in the *status quo*, whereas the other team is defending it with in a specific speaking order and speaking time for each team to conduct their speeches. The government presents the line of argumentation to the case and the opposition has to rebut and refute the arguments. Impartial judges (adjudication team) will evaluate the debate assessing the quality of the arguments used and other features as the originality and style of the speaker. The debate is governed by several rules. There are established time limits for the speeches, which cannot be interrupted without fulfilling various requirements (Sanchez, 2012). The adjudication team also have to ensure that the discussions take place in a non-hostile environment to any of the participants permitting to criticize in a respectful and rational way.

The *motion* or *resolution* is the given topic that is going to propose a change and usually starts with "*This House (believes, proposes …)…"* The given motions must be balanced, that is, they must be debated with equal degree of difficulty for both sides.

Figure 1 depicts the layout of a debate using WSDC model according to Sanchez, 2012.

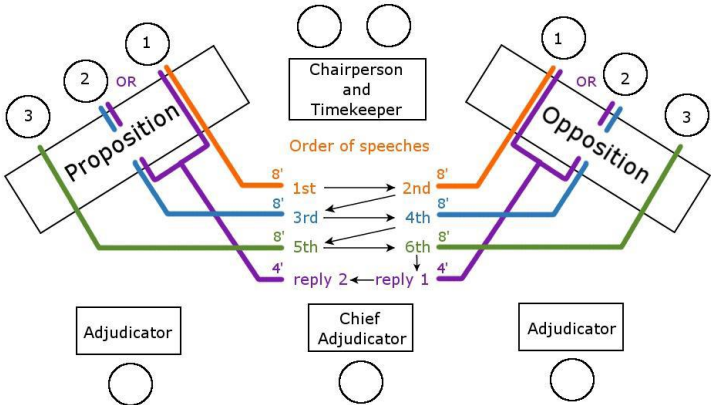


Figure 1. The debate layout (Sanchez, 2012)

SdDESM - Debate Society of Secondary School of Maia

SdDESM, "Sociedade de Debates da Escola Secundária da Maia", is a local school debate society led by the actual student members, teachers and a teacher coordinator. At present this kind of club has eight student's members of the secondary level and two teachers, one of whom is the coordinator. SdDESM members have a strong sense of group identity, like a symphony orchestra (IDEA).

The main purpose of SdDESM is to train students how to think critically about issues in logical and unbiased ways in order to provide solutions and debate them to find the best one, making students love understanding all viewpoints and perspectives, but also teach them how to criticize respectfully.

SdDESM works as an extracurricular activity (or club) and meets weekly to provide training and regularly debating, usually conducting two debates per year for the school community, one at the beginning of the school year to recruit new members and another one at the end of the school year. Students prepare training sessions for new members in collaboration with mentors of SdDUP – Debate Society of Porto University (https://www.sdd.up.pt/). Usually, the training programme has between six to nine sessions on the model of debate, the structure of the arguments and case analysis, speeches of prime minister and leader of the opposition, adjudication and motions.

The debate society is present in social networks (FB:@SdDESM; INST:@sddesmesmaia) and has a logo made by SdDESM students (Figure 2)

Figure 2. SdDESM logo (2014)

M.I.S.O. – Erasmus+ project

MISO is the acronym of a Key Action 2 project (reference number 2018-1-DE03-KA229-047185), implemented by Erasmus+ programme, that stands for "Motion In the Science Ocean" and involves six countries: Romania, Germany, Spain, Norway, Portugal and Turkey being Germany the applicant organisation The target audience are the students of secondary level of this countries that were from very different backgrounds.
Key action 2 (KA2) is for cooperation for innovation and the exchange of good practises which is the main objective of MISO project.

According to the Erasmus+ programme guide (European Commission, 2019), these projects under KA2 are expected to "bring positive and long-lasting effects" on organisations and persons and to "result in the development, transfer and/or implementation of innovative practices" in which we can include debate.

Also, projects supported under KA2 should lead to several outcomes like "innovative approaches for addressing their target groups" and participatory approaches and ICT based methodologies which fit into the scope of this work as one of the objectives of the Erasmus+ MISO project is to *attract more students to science in general through new methodology using new ICT applications/ e-learning tools.*

The specific objectives of the Miso project clearly depict the guidelines of the Erasmus + programme and those in which the present work is supported are: a) *increase student interest in science in general and to increase student interest in science in mixed groups (with the help of e-learning tools); b)encourage continued professional development by teachers: share ideas and reflect more on their own teaching, incorporate new ideas and methods into practical teaching;(...) d)foster the use of ICT with different applications for experiments, communication, presentation; e)promote key competences, cross-subject competences and entrepreneurship ;f) motivate everybody taking part in the project to use foreign languages (English) as communication tools; g)foster structured international, cross-regional and cross-sectorial cooperation.*

The present work refers to the activities developed in the Portuguese mobility of the MISO project in February 2019. The debate is one of the methodologies envisaged in the project and the theme for the mobility was "Water and sustainability" as portrayed in the project logo (Figure 3).

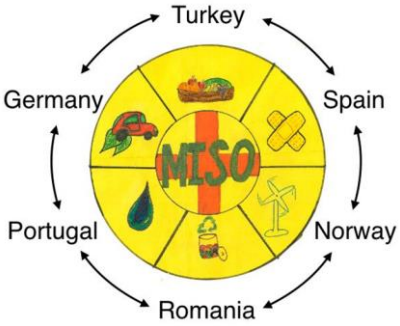


Figure 3. MISO project logo (2018)

Backing up the use of debate in science education "The Guidance report: Improving Secondary Science" (2018), recommends "1b-develop pupils' thinking through cognitive conflict and *discussion*" knowing that "discussion requires careful structuring"; "2c-promote metacognitive talk and dialogue in the classroom" by argumentation that is one of the more important pilars of debate.

Also, another reason to suport debate in Science Education is that it is vital to "developing the competencies for problem solving and innovation, as well as analytical and critical thinking that are necessary to empower citizens to lead personal fulfiling lives socially responsable and professionaly-engaged lives" (European Commission, 2015)

E-learning Tools

In relation to the main objective of MISO that affirms that *attracting more students to science* must be accomplished *through new methodology using new ICT applications / e-learning tools*, Lencastre, Bento & Magalhães, 2016 , work states that "The potential of multimedia applications, adapted to the contexts of teaching and learning, can constitute important teaching tools in the dynamics of the classroom."

We shoul also consider mobile devices in educational environments as a way of transforming pedagogical practices through the training and accompaniment of teachers in the experimentation of innovative pedagogical scenarios such as mobile learning (Bento, M. 2017).

One of the concrete results that MISO project must present is an improvement in the use of ICT. "This is to increase the knowledge of new applications suitable for the development of science and other subjects in a more attractive way. For example: Animoto, Popplet, Powtoon, Kahoot, Tellagami and others are clearly designed to let students work with science in a more attractive way."

Powtoon (https://www.powtoon.com) is a web tool to create an animated presentation which can be used for educational purposes considering the students as the target audience (Moraru et al, 2018). With Powtoon it's possible to build a story scene by scene, create characters and their reactions in different backgrounds, add music or a voice over, and put videos or images up to 5 minutes with the free version. (Moraru et al, 2018). The tutorial videos about debate (Figure 4) that were used for this work were made by SdDESM with Powtoon in Erasmus+ project – Blic&Clic, 2016-2018.

Figure 4. Tutorial videos about WSDC model made with Powtoon

Easyclass (https://www.easyclass.com) is an educational free platform of Learning Management System (LMS). Is useful for "non-formal educational activities with students from different schools" and "combines the characteristics of an LMS with those of a social network" (Moraru et al, 2018). The target audience comprises teachers, students, schools or the educational community. The system assigns a unique access code (Figure 5).

Figure 5. Easyclass layout and access code to the course

The main navigational menu of the course class presents class wall, discussions, assignments, quizzes, gradebook, members and class library for instance (Figure 6).

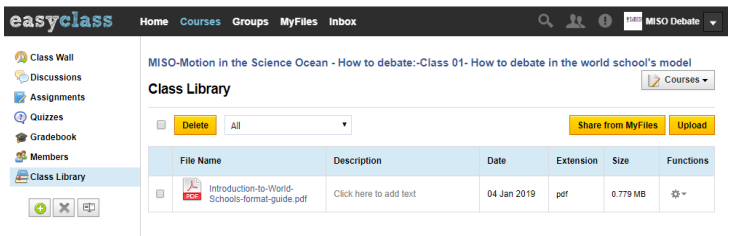


Figure 6. Navigational menu and Class Library

Kahoot (https://Kahoot.it), is a free application that provides learning by using games. Enables the creation of quizzes, implementation of games and debates and also helps to understand what the students have learned about a particular issue in real time (Moraru et al, 2018).

Mentimeter (https://www.mentimeter.com) is an interactive tool for presentation and collaboration featuring unlimited votes, polls and more to have audience actively participate in during events, classroom, conferences or meetings. A great advantage is that all features are free (Moraru et al, 2018).

WhatsApp is a free messenger application with multiple collaborative features like multimedia messages (pictures, videos, audios as well as simple text messages) or group chat (interaction with 50 members maximum), with no need to remember username or passwords and it is very popular among students. The blended use of this features "made WhatsApp a new and convenient tool for teaching learning activity", Gon, Sonia & Rawekar, Alka, 2017.

Objectives

The main goal of this work was to train high schoolers from the 6 countries involved in the MISO Erasmus+ Project along with the purpose of making known the competitive debate in the WSDC model. Also, it was intended to contribute to the improvement of the following skills/competences: critical thinking questioning; interpersonal and oral communication; public speaking competence and development of the acquisition of the new digital skills by students and teachers.
Assessment of the activities by gathering possible testimonies from the target audience.

Material and Methods

Before the Portuguese mobility

The methodology used comprised the following steps:

Creation of an **Easyclass** online course, "How to Debate" (Figure 7), with:

- Tutorial videos on the WSDC model about "Competitive Debating – World Schools", "Motions and Debate Model", "Arguments", "Prime Minister and Leader of the Opposition" and "Adjudication", made with **Powtoon** by SdDESM. (Figure 4).
- Quizzes for each tutorial video and a short answer /essay question (Figures 7 and 8).

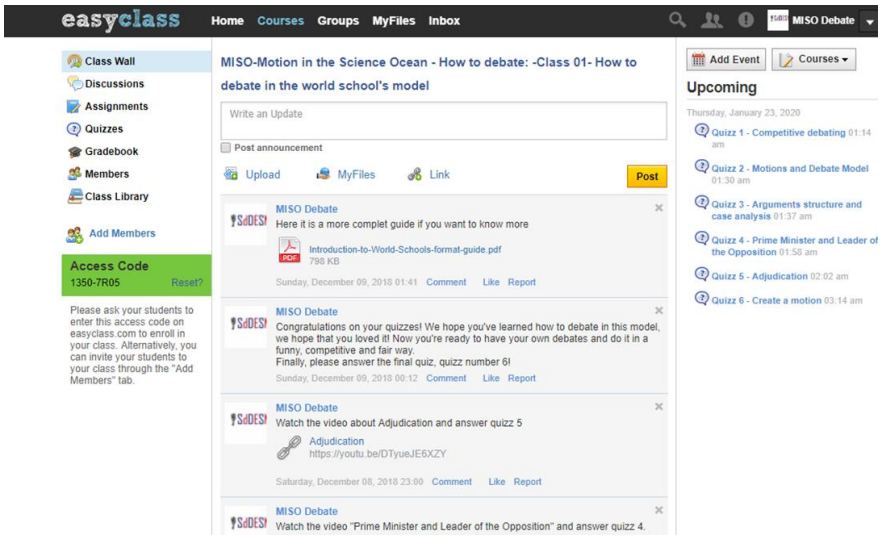


Figure 7. Easyclass course "How to debate in WSDC" layout

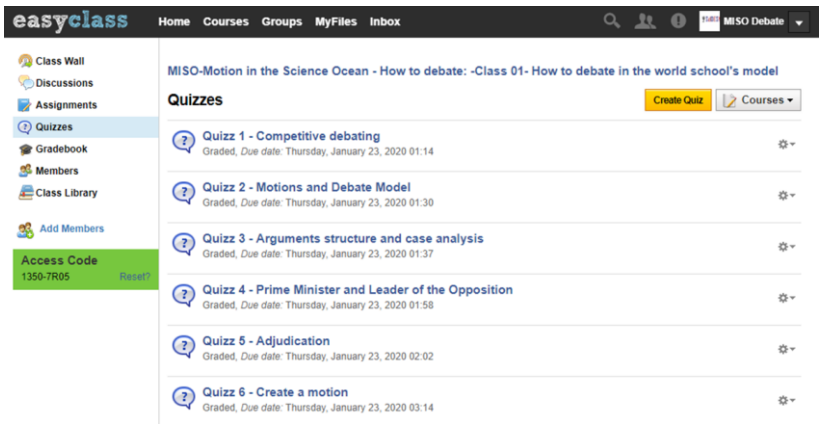


Figure 8. Easyclass course quizzes

Videoconference through Skype, with all the participating countries, for improving communication between students (Figure 9).

Figure 9. Videoconference

Creation of five WhatsApp groups (Figure 10). These groups were named after five oceans, with 10 students each, as planned for the mobility in general, for further communication between students, development and understanding of the debate rules, coordinated by SdDESM students.

Figure 10. Two of five WhatsApp groups

On the Portuguese mobility

On the first day:

Preparation for motion analysis/discussion with the five working groups, named after the oceans. For this task the method was to distribute the SdDESM students by the five groups to guide/supervise the construction of the Government and Opposition speeches for the given motion (Figure 11). "In order to encourage students to spend adequate time thinking about both sides of the debate question, students should be compelled to prepare to debate both positions (…)." Andrew L. Oros (2007). For this work the given motion was: "*This HOUSE believes that overfishing and pollution can compromise our survival on a long term basis"* accordingly with the mobility theme "Water and Sutainability*"*.

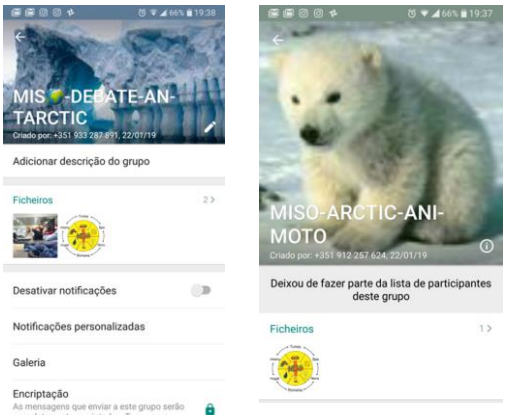
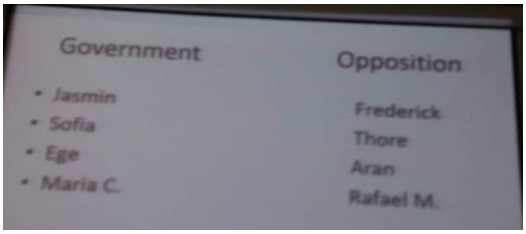


Figure 11. Two of five groups preparing the debate

Constitution of government and opposition teams (Figure 12).



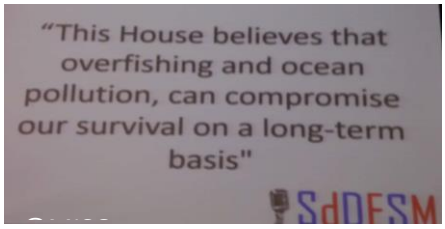


Figure 12. Members of Government and Opposition and Motion

On the debate day (4th day of the mobility – 7th February 2019):
Motivation for the debate and evaluation of the preparation for the debate with a Kahoot quiz (Table 1)

Table 1. Kahoot questions

Scientific questions	Debate questions
1 – Which is the biggest ocean in the world? 2 – Where are located the Azores Islands? 4 – Which of these oceans has the least amount of oxygen? 9 – What oceans bathe in Oceania? 10 – Which ocean has the most amount of fresh water? 11 – Where is the Point Nemo (the most remote point in the ocean)? 12 – How long does it take the water to travel around the world?	3 – Whose is the first speech? 5 – What is a POI (Point Of Information)? 6 – Who evaluates the debate? 7 – How many people are in each team? 8 – Who advocates the motion? 13 – In what speech you can't take questions? 14 - Who are you (public)? 15 – How many teams participate in the debate?

Final debate at school between multinational team's supervised/supported/commented by SdDESM students.

Use of Mentimeter before and after the debate to understand the popular vote and how this could change with well thought arguments.

Results and Discussion

About Easyclass, not all members of the course answered the questions, perhaps because they were graded which brought a more serious character to the activity that wasn't intentional but the vast majority of the more than 50 students and teachers enrolled to be a member and see the videos. (Figure 13)

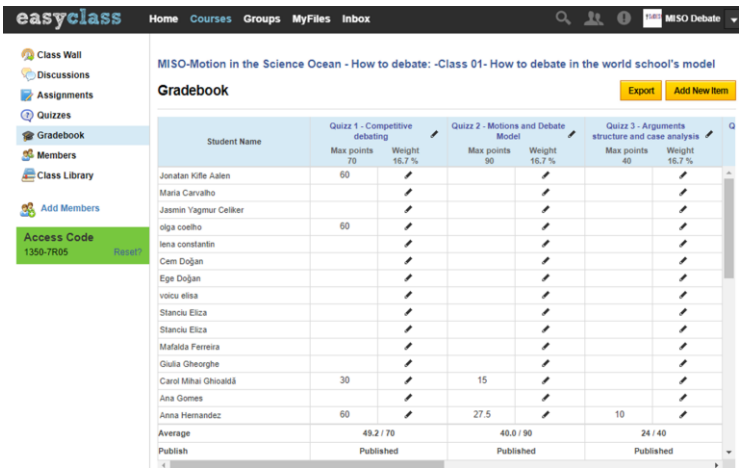


Figure 13. Easyclass gradebook

In relation to the fulfillment of the purpose of evaluation through the collection of testimony, it was only possible to obtain the testimony of a Norwegian student (Frederick) who played the role of opposition leader and also of a Portuguese pupil (Rafael), this one in response to an interview with a local newspaper.

WhatsApp groups

Not all the WhatsApp groups were very dynamic but they permitted more closeness between students and the students also used them for other activities of the mobility.

Frederick's Testimony about the Easyclass course and Videoconference

"The course you sent was great.
The explanations were understandable, and I liked the visual element of the videos.
Many complex definitions that were relevant to the debate were presented well in the course, such as "adjudicator" and "motion", which made it easier for me to understand further explanations using these terms during the video conference.
The speech in the course was loud and clear.
The course aided me immensely, and I felt that I was well prepared to debate in Portugal after I had watched the course."

Frederick's Testimony about Preparation for Debate and the Motion

"In Portugal, I prepared for the debate by writing relevant notes and asking Lúcio (Portuguese host and SdDESM member) *further questions regarding the debate. He helped me a lot by giving me an idea of what the debate will be like, and by repeating the rules for me.*
Concerning the motion of the debate: I loved how the problem of marine pollution was talked about alongside overfishing. Fish is important in both the Norwegian and Portuguese culture, as we are both by the coast, and we both have pollution problems. Therefore, it was clever to set up a debate about overfishing and marine pollution as a single entity."

Rafael's Testimony

"… many students brought up to the table of discussion interesting facts that I didn't know about, but made all the difference."
This testimony highlights the facilitating nature of the participation and discussion that the debate may have.

Before the debate

Before the debate there was a kahoot quiz as planned that brought some fun and motivation to the debate by remembering some of the important features about WSDC model and information that could be helpful.

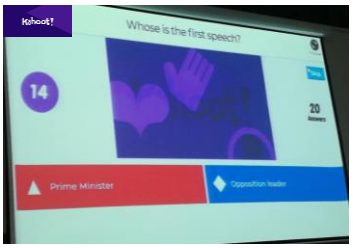


Figure 14. Kahoot

After Kahoot we used Mentimenter to make an assessment of the audience position on the motion in question and the result were pro-Government (Figure 15).

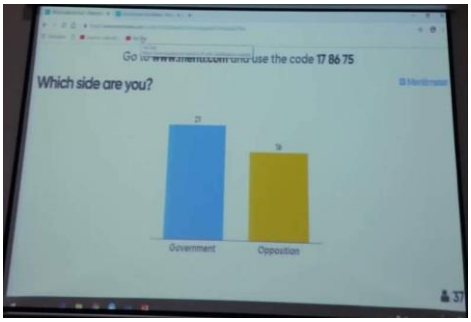


Figure 15. Voting with Mentimeter

At all moments of the Debate an SdDESM student explained to the audience (Figure 16) the several steps of the layout in WSDC model. For the present work there were no time limits and the Chairperson and time keeper role was done by the adjudication team of two Portuguese debaters from SdDESM.

Figure 16. SdDESM student explaining step by the debate

Figure 17. General view of the debate and Opposition team

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Frederick's Testimony about the debate

"On the day of the debate, I prepared for the debate by reflecting over the motion with my fellow students, and my fellow teammates. The time we were given to prepare was sufficient.
We, The Norwegian Team, were apprehensive when we found out that we had to debate for 8 minutes, as we thought that 8 minutes sounded like a long time. We were relieved when we were told that we did not have to debate that many minutes at a time, as we were inexperienced in the field of debating.
I was a bit nervous before the debate, but it was manageable, as teachers and students made the debate out to be less important than the debaters initially thought it was going to be. The teachers were also sympathetic to the students' lack of debating experience. Thus, I expected a relaxed debate."

The mobility activities, previous to the debate, like students presentations about "Impact on the Oceans" (day1), a visit to an aquarium (Sea Life) and to CIIMAR (Interdisciplinary Centre of Marine and Environmental Research of Porto University) to assist a lecture about microplastics (day2) and experiments in the school lab about sea pollution (day4) were very useful to complement information for the arguments that were going to be presented.

Finally, after the debate we did a second vote with Mentimeter and the result was very similar (unfortunately there are no photos) which means that the opposition was not persuasive enough to change the vote. Analyzing this we should consider several points, since if the audience was relatively homogeneous, aware of the environmental problems and their consequences and would therefore be more sensitive to the position of the government by which, taking this aspect in consideration the motion could be unbalanced or had a greater difficulty to defend the position of the opposition.

And to evaluate the opinion of the audience about the debate we also used the Word Cloud feature of Mentimeter by asking "In a word this debate was…" and the result is depicted in Figure 17. We should note that although the opposition didn't change the audience opinion it was recognized that the leader of this team had a very good performance in terms of analytical and critical thinking – it was Frederick.

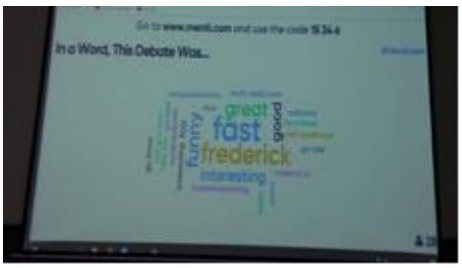

Figure 17. Mentimeter Word Cloud result

Conclusion

The methodology that we followed was important to the success of the debate.

The course was well structured and the videos were simple, concise and attractive on the audiovisual point of view so we can consider that the course could be used again with another group of target audience.

The use of all the other e-learning tools was important and brought some fun and more active participation and they can have an interesting place in the classroom and teachers practices.

We think that is safe to say that the objectives of this work have been met in general and that this activity contributed to the achievement of MISO project specific objectives.

This debate also met one of the project competences which is understanding scientific content and foster structured international cooperation objectives which explains a greater closeness and understanding between the students with very different cultures.So, ultimatley this experience provided an inclusive experience and it was platform for the students to speak up and be heard in a safe and structured environment. https://idebate.org/about-idea-nw

It seems reasonable to say that a high school debate society such as SdDESM can be a great and useful chance for high school students to train and improve oral / public speaking competences and may be particularly useful in knowing how to build a convincing argument without the constriction of the classroom.

Regarding science education, this activity may improve the ability to understand and argue in a more structured and complete way by provoking metacognitive talk.

Ultimately, in this way, when students have to argue against their natural point of view will be clearer the understanding that the arguments have at least two sides and therefore they can understand the motivation of people who think of different way. In this way, students can become more active and more participatory participants, who are able to see the relationships between the subjects, improving the analytical skills and the skills of speaking in public.

Recommendations

We recommend a more rigorous registration of the results obtained with e-learning tools.

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