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ONLINE WORKSHOP 1 - MINUTES

Date: April 29th, 2022

Attendees:

4 members from the Coordination Team University of Barcelona: The Main Researcher, the KMC coordinator, 2 researchers.

5 members from partner institutions: 4 from EPA, 1 from UNIMIB

1 policy-maker at the European Parliament.

1 representative from Women civil association

1 policy-maker representing the Ministry of Education from an European country

1 stakeholder from a Global platform of Research

Content of the meeting:

The KMC Coordinator welcomes everybody and coordinates the meeting.

The KMC Coordinator points out that the focus of the meeting today is to get your input and insight on some findings ALLINTERACT has found in Work Package 4, on O4 of the project. In concrete, the actions that have been identified in the research through the Focus Group, literature Review, Social Media Analytics, and Survey on awareness-raising actions that promote the recruitment of new talent in sciences. The KMC Coordinator (CREA UB) stressed that ALLINTERACT sought input of the KAPI members, about what findings they think are relevant and the project should pay special attention to, or about particular contributions they want to make on these findings that can be helpful for us to deepen the analysis.

All of the attendees have a document of the summary of the findings. MS presents them to the debate can be centered in those (see at the end of the minutes).

Feedback from KAPI members

- The results are very interesting and give a lot of hope. Because usually from the women's point of view, it is them who suffer the most from the no participation in science, and of not being the target of specific actions from the different stakeholders related to science. It is very positive to see and to read that when women are targeted, and also vulnerable groups, they benefit from it.
- It is important to have an early start and to utilize multiple approaches in raising awareness and interest of the different target groups to science.
- It was positive to read the impact of Scientific Dialogic Gathering. In Latin-America,



by 2020, they started a pilot for the Scientific Dialogic Gathering with children from primary education based on the experience in Spain and Europe, with the children between the age of 8 and 12 years, using the article from Frontiers for young minds, as suggested by a researcher of CREA. They were very surprised to learn that those children were interested, and they read those articles and were interested in the topics. These children expressed that they understood better, and they were more engaged in the topics that they were not engaged before, such as physics, biology, neuroscience and other domains for science. The debates that they have in the Scientific Dialogic Gathering are excited and dynamic.

- Our formal educational systems might not always be the best preachers, especially when you get to the finding that bottom-up initiatives are extremely encouraging and effective and we know that our formal institutions tend to be very top-down, and to set-up rules that are often too narrow or too traditional. But that's one of the big players anyway. And if you delve in what is competence in science you will not get away from formal teaching and learning institutions.
- About what talent should be encouraged to do in science, for instance in teacher education there should be a level of scientific view in the head of every teaching person to be able to reflect about what you are doing in the classroom, what you do when you're teaching, and looking at the learner's benefit on the other side.
- In the EU, it's not only that we do not have enough talent going into science, but that we actually have tons of illiterate scientific people, which is about a quarter of our population anyhow. We have seen a lot of strange things going on when it came to strange views on the corona measures and the scientific evidence. This shows citizens can have a tilted views because they are not able to dialogue with scientific evidence, which is something that allows deciding if something is valid or not, which make evident that the topic is extremely important because this can do a lot of harm to a democratic society. There are some framing conditions that should be considered, or maybe from the project you can develop further.
- Intergenerational learning, which means mutual learning from each other, one generation from the other, not only the younger from the older but also another way around, can happen in the digital world very, very well. When parents know maybe a little bit better about the eventual dangers, children know more about how to handle devices.
- It's incredible how much is possible, and how inclusive schools can reach out to parents, to children and to the environment. The diversity of cultures around schools is incredible, and you cannot turn that with a single directive from the center. There is a load of cultural traditions which makes the status of the family as one of the senders. Incredible things are possible if the evidence for what happens and what works goes to the grassroots and makes things flourishing in



the very specific needs of the situation.

- You are turning the world upside down of what the common belief and the common activities today. Over the past decades, scientific communication has typically happened top-down. So, it is preached from the top, and then once you have said it, you have done your job and it becomes someone else's problem. What you are actually uncovering here is rather disruptive, because it is not how much is coming from top-down, but it is the bottom-up that is actually helping us to bridge that gap that we are looking at. Particularly when you go and look at the type of science that will be experienced by pupils that are sitting in a classroom and are supposed to do something in the chemistry or the physics course, but because they are working on a common project, and all of a sudden they are told that they need to discover something and that there are tools for that, and you need to look at the analysis, they become much more aware of that.
- One of the problems is that we are losing down the line people who have an appetite, and if I may be provocative, if we focus on scientific positions, especially for women, there are actually many early career who will walk out of it because they hate the macho culture, they do not want to be in a culture where you are supposed to be working 24/7, and everything that goes with it. So are you also looking at the counterweight of when people actually discover throughout their lives that there are many inconveniences, so many things that you actually believe this is not who I am, and I do not have anything to do with it, so therefore I go to what is my second best, instead of what is my first best, because the environment is not actually the one in which I would like to live my life.
- EPA's slogan is the parents as the primary educators. That's one of the things that was so attractive of the INCLUD-ED approach, that the parents were taken so seriously, and were given a lot of responsibility and trusts.
- Something in which our state system is still very weak is in addressing these wide groups that needs a very inclusive approach as such, because you have vulnerable groups among parents as well. The second thing that it is very good to see the bottom-up is working nicely, but it has to be considered a valuable approach by the top-down people as well and encouraged. There is a need to provide structures to boost this kind of activities and to make it easier to link them, create networks.

Recommendations from the KAPI

- Some of the results are not common knowledge, so it is key that this knowledge is available to policymakers.
- Importance of an early start in the promotion of citizen engagement in science. As



a suggestion, the impact of this DSG could be further researched with children.

- Important to make visible how these efforts of fostering the engagement of citizens in science is related to the social impact of science in the everyday life of people of the different targeted groups.
- Our formal education systems, at all levels, have an important role to play and should be mobilized, since they are one of the big players of the game.
- We need a load of training for teaching staff, and we need a load of competences that are not in the education system.
- We need the social workers, health workers, all these competences, to come together and to see that they need to build something together. And the science is one of the outcomes.
- Encouraging to someone to engage in science should also consider making them able to be reflective on their own activities and social interactions.
- It is one thing to look at the awareness and what may be conducive to, but there is also the other question of what is working against it. This should also be considered
- It is extremely important to foster scientific literacy for citizens, so they have access and engage with scientific evidence, because tilted views can do a lot of harm to a democratic society. There are some framing conditions that should be considered, or maybe from the project you can develop further.
- Bottom-up initiatives are actually helping us bridge that gap of citizen engagement in science. We need to think of designing different sorts of pathways to have this bottom-up taking place. We know of school environments where this is not going to happen, so we're going to need something that can live in the school itself, and actually maybe help to engage their parents in that so they can be a facilitator.
- We need to ask for models and basic structures to really make this bottom-up approach powerful, bring it into visibility of policymakers in nations, in governmental levels, from citizenship at the grassroot level, up to the European and International level.
- We must not forget that we are a team, parents should collaborate with teachers, headmasters, the educational administration, in order to promote inclusive and educational systems of quality. And of course, the children are also part of this team.



- One of the commission's tasks could be with the instruments that we have, not to every time tell people to be innovative and reinvent the wheel, but to actually get these already existing projects to make them fruitful and useful for other people in other countries.

Contributions and commitments from the Consortium

- The project will publish a series of policy briefs to deliver relevant information to policymakers. In this sense, it is very useful for us that the KAPI tells us which of the information gathered they identify as being particularly relevant. As well, we are also working with policymakers, the Ministry of science in Spain, we are in charge of the task of writing and publishing the White book of the Inclusive Dissemination of Science. The English version of this White Book will be published soon. The IP of ALLINTERACT is the editor. One of the four experts is also from the Consortium. One of the points of the interests of those policymakers and the Ministry is that bottom-up approaches are having better results than top-down approaches, and this is also being explored.
- The relationship between social impact and engagement of citizens in science is visible throughout the project. In relation to both the project and the elaboration of the White Book, in social networks, we found that the members of vulnerable groups are much more active than in face-to-face interaction. What we identified is that after representatives of different vulnerable groups in social network like Twitter, Reddit, are communicating to other members of those vulnerable groups only scientific evidence in relation to the social impact these results have in their lives, not all scientific evidence. In the case of the Ministry of Science of Spain, they have been very surprised about these results, and they are very excited to develop some kind of initiatives from the top, but not for disseminating the evidence from the top, but for stimulating those people already active in order to have much more dissemination from their own voices.
- Thanks to ALLINTERACT's results, we are no longer explaining top-down the scientific evidence related to a particular topic. Conversely, because ALLINTERACT contributed to the development of the [scientific platform Adhyayana](#), we are presenting this to citizens, so they can identify scientific evidence themselves, they can write in the scientific platform their experiences, and they can even introduce their own questions. This is much richer, according as well, to the participants.
- As part of the project, 6 actions that ALLINTERACT has identified as successfully fostering the engagement of citizens in science will be replicated. We have already started with one of them, which is Dialogic Scientific Gathering, and we are replicating it with mothers in a school in a low-middle class neighborhood. We have preliminary results which are promising: we can see that after the gathering



started, other mothers have wanted to join the activity. Some of them bring their daughters as well to the group. So, this is linked to promoting early starts: we see it started with the moms, but what we are also seeing that this impact does not stay only within the participant group, but it goes beyond that and that other people from the community, including the students, benefit from it.

- All the data gathering techniques that ALLINTERACT has conducted have been designed by trying to capture both the transformative dimension, so that which makes possible this transformation and this impact, but also the exclusionary dimension, which refers to those barriers preventing citizens reaching those results that they desire or from which society with benefit. So, we are also gathering data in this sense, and this is allowing us to identify, as well, the barriers that need to be broken in order to achieve these desired results.
- The Consortium will consider the KAPI's feedback and recommendations towards the next tasks to be conducted, as well as in the elaboration of the project's outputs.

SUMMARY: “Awareness-raising actions that foster the recruitment of new talent in sciences”

This document integrates the conclusions that come from the four techniques (Literature Review, Social Media Analytics, Focus Group, and Survey) conducted within ALLINTERACT's project to respond to Objective 4 “to analyse the **actions which succeed in fostering the recruitment of new talent for science**, including their participation in the co-creation of knowledge”.

1. Most of the actions to foster the recruitment of new talent to science target women and youth.

- The results from the survey point that the most known initiatives are those that target women in science (33.01%), while the least known are those that target LGBTI+ individuals (20.70%).
- Only 9.7% of the total of respondents has participated in actions for the recruitment of new talent in science. However, in vulnerable groups the proportion ranges from 8.49% to 36.33%, with percentages of 19,76% among youth 16-24 and 16,57% among youth 25-34.
- On social networks, especially Twitter and Instagram, there are examples of initiatives or posts that call for people from vulnerable groups to participate in science. These messages target especially, women and kids/youth, but also migrants and low-income students.



- Participants from Focus Groups acknowledged the importance of awareness-raising actions that foster the recruitment of new talent in the sciences. However, they were able to provide only a limited number of examples.
- The literature review enabled the identification of initiatives to foster the recruitment of women and ethnic minorities in STEM.

2. Interactions with science foster the participation in actions to recruit new talent in science

- In Focus Groups, parents acknowledged that participating in Scientific Dialogic Gathering increases the awareness and interest about science results and their impact in both people involved and their environment. The Scientific Dialogic Gatherings with participating family members encouraged them to attend and to promote other scientific events (gatherings, talks or conferences) in the associations/schools.
- On the other hand, teachers valued interactions with role models and with science contents since early ages that present examples of the diversity of the science/scientific community as important ways to recruit new talent in science.
- Quantitative results show that interactions with science increase the proportion of people from vulnerable groups who participate in initiatives for the recruitment of new talent in science.
- Women and people from low SES are the two groups that benefit the most of interactions with science (with increases of more than 100%). Following someone who publishes about science on social media doubles the participation of women and low-income respondents in initiatives for the recruitment of new talent in science, while changing their mind about science due to a previous experience has a stronger impact on women.

3. People from vulnerable groups value scientific research and recognize its benefits

- Quantitative findings indicate that in most vulnerable groups, the proportion of participants who think that scientific research benefits citizens' lives ranges from 74.50% (youth) to 76.90% (religious minorities). The only exception is found in the LGBTI+ community (with 58.82%).
- Interactions with science improves the perception of the benefits of science in vulnerable groups, increasing the proportion of respondents from all vulnerable groups who perceive science as beneficial for society. The impact is more remarkable when participants follow a scientific person on social networks. People from low SES are the group with a higher increase in their perception of the benefits of science (from 74.72% to 87.53%)



- In Focus Groups, students expressed the importance of organizing different types of activities from elementary school to university, to improve student literacy, expectations & aspirations and understanding of their possibilities for the future.
- Also in Focus Groups, students expressed the need for further communication campaigns, the inclusion of science-related topics early in the curriculum and equal opportunities for all students, not only those good in science

4. Social media provides opportunities to interact with science that foster initiatives for the recruitment of new talent in science

- Across vulnerable groups, following a person who publishes about science on social media is associated with higher knowledge of initiatives aimed at recruiting new talent in science (with increments between 25-100%) and with higher participation in these initiatives (with increments up to 100%).
- Social Media Analytics concludes that across social networks exist diverse awareness-raising initiatives, which include from awareness-messages or campaigns, to call for action, from corporate and academic initiatives, to training, courses and other educational projects to favour the participation of people.
- Social Media Analytics points to the presence of diverse stakeholders on social media, who share initiatives for the recruitment of new talent in science. In the “gender” section corporate and academic initiatives were more often identified, while in the “education” section learning actions targeted to students and teachers more often emerged.
- One of the initiatives found in the literature review includes the creation of a digital learning resource for citizens to learn how they can participate in the creation of smart cities.
- The literature review concludes that initiatives should take advantage of ICT to bridge the digital divide and facilitate new ways of learning, especially for youth.

5. Initiatives for the recruitment of new talent in science are promoted by diverse agents

- Social Media Analytics points out that initiatives designed with a top-down approach prevail on bottom-up level because of the presence of representatives of institutional actors (NGO, government, enterprises, universities) that promote actions to foster the participation. Bottom-up initiatives are less frequent, but more emotionally involved.
- The literature review identified universities and national institutions as the main promoters of initiatives for the recruitment of new talent in science.



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- Students who participated in Focus Group remarked the importance of tournaments organized in elementary school and high school about physics, mathematics, etc. as well as research projects that were organized in secondary school, as important initiatives for the promotion of science.
- Women (including vulnerable women) in Focus Group provided examples of various initiatives promoted by universities, including Open Days, Science Festivals, Women in Science Days, Science Museums, popular science shows, Citizen Science websites, online lectures and talks, and numerous individual projects that sought to involve citizens as public contributors