CHARM-EU (CHALLENGE-DRIVEN, ACCESSIBLE, RESEARCH-BASED AND MOBILE EUROPEAN UNIVERSITY)

DELIVERABLE D7.4 – CHARM-EU: EVALUATION

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DOCUMENT HISTORY

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10/05/2022	1	Jake Byrne	Initial draft
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02/12/2022	3	Silvia Gallagher, Dimitra Mousa, Agnes Albert, Jake Byrne, Nuria Casamitjana	Final additions and drafting

Table of Contents

1. Introduction

This document reports on the evaluation of the CHARM-EU micro pilots, CHARM-EU internal piloting, CHARM-EU aligned micro pilots, and the CHARM-EU MSc in Global Challenges for Sustainability by Work Package (WP) 7. A mixed methods approach including qualitative and quantitative methodologies was used. Sources for this report include student, teaching staff and administration staff surveys, focus groups, and reflections.

2. Planning

The evaluation was planned to involve a number of activities. These included a set of micro-pilots focused around some exemplar learning experiences that were delivered that covered CHARM's Educational Principles. This allowed us to explore how the Educational Principles can be implemented alongside testing elements such as the Virtual Learning Environment. The learnings from this phase then informed the design and delivery of the Masters in Global Challenges for Sustainability. For this phase of the evaluation a wide range of instruments such as surveys and focus groups were used to evaluate the delivery of the Masters programme. The design of these instruments involved input for a wide range of stakeholders and CHARM colleagues working on other Work Packages to make sure as many areas could be evaluated as possible before the end of the project. An overview of this process is outlined in the section below alongside the issues faced when trying to secure ethical approval to conduct research alongside the evaluation.

2.1.   Timeline and participants

Four key activities are evaluated and presented in this document; The CHARM-EU Winter School micro pilot, CHARM-EU internal piloting, CHARM-EU aligned micro pilots, and the Masters (MSc) in Global Challenges for Sustainability (see Figure 1).

Figure 1: CHARM-EU activities evaluated
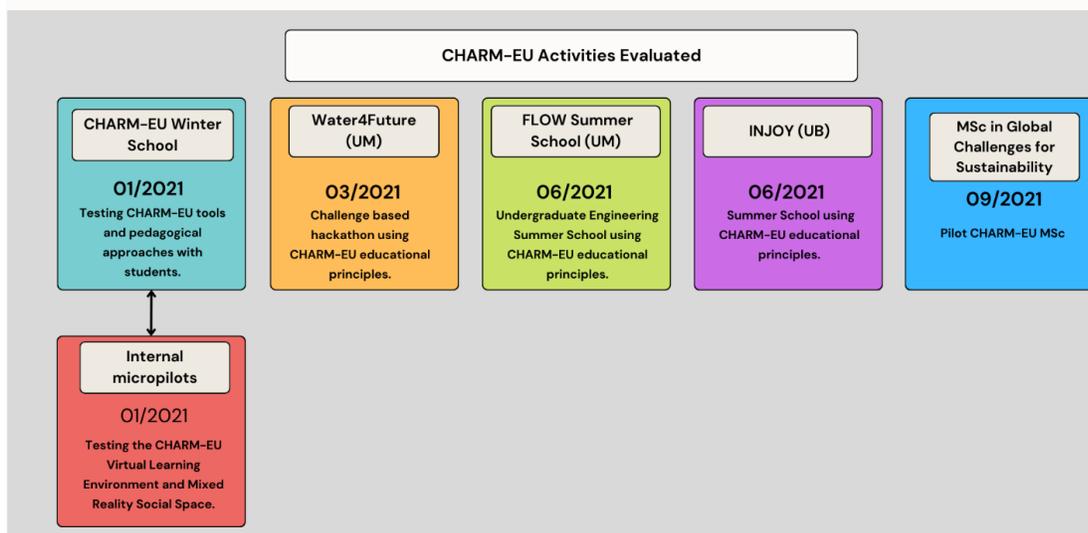
- **CHARM-EU Winter School:** The evaluation timeline commenced from the start of the Winter School in January 2021.
  - Participants of this evaluation included students and staff involved in the design and implementation of the Winter School.
- **CHARM-EU internal piloting:** Evaluation of internal CHARM-EU processes was implemented during the Winter School in January 2021. This included evaluation of key WP 4 (Teaching and Learning) processes.
- **CHARM-EU aligned micro pilots:**
  - Three micropilots were evaluated, FLOW, Water4Future and INJOY. More information on this evaluation is available in D.7.2.
- **MSc in Global Challenges for Sustainability:** The evaluation timeline commenced from the start of the MSc programme in September 2021 to the end of Phase 2 in July 2022. Phase 3 was not evaluated for this funded project due to its finalization in February 2023, outside the funding period of the project[1].
  - Participants in the evaluation included:
    - MSc students: Students who were participating in the MSc during 2021 to 2022
    - MSc teaching staff: Teaching staff who taught on the MSc during 2021 to 2022
    - MSc administrative staff: Members of the Joint Virtual Administrative Office during 2021 to 2022.
  - From the student perspective, each Phase (i.e. Phase 1 (Preparatory), Phase 2 (Flexible), and Phase 2 (Evaluation) was individually evaluated, in addition to student perceptions prior to programme commencement. From the perspective of teaching staff, proposed evaluations also used this phased structure to ensure coherence between the results.

2.2. Micro-Pilots: Winter School, aligned micro pilots and internal piloting

The rationale for this evaluation was to investigate whether the:

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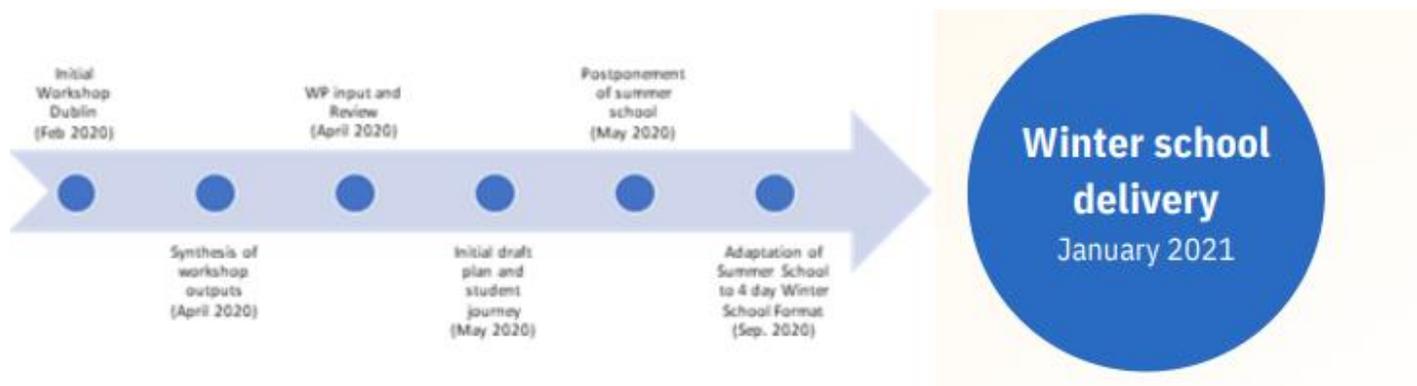
[1] A full evaluation of this period is proposed for CHARM8.

2.3. Main Pilot: Masters in Global Challenges for Sustainability

The rationale for this evaluation was to investigate whether the:

- MSc aligns with curriculum design and programme content guidelines as proposed by WP3
- MSc aligns with pedagogical guidelines, assessment techniques, and teaching and learning strategies proposed by WP4.
- Perceptions of mobility are in line with WP5 mobility model and organization.
- Perceptions of inclusiveness are in line with WP6 inclusivity model and organization.

Aside from these project specific evaluation questions, general questions on student, teaching staff, administration staff and extra academic actors experience with CHARM-EU were also considered.

As such, a range of different qualitative and quantitative approaches were proposed by WP7, ensuring to address the specific evaluation rationale. Table 1 provides details of the proposed activities.

Table 1: Planning proposed activities

Data Collection	Proposed evaluation activity and date of delivery	Description of activity
Pre Masters/Pre Phase 1 (Preparatory) Week 0	Student Pre Survey (09/2021)	An online survey to all registered students before the start of the Masters.
Post Phase 1 (Preparatory)/Pre Phase 2 (Flexible)	Student Module/Phase Evaluations (02/2022)	An online survey to all students who completed Phase 1 of the Masters.
Post Phase 2 (Flexible) /Pre Phase 3 (Capstone)	Student Module/Phase Evaluations (06/2022)	An online survey to all students who completed Phase 2 of the Masters.
	Extra academic actor survey (04/2021)	
	Admin/JVAO survey/focus group (03/2022)	
	Teacher/Contributor Survey/Focus Groups (07/2022)	
Post Masters/P3	Student Post Survey (02/2023)	An online survey to all students who completed Phase 3 of the Masters.
	Student Module/Phase Evaluations (02/2023)	
	Extra academic actor survey (10/2022)	
	Teacher/Contributor Survey (03/2023)	
	Admin/JVAO focus group (03/2023)	

2.4. Ethics

Due to the distributed nature of the CHARM-EU alliance and the early stage at which the Winter School took place, it was not feasible to secure ethical approval across the alliance in time for the programme. Since Trinity College Dublin leads the pilot work package, ethical approval was confirmed with TCD school of Education in the winter of 2021. This allowed us to conduct research on the Winter School activities and move the project forward. CHARM-EU will eventually transform into a legal entity in its own right, after which, structures for ethical approval will be put in place and managed centrally. CHARM's research arm, TORCH (Transforming Open Responsible Research and innovation through CHARM) is working on best practice guidelines and processes to assist with this transition. For the moment, students on the programme will continue to work with their local institutions to manage ethical approval for their project work.

3. Data Collection for Micro Pilots, Micro-Pilot Evaluation, and Feedback into Toolkit (7.4.2.)

3.1. CHARM-EU Winter School Micro Pilot

The Winter School focused on a set of themes that align with the CHARM-EU approach to teaching and learning. Pre and post-test surveys showed that students identified strongly with the Winter School themes and that they felt confident regarding the course learning outcomes. This was a very encouraging finding that supports our educational principles. In addition to the student surveys, focus groups were conducted with students and external stakeholders to probe their impressions more deeply. The focus groups followed a semi-structured approach, which was based on a set of pre-determined questions, plus additional questions that the winter school staff produced after analysis of the survey responses.

Table 2: Summary of data collected for Winter School evaluation

Data type	Description	Number of respondents/ participants
Pre-Winter School survey	Participants completed a pre survey to assess their attitudes regarding 21st century skills plus several additional questions that were suggested by the CHARM-EU inclusivity work package.	10
Post Winter School survey	Our post survey mirrored the pre survey questions, with some additional questions for the VLE and Emerging Technology work packages which helped to understand students' attitudes to the technology platform and apps. Inclusivity questions were also asked to assess how well students felt that their needs were addressed. This survey was completed as a reflective exercise on the final day of the programme. Analysis of the pre and post survey responses provided useful information for a number of outputs, including the Hybrid Classroom Handbook, the Virtual Learning Environment Minimal Viable Product Design Guide and the Teaching and Learning Strategies Handbook	13
Daily student reflection	For each day of the Winter School, students were asked to reflect on their experience. Reflections were conducted through OneNote and MS Forms, and answering the questions was set as a timetabled learning activity to maximize the number of responses.	13
Focus group with Winter School students	1 focus group was held on March 5th, 2021. A qualitative analysis of the focus group sessions was conducted by two researchers from the Winter School staff.	4 students
Focus group with Winter School stakeholders	1 focus group was held on March 10th , 2021. A qualitative analysis of the focus group sessions was conducted by two researchers from the Winter School staff.	6 stakeholders

Staff Observations	Staff met each evening to discuss their observations for the day and to produce an indicative grade for students based on a specially developed observation protocol.	6 staff

3.1.1. Winter School Results

Survey questions were included which examined students experience of a set of the VLE tools, and some encouraging responses were received. Problems with some tools were noted and this has been useful in designing the final composition of software the CHARM-EU VLE. A follow up focus group session was conducted with students and stakeholders, and these issues were examined in greater detail. Findings and discussion are presented below although a summary of the whole event can be found in the CHARM-EU toolkit in the CHARM-EU Winter School Report: Design Exemplar Report.

3.1.1.1. Students

Students were not formally assessed to a detailed rubric, but several data points were collected to produce an indicative grade of their work on the programme.

Student demographics

79 expressions of interest were received, which led to 21 students being invited to apply. A final set of 13 students were selected from either the final year of an undergraduate degree or the first year of a master's programme.

Locations:

University of Barcelona	3
Trinity College Dublin	2
Utrecht University	2
Eötvös Loránd University	3
University of Montpellier	3

Disciplines:

Business and administration	2
Computing	1
Health	1
Humanities	1
International Development	1
Law	1
Life sciences	2
Mathematics and statistics	1
Physical sciences	2
Social and behavioural science	1

Survey Themes

Introduction

Pre and post-test surveys showed that students identified strongly with the Winter School themes and felt confident regarding the course learning outcomes.

Figure 2.

Transdisciplinarity: Please indicate how confident you feel regarding the Winter School Learning Outcomes, as they might relate to you
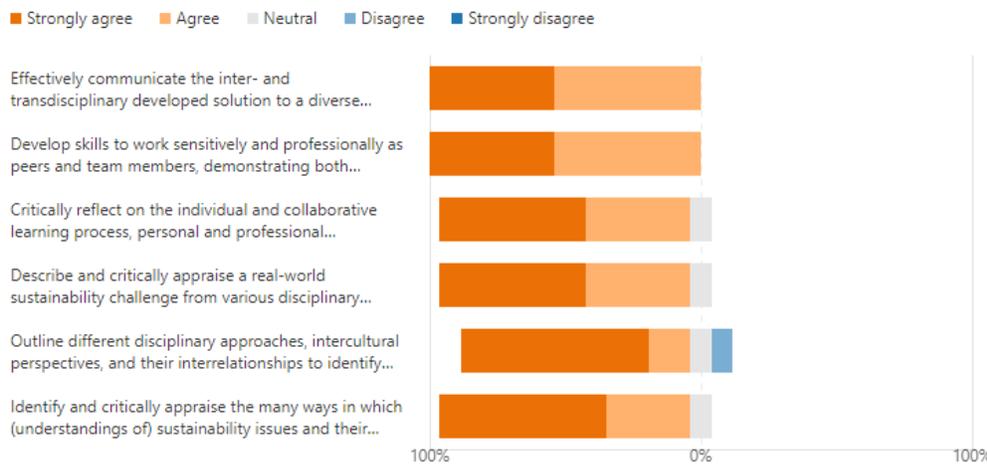
The practical approach of 'learning by doing' was seen as an effective way to work and study online, and this aligns well with the CHARM-EU principles of Situated, Authentic Learning. Group-work was also noted by over half the students as a suitable method for the delivery of such a programme as the Winter School.

Figure 3.

Is there a teaching, studying or working methods or tools that you find more suitable than others?

Peer-to-peer teaching	4
learning by doing	11
group-work	7
online work	2
self-work	4
provision of subtitles	1
None / No	0

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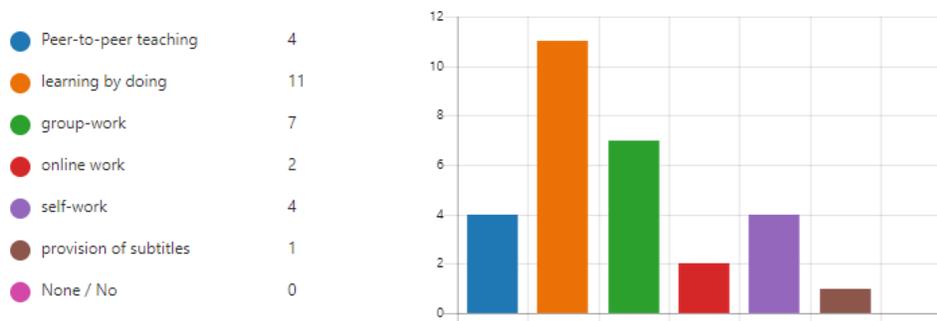
Inclusiveness is a core value of CHARM-EU and the Winter School, and surveys revealed that time constraints were viewed by students as a barrier to inclusivity. This is consistent with student comments made during the follow-up focus group session.

Figure 4.

Inclusiveness - What barriers do you face (now, when enrolling or when participating) to participate equally and fully in this programme? i.e. Barriers to participating equally or fully in one or more of the following

● Payment(s)	1
● Time of programme (and extr...	5
● (in)accessibility of physical or ...	1
● themes/ content of the progra...	2
● access to internet or quality of...	3
● language support	2
● None	5
● Other	0
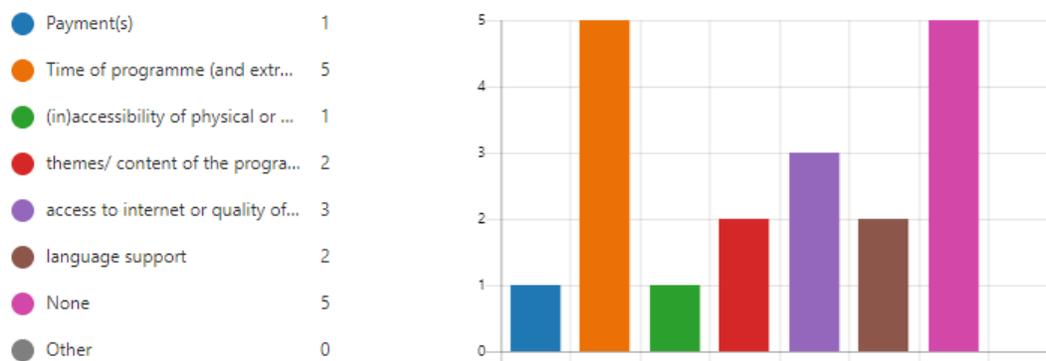
Sustainability

Questions

- I know how one should take action together with others in order to contribute to sustainable societal development.
- I believe I can influence global sustainable development through my actions.
- I believe I can influence sustainable development in my community.
- I believe I have good opportunities to participate in influencing our shared future.
- I believe what each person does matters for sustainable development.
- I want to take action for sustainable development in my community.
- I want to take action for global sustainable development.
- I want to engage in changing society towards sustainable development.
- I want my studies to be about how we can shape a sustainable future together

Students expressed strong agreement with the sustainability question set in both the pre and post-test surveys. An average value equal to the sentiment of "Strongly Agree" was reported for all of the following questions, expect for one question relating to opportunities to influence our shared future, where the average response was "Agree" in the pre-test, and this rose to "Strongly Agree" in the post test. This may indicate a reduced sense of personal agency with regard to this issue prior to engaging with the course content, but once again we must be careful not to overstate any claims due to the very small sample size. A comparison of the average value across pre and post test data indicates a small

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positive change regarding questions that inquired about attitudes to future outcomes i.e. influencing the future, and awareness of opportunities to influence the future. A small negative change was observed in students desire to act in this regard (want to take action globally/locally). A substantial decrease (10%) was reported in student attitudes regarding the impact of their actions (i.e. "I believe what each person does matters for sustainable development"), which may indicate a sense of futility in facing a wicked problem after learning more about the subject matter. We reiterate that the small cohort makes a statistical treatment less useful, but these points are worth exploring further how we might overcome these perceptions with student cohorts on the master's programme.

Transdisciplinarity
Questions

- Effectively communicate the inter- and transdisciplinary developed solution to a diverse (academic and non-academic) audience, using the most appropriate media/technological tools/ resources.
- Develop skills to work sensitively and professionally as peers and team members, demonstrating both empathy and leadership in the management and integration of diverse intercultural, interpersonal, inter-societal and inter/trans-disciplinary communication.
- Critically reflect on the individual and collaborative learning process, personal and professional developments and results of implementation.
- Describe and critically appraise a real-world sustainability challenge from various disciplinary perspectives to determine and frame the challenge.
- Outline different disciplinary approaches, intercultural perspectives, and their interrelationships to identify (e.g. social, cultural, political, economic) actors involved in and affected by the challenge.
- Identify and critically appraise the many ways in which (understandings of) sustainability issues and their consequences involve matters of socio-cultural identity construction and politics.

Transdisciplinarity represents a core theme of CHARM-EU and the winter school programme. Student attitudes to the transdisciplinarity questions range from 'Agree' to 'Strongly Agree' in both surveys, and while a statistically significant analysis is not possible with the small sample size, this still indicates a good level of confidence with the topic across the cohort. Minor changes were observed between each survey. Attitudes relating to communication skills and ICT skills were seen to rise (10%), as did the topic of sustainability issues and their consequences involving matters of socio-cultural identity construction and politics (5%). A minor decrease (2.5%) was observed in questions relating to confidence with inter-cultural teamwork and intercultural perspectives, possibly indicating unforeseen challenges of engaging in such activities.

Technology Enhanced Learning
Student attitudes to the technology employed during the winter school is generally very positive. The MS Teams platform is notable as being extremely well received by students and overwhelmingly positive responses show a level of comfort with the platform, and a positive attitude regarding its benefits.

Attitudes regarding the flexible tools (IceBreaker / FlipGrid) are less conclusive and students appear to hold mixed attitudes regarding the benefit of these technologies. A final question relating to the benefit of ICT in general within the winter school programme returned confusing response where more than half of the cohort agreed that certain activities would have worked better without any technology, but it is not clear how this could have been achieved in an online programme.   We note that the focus group cohort students expressed a strong preference for having at least some face-to-face component in the focus group discussion, which may explain this finding. This represents an interesting topic for further investigate during the masters programme.

Figure 5. Pilot questions and responses.
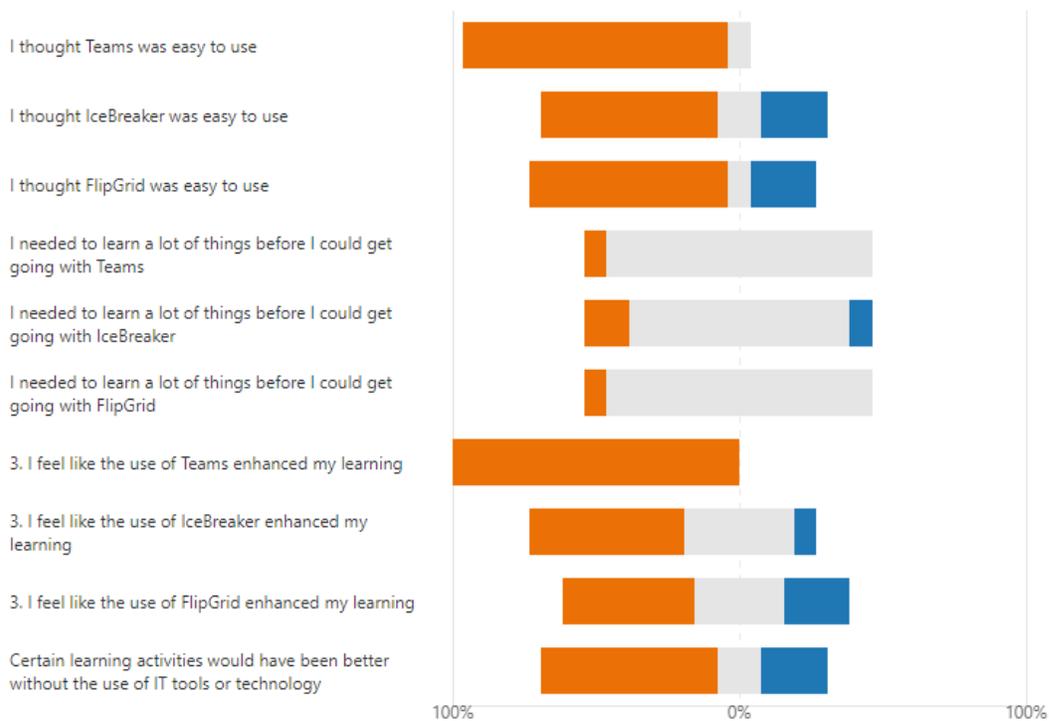
CHARM-EU Principles

Students were surveyed to ask if they had observed the CHARM-EU principles within the content and the running of the winter school programme. Possible responses were either 'yes', 'unsure' or 'no'. For each of the survey statements listed below, students were asked: "Do you think that these research-based learning elements were present in the activities?".

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Research-led, Research-based (Inclusiveness):

- Diverse examples and analogies (yes = 11, unsure = 1, no = 1)
- Diverse scientist/researcher contributions (yes = 10, unsure = 1, no = 2)
- Instructor sensitivity (yes = 12, unsure = 1, no = 0)

Research-led, Research-based (Responsiveness to Students)

- Student stated interests and asked original questions (yes = 13, unsure = 0, no = 0)
- Instructor were aware of student nonunderstanding (yes = 9, unsure = 3, no = 1)
- Follow-up activities were provided if not understood (yes = 12, unsure = 1, no = 0)
- Course concepts were applicable to life (yes = 13, unsure = 0, no = 0)

Research-led, Research-based (Experimental Design and Communication)

- Scientific literature or media articles (yes = 13, unsure = 0, no = 0)
- Science communication: written papers/oral presentations (yes = 12, unsure = 1, no = 0)

Research-led, Research-based (Data Analysis and Interpretation)

- Summarize, interpret and/or analyze data with mathematics (yes = 10, unsure = 0, no = 3)
- Students made graphs or tables (yes = 6, unsure = 3, no = 3)
- Analysis and/or interpretation of data using graphs/tables (yes = 11, unsure = 0, no = 2)
- Using data to make decisions/defend conclusions (yes = 12, unsure = 0, no = 1)
- Use of models (yes = 6, unsure = 3, no = 3)

Research-led, Research-based (Cognitive Skills)

- Use of nonwritten formats (yes = 13, unsure = 0, no = 0)
- Interdisciplinary work (yes = 13, unsure = 0, no = 0)
- Higher-level thought processes (yes = 13, unsure = 0, no = 0)
- Open-ended exercises/case studies (yes = 12, unsure = 1, no = 0)

Research-led, Research-based (Course and Self-Reflection)

- Students provided feedback on activities/content (yes = 11, unsure = 2, no = 0)
- I / We made adjustments from student feedback (yes = 9, unsure = 3, no = 1)
- Reflection: problem-solving strategies (yes = 13, unsure = 0, no = 0)

Situated, Authentic Learning - Cognitive absorption (temporal disassociation)

- Time appeared to go by quickly when I was interacting with my group members (yes = 13, unsure = 0, no = 0)

Challenge Based Learning

- The Design Thinking methodology helped to generate ideas (yes = 13, unsure = 0, no = 0)
- The Design Thinking methodology helped to converge different ideas (yes = 10, unsure = 1, no = 2)
- We were able to learn about the domain we chose as a theme (Big Idea) (yes = 12, unsure = 1, no = 0)
- After the [stakeholder meetings], we could learn about the stakeholders users and problems they experience (yes = 8, unsure = 2, no = 3)
- We were able to find a challenge that motived the group (yes = 12, unsure = 0, no = 1)

Inclusiveness

Barriers

Students were asked to identify any potential barriers to their learning experience during the winter school. While a large portion (n=5) responded that they did not experience barriers, the same number of students noted that the time of the programme and the extracurricular event represented a barrier. Three individual students noted access to internet or quality of internet as a barrier, and the facilitators noted that some students did choose to disable their video cameras at certain times during the week, although no specific mention of bandwidth problems were reported. Two students responded that language support and the relevance of content themes represented barriers.

A follow up question asked students to explain their responses to the previous question, and it is clear that some students had timetable clashes with their own studies during the week. This is not anticipated to be a problem for students who are registered for the master's programme. One respondent suggested that all participants should be in the same time zone, and we recognise that this may stem from the international nature of the cohort. As CHARM-EU masters students will be based in partner institutions within Europe, we do not anticipate that time zones will be very problematic during the masters.

A further follow up question was included in the post test for this topic to enquire of students whether they had noticed any attempt by the organisers to respond to their stated barriers. Five individuals marked this question as not applicable to their circumstances. Five students responded that they had indeed noticed an attempt to address their concerns, but the remaining three students responded that their needs had not been addressed. Although the question asked for specifics, no students provided this additional information.

Suggested Improvements

When asked "what could the university/ies do to make this programme more accessible and inclusive for the participants?", students offered several interesting suggestions to improve the accessibility and inclusion of the programme. While some of these may be infeasible during pandemic (promote student meetings, conduct the programme offline, etc), many offer useful insights.

- Re-chunking of material to include more breaks.
- Provision of language courses, or a pre-course programme.
- Gathering feedback through interviews rather than surveys.
- Daily quick feedback from each individual student, rather than group feedback.
- Extend the length of the programme.
- Offer help to address local wi-fi problems.
- Increase the size of the cohort.

It should be noted that some very positive comments were also received in response to this question:

- " I think it is great as it is already"
- " I find it accessible "
- " I think the university is already doing a good job on making the programme inclusive."

Figure 6. Pre-test exposure to different learning methods
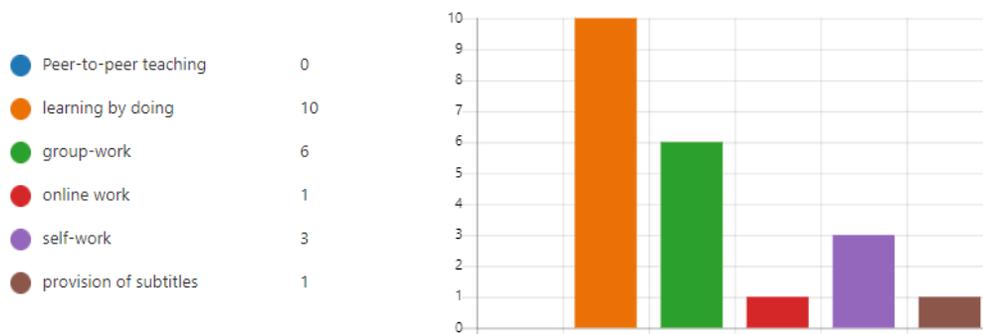
Figure 7. Post-test exposure to different learning methods

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Methods

Students were asked whether they found a particular teaching, studying or working method, or tool(s) to be more suitable than others. This was a pre- and post-test question (see Figures 6 & 7) with the possible answers of:

- Peer-to-peer teaching
- learning by doing
- group-work
- online work
- self-work
- provision of subtitles
- None / No

'Learning by doing' proved to be a popular approach in both tests. There is a noticeable jump in the number of participant responses relating to peer-to-peer learning (pre=0, post=4), which may indicate that students had a positive experience of this during the winter school.

Extra-curricular activities

A free text questions relating to specific extra-curricular activities was not included in the pre-test set of questions, but some interesting responses were received in the post test survey, including role-playing games, thematic activities, cultural activities, parties, and sports.

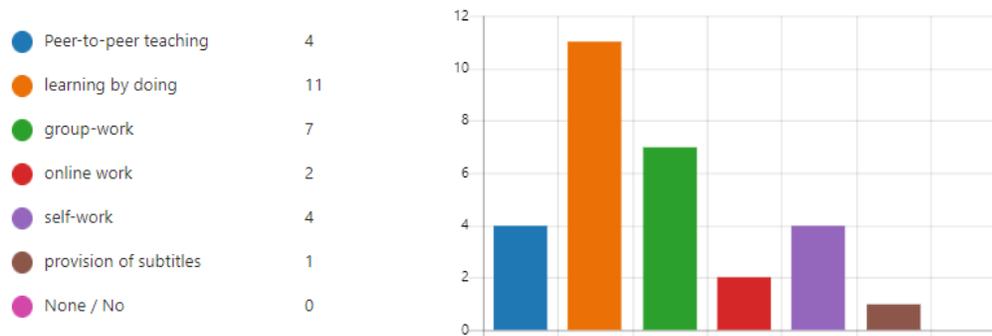However, the question set that was provided by the inclusivity work package did include a pre and post-test question to examine students' attitudes to extra-curricular activities. Students were asked, "would having extra-curricular activities impede you from feeling included? If yes, which activities and in what way could these be adapted to become more inclusive?". Some students misread this question in the pre-test and only offered suggestions for activities, although most indicated that this was not a problem area. One student did note time pressure as being problematic. The post-test responses are more insightful, with two students responding that extra-curricular activities were a barrier, and one of these followed up with suggestions to meet-up during an onsite activity. Time pressure was also noted as problematic by one student in the post test.

Two post test questions aimed to identify student attitudes regarding inclusivity and social / extra-curricular events. The first of these asked if having a social event made students feel less included, and if so, how could it be more inclusive. Eleven out of thirteen students responded that they did not feel the event made them feel less included, or that it was not applicable. Two students responded that having the event made them feel less included and suggested that i) having more games in the event would improve it, or ii) making the event a longer duration would improve it. This indicates that these two individuals did not fully understand the question.

The second post-test quest on this theme asked for suggestions for other types of extra-curricular activities would make them feel more included. Four students stated that they did not have suggestions, however the other students offered the following interesting suggestions:

- Playing team games or adding more game like activities. (Kahoot was specifically mentioned by two students).
- Having a longer coffee chat.
- Engaging in discussion sessions or a debate.
- Having a karaoke dance party.

Self-identity

Students were asked to self-identify from a set of minority categories. The majority of participants (10/13) responded that they did not identify with any of the listed categories, however three individuals identified with the following themes.

- Age and Race (two selections by one individual)
- Sexual orientation (one individual)
- Religion or belief (one individual)

Personal pronouns.

The majority of students indicated that the organisers has made use of their preferred personal pronouns, or that the question was not relevant to them. One individual noted that the organisers partially respected and used their preferred personal pronoun, but although the question asked for specific details, no details were offered by this individual.

Circumstances and Needs

When asked if the organizers and other participants took individual students' circumstances & needs into account, the majority (n=10) responded that they felt their needs had been recognised. One individual responded negatively, but although this question also asked for additional details, none were offered. Two individuals stated that the question was not relevant for them, and one of these was the only person to offer additional details, but only to compliment the organisers.

3.1.1.2.   Stakeholder feedback Social engagement and Inclusivity

External stakeholders from business and society provided feedback during a follow-up focus group. Stakeholders noted that student teams could have developed their solutions to address social engagement and inclusivity in a more substantial way. This represents a challenge for the upcoming CHARM-EU masters design, and it is excellent feedback at this early stage of content creation.

3.1.1.3.   Focus Group Results

Gaining insights into students' and stakeholder's perspectives in connection with the Winter School with the help of focus groups

Besides applying quantitative methods like questionnaires and qualitative ones like self-report reflections and observations, WP7 decided to collect data concerning participants' views and experiences about the winter school with the help of a more structured qualitative instrument, focus group interviews.

Participants

In order to ensure that both students and stakeholders share their views openly and in enough detail, we organized two focus groups: one for the students and another one for the stakeholders. The student focus group had four participants (two males and two females) coming from different universities within CHARM and they had varied academic backgrounds. The stakeholder focus group had five participants (two males and three females); three of them were academics who were closely involved with CHARM as they were core members in one of the KCTs, while two participants were external stakeholders with no previous association with CHARM-EU. They all had some experience in managing groups in both online and offline environments.

Instrument

The first draft of the focus group guide was prepared by two members of WP7, then the questions were reviewed by other members of WP7 and also experts from other WPs. After this round of expert feedback, the most important topics were prioritized by voting on them, and the final version of the focus groups guide containing 9 (student group) to 11 (stakeholder group) questions was compiled. (See the final list of questions in Appendix 6).

Procedure

All participating members of the Winter School were invited to join the focus group discussion; the most suitable time slots were established with the help of an online scheduling platform. Focus groups took place online in the Teams environment of TCD, which is the same space where the Winter School was held at the beginning of March, approximately one month after the Winter School ended. Both groups were planned to last approximately 60 minutes, but due to the enthusiastic involvement of the participants both were slightly longer. The focus groups were recorded in the Teams environment with the consent of all participants after being informed about anonymity and ethical issues. The focus groups were moderated jointly by two experienced members of WP7 who were present throughout the Winter School and were thus familiar with the participants. Using two moderators was thought to be beneficial because of potential problems that might occur in an online environment.

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Data analysis

The recorded approximately one-hour long focus group interviews were transcribed verbatim, resulting in a corpus of more than 16,500 words. We conducted thematic analysis (Braun & Clarke, 2012)[2] on each text separately with the help of the atlas.ti software. This inductive method of data analysis involved reading the transcript several times then using open coding of the data, which resulted in 20 codes and 133 coded segments in the case of the student focus group and 21 codes and 116 coded segments for the stakeholder focus group. After revising the codes, they were arranged into themes (9 themes for the student focus and 6 themes for the stakeholders). The themes were then checked against the transcripts and their labels were finalized. The two researchers who acted as moderators for the focus groups worked together closely during the phase of data analysis as well and resolved any discrepancies in their interpretations via online discussions.

Results

In this section, the themes emerging in the two focus groups are reported separately, starting with the student group. Quotes from the focus group discussions, which serve the purpose of illustrating the different themes, are cited without editing the original answers. The description of the results is followed by a joint discussion of the findings.

Emerging themes of the student focus group

When asked about their experiences about the Winter School in a focus group, a number of themes emerged from the students' answers. One major theme concerned students' reasons for joining and their **expectations about the Winter School**.

- "Maybe my goals were more about to know more challenges that we have nowadays, and I think that I achieve in my case that goal."
- "I didn't have any expectation at all, I was waiting something more like a teacher and people listening, you know the more classical way."

Technological issues, the online environment and the various software used were also commented on both in a positive and in a negative sense by the students.

- "I thought that Microsoft Teams was really brilliant for being able to flip between like the main room and our own breakout rooms and stuff like that it was really effective for that."

---

[2] **References**

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

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- "I mean, we were trying to edit at the same time when we were using the Notes and we had some slow connection. I mean someone write something and the others couldn't see it because we were doing at the same time. But I think it's quite normal, because it's life."
- "For the first activity, I don't remember the name of that website but we had like one minute to introduce each other. That website was kind of chaotic."

Benefits and drawbacks of **online and offline options** in education in general and in connection with the Winter School in particular were also highlighted.

- "I'm 100% in the point of view of physical, in person 'cause, also in the teamwork it's so important, the communication, the flow of the people, you can see the reaction at the moment and you don't have to, for example at the speaking time, you see if one of us wants to speak or one of us makes a reaction and I think it's easier to feel that you are in a team, you are in the same place, you are working next to another partner."
- "All learning will hopefully have some aspect of blended learning, you know with online because I think there are going to be times when learning in an environment like that is going to be really effective. Especially if we're looking at the framework for CHARM where students are going to get the most all encompassing experience of as many institutions as they can."

Group-related issues, that is, working in multicultural, multidisciplinary groups raised issues in connection with collaboration, intercultural skills and conflict management among other things, but this experience seemed to offer many benefits for our students.

- "Benefits are first of all that you learn from other cultures, because I saw the difference between the Spanish ones and maybe other people and that was really cool managing the problem and the tempos and ok maybe one thing maybe other wanted to finish first one thing, maybe other to finish two things at the same time."
- "I think one of the most important things that we did effectively as a group was kind of respect each other's area of expertise to say it in that way, so V I know that you had a background in, basically where there was something that I couldn't wrap my head around and the other two could, I let them at it. You know like, I just trust them, trusted their background and their knowledge enough to ensure that they knew what they were talking about in that regard."
- "So it was a very good experience to be able to understand a guy from the other part of the world who uses a completely language, who's from a completely different culture. But we were able to understand each other."

One of the unique features of the program, the **involvement of stakeholders**, was generally considered as a great asset by the students.

- "They provided us feedback and we included that feedback we worked on, we shaped that feedback and at the final moment they said that we did a good job in just two days, and that's all."
- "When we got to a stage in the work that we had been doing on our own, you know you get to a stage where you can only so many time ask each other what you think of it and whether you think you're on the right track. And that was when it was really useful then for the stakeholders to come in with their expertise and kind of say ok, ya this is good and continue on this path, or you're not really focusing on what needed to be focused on here."

Despite all the positive feedback, there is definitely room for improvement, as students were concerned about a number of **problems and challenges** both in connection with the organisation and the execution of certain activities in the Winter School.

- "We didn't know what was the purpose of the activity. It was kind of chaotic also because of that. Like the first part especially we didn't really know."
- "There is so much to be done and not enough time in the day to get it done. But I felt at time when we were finishing our sessions we could have spent a bit more time or maybe it could have been more concisely targeted."
- "At some moment we wanted to know, ok, what's next because maybe we try to prepare something in a different way or we try to make it to work easier in the future."

Despite the short time-span of the program, students were still able to get a taste of some of the novel pedagogical approaches piloted in the Winter School, the **benefits of CHARM**.

- "See that not, that we break this classical teaching method, and I really enjoy it."
- "I think that we really learned a lot, teaching each other as simply college students, I didn't mean simple, just students."
- "I think that the most beautiful thing of the winter school was, ok we are working in an actual problem, something that's happening right now like it's sustainable issues."
- "But was really presently surprised by like how much I didn't know, and how much there was to learn in terms of, I guess how to progress forward in this world we're living in. And it was really effective to see that in the setting that we did that, especially given that it was all online as well."

As regards the **emotional aspects** of participation, apart from a few stressful factors, student mostly reported positive feelings about the Winter School.

- "my biggest fear was that I cannot make my points understood"
- "That I really enjoy it and I found very interesting"
- "We really enjoyed the stakeholders"
- "I mean, my feeling from the winter school was so good"

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Although this was a short program, students were still able to get a taste of some of the **novel pedagogical approaches** piloted in the Winter School.

- "I think that we really learned a lot, teaching each other as simply college students, I didn't mean simple, just students."
- "I think that the most beautiful thing of the winter school was, ok we are working in an actual problem, something that's happening right now like it's sustainable issues."
- "But was really pleasantly surprised by like how much I didn't know, and how much there was to learn in terms of, I guess how to progress forward in this world we're living in. And it was really effective to see that in the setting that we did that, especially given that it was all online as well."

Stakeholder focus group

Although the educational **principles of CHARM** were not targeted explicitly in the focus group discussion, several of them were still mentioned at some point by the stakeholders, for example, transversal skills, student-centred teaching, intercultural experiences and multi- and transdisciplinarity. Although most of these were referred to favourably, stakeholders expressed disappointment in the multi- and transdisciplinary aspect of the Winter School, they felt that some students were unable to incorporate this aspect into their projects, and they probably would have needed some guidance in this respect.

- "students can help each other"
- "Also it was surprising that there were people that were not from Europe, or they were not born in Europe, and you could see also that they brought their backgrounds and their reality from somewhere else. For me, I just studied always in Europe and we are all Europeans here most of us, and I thought it was very interesting to have people who brought other realities into the challenge, not just keep it European centric. So there was something from India, there was something from some African countries, so I found this very interesting that they didn't speak within what most of us know, and they went outside and they also brought other realities in the teams. And also, with young students I think it's important because it's a new way for them for learning about other realities"
- „we are from let's say the traditional academics so it was also a surprise for us how to deal with these situations. But we need to learn this way of teaching, or rather tutoring or coaching the students, so I think that was a good piloting, for everyone"
- "And what I really miss is that nobody was putting enough transdisciplinarity – multidisciplinarity, into their presentations. I really missed it"

One reason that was thought to be in the background of students' inability to incorporate inter- and transdisciplinary aspects was the lack of time. Time constraints were mentioned quite frequently by stakeholders along with issues pertaining to organization, which were subsumed under the theme of **constraints**.

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- "I think it was the shortage of time. Because I told them to look at that or this, but in these two day they weren't able to incorporate all of these things."
- "We need for instance two hours at least to have a much more fruitful conversation with the students. So I think time is a crucial one."
- "I missed ya a bit of pre-information before the meeting on the first day but that's just my opinion."
- "what I really miss and it has something to, some relationship with what I was saying at the beginning. Not exactly a coach, or a chairperson, but somebody, who might help the group developing the challenge"

Stakeholders also commented quite extensively on **project work in the Winter School**, including their approach, the projects themselves and their practical aspects (or lack of thereof).

- "But the main problem I saw, it was, depending on the background of the student, and from that I don't mean from which university they come from, but from which intellectual background they come, they are more prone, or less prone, to realise what the challenge means, and to be able to split it up in the several aspects of this challenge"
- "I feel the same, because the solutions were very heterogeneous, according to the groups and some were not developed enough, maybe not realistic"
- "I think that working on the real interest of the solutions to market, and something very, yeah, realistic, I think it could be a good point and in fact it could help the students to draw a better solution maybe. Without occluding innovation, I think that I agree with what M said yeah."

In a more general sense **learning in the Winter School** was discussed as well: both the learning opportunities that were offered and the process of learning itself.

- "and they went outside and they also brought other realities in the teams. And also, with young students I think it's important because it's a new way for them for learning about other realities"
- "And we could see the progression of the topic, and even students, because they had the icebreaker on one afternoon so they are getting close to each other, and the topic or challenge was let's say, getting more concrete, more specific. So um yeah, and I could feel the various perspectives of the students. All of them tried to involve their own perspectives"

Stakeholders also shared some insights about their own **participation** in the Winter School, including their motivation for participation, their preferences in this regard, and the benefits they think they offered for the students. Some participants with non-academic backgrounds also expressed an interest in establishing formal relations with CHARM and getting some symbolic recognition for their participation (in the form of a certificate, for example).

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"we are really motivated to share our knowledge and to share our business network to help the students and of course to help the teachers to reach the goal of the sustainable development masters"

"when you arrive to a situation like this, I prefer to have something already prepared and ready to have a better idea of what I'm gonna say, how can I be involved with them"

"interaction from outside, I think it's valuable for them and maybe this is, I mean maybe being fresh, not having so much information about what they are developing in advance, maybe brings more fresh questions from us"

"it will be easier for me to have my company name among the contact of CHARM-EU, to make it quite official, and it will facilitate me to have more contacts."

"You perhaps could issue a kind of certificate or something, as a witness that people have participated at different levels and so on, because that's very useful for CVs, both for academics and for enterprise or businesses."

Similarly to the students, stakeholders also identified certain **problems and challenges** that needed to be overcome in connection with teamwork, the use of technology and so on.

- "for such a short activity I think that it's very challenging to create this teamwork environment when people don't know each other, they come from very different backgrounds or universities."
- "As usual for the externals right. The Teams environment for externals is a mess."
- "Speaking with students, when you're not used to it, it's not very easy."

Discussion

Although there are clearly some similarities between how students and stakeholders viewed the Winter School (for example in terms of the problems, challenges and constraints, but also with regard to many benefits), there are some differences as well, which should be pointed out. While students evaluated their own work quite positively, stakeholders were more critical in this respect. Although they acknowledged the innovative nature of the CHARM program, they would have preferred more structure and more information about their own involvement. Stakeholders, especially those ones who were also KCT members, were not quite satisfied with the implementation of the transdisciplinary aspects of the students' projects, and expressed a potential need for providing more guidance and coaching for students. Based on the findings of the two focus groups conducted, we can conclude that the Winter School as a pilot project successfully delivered what it had set out to achieve over a short period of time by providing an opportunity for trying out a range of organisational, educational and technological

issues, it also indicated crucial points where improvements are needed for a longer programme such as the full CHARM-EU Master's.

3.1.1.4. Staff Observations

Staff met at the end of each day for thirty minutes to record their observations using an observation protocol that had been designed for the Winter School. This included free text responses that covered, appropriateness of content, student difficulties with any particular tasks, appropriateness of technology, and a section for general comments. The protocol also allowed staff to suggest a mark for each student team based on a five-point scale that measured their teamwork, record-keeping and evidence of reflection. A selection of interesting findings from this activity are presented below:

Day 1

- Shortness of time was notable, for example in the WooClap feedback, and for the teambuilding activities. We suggest that extra time would be useful for such activities and an additional block of time for reflection should be incorporated.
- A technical dry run could be offered to students in advance of the programme starting, since some students had difficulties selecting the correct identity with which to join the first session.

Day 2
- A template was provided for an activity on day 2 and students were initially confused as to how it should be used. We suggest that a worked example work be useful when sharing templates.
- Some time lag was noted with students moving from different meetings and it was not clear that all attendees were in the room without referring to the list of registered students.

Day 3

- Staff noted a preference by students for Google docs rather than MS Office. We feel that this is due to prior familiarity with the Google suite.
- Presentation skills when working in groups appeared to be a challenge for some individuals, particularly when handing-over the presentation to another team member. We recommend that student practice this activity before delivering a higher stakes presentation.
- Staff reported that they would like to see some way to recognise task completion such as badges or micro-credentials and we have suggested this to the VLE group.
- Teams worked well with tight timelines and we note that the teams who lost members, managed to adapt well.

Day 4

- Timing challenges with delivery of presentations were noted again on the final day.
- We noted that we did not ask students how long they spent preparing the presentation and this would be valuable data for future research.
- More time for stakeholder follow-up questions would be helpful.

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3.1.1.5.   Student Artefacts - Description and analysis of student artefacts created

During the four days of the Winter School there were two different categories of artefacts that were produced by the student teams:

- ***Presentations*** (power point slides)
  Each student team has worked on delivering a final presentation of in total 5 minutes. In these presentations, student teams presented the problem defined as their team perceived it, explaining the importance of it and the research they have done on, moving towards presenting their concept for tackling this specific challenge.

  All 4 teams delivered a final presentation on the last day of the winter school, containing the abovementioned elements (definition of challenge, research, solution) An indicative example of one of the teams is presented below.

OUR CHALLENGE

· Food behaviour and diets affect the
biodiversity of the planet.

· Improve the current situation
· sustainable system
· create awareness of the impact of diet
· stimulate sustainable options

OUR SOLUTION

Educational Food Behaviour programme for the EU countries addressed to the young community -high schools and universities

- *One Note documentation*
  Student teams used the One Note structure created by the facilitation team as a guide through the team and challenge process. Every day students were asked to fill different sections and templates within the One Note of their individual team channel. The sections were the following:

- Day 1:
  o Team Details: defining team roles in each member (note/time keeper, facilitator, designer, researcher)
  o Brainstorming: on challenges related to their teams' broad theme
  o Observe: for each one of the challenges they thought above, they would need to answer the following questions: what is the challenge who are the stakeholders, pros and cons associated with it and "how might we.."
  o Perspectives: perspectives of stakeholders related to the challenge
  o Team Reflection: on the performance of the team, what they learned and what they want to develop further as a team

- Day 2
  o Research: researching their challenges to identify relevant and available data sources.
  o Ideate: the next step for each of the challenges was for teams to consider how to use the data
  o Choose Challenge: this process would be concluded by letting the team members vote among the three challenges they had researched and ideated. Their votes were based on most rational, most delightful, long shot or daring challenge.

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- o Defining & Prototype: this activity included four parts that helped students produce ideas for solutions on the chosen challenge. These four parts were the perspective that the team had, the current state of the challenge (mapping the present), imagining the future, and planning how to achieve their goal.
- Day 3
    - o Innovation Sustainability: the Business Model Canvas was used for the students to assess the sustainability of their idea.
- Day 4
    - o Next steps and Limitations: this focused on the student team drawing conclusions and identifying limitations on their idea.

3.1.1.6. Conclusions, Recommendations and Practical Advice

The Winter School aimed to test certain aspects of the CHARM-EU master programme, such as the didactical and educational principles and approaches, technology used for their facilitation, interaction with students, staff and stakeholders as well as opportunities for the professional development of the staff involved. Throughout the development and execution of the Winter School, there were a number of interesting and valuable findings reflecting on the main master's programme.

Based on the analysis of the evaluations (which included student and stakeholder feedback, and staff observations), we conclude that expectation management, clear communication and structure of the learning blocks are important factors to consider when developing a set of learning activities. Student teamwork and collaboration emerged as key themes that students reported, and the pedagogical approach of 'learning by doing'', combined with regular reflection points, which was greatly appreciated.

Time limitations and some initial difficulties using of the virtual environment were reported as challenges by students, perhaps a result of using too many technical systems at the very start of the week (i.e. icebreaker.video). Students, staff and stakeholders pinpointed the need for additional time and space for some of the activities as well as for more dedicated time to prepare for them, although this is difficult for such a short programme, but should be easily implemented as part of a longer programme such as Master's .

Our suggestions to improve the quality of future events include a technical dry-run with students and stakeholders prior the start of the programme, to get familiar with the educational environment and tools. Additionally, a means to track progress by identifying completion of phases/tasks from the students during the programme, would be informative for the educators and if presented in a gamified approach, could also enhance the experience and motivation of the students.

3.2.   Internal micro pilot data collection[3]

Additional micro-pilots using Winter School participants were also conducted for Work Package 4.4 (VLE) and Work Package 4.5 (Emerging Technology).

- WP4.4 were interested in students' impressions of the core VLE software tools, and flexible apps, while
- WP4.5 evangelized for the potential of newer technology solutions and proof of concept tools such as the excellent Utrecht 2040 game.

Table 3: Summary of data collected for micro pilot evaluation

Micro pilot	Data type	Description	Number of respondents/participants
4.4 & 6	Post Winter School survey on VLE	Questions related to each of the VLE tools in survey as well as inclusivity elements	13
4.5	Informal observations of students engaging with an emerging technology (mixed reality environment)	Observing students using Mozilla Hub tool. Reflective notes were qualitatively analyzed post-activity.	5

3.2.1.   Micro pilot Results

Winter school students were asked the same set of questions regarding each of the software tools used during the programme. MS Teams is noteworthy in that all students recognized the benefits that it provided to their learning. Other tools had mixed responses and at least some students felt they needed additional support to become confident when using each piece of software. The majority of the students (n=8 / 13 responses) students responded that certain learning activities would be better conducted offline.

These findings were instrumental in helping WP4.4 to compose the full suite of tools within the CHARM-EU virtual learning environment and the hybrid classroom design and configuration. Details can be found in the WP4.4 Hybrid Classroom Handbook.

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[3] WP5 (Mobility) requested data collection for their Mobility Matrix, however, this was not completed due to time constraints with project implementation.

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Figure 8. WP4.4 micro-pilot technology questions

WP4.4 Technology Pilot Questions

Question	Yes	No	Unsure
Certain learning activities would have been better...	8	2	3
I feel like the use of FlipGrid enhanced my learning	6	4	3
I feel like the use of IceBreaker enhanced my...	7	5	1
I feel like the use of Teams enhanced my learning	13	0	
I needed to learn a lot of things before I could get...	1	12	0
I needed to learn a lot of things before I could get...	2	10	1
I needed to learn a lot of things before I could get...	1	12	0
I thought FlipGrid was easy to use	9	1	3
I thought IceBreaker was easy to use	8	2	3
I thought Teams was easy to use	12	1	0

WP4.5 is responsible for evaluation of emerging technologies with strong educational potential. The work package was interested in evaluating student impressions of the Mozilla Hubs mixed reality platform to understand its educational potential. The platform was used to conduct a social event in mixed reality and students agreed that it had potential to support groupwork. Findings from this micropilot provided useful additions to the WP4.5 Emerging Technologies Reader document.

4. Data Collection for Main Pilot implementation & Main Pilot Evaluation and Feedback into Toolkit (7.4.3.)

Key themes, derived from the initial proposal (see 1.1), were used to evaluate specific areas of the M.Sc. in Global Challenges for Sustainability. This allows for coherent and integrated results from multiple data points. The structure of this evaluation will use the following themes

- Curriculum design and programme content
- Assessment
- Educational principles
- Mobility
- Inclusivity
- Student experiences
- Staff experiences and challenges
- Administration staff experiences and challenges

Data used for this evaluation included student, teaching staff, and administration staff (see Figure 9)

Figure 9: Thematic evaluation model for MSc
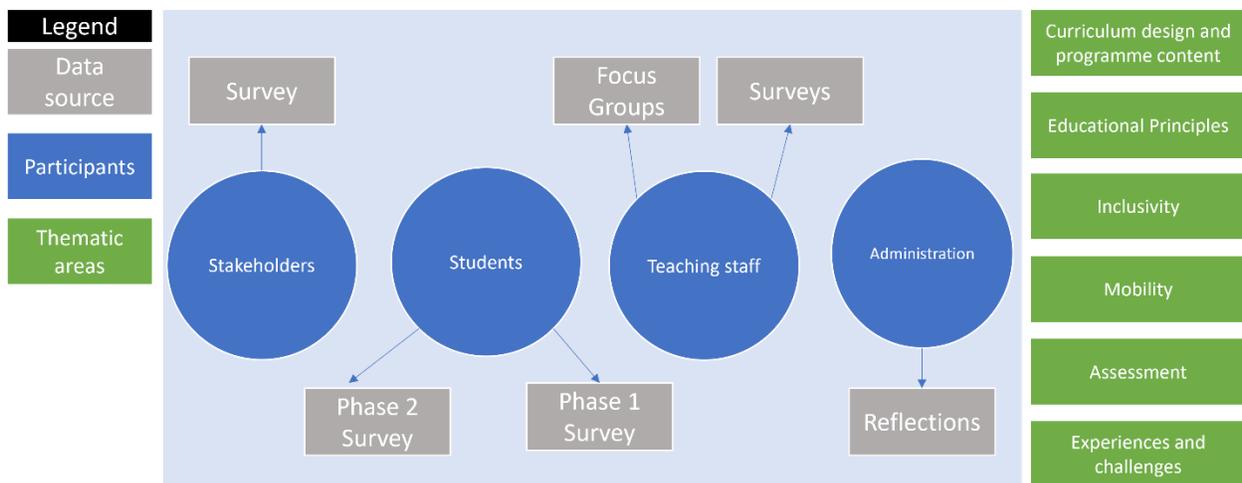
Data from all evaluation activates is available on request from Jake Byrne (Lead WP7).

4.1. Summary of all evaluation activities related to the MSc

Table 4: Summary of all MSc aligned evaluation activities

Delivery date	Evaluation activity	Brief description of evaluation activity	Number of respondents / participants	General evaluation Themes
01/09/2021	Student Pre-Masters Survey	An online survey to all registered students before the start of the MSc.	80	• Demographic information (3 questions) • Initial perceptions and Programme Registration Experience (5 questions) • Mobility (4 questions) • Inclusivity (4 questions) • Teaching and Learning (8 questions) • Final thoughts (2 questions)
07/02/2022	Student Phase 1 Module/Phase Evaluations	An online survey to all students who completed Phase 1 of the MSc.	57	• Demographic and Administrative Information (7 questions) • Overall Phase 1 Evaluation (8 questions) • Sustainability Module Evaluation (7 questions) • Social Innovation Module Evaluation (7 questions) • Transdisciplinary Research Module Evaluation (7 questions)

Delivery date	Evaluation activity	Brief description of evaluation activity	Number of respondents / participants	General evaluation Themes
29/06/2022	JVAO reflections on Phase 1 and Phase 2	Written reflections from Joint Virtual Administrative Office staff on their experiences from Sept to July for the MSc evaluation day in July 2022.	5	• Identification of improvements • General front office feedback • Feedback regarding students • Response to student feedback • Attendance • Admission • Communication
01/07/2022	Student Phase 2 Module/Phase Evaluations	An online survey to all students who completed Phase 2 of the MSc.	46	• Demographic and Administrative Information (7 questions) • Overall Phase 2 Evaluation (8 questions) • Module 1 Evaluation (7 questions) • Module 2 Evaluation (7 questions) • Module 3 Evaluation (7 questions)
01/07/2022	MSc Teaching Staff Focus Groups	Focus groups with teaching staff from Phase 1, Phase 2 Water, Phase 2 Life and Health, and Phase 2 Food.	15	• Experiences teaching with CHARM-EU • Perceptions toward CHARM-EU educational principles • Teaching challenges faced
01/07/2022	MSc Teaching Staff post Focus Group Survey	Online survey for selected MSc teaching staff who participated in the focus group.	3	• Open ended question on any additional feedback from focus group.
06/07/2022	MSc Teaching Staff Survey	Online survey for all MSc teaching staff in Phase 1 and Phase 2.	12	• Teaching challenges faced • Improvements to MSc • Positive teaching experiences that should be maintained • Inclusivity integration into teaching

Delivery date	Evaluation activity	Brief description of evaluation activity	Number of respondents / participants	General evaluation Themes
TBC	Student Phase 3 Module/Phase Evaluations (11/2021)	An online survey to all students who completed Phase 3 of the MSc.	TBC	
TBC	Academic Board Minutes	Documentary analysis of Academic Board minutes during all Phases of the MSc.	TBC	

4.2. Thematic summary of MSc evaluation

The results presented below are grouped in order of themes related to the specific evaluation questions. Note that this analysis only includes results from Phase 1 and Phase 2 as Phase 3 (September 2022 – February 2023) had not been completed by students by the time of report publication.

4.2.1. Curriculum design and programme content

This section describes student perspectives towards curriculum design and programme content, including student attitudes towards module content, workload, level taught, general satisfaction levels towards individual modules and phases.

4.2.1.1. Student perspectives

Students were asked to describe the **best module aspects**. Enthusiastic and driven teaching staff and module coordinators, learning materials, flipped classroom approach, invited speakers (meet the experts) and external stakeholders, group/collaborative work, practical examples, creativity in teaching and assignments, design thinking, actively doing research, blended mobilities and fieldtrips, variety of lecture topics, and the hub approach to teaching in Phase 2 were all commended.

Suggested **module improvements** by students included more time and depth spent on some topics (i.e. less diversity of topics), more topics related to real world practice, case studies and current events, less focus on innovative teaching techniques (i.e. gamification) in some modules, improved reading list and lecture content integration, more quantitative research skills, better inclusivity skills for some staff members, better module organization, adherence to stricter deadlines, English language translation for local stakeholders, and improved student communication about timetabling and assessments. Students requested more time to perform research, read literature, consider lecture content, and complete assignments.

**Figure 10: Best aspects and suggested module improvements word cloud**

Students provided **suggestions on programme content** that could be included in future modules including Corporate Social Responsibility, hydropower, funding issues, psychological, social and lifestyle aspects of global challenges, agriculture, the Global South, food system transformation, globalization, politics, economics, finance, energy, gender studies, climate change, biodiversity and ecosystem health, hydraulics, and the nexus between the themes.

Some students noted that **more preliminary content** about some disciplines was needed for students who did not have a background in that discipline. Conversely, some felt that learning content was too basic for those with existing disciplinary knowledge. Knowledge of research skills and methodology was often mentioned with some students perceiving the tuition as too basic, and others feeling they were not given sufficient instruction. Some **module content duplication** was noted, for example, systems thinking, stakeholder mapping, transdisciplinarity, and methodology.

The majority of students reported that across all modules, **teaching content was delivered at a level** which they found "about right" (58%) (see Figure 11).

Figure 11: Perception of teaching content level
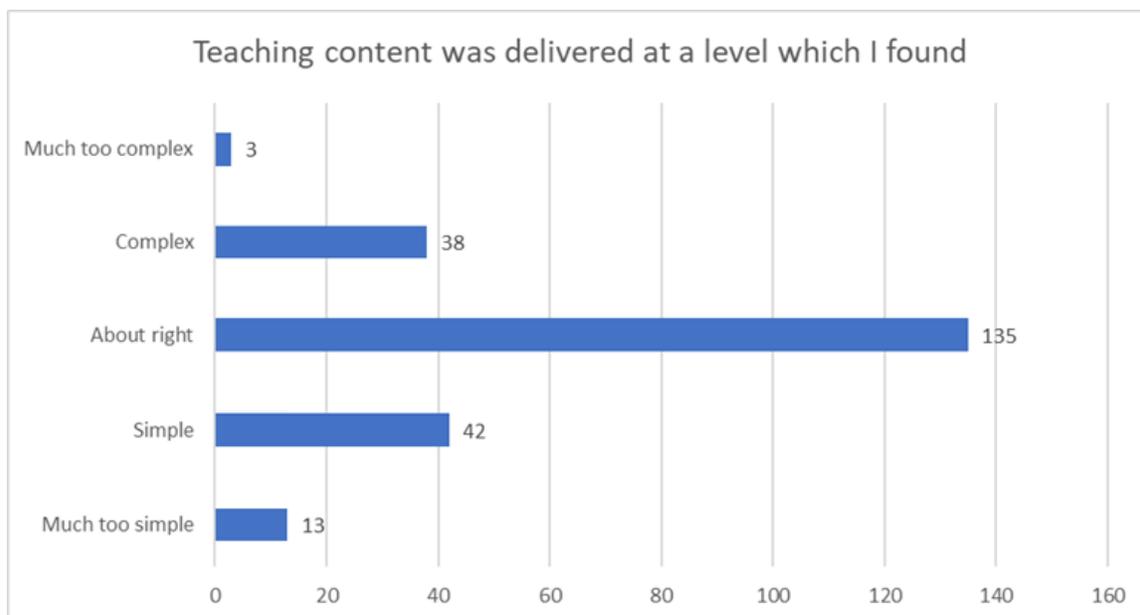


Module specific student feedback

Students were surveyed about their perceptions of individual modules. For the purposes of this report, this data has been aggregated for brevity and for overall evaluation.

Although there was deviation within individual modules, overall the majority of students agreed that:

- Module materials were (e.g. assessment information, presentations, learning activities) accessible and clearly communicated on time.

- Teaching staff (e.g. module coordinators and guest teachers) were available to discuss module queries.
- Teaching staff presented teaching materials, and learning aims, objectives and activities clearly.
- Parts of the module (lectures, tutorials, learning activities, and mobility activities) are coherently linked.
- Teaching and assessment workload was manageable.
- Students reported **differences in module satisfaction** across P1 and P2 modules; in particular, the Water track[4], Sustainability, and Social Innovation modules reported highest levels of satisfaction. Transdisciplinary Research Methods and Food Systems and their Transformations reported the lowest levels of satisfaction.
- Across all P1 and P2 modules, students reported 68% positive agreement with the statement "overall I am **satisfied with the quality of my learning experience**", with 15% neither agreeing nor disagreeing, and 15% disagreeing.

**Figure 12. Satisfaction with learning experience across all modules**
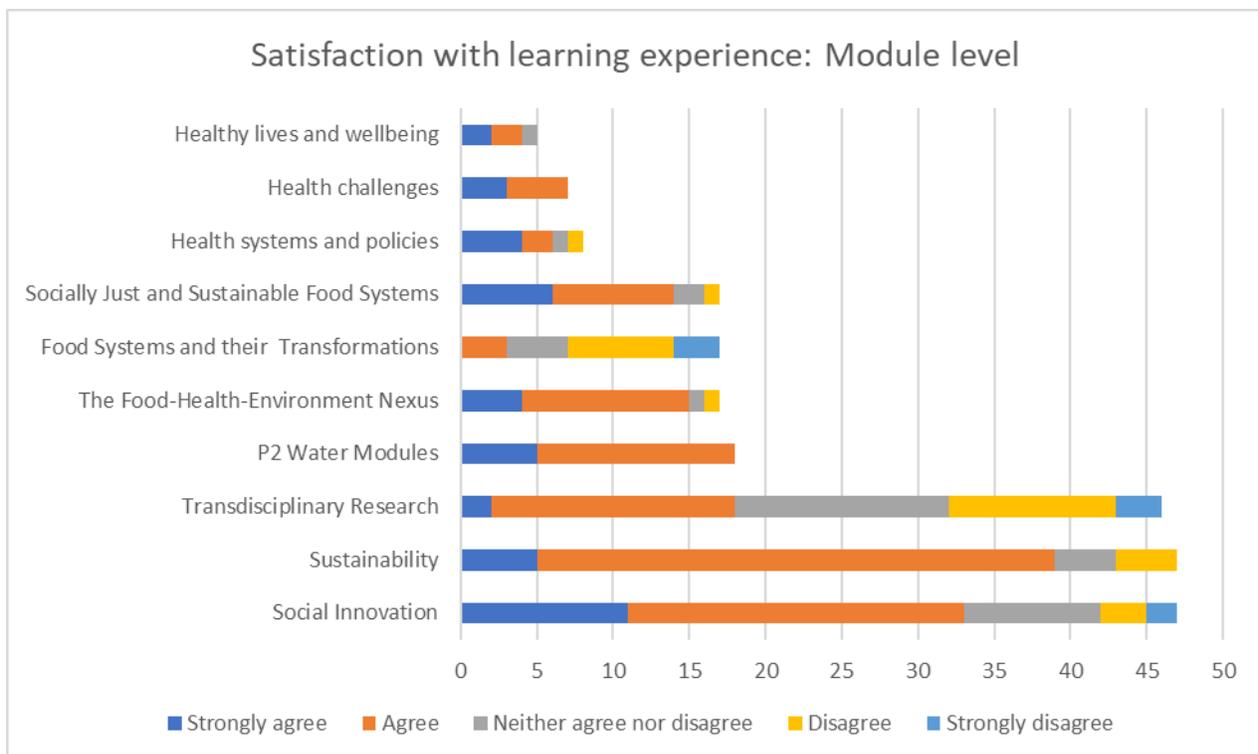
Phase level student evaluation

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[4] Water modules were analysed using an aggregate approach as the modules were delivered xxx

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- At a phase level (i.e. taking into account the three modules in a phase together) the majority of students felt that teaching and assessment workload was well balanced across all three modules in both phases (P1: 57% agreement; P2: 54% agreement).
- The majority of students reported working between 25 and 30 hours per week on module learning activities in both phases, with a greater amount of time working in Phase 2 than in Phase 1.

Figure 13: Hours spent on module learning activities and assessments
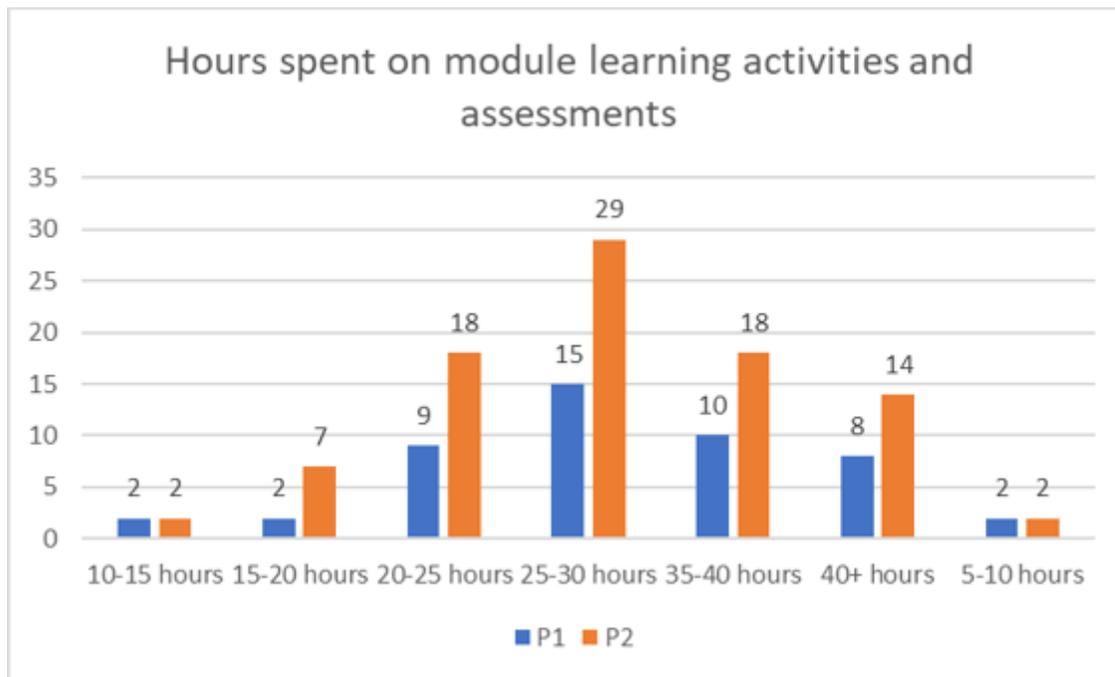
4.2.2. Assessment

CHARM-EU used an innovative form of assessment (Programmatic Assessment) which was new to teaching and administrative staff, and students. Although there were some positives to this new approach, challenges were identified by many in terms of technology, assessment process, and alignment with the Programme Learning Objectives.

4.2.2.1. Student perspectives

Overall, many students provided **negative perceptions of the assessment approach**, for example, being vague, too subjective, or unfair. However, students did show an awareness of its novelty, and that the course was "new to all". Almost 30% of students reported **difficulties with using Scorion** (Programmatic Assessment Software) in Phase 1, however this was reduced to 19% in Phase 2. Only 25% of students agreed with the statement "I am **comfortable / confident in the CHARM-EU programmatic assessment**" in Phase 1, with a similar percentage (26%) reported in Phase 2. No students strongly agreed with the statement in Phase 2. Some students felt there were **too many assessments** which was overwhelming,

that assessments were not spaced out enough, and there was not sufficient time to complete these during or after mobilities.

Students noted that **teaching staff require more training** in Scorion, and assessment techniques used. For Phase 1 modules, more than half of students reported satisfaction with **module assessment feedback**; however some felt that feedback was not useful, there was not enough time to incorporate feedback given, or feedback was provided too late. For Phase 2 modules, students were more satisfied, with an average of 65% satisfaction with feedback. **Clearer written instructions** about assessments, why types of assessments are being used, assessment deadlines, final outputs, appeals process, and expectations related to assessments are needed. **Assessment information sessions** should provide clearer information and practical demonstrations. Individual **tracks in Phase 2 (e.g. Water)** were perceived by some as **marked more harshly** than others. Some students did not think that the **levels used (pre-novice, novice etc…) for assessment** were objective enough to translate into a grade.

More individual assessments were requested in Phase 2 so that the grade could also reflect individual as well as teamwork. **Peer feedback** was noted by some as subjective, unsatisfactory, and should be explained better to students. Peer feedback forms were suggested rather than reflections.

Some students provided module specific evaluation feedback that pertained to specific evaluation processes within a module. For example, the perception that **team grading by assessors** was not always fair and did not consider individual efforts. Different assessors were used for each team, and some felt that this lack of consistency penalized some students.

Lack of transparency regarding the portfolio approach was mentioned by students. Some students felt anxiety regarding the programmatic assessment. Students reported that **similar assessment methods** were often used across modules in the same week (e.g. video assessments), or assessment approaches were repeated within modules.

Assessment information on the **CHARM-EU website** could be improved for incoming students which would improve student trust in the approach.

4.2.2.2. Staff perspectives

Common themes related to assessment that were generated from the Focus Groups with teaching staff included:

Assessment workload: Teachers felt that their assessment workload was heavy due to the programmatic assessment approach, and some were working weekends to fulfil assessment responsibilities. Some felt there should be fewer assessments overall. More support from educationalists was also requested.

> *"I think that it would be helpful to get someone which is more educationist (…) to focus more on what we really need to assess."*

Feedback loops: Feedback was provided to students on assessments, but in many cases students could not act on this feedback due to lack of time. One teacher suggested giving students the same assessment at different stages of the module to improve feedback integration.

Better assessment communication: Students required improved communication on the PLOs and assessment in general. Teachers noted that PLOs and assessment processes should be spelled out clearly to students.

> *"(…) maybe it's just a question of, as I said, just a question of communication to really tell them again, OK, look at the criteria, because that's what that's what we're assessing you on and. It's a bit of fine tuning I think."*

Assessment of educational principles: Some educational principles were difficult to assess, for example, transdisciplinarity, intercultural aspects, and digital skills.

Scorion (Programmatic Assessment Technology): Many teachers reported difficulties in using Scorion. Some were positive about its concept but felt they needed more training, others disliked the software.

In general, teaching staff felt that assessment required improvement, and some were not comfortable with the programmatic assessment methodology, however, the creative nature of assessments was positively highlighted.

4.2.3.   Educational principles

Ten CHARM-EU educational principles underpin the design of the CHARM-EU educational experience. They were developed over a series of workshops and review cycles with CHARM-EU work packages and stakeholders.

4.2.3.1.   Student perspectives

Students were asked to rank the CHARM-EU educational principles in terms of **how well they felt each principle was represented** within the phase content. Figures 14 & 15 illustrate student responses to this question over both phase one and two.

Representation of the **Challenge Driven principle** is well supported during both phases, but we note a decline in student sentiment regarding its presence on the phase two curriculum. This is likely due to a highlighted focus on challenge and problem solving during the Social Innovation module in phase one, plus a greater emphasis on theme specific content during phase two.

Students felt that **Inclusivity** was not represented well during either phase and we note the marked increase in this sentiment between the phases. This was unexpected, given the lack of any negative comments relating directly to inclusivity supports. When asked for specific ways in which CHARM could improve inclusiveness and accessibility, some negative sentiment was received in relation to mobility funding and cost of living in certain cities, and how this affects the potential for inclusion. This is a known issue as mobility funding was delayed for some students due to external factors. Otherwise, students responded with positive suggestions relating to content organization on the virtual learning

platform or timetabling to allow for longer comfort breaks, and both suggestions have been added to our learning experience design for next year.

Figure 14: Student perceptions of most represented educational principles within the MSc
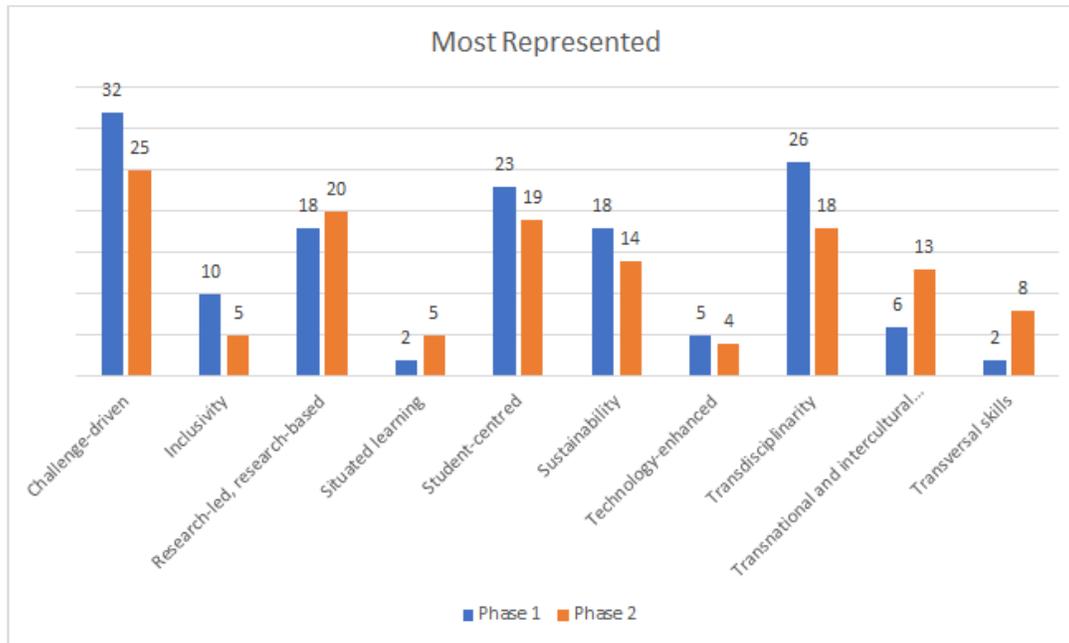
Figure 15: Student perceptions of least represented educational principles within the MSc
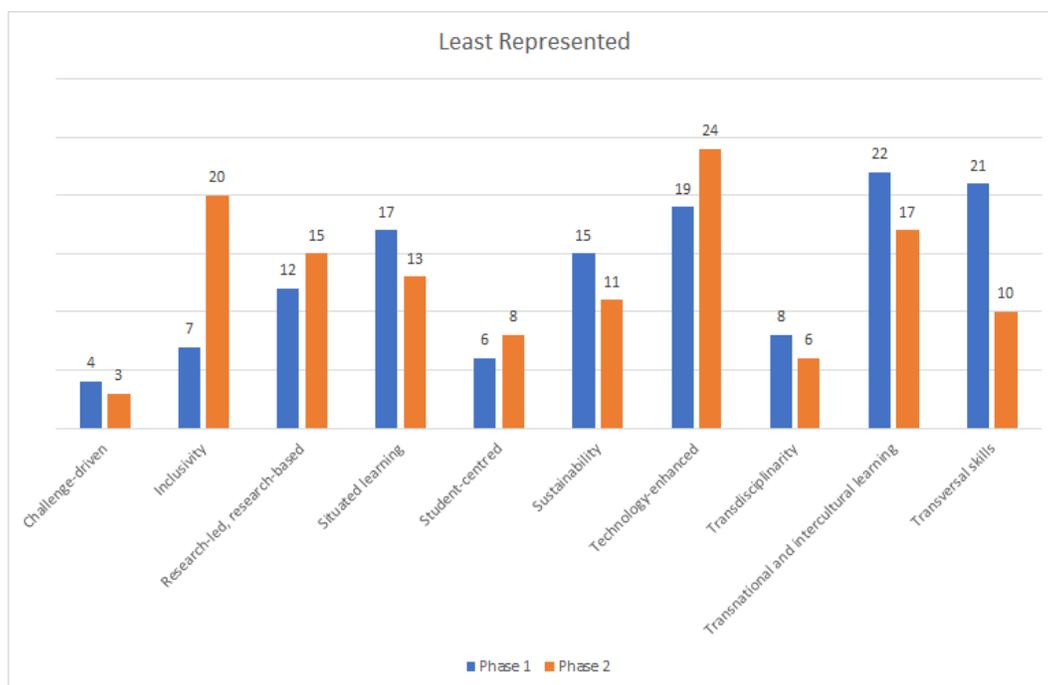
The **Research-led, Research-based principal** responses are noticeably divided in both phases, with similar numbers of students feeling that the principle was either represented well, or not. This echos our findings from the transdisciplinary module in phase one, where students with research experience found the level to be too low, while those without any research experience considered the module to be challenging. This is to be expected with a mixed cohort and we anticipate that a survey of the capstone research project cohort would indicate a greater presence of this principle.

Students reported that they felt the program was **student centered**, with only minor differences between phases.
The **sustainability** principle presents unusual findings, with a somewhat bi-modal set of responses in both phases, and we would have expected students to find this principle well represented especially during phase one when they undertake the Sustainability module.

The **Technology Enhanced** principle also presents a surprising result, given that the program is conducted within a hybrid setting. Our impression is that students do not consider the platform as a technology enhancement, which may indicate that students have normalized the hybrid experience to the point where they do not see the technology as a barrier to learning. Further analysis would be useful on this point.

Student gave strong positive responses regarding the representation of the **Transdisciplinarity** principle throughout the programme.

Students clearly feel that the **Transnational and Intercultural** principle was not well represented. While this may change considerably for students working on a capstone project, it is a point to note for future iterations of the earlier phases.

The final principle, **Transversal Skills**, shows a rather poor representation. A considerable part of the cohort voted this principle as being one of the least represented, although it is encouraging to note an improvement between phase one and two. One possibility is that this area might not have been made explicit to the students as the skills are embedded within the design of the learning experiences. It might be necessary to make these skill developments more visible to the students.

4.2.3.2. Staff perspectives
During the staff focus groups, feedback on specific educational principles was sought in terms of how well they were integrated into teaching, and any challenges they faced.

Teachers felt that **Challenge Driven Learning** was well represented throughout the modules, both longitudinally and within individual lectures. Implementation of this educational principle was noted as easy.

Student Centered Learning was perceived as very well represented with teachers noting how seriously it was taken, how much knowledge of student issues they had, how students could choose their own challenges, and how they responded to student feedback during module implementation. However, some felt that the balance between students and teachers was one-sided, and students would come to

teachers with minor issues expecting quick resolutions. One teacher noted that they were "*terrified to correct them*" in case they were accused of not being understanding.

Most teachers felt that **Sustainability** was integrated well into the modules, however some teachers struggled with being more explicit about Sustainability within their modules, how it could be linked with teaching concepts (i.e. ecology and sustainability), and felt it was difficult to assess.

> *"I struggle with the concept of sustainability in Life and Health because I couldn't see it explicitly enough."*

The **Transnational and Intercultural** principle was integrated relatively well into the modules in terms of teaching staff and stakeholder diversity, student reflections, and module content. Most of the teaching staff thought that the fact that the student cohort came from a variety of national/cultural backgrounds implicitly ensured the representation of this principle. However, some found assessing students on this principle challenging as some teams worked on a more intercultural topic than others, and an unclear understanding of its definition in assessment rubrics. Others felt teaching could have been broader to include the Global South, more intercultural module readings, or going into much deeper depth into the meaning behind different worldviews and understanding realities.

> *"(…) implementing it is not the biggest issue because health itself is intercultural. We were looking (…) domestic violence, sexual violence in Rwanda, so that in itself we were implementing the learning there, but it was the measuring that was difficult."*

Transversal skills were often seen as implicit within the module teaching through groupwork and communication activities, and presentations, and were well designed into the curriculum. However, some felt that students lacked awareness that they were building these skills through these activities, and knowledge about transversal skill development could have been more explicit and communicated.

Although **Situated and Authentic learning** was present in many modules through external stakeholders, this was not uniform across all modules. In Phase 1, teachers struggled to find stakeholders as there was a lack of infrastructure to support this, but this has improved in Phase 2 and 3. Some teachers noted that there was variance in student embeddedness within a community of practice, with some students having a very positive engaged experience, and others struggling to find a stakeholder community. Stakeholder background was also mentioned; more diversity of stakeholder topics could have improved the teaching in some modules.

Transdisciplinarity was noted as a challenging educational principle to integrate and assess, and teaching staff noted the difficulties even for senior researchers to do transdisciplinary research. Teachers felt that they themselves did not fully understand the concept, and many reported that teaching staff confused interdisciplinarity with transdisciplinarity. Integrating it into teaching was sometimes difficult, as it was not suitable for every activity that was developed (e.g. transdisciplinarity in a presentation), and teaching was found to be more multidisciplinary rather than transdisciplinary. Transdisciplinarity also takes time to emerge, and some felt that the time to do this was not sufficient in

the MSc. Finding a balanced cohort of teaching staff across multiple disciplines was absent in some modules, which also hindered transdisciplinarity.

> *"I think a lot of people in academia might use the term, but they mean interdisciplinarity, which it has subtle differences, and I think maybe clarifying what we mean in CHARM, as transdisciplinary, maybe we could do some more work with making sure that that that definition is shared across the teaching staff."*

Research led – research based principles were also reported as challenging to teach and integrate. Teachers felt that students had different levels of methodological and research training, due to their disciplinary background, which caused difficulties in learning activity participation, vocabulary, and understanding. Some students found this principle too easy, and others, too difficult and overwhelming. Teachers also felt that they did not know enough about student research background to design content applicable to them. Lack of a CHARM-EU ethics process hindered research activity in some modules.

> *"For some students who had a research background, it was too easy, for those who didn't it was too hard, and finding the right balance and because you're sort of trying to look at the diversity as well of methods and methodologies and trying to so. It's trying to cover a lot of perspectives and approaches, and if students don't have a background in that can be quite overwhelming, or if they already know some of the stuff, then they can sort of switch off saying already know this. So it's trying to keep them engaged at the right sort of level is the challenge there."*

Technology enhanced learning was heavily discussed by the teaching staff, both in terms of usability issues, and module integration issues. Some felt that local activities in the hybrid classrooms should be prioritized as it would enhance the teaching experience from being more of an online experience to a technology enhanced experience. Many mentioned technical difficulties with the hybrid classroom technology (e.g. Teams organization, audio issues) which impacted on the learning experience. Greater use of emerging technologies was mentioned as being a need for future iterations of the MSc, and the use of more practical technologies such as SPSS. In addition, some felt that more focus should have been on the content rather than the technology aspect during the design phase. Finally, teachers mentioned that students should be given more support on the meaning behind using certain technologies (i.e. video).
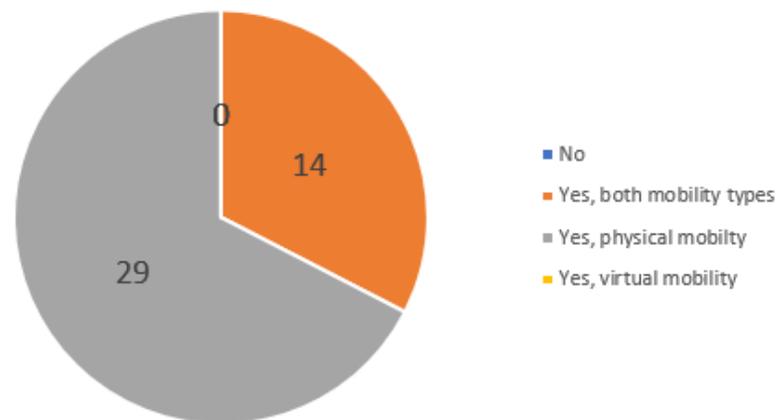
4.2.4. Mobility

CHARM-EU students on the MSc are expected to undertake one extended mobility for a complete term, plus a set of shorter mobilities including field trips and learning activities at one of the partner campuses for one to three weeks. Several additional virtual mobility sessions also took place, where students spent dedicated time working online with peers to contribute to a local event in a CHARM-EU partner university. Most students availed themselves of the mobilities, but a small set encountered personal circumstances issues that restricted them to remaining in their home institution. Mobility administration was delivered by the JVAO.

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4.2.4.1.   Student perspectives

Physical mobilities were mandatory in Phase 2 except for the few isolated cases mentioned above, and it is therefore unsurprising that this is the most popular type of mobility undertaken. No students undertook a virtual mobility without also engaging in a physical mobility (see Figure 16).

Figure 16: Number of students who took up mobility opportunities in Phase 2

The mobility opportunities were generally well received, albeit following some frustrations with payments due to slowness on the part of some students in applying for grants and a lack of clarity regarding the process. Student feedback on this point indicates that there was a level of confusion about how and when to apply and it is evident that organizing grants should take place well in advance of any trips.
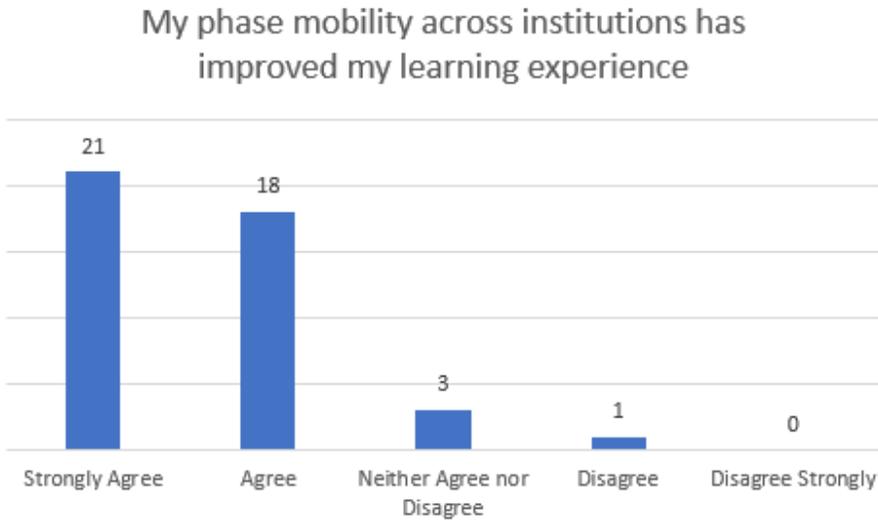
Student feedback regarding the longer phase mobility (i.e. term) highlights the difficulty with housing and the cost of living in some partner cities.

> " Students arriving to Utrecht must get help to get housing. I spent most of my mobility living in expensive airbnbs and not able to always join class because I would need to commute 3 hours per day"

Despite the challenges, survey responses relating to the phase mobilities indicate that students felt the learning experience was greatly improved due to the addition of mobilities in the master's programme (see Figure 17).

The content and structure of shorter, blended intensive sessions was praised, but some issues were also raised regarding how time could be better spent, the need for better clarity of the schedule and planning as well as the timeliness of the events in relation to assessment deadlines.

Figure 17: Attitudes towards mobility and improvement of learning experience.

My phase mobility across institutions has improved my learning experience

21

18

3

1

0

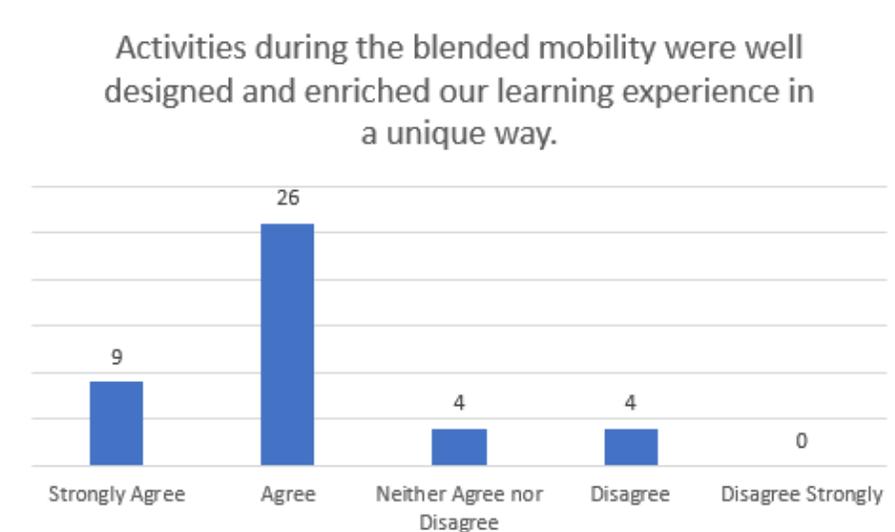Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Disagree Strongly

The short mobilities on each stream had some organizational problems to overcome but student comments generally indicated an improvement for subsequent events.

> *"The first [redacted] mobility to [redacted] was badly designed and included few activities to justify travelling to a new location. The second short mobility was an improvement on this."*

Despite negative comments relating to the administration issues, survey data shows that students were generally well satisfied with the academic content of the sessions and found them beneficial to their learning (see Figure 18).

Figure 18: Student attitudes towards design of blended mobilities.

Activities during the blended mobility were well designed and enriched our learning experience in a unique way.

26

9

4

4

0

Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Disagree Strongly

4.2.4.2. Teaching staff perspectives

Common themes related to mobility that were generated from the Focus Groups with teaching staff included:

Importance for teaching: Mobilities helped students move away from the classroom and theoretical methods to more practical application of their teaching in a situated context. Having a mobility within a track was noted as being positive for the track as a whole, and teachers were very positive about their inclusion for teaching.

> *"It's important that they go beyond or go far away from the hybrid classrooms and directly look at experiences and stakeholders and people involved."*

Student satisfaction: Teachers noted that students were very positive about some of their mobility experiences.

Student connection: Seeing students in person was noted as a positive experience for teachers.

Staff effort: Organizing mobilities was seen as very time consuming and more support was requested for teachers.

> *"Huge work to welcome the student to be sure that everything is good to solve all the difficulties, the administrative, the personnel, the teaching difficulties, everything. It was huge."*

4.2.4.3. Administration staff perspectives

Common themes related to inclusivity that were generated from administrative staff reflections included:

- Late **organization of mobilities** caused challenges with grant funding organization.
- **Deadlines** were not strictly adhered to due to late publishing of calls.
- **Mobility grant management** (i.e. when and how students receive their grant) was perceived as not in line with student expectations.
- **Poor communication** of mobility procedures that can differ across institutions was noted.
- The connection between **Erasmus+ and their CHARM-EU application** may need reworking.
- A **lower number of Blended Intensive Programmes** in Phase 2 was proposed by some administration staff.

4.2.5. Inclusivity

4.2.5.1. Student perspectives

Students noted that there should be better **'financial inclusivity'** with more grant support for mobilities, hardware (e.g. laptops), and accommodation. Some mobility grants were not paid until after the mobility, and students were relying on family or friends for support until the grant money arrived. High fees for non-EU students were also noted as being an inclusivity barrier.

Students commented that there should be more **attention to student mental health;** students can feel isolated in new physical locations and feel anxiety with assessment.

Technology platforms can be difficult to navigate, should be consolidated into one, and require better student training. Some platforms could have better accessibility (e.g. subtitling lectures). Students used **different types of hardware**, and as such, some were disadvantaged and requested better guidelines or financial support for laptops.

Students reported the **inclusivity team** as being supportive, but some were only aware of the team towards the end of Phase 2.

Students felt that the physical facilities (e.g. **hybrid classroom**) were suitable for their learning needs. However, some felt that hybrid classrooms can be overwhelming for those with sensory needs.

Greater consideration of student inclusivity needs **in online lectures** (i.e. more time for questions, and more breaks) needed. Hybrid/online classes can be challenging for students who are neurodivergent.

4.2.5.2.   Teaching staff perspectives

Common themes related to inclusivity that were generated from the focus groups with teaching staff included:

Inclusivity administration: Some teachers noted challenges with communicating inclusivity processes with students, and requested better internal communication about this process to teachers. They also requested that student needs assessments could be done earlier so that they have better visibility of student inclusivity needs. However, teachers noted the helpfulness of the inclusivity checklist (WP6), and that they could have used it more frequently.

> *"We had a very specific challenge at some point, right where we did not account for. Or were we did not, follow the right procedures in terms of one student requiring specific needs, I think in the end it all worked out, and I think we did what we were supposed to do, but we may not have communicated it as explicitly to that specific student"*

Student type: Few students came from outside the EU, due to costs, and this hindered inclusivity and diversity of the student cohort. One teacher noted that the students in the course came from a position of privilege and questioned how CHARM-EU could be more inclusive to other student types.

University services: Teachers relayed that students did not have sufficient help from the university to source accommodation, in particular those with financial challenges. In addition, some mentioned that students needed more support to combat loneliness when they arrive in a new city. More support for mobility and accommodation costs was requested.

> *"complained that there is no central help for them, at least in <redacted location>, to assist with accommodation and their main problem was at least what they reported to me that they didn't get like proper health and they had to do everything on their own."*

Translation of learning content: In certain tracks, stakeholders spoke in a local language, and translation facilities (i.e. local translator or app) were lacking. This hindered inclusivity of those students without knowledge of that language.

Diversity of teaching staff: More teaching staff from outside Europe were requested to improve diversity of learning content.

Student support: Teachers mentioned individual cases whereby a student was facilitated in terms of inclusivity (i.e. mobility was reduced, the mode of transport for a field trip was changed).

> *"Well, the field trip at the beginning I was thinking to do everything by bike. So someone said, well, what about inclusivity? There is someone with disability and we got the answer quite soon."*

Teacher inclusiveness: Workload was noted as high for some teaching staff which would be a barrier to being part of CHARM-EU.

Physical environment: Within the hybrid classroom, some physical infrastructure to support inclusivity was not completed prior to the start of the MSc (i.e. hearing loop in some universities).

Course content: The PLO domains, Programmatic Assessment approach, and variety of assignments were noted as inclusive, because they gave good flexibility for students.

4.2.5.3. Administrative staff perspectives

- The **inclusivity procedure** for students should be more transparent, structured and shared with the JVAO, Porfolio Assessment Committee and Board of Examiners.

4.2.6. Additional student experiences of note

- The concept of the **technical platforms** (e.g. Moodle, Scorion, Teams) was praised by students, even though their execution was sometimes challenging or rushed. Students noted that staff sometimes struggled with the technology although improvements in technology usage by staff was apparent in some modules in Phase 2.
- Students **appreciated** all the efforts that staff made for them and understood the challenges related to organizing a new European University Masters.
- Some hybrid classrooms were mentioned as being 'barely fit for purpose' due to audio disturbances. Recommendations can be found in section 4.5
- Having **more time at the start** of the Masters to understand the new assessment approach, technical platforms, three phase structure, and the overall concept was noted. Students felt the pace was hectic at the start of the Masters.
- Some students suggested a clearer structure at the start of Phase 2, better connections and coherence between modules within tracks, restructuring the module flow of P1 starting with sustainability. Recommendations can be found in section 4.5
- The timetable was suggested to be clearer, to be put on Teams rather than Excel, and that last minute changes were mitigated.

- Larger focus on sustainability within the content of the Masters generally.
- The Water track was commended by many students.

4.2.7. Additional staff experiences and challenges of note

- Teaching staff were **proud** of what they had achieved, and although they identified challenges and issues, in most cases, teaching on the MSc was a positive experience. Some noted how much their had learned from other students and staff members for their own teaching practice.
- Recurrent **challenges** identified by teaching staff included poor communication between teaching staff, students, administration and the project team, and technology usability problems within the hybrid classroom.
- The high calibre of **students**, and strong relationships many teachers had with students were often emphasized. Seeing the students develop throughout the programme was highlighted as very positive.
- Being a **transdisciplinary teacher** and researcher was highlighted as challenging by teachers. Some reflected that asking students to be transdisciplinary was difficult because many of the teachers themselves also found it difficult or didn't understand the concept.

4.2.8. Administration staff experiences and challenges

- JVAO officers often received information from different sources, and a better **information management system** is needed to archive and share information between JVAO officers and to students and teaching staff.
- **Communication** to and from students, module coordinators, Project Management Team, and between themselves should be streamlined and improved. Poor communication can cause delays.
- Certain **policies** and **regulations** were finalized at the last minute with making practical implementation challenging. In certain areas (e.g. classroom participation/attendance) new policies, stricter adherence to student deadlines related to policies, and addressing inconsistencies between policies is needed to avoid the current ad hoc approach.
- Student **feedback** should be centralized and structured.
- **Differences in administration processes** between universities can cause delays.
- **Admission procedures** are time consuming and need to start earlier for incoming students.
- There is a need for a **larger JVAO staff pool,** including JVAO assistants**,** to support greater numbers of students, and backup when JVAO staff are on leave or absent due to illness.

4.2.8.1. Student perceptions of administration

- 71% of students were **satisfied with their JVAO communications**.
- More **physical presence of JVAO officers** was requested in some universities (i.e. staff were working remotely). Students valued familiarity with officers, mentioning particular officers by name in the evaluation.

- Students noted that **response times for personal JVAO communications** differed strongly across institutions. In some cases students were waiting long periods of time for responses, but in other cases the quickness of the response was noted.
- Students suggested having **more JVAO staff**.
- **Improved communication** via email was noted, with longer lead times for forms requested.
- Students noted how **delays in funding approval** and administration caused anxiety for many, and improved communication about mobility grants is needed.

4.3.   Stakeholder Perspectives

An online survey was developed by WP7 and shared with all CHARM-EU stakeholders via email in November 2022. This survey explored stakeholder perspectives towards aspects of the MSc including stakeholder-student engagement, student competencies and skills, and stakeholder experiences with CHARM-EU.

The stakeholders surveyed (n=158) were involved in the CHARM-EU World Café (2022 and 2021), Business and Society Forum, and the Capstone project. A total of 8 responses were received; 5 having engaged with students on the MSc, and 3 who had not.

- Most stakeholders felt that the clarity of their communications with CHARM-EU were clear (n=6), and the frequency of communications was just right (n=4).
- In addition, the majority of stakeholders reported that CHARM-EU students had the competencies and skills that they would seek in an employee (n=4).

4.3.1. Stakeholders who engaged with students

A total of 5 respondents reported that they had engaged with students on the MSc. Table 5 describes their perceptions of student competencies that were possessed by students or required further development.

Respondents described the benefits of working with CHARM-EU which included:

- Improving their own work including a fresh outlook
- Provision of knowledge via surveys and recommendations
- Increasing their communications capacity
- Accessing a new network
- Gaining insights from other colleagues
- Improving their exploration of a concept.

Perceptions on how CHARM-EU could improve their engagement with stakeholders included:

- More emphasis on the practical results and benefits for stakeholders
- A more integrated experience with greater flexibility for meeting times.
- Clarity on stakeholder expectations
- Improved communications where stakeholders are only targeted with relevant information

- Inviting stakeholders as lecturers or project leaders.
-

Table 5: Stakeholder perceptions of student competencies.

Competencies they felt CHARM-EU students had that they would seek in an employee	Competencies they felt CHARM-EU students could further develop that they would seek in an employee
The ability to focus	Choosing approaches fast and let correct if not good or not expected.
Engagement, networking skills and collegiality	Rallying ability
Understanding of sustainability issues, competency in research methods, ability to work independently and as a team, ability to clearly explain and defend chosen methods.	Capacity to work within an organization. This isn't a criticism of the students, it's about the way the assignment is structured. The assignment is focused on the students' research project more than about our organization's needs. The students have done their best to shoehorn our needs into their research project and activities with us. However I've observed other Capstone projects in other university settings that are much more fully integrated. The assignment as structured does not give an opportunity for the students to participate fully in the organization and immerse themselves in the associated challenge.
Technical knowledge, engineering qualities.	Efficiency on all facets.
Communication, professional delivery, enquiry	Thinking 'outside the box', problem solving

4.3.2. Stakeholders who did not engage with students

A small number of stakeholders (n=3) who did not directly engage with students reported benefits to being a CHARM-EU stakeholder as:

- Accessing a new network
- Gaining insights into teaching practices of other universities

4.4. Specific quantitative results related to CHARM-EU WP7 indicators

Table 6 describes specific quantitative results related to WP7 indicators as detailed in the CHARM-EU proposal.

Table 6. Numbers involved in first iteration of the MSc.

Number of students taking part in the programme (i.e. MSc)	69
Number of staff delivering the programme (i.e. MSc)	Approx. 81
Number of students taking part in the learning experiences (i.e. Winter School)	13
Number of staff delivering the sessions (i.e. Winter School)	6 (core delivery team) + additional staff during plenary sessions, stakeholder sessions and the final student presentations

4.5.   Alignment with quality indicators

The thematic areas above evaluate the MSc from the perspectives of students and staff. However, the evaluation should also explicitly address Quality Assurance, in line with the ESGs. Table 7 describes the location of where these ESGs have been addressed, and where further information can be sourced on these evaluations.

Table 7:

ESG		Standard	Location and notes
1.1	Policy for Quality Assurance	Institutions should have a policy for quality assurance that is made public and forms part of their strategic management. Internal stakeholders should develop and implement this policy through appropriate structures and processes, while involving external stakeholders.	CHARM-EU Quality Management System Policy is published on the CHARM EU website. It was developed by representatives of WP 2.5 Quality & Accreditation with input from WP 6 Inclusivity, Joint Virtual Administration office and Academic Board each with representatives from Alliance partner universities. The CHARM-EU Dignity and Respect Statement , also relevant under ESG 1.1 is published on the CHARM EU website.
1.2	Design and approval of programmes	Institutions should have processes for the design and approval of their programmes. The programmes should be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a programme should be clearly specified and communicated, and refer to the correct level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area.	The CHARM EU Policy on New Programme Design and Approval and the New Programme Approval Procedure for the under the European Approach to Quality Assurance of Joint Programmes are published on the CHARM -EU website.
1.3	Student centred learning, teaching and assessment	Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.	Student Forum conducted in October 2020 and attended by 25 students from across all CHARM-EU partner institutions at which the initial draft of the curriculum design and the CHARM-EU Education Principles was discussed.

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			Students also take an active feedback role in the MSc including participation in a Staff Student Council and Academic Board meetings and representation in Work Packages. The programmatic assessment methodology encourages flexibility and student-centeredness. More information is available in the Assessment Handbook. The CHARM-EU Complaints Policy, Complaints Procedure and the CHARM EU Appeals Policy and Appeals Procedure are published o the CHARM EU Website. After each Phase/Semester of the M.Sc. there is a Phase Evaluation Process incorporates input from Student Staff Council meetings and student module surveys.
1.4	Student admission, progression, recognition and certification	Institutions should consistently apply pre-defined and published regulations covering all phases of the student "life cycle", e.g. student admission, progression, recognition and certification	Admission Regulations are published on the CHARM EU website Academic Rules and Regulations are published on the CHARM Eu website Progression is monitored as part of the Phase Evaluation Process
1.5	Teaching Staff	Institutions should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff.	The CHARM-EU Teaching Allocation Policy is published on the CHARM-EU website. A Number of professional development materials and workshops were conducted and are available to staff, these include: • Teaching and learning strategies handbook • Technology enhanced learning workshop

			• [Inclusivity tips for charm-eu educators](#)
			• [Transdisciplinary teambuilding workshop](#)
			• [Inspiration session challenge-based-learning](#)
			• Online introduction to CBL module
1.6	Learning resources and student support	Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided.	[CHARM EU Services Policy](#) is published on the CHARM -EU Website. A sweet of technologies (Moodle, MS Teams and Scorion) make up the Virtual Learning Environment used to deliver the programme. This integrates with the technology in the Hybrid classrooms in each location There is a Student Induction programme at the start of each year that introduces new student to both CHARM resources and supports as well as those available at the local institutions.
1.7	Information Management	Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes and other activities.	Surveys – Pre Programme Survey, Module and Phase Surveys evaluate student experience of the programme overall as well as the learning technologies. Addition information and resources are stored CHARM -EU SharePoint (Project Administration) for internal materials, those for sharing can be accessed via the CHARM-EU website and Toolkit.
1.8	Public Information	Institutions should publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible.	[CHARM-EU Policies and Regulations](#) webpage [CHARM EU Our Masters](#) webpage includes information on programme: - Admission Regulations - Tuition Fees

			- Learning Objectives - Programme Structure and Assessment - Student Guide 2021, 2022 - Information on Capstone Project - Signposting for JVAO, Teaching Staff and Academic Board
1.9	Ongoing monitoring and periodic review of programmes	Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned.	CHARM EU Programme Monitoring and Review Policy is published on the CHARM EU website The following information is collected and reviewed for improvement by the Academic Board at a programme level and by the Phase/Theme KCTS for module level reviews: • Preprogramme Evaluation Survey 2021, 2022 • Module and Phase Evaluation Survey (P1; P2) • Surveys of KCT Members , Teaching Assistants • Evaluation of Programmatic assessment Committee (end of Phase 1) • Focus Group with KCTs, JVAO • Student Staff Council Meetings Minutes • Academic Board Meeting Minutes and Actin Plan • Student Staff Council Meeting Minutes
1.10	Cyclical external quality assurance	Institutions should undergo external quality assurance in line with the ESG on a cyclical basis.	CHARM EU Programme Monitoring and Review Policy is published on the CHARM EU website, references External QA. European Commission has published the Quality Framework for European University Alliances (EUNIQ Project). However, policy change at the European level is required in order to enable its implementation.

4.6. Key learnings and recommendations

Based on the evaluation questions detailed in the initial CHARM-EU proposal, the following key learnings and recommendations are encouraged.

Governance

- Is the model fit for purpose and produces the expected outcomes?

  The intention was to create the model, test as many characteristics as possible during the first three years of the project duration and refine the model. However, the pandemic delayed considerably the Best Practice report (entitled First steps towards an innovative governance and management model for a new type of Alliance. Concepts, challenges and lessons learned from the higher education sector and beyond) and the definition of the global Governance model. Therefore, the strategy for development was adapted. The priority was to develop the Boards and the Policies that could be tested with the Master implementation and after, create the Governance and Management model. This forced change has been a great success, as for example in the Governance, the model has been developed based on the experience of what has worked and as an a natural evolution of CHARM-EU approach to doing. It is a model that integrates smoothly with the existing partners governances. Not all the initial areas of development have been developed as far as expected, but learning and progress has been made in all of them. In general terms, the model is fit for purpose and produced the expected outcomes. Governance was further developed in quality and services, and less in financial and human resources management as these are the fields with wider differences between countries and institutions and where a legal entity (that we have not yet established) make a difference.

- Does the model help to overcome the current bureaucratic barriers (accreditation, automatic recognition, access to students services?

  The model helps to overcome the current bureaucratic barriers, but doesn't solve them. The model has been useful to understand the differences between countries and institutions, how can we work together to minimise them and even simulate in some cases that we act as one institution. However, without the reality of the legal entity, acting as one institution (joint and unique rules and regulations), can have legal problems facing appeals, for example. In the case of accreditation, it was a huge milestone in CHARM and it was used as a pilot to make two national legislations more flexible for joint European degrees (Spain and Hungary), not only for European Universities but for the whole national system. However, unique tuition fees or academic rules and regulations can be fragile in terms of national regulations. This will need a significant work with the members States in the future if they want these type of joint activities grow in Europe.

Curriculum Design

- Does the content of the developed programmes align with the Curriculum Design Blueprint and Programme Content Guidelines?

  The Masters in Global Challenges for Sustainability was designed following both the Curriculum Design Blueprint and Programme Content Guidelines in detail. This included the explicit inclusion of all educational principles and adhered to the three phase structure outlined in these documents. This is evident in the evaluation material discussed above, however there is still improvements that could be made in terms of coverage and depth of the educational principles throughout the Masters. In particular the areas of Transdisciplinarity and Transversal Skill development could be enhanced further.

Teaching and Learning Strategies

- Do the developed programmes align with the Pedagogical Guidelines and utilise the Teaching and Learning strategies?

  Similar to above, the Masters in Global Challenges for Sustainability was designed following both the Pedagogical Guidelines and utilise the Teaching and Learning strategies in detail. The material in these documents was used to design and delivery a wide variety of professional development opportunities for the staff involved in the delivery of the Masters in order for there to be alignment between the design and delivery of the programme. This is again evident in the evaluation material discussed above, however again there is still improvements that could be made in terms of coverage and depth of the educational principles throughout the Masters and this in particular is highlighted in the feedback from the staff focus groups. In particular more training and clarity around the programmatic assessment approach could be worthwhile.

- Is the VLE fit for purpose?

  We are very satisfied with student feedback regarding the virtual environment, although students felt that there needs to be more alignment between the platforms, or only one platform to be used for consistency. The VLE team responded to this by minimizing the need for Moodle and Teams in future modules.

  The physical elements (i.e the hybrid classrooms) did have some challenges that required actions. Students noted that they needed more time to work successfully in the hybrid classroom (i.e. raising hands, typing chats) and this should be built into class times in future iterations. Audio issues in the

hybrid classrooms were problematic at times due to inconsistent configurations across the sites. Low volume was noted and resolved with radio mics where needed. Background noise was an issue in TCD due to the presence of an automatic carbon dioxide sensor that controlled the windows in the room. We worked with the Estates and Facilities department to fine tune the particle threshold which helped somewhat, but the most effective action was simply to cycle the windows manually once every ninety minutes to avoid the issue and refresh the air in the room.

- Are the Assessment Techniques and Criteria fit for purpose and adhere to the quality assurance guidelines?

  Student feedback highlighted that assessment approaches were sometimes repeated across different modules during the same week, e.g. video submissions on two modules in the same week. This can cause confusion regarding what material is due for submission and we recommend that future iterations should coordinate in advance to avoid this situation across modules.

Mobility

- Is the Mobility matrix realistic and fit for purpose?

  The document shows an overall theoretical background, covering all the existing types of mobility, which has been useful in the current project phase and it will serve as a good basis also for the next project, with additional activities. During the first phase of CHARM-EU project only some types of mobilities could be tested and the usefulness of the matrix to use while developing modules to see which type of mobility fits the learning outcomes best could be experienced only partially.

  Furthermore the current state only allowed for the financing for a smaller part of the mobility types included in the matrix. All in all the matrix provides a good framework for any further development of education in the future. Additionally – beyond the core project deliverables – a Transnational and Intercultural Learning Toolkit has been developed which supports the curriculum development and the integration of the mobility matrix into the design process.

- Is the Mobility funding system fit for purpose?

  The CHARM-EU Unique Funding System designed at the beginning of the project contained 3 different scenarios: the first, most preferred one would mostly build on non-traditional mobility activities but would require a high level of additional funding from internal resources. On the contrary, the third scenario was built completely on traditional mobility activities, mostly using Erasmus+ budget. The second scenario could be understood as a compromise between the aforementioned ones. As there was no significant budget available for mobility purposes in the CHARM-EU project budget, Scenario 3 was implemented relying almost entirely on the Erasmus+

resources of the partner universities and it has not allowed us to explore other, more flexible types of mobility.

In most cases, the application of the Erasmus rules did not cause any problem, these are well-known amongst the target groups, and it is easy to build on the existing info materials and administrative procedures. On the other hand, Erasmus+ is a decentralised programme, where a number of details are decided at national or even at university level that caused strange situations in case of the joint master programme – the grant amount to the same destination country was different depending on the rules of the sending country; similarly, the first instalment varied between 70-90%; some of the partners do not provide a pre-financing, just after a certificate of arrival was issued, while in other countries this is not required. It could hardly be understood as equal treatment. Even the classical Erasmus logic of 'home' or 'sending' university vs. 'hosting university' was difficult to interpret in case of a joint programme of the University Alliance. Sometimes we had also alter from our normal Erasmus+ procedures and calendars under the time pressure and the challenges of the pilot phase. At some partners, where the Erasmus budget was smaller than the demand of the target groups, to provide multiple Erasmus scholarships for the CHARM-EU students caused tensions.

However, the project budget was used when a mobility was not eligible under Erasmus+ - in case of students returning for a blended mobility programme to their starting university from a semester mobility spent at another partner university. Furthermore, the project also financed top-ups for inclusivity reasons. Both were crucial from an inclusivity point of view.

- Can the Interactive handbook be effectively used to coordinate mobility of students between institutions?

  The mobility handbook covers the main aspects of mobility, with detailed procedures that also reflects on the differences in the procedures of the partners, tailored towards the needs of the joint administrative office. However, as it was designed for the mobility linked to the joint master programme, it should be extended for the new actions of the new project.

Inclusivity

- Has the inclusivity plan been effectively implemented in the pilot programme and to what extent in line with the registry of best practice? What barriers, if any, are there to full implementation of the inclusivity plan?
  - Work Package 6 identified key barriers in the implementation, accountability, and monitoring of the concrete objectives for work packages listed in chapter 4 of the Inclusivity Plan. Therefore, monitoring mechanisms and responsible bodies have been removed from that plan.
  - The CHARM-EU structure and its Master's had a vague, more theoretical and value system understanding from the beginning about inclusion and diversity. Therefore, much practical inclusion and diversity elements and structures were lacking, such as the inclusion and diversity aspects within the Admission Process, Financial Support Mechanisms, clear Memorandum of

Understanding Support Structure Mechanism, Governance Structures, Policies and protocols, procedures, Needs Assessment Procedure and many more. CHARM-EU WP6 transformed many structures and addressed areas for gaps.

o CHARM-EU WP6 acted as a real-time icebreaker between 2019 and 2022 to ensure inclusion and diversity elements step by step become an integral part of the CHARM-EU operation and organisational culture. In the future, more resource allocation (i.e., time, human, and financial resources are needed). This was not envisaged at the beginning of the grant proposal.

o The interim solution was throughout the CHARM-EU and Master's programme that Work Package 6 identified barriers or non-implementations of certain aspects, and not all, but many were resolved.

o As a concrete, tangible example, the CHARM-EU Branding guidelines included a chapter on Inclusion, Accessibility. Such as PowerPoint documentation is not always checked with Accessibility Checker, promotional materials, and CHARM-EU videos that remain non-accessible, such as the unavailability of subtitles or transcripts or gender-natural language.

- Were the outputs used as intended?

o The original outputs of Work Package 6 were beneficial for both CHARM-EU & many stakeholders beyond CHARM-EU.

o Key findings of the CHARM-EU inclusiveness survey have been proven not only beneficial for CHARM-EU but for the European Higher Education Area, as there are only a few comparative and detailed studies and research and overview of the equality, equity, non-discrimination legislative space and national and local (Higher Education Institution level) support structures between EU Member States.

o The CHARM-EU Good practices in the field of inclusion and diversity summarised the wealth of practices in the field of inclusion and diversity from CHARM-EU partner universities. It aimed to inspire various higher education institutions, stakeholders, and individuals to leap to start or strengthen their journey in the field of inclusion and diversity. The output is an outstanding repertoire of practices compared to many other good practice collections publicly available, as it offered in-depth information not only on successes and enablers but on challenges and many further insights through the unique criteria system that was established.

o The CHARM-EU Inclusivity Plan showcased what it means to mainstream inclusiveness & diversity in CHARM-EU's organisational culture & overall operation. Specific objectives were to support an understanding of how CHARM-EU has a unique place within the national, European & global higher education landscape and the inclusion diversity agenda. Circumstances & atmosphere were outlined where CHARM-EU has been developing from 2019-2022 and how inclusion and diversity have been incorporated into CHARM-EU's culture & various areas of operation. Concrete objectives and concrete actions were set for the CHARM-EU and its Master's in Global Challenges for Sustainability.

o The CHARM-EU Inclusivity Plan review & overall key findings shared with the CHARM-EU community and various stakeholders and individuals, key lessons learned aspects about the design, delivery and, implementation and monitoring processes of the CHARM-EU and its Master's Programme Sept 2021- Feb 2023.

- Can the online course and manuals be used to effectively train staff?
  - For Knowledge Creation Teams (academic staff) & various organisational units, i.e., CHARM-EU Academic Board, Joint Virtual Administrative Office, Board of Examiners, and The Project Management Team, various meetings have been offered and have been highly beneficial and appreciated.
  - Key barriers have been identified: Meetings were sometimes ad-hoc, not built-in structures. Especially with professional development sessions, Work Package 6 needed to request Work Package 4 to ensure that Inclusiveness is an integral part of the Professional Development Sessions. On the 2nd of February 2022, WP6 initiated a meeting with the Professional Development Team (Dimitra Mousa) to streamline sessions for the future.
  - Inclusion and Diversity is a cross-cutting element; however, it was often excluded from the design and implementation. A recent concrete example is the KCT Redesign Meeting in Barcelona in Oct 2022 – an Inclusiveness Session (only for 15-30 minutes) was requested by WP6 as it was not originally included in the programme flow when Work Package 4 designed the programme.
  - Between 2021 – 2022, a key support mechanism was that WP6 Leader was a permanent member of the CHARM-EU Educationalist Community; therefore, many times, inclusiveness and diversity aspects could be highlighted.
  - CHARM-EU WP6 has identified
    - CHARM-EU WP6 is under-resourced,
    - Academic staff are under-resourced and need more resource allocation so that they can be supported more in terms of the day-to-day implementation of inclusiveness.
    - General Resource allocation Review is needed with Partner Universities to fulfil inclusion and diversity duties.
    - Resource Allocation with Local (CHARM-EU Partner Universities) Support Staff & Establishment of MoU is a crucial need.
    - Reasonable accommodation policy is a crucial need to investigate legal gaps in rules and regulations
  - Meetings (non-exhaustive list)
    - Design & Review Meetings during the preparation for the Tracks and Modules (2020/2021)
    - Professional Development Sessions (May 2021, January 2022)
    - Teacher Induction Sessions (August 2021)
    - Information Sessions (Thorough of the Promotional Period for CHARM-EU Master's Spring 2021 & Spring 2022)
    - Personalised Sessions for Inclusion and Diversity (Additional Personalised Meetings with Staff)
    - Sessions on Need Assessment Protocols (January 2022, April 2022, and October 2022)
    - Inclusiveness Session for Academic Board (February 2022)
    - Inclusion in Governance (December 2021 and November 2022)

- How satisfied are target groups with the implementation of the inclusivity plan?
  - Target groups identified within Key findings of the CHARM-EU inclusiveness survey were relevant for the CHARM-EU Inclusivity Plan and the Master's Programme. Individuals who applied, assessed and admitted to the Master's Programme partly represented the diversity of the

population. Individuals who have applied and assessed for Inclusion Measure during the Admission Process and CHARM-EU Grant Process, and CHARM-EU WP6 Needs Assessment Procedure have appreciated the person-centred, safe environments and human-rights-based approach that were key principles of these processes.

o WP6 Team has detected key barriers. More streamlined information can be provided for students in addition to the already existing resources, i.e., Teaching and Learning Strategies Handbook | CHARM-EU and Student Guide 2022 | CHARM-EU and more human resources and time and resources allocation needed with partner universities.

General evaluation questions

- What are the student experiences and assessment results?
  o No final assessments results are available as due to the revised timeline for the Masters the first cohort will not graduate until early 2023.
  o The student experiences are discussed in detail in Section 4.

- What are the Teaching staff experiences, including challenges?
  o Staff perceptions and challenges are discussed throughout section 4.

- What are the Administration staff experiences, including challenges?
  o These are discussed in section 4.2.8

- What processes are required in order to guarantee Quality Assurance and Accreditation across all member institutions?
  o The details of the Quality processes and policies can be found above in section 4.5 as well as on the CHARM-EU website.

Conclusion

This document outlined the evaluation of the CHARM-EU micro pilots, CHARM-EU internal piloting, CHARM-EU aligned micro pilots, and the CHARM-EU MSc in Global Challenges for Sustainability by Work Package (WP) 7. The feedback collected demonstrates successful delivery of innovative learning activities that test a variety of novel approach adopted by CHARM-EU. These endeavours have been excellent learning experiences for the CHARM partners and although there are numerous areas that can be improved and enhanced. The MSc in Global Challenges for Sustainability, although it hasn't graduate it's first cohort, is truly an exemplar learning experience and acts as an excellent test-bed for future activities that the CHARM-EU alliance. The evaluation instruments and approaches will be retained into the future in order fully evaluate the first full cohort and for quality assurance into the future and will be part of continual improvement processes within CHARM-EU and inform future initiatives. The feedback from students, staff and stakeholders provided throughout this document highlight the great successes of the CHARM initiative to date, while also helping focus on where challenges remain.