Fostering Student Engagement through AI-driven Qualitative Quality Assurance Practices

QUALIA User Manual
IO4 – University of Twente

1. Introduction

This document describes the user manual for interacting with the Virtual Interview Assistant – QUALIA. The key principles for developing QUALIA user interface were: user friendly UI, simplicity, progressive enhancements. The virtual assistant is designed as a web interface and consists of two main sections: (end) user section and admin section.

QUALIA User section interface

The intended end user for the virtual interview assistant is the student. A student is defined as any person enrolled in an educational programme at a higher education institution. The end user has to chat with QUALIA in a written format (typed in text) in English language. The virtual interview assistant (QUALIA) asks various questions and conduct the interview by adapting the flow of questions based on the student answers. The user interface was kept as simple as possible, without any distractions for the user. The interface was designed to be self-explanatory, requiring no instructions manual in order to use it. The interface is designed in accordance with the W3C web and accessibility standards (W3C[1]). The interface is intentionally designed similar to various other chatbots existent on the web for increasing the ease of use. The interface design is presented in Figure 1.
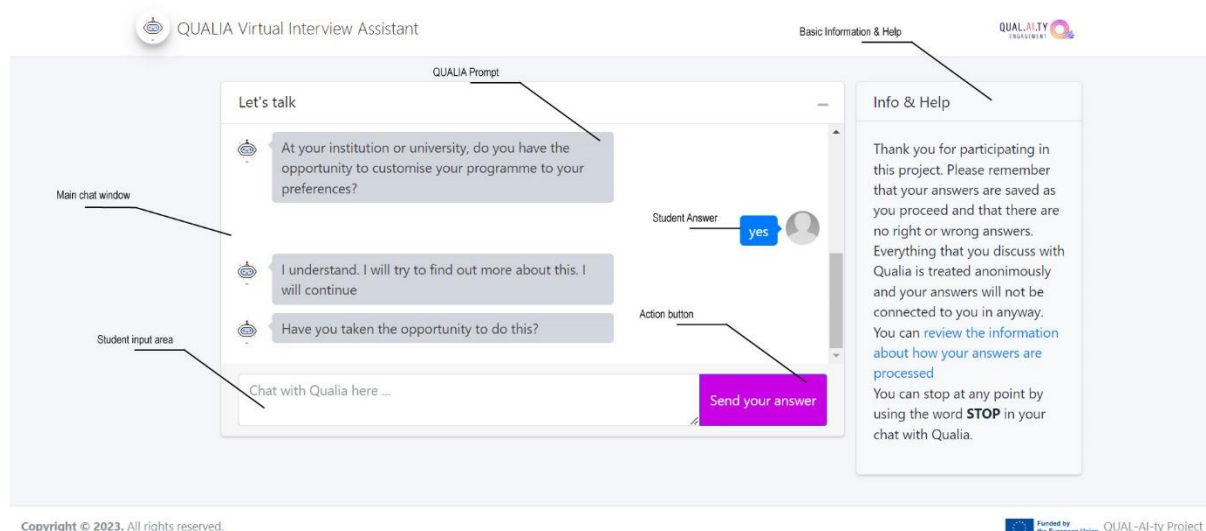

Figure 1 - Qualia User Interface

Each student receives a personalized, unique, link for accessing the virtual interview assistant. The link is sent via email from the admin interface by the designated admin user. Each admin user has access only to their own students. For maintaining the privacy of the participants, only the first name and the email address is collected. Before starting the interaction with QUALIA the student has to read and accept an inform consent form (appendix 1)

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[1] W3C Standards for web design = Retrieved from https://www.w3.org/standards/webdesign/
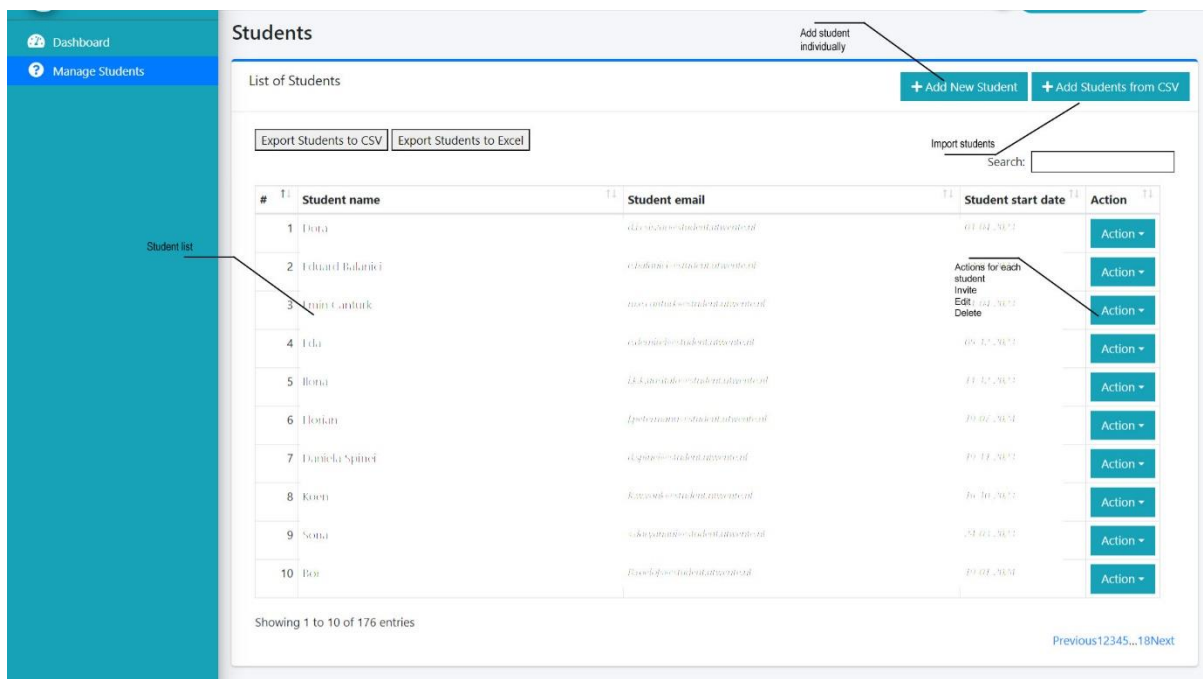
Admin user interface

The admin interface is accessible only by the designated persons from each HEI. The access is protected with basic authorization (username & password). Each admin user has access only to their own institution. There are several operations available for an admin user:

- Manage students - Invite students to QUALIA
- View aggregated results

Managing students

The students are added by the admin user In the system. There are two ways to add students: individually or by import from a csv (comma separated value) file. The interface is presented in Figure 2.
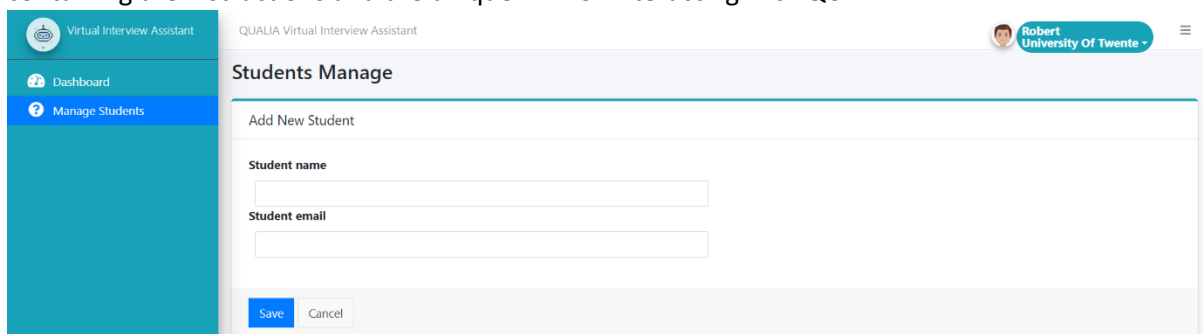

Figure 2 - Student management interface

Adding individual students

For adding students individually the admin needs to provide the first name and the email address of the student (Figure 3). After saving the data the system automatically sends the invitation email containing the instructions and the unique link for interacting with QUALIA.

Figure 3 - Adding individual students

Adding bulk students – import from csv file

Adding students in bulk is available via uploading a csv file. The structure of the csv file is available as a template in the user-interface. The admin has to upload a properly formatted csv file containing the first names and email addresses of students, one student per row (Figure 4). The admin can invite all the students detected in the file. The system automatically detects any existing students and only import and invite the students that are not present in the database.
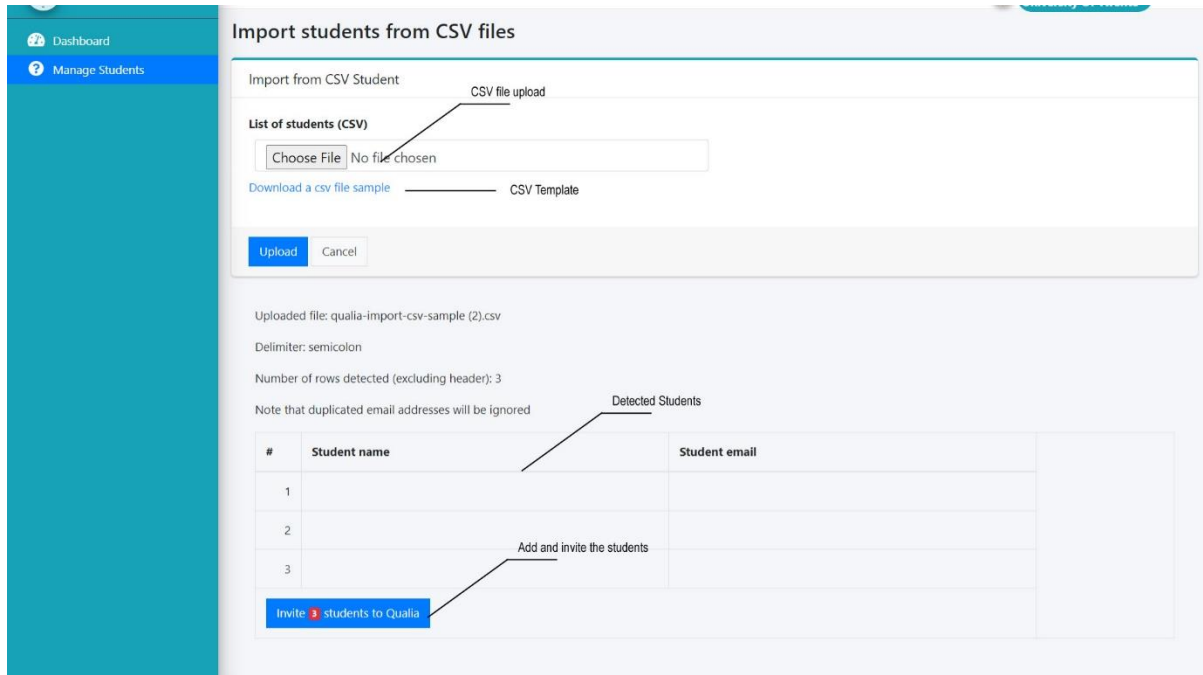
Figure 4 - Bulk upload students via a csv file

Dashboard – U Observatory Results

Admin users have access to the U Observatory dashboard in which the results of the interviews are presented in an aggregated form, based on the answers provided by the participants. The visual display of the information is done according to the Student Engagement Model dimensions (Figure 5).
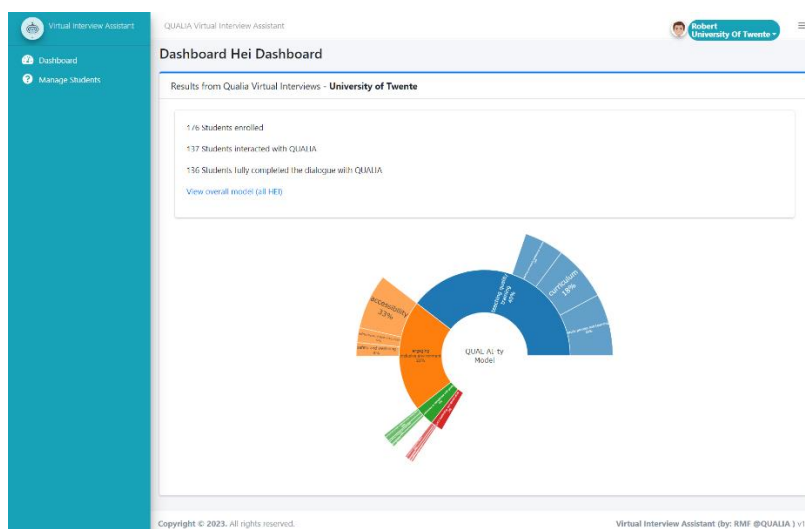
Figure 5 - U Observatory Interactive Dashboard

The chart is interactive – each dimension of the model is active – a click will expand the individual dimension and subdimensions. The scores are calculated using the formula:

$$Score = \sum answer \begin{cases} +1, if\ answer\ is\ affirmative \\ -1, if\ answer\ is\ negative \\ +2, if\ answer\ is\ explanatory \end{cases}$$

Each question answered receives a score of +1 if the answer is affirmative, -1 if answer is negative and +2 if the answer contains examples and elaborations. For example:

Question	Answer	Score
At your institution or university, do you have the opportunity to customize your programme to your preferences?	Yes	+1
Are educators involved in local community events or activities?	Yes	+1
Can you please provide some examples?	for instance in meetings related to areas such as robotics or talks on how to use a certain technology etc..	+2
Are educators involving students in local community events or activities?	No	-1
Total score		3

Each question corresponds to a subdimension from the model (appendix 2). The final score per subdimension is expressed in percentages of completed questions (subdimension score/number of questions in the dimension) and weighted by the number of valid answers.

Appendix 1 – Informed consent form

QUAL-AI-TY Informed Consent Form
Pilot Test for Qualia Virtual Interview Assistant

Dear Participant, Congratulations!

You have been selected to participate in the Pilot Testing of our Virtual Interview Assistant tool, QUALIA, developed during the Erasmus+ Project Qual-AI-ty. Please read carefully the following terms and conditions

Purpose of the study

The study shall be carried out as part of the Qual-AI-ty Engagement project to test out the robustness of the Assessment Mode as well as to gather user reactions on the Data Wizard and the U-Society Observatory.

Procedure

The pilot test procedure involves participants to use the QUALIA Virtual Interview Assistant tool to chat openly about specific questions related to the Student's engagement with society. During the usage of the tool you can chat by writing answers to questions that the tool is asking. While there are no right or wrong answers and every answer is important, please try to elaborate your answers if the tool asks for clarifications. The discussions between Qualia and the participants is in English language.

Discomforts and Risks

The current study will gather non-sensitive information about everyday interdisciplinary practices. You may refuse to answer any question for any reason at any time during this pilot test and do so without penalty. The only risk of participating, beyond risks you likely experience as part of everyday life, would be a breach in maintaining confidentiality of your identity. However, the researchers will make all possible efforts to maintain the confidentiality of your identity by using pseudonyms and de-identification of sensitive demographic and personal information. Any publications using the data from the study will not contain your name or any other information that could be used to individually identify you.

Statement of Confidentiality

Your participation in the research is confidential. Feedback provided and other correspondence will be stored and kept secured. All notes, email and phone communications, visual and audio recordings, memos, and other research materials will be kept confidential. Access will be limited to the researchers pertaining to the partners working on this study.

Right to Ask Questions

Please feel free to contact the researchers with questions or concerns about this research by contacting the Regional pilot test coordinator.

Voluntary Participation

Your decision to participate in this research is voluntary. You have the right to refuse to answer questions at your discretion. You may end the study at any time, for any reason without penalty. Should you wish to withdraw, please inform the Regional pilot test coordinator of your decision. If you do withdraw from the study, informed consent documents will be retained, and all other data will be destroyed.

Privacy Policy and Cookie Usage Policy

By using Qualia Virtual Interview Assistant tool and/or this website specific data can be collected via the use of cookies.

What is a cookie?

Cookies are small text segments that are sent to the browser by a website visited by the user. The use of cookies helps the website to remember information about the user's visit, such as your preferred language and your preferences, to make secure searches, to calculate the number of visitors, or to facilitate your registration in our services etc. You may control and/or delete cookies as you wish. You may find more details at aboutcookies.org.

What data is collected?

Qual-AI-ty Engagement project will access specific information about your system and create the following cookies.
- PHPSESSID: A session cookie, used to manage your session and facilitates the delivery of the relevant content. This cookie expires and is removed with the end of your session.
- qualiaICF: A historical cookie, used to retain your preferences and informed consent about using this website or the Qualia Tool. This cookie expires and is removed automatically from your system after thirty days. Please note that neither of these cookies contain personal information.

Consent to Participate

By using the Qualia Virtual Interview Assistant you confirm that you have read and understand the preceding information. Any questions or concerns I have regarding participation in the study have been answered satisfactorily. By checking the authorization box and signing below, I signify that I meet the requirements for participation, and I affirm my consent to participate in this study, including recording of interviews. Consent provided below shall remain in effect unless explicitly withdrawn. Further, I understand that I may withdraw from the study at any time, for any reason, and without penalty.

I agree to participate and would like to start using Qualia

Funded by the European Union QUAL-AI-ty Project

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Appendix 2 – The Model and Qualia Questions (interview quide)

No	Area / Dimension	First Level	Answer	Second Level	Answer
1.	Teaching Quality/ training:				
1.1.	Study process and Learning	Do you have the opportunity to create a part of your study plan yourself?	Y/N	If Y: Have you taken the opportunity to do this (yes/no) • If yes - How often do you do it? • If no – Would you like to take such opportunity? If N: Would you like to have that opportunity?	Once in semester/ year
		Do you have to organize your own learning process (are there elements of self-directed learning?)	Y/N	If yes - Does this apply to every course? Y/N && If Y: How much/often do you have to involve yourself in the learning process? If N: would you like to be involved? Y/N	Never – Rarely – Sometimes – Always – Often
		Do you have internships / work-study placements in the region included in the Curricula?	Y/N	If Y: How many credit points you receive/ weeks/ hours? If N: should you have these? Why?	4/10/20
		Do you have possibility to participate in Co-curricular activities for involvement in social innovation / entrepreneurship?	Y/N	If Y: How does it happen? Provide examples. If N: Would you like this? Why?	Keywords (post processing)

		Does your university have any tracking system for co-curricular social engagement?	Y/N	If Y: do you use it? Do you know how to use it? Do you gain info from using it? If N: should they have one? • If Y: Why do you think so? If IDK: if it exist then suggest the links, if not then ask the questions from N.	
1.2.	**Teaching and teacher professional capacity**	Do you have a possibility to evaluate teachers?	Y/N	If Y: How often? && If Y: Do you find it useful/impactful? (Y/N) • If Y: Why?	Times per semester/year
		Are teachers/professors involved in local community events / activities?	Y/N	If Y: How often? Provide examples. if N: Should they be involved? Why?	
		Are teachers/professors involving students in local community events / activities?	Y/N	If Y: How often? Provide examples. If N: Should teachers involve students? Why? If IDK: Would you like to be involved by your teachers?	
1.3.	**Curriculum**	Do you have a possibility to improve your study program?	Y/N	IF Y: How often? How does it happen? Provide examples. If N: Would you like to have such possibility? Why	Questionnaire, discussion, written
		1. Are students involved in co-curricular volunteering? 2. Do you have possibility to participate in community-engaged courses?	Y/N	If Y: How often? Provide examples. If N: Should they? Why?	
		Do you have studies abroad?	Y/N	If Y: How often? How many ECTS? If N: Why not?	1/2/3 times / semesters per year 30/60/90
		Do you have curricular (for-credit) research and leadership training with social engagement?	Y/N	If Y: Provide examples, how many credits, how often If N: should you have? Why?	
		Do you know your study program (curricula) learning outcomes ?	Y/N	If Y: How many/can you provide some of them? Provide examples. if N: suggest a link to the study program LO	
		Do you have any co-curricular activities which provides developmental pathways with increasingly complex forms of social engagement?	Y/N	If Y: How often? Provide examples. If N: should you have? Why?	
2.	**Engaging /Inclusive environment:**				
2.1	**Accessibility**	Does your university have any student support and psychological support services?	Y/N	If Y: How easy is to access university support services? If N: Should they have? Why? If IDK: suggest link	Easy/average/ difficult
		Does the university have a career center?	Y/N	If Y: do you make use of it? Do you get info about the career center? If N: should there be one? Why? If IDK: suggest link	
		Are there internships/ work-study placements provided by your university?	Y/N	If Y: did you get any info about this? && if Y: did you get any intersnships from your uni? If N: should there be? Why	

		Have you been in an internship?	Y/N	If Y: How responsive was a company/organization? If N: would you like to? Why?	Very / medium/ not responsive
		Is the knowledge/competence you gained at university useful in practice?	Y/N	Evaluate in the scale from 1 to 10 (10 – excellent)	1-10
		Have you had company visits during the study process?	Y/N	If Y: How many? If N: should there be some? Why?	1/10/20
2.2.	**Safety and well-being**	Does your university have recognition of the student-initiated advocacy campaigns?	Y/N	If Y: Does students have awareness of social engagement? Provide any examples If N/IDK: Should it? Why?	
		Does your university provide any sports activities/facilities?	Y/N	If Y: Do you participate in athletics? How many hours per week? Are they free of charge for students? If N: should it? Why?	1/3/10
2.3.	**Infrastructure and resources**	1. Does your university have venues for students and communities?	Y/N	In what level these venues support/help your engaging activities?	
				How often do you use them?	
		2. Does your university support student communities and organizations?			
		Do you have activities in student living-learning communities / residence halls?	Y/N	If Y: How often do you participate in such activities? Give examples. If N: Why not?	
		Do you have students' involvement in advisory services for the community?	Y/N	If Y: How often do you participate in such activities? Give examples. If N: Should this happen? Why? What are the benefits?	
		Do you have any green campus/sustainability activities? / Do you consider your campus as green/sustainable?	Y/N	If Y: Are you also involved in these activities? How often? Provide examples. If N: should there be such activities? Why?	
3.	**Good leadership/governance:**				
3.1.	**Organizational efficiency (including financial support)**	Do you have organized support for volunteer work?	Y/N	If Y: Provide examples. If N: Should they be? Why?	
		Do you have any financial support/scholarships?	Y/N	How easy was it to apply for support/scholarship?	
		Have you applied for support/scholarship?	Y/N	If N/IDK: suggest links	
		Does your university have efficient internal organizational procedures?	Y/N	If Y: Provide examples. If N: Why?	
3.2.	**Management professional capacity**	Do you have encouragement of social engagement for students from university?	Y/N	If Y: Provide examples. If N: should it be? Why? If IDK: suggest link	
		Do you have any leadership training for working with the community and social actors?	Y/N	If Y: Did you take some training? Provide examples. If N: Should there be? Why? If IDK: suggest link	
3.3.	**Support and cooperation**	Do you have incentives and rewards for social engagement?	Y/N	If Y: What are they? Provide examples If N/IDK: shoud there be? Why?	

		Does university have encouragement and measurement system of students' participation in democratic life?	Y/N	If Y: Provide examples If N/IDK: should they have it? Why?	
4.	**Relevance or compliance with goals:**				
4.1.	**Competence and achievements and recognition**	Do you have formal recognition and reward for students' social engagement?	Y/N	If Y: Provide examples. If N: Should it be? What kind?	
		Do you have informal recognition and reward for students' social engagement?	Y/N	If Y: Provide examples. If N: Should they? What kind?	
4.2.	**Continuity of learning and employment**	Does university have any tracking and engagement system of graduates working in the region?	Y/N	If Y: Did you get information about it? If N: Should they have? Why? If IDK: suggest link	
		Do you have career exploration activities with social engagement?	Y/N	If Y: What kind? If N/IDK: Should there be such activities? What kind?	
		Does your university encourage and involve students in any local community events / activities?	Y/N	If Y: Did you take part on them? Provide examples If N: should they? What kind? If IDK: suggest links	
4.3.	**Equity and inclusion**	Do you have any opportunities to discuss social, political, or ethical issues across the curriculum and in co-curricular programming?	Y/N	If Y: How often? Provide examples. If N: should there be such discussions? Why?	
		Does student well-being is a priority for university?	Y/N	If Y: Examples? Education, social equity If N: should there be? Why?	
		Are you involved in institutional life?	Y/N	If Y: How often? Provide examples. If N: Why not? Would you lie to be? Why	

QUESTIONS FOR CHATBOT- MINIMUM SET (10…15 minutes)

No	Area / Dimension	First Level	Answer	Second Level	Answer
1.	**Teaching Quality/ training:**				
1.1.	**Study process and Learning**	Do you have the opportunity to create a part of your study plan yourself?	Y/N	If Y: Have you taken the opportunity to do this (yes/no) • If yes - How often do you do it? • If no – Would you like to take such opportunity? If N: Would you like to have that opportunity?	Once in semester/ year
		Do you have internships / work-study placements in the region included in the Curricula?	Y/N	If Y: How many credit points you receive/ weeks/ hours? If N: should you have these? Why?	4/10/20
		Comments: in some country's internships are not included in study programs. Then this question could be replaced with company visits.			
1.2.	**Teaching and teacher professional capacity**	Do you have a possibility to evaluate teachers?	Y/N	If Y: How often? && If Y: Do you find it useful/impactful? (Y/N) • If Y: Why?	Times per semester/year
		Comments:			
1.3.	**Curriculum**	Do you have a possibility to improve your study program?	Y/N	IF Y: How often? How does it happen? Provide examples.	Questionnaire, discussion, written

				If N: Would you like to have such possibility? Why	
		Do you have studies abroad?	Y/N	If Y: How often? How many ECTS? If N: Why not?	
		Comments:			
2.	**Engaging /Inclusive environment:**				
2.1	**Accessibility**	Does your university have any student support and psychological support services?	Y/N	If Y: How easy is to access university support services? If N: Should they have? Why? If IDK: suggest link	Easy/average/ difficult
		Does the university have a career center?	Y/N	If Y: do you make use of it? Do you get info about the career center? If N: should there be one? Why? If IDK: suggest link	
		Have you had company visits during the study process?	Y/N	If Y: How many? If N: should there be some? Why?	1/10/20
		Comments: See comment at 1.1.			
2.2.	**Safety and well-being**	Does your university provide any sports activities/facilities?	Y/N	If Y: Do you participate in athletics? How many hours per week? Are they free of charge for students? If N: should it? Why?	1/3/10
		Comments: Also could be questions about data protection, knowledge about internet security etc.			

2.3.	Infrastructure and resources	1. Does your university have venues for students and communities?	Y/N	In what level these venues support/help your engaging activities?	
				How often do you use them?	
		2. Does your university support student communities and organizations?			
		Comments: venues for students and communities – coworking spaces, workshop areas, incubators?			
3.	**Good leadership/governance:**				
3.1.	**Organizational efficiency (including financial support)**	Do you have any financial support/scholarships?	Y/N	How easy was it to apply for support/scholarship?	
		Have you applied for support/scholarship?	Y/N	If N/IDK: suggest links	
		Comments: Besides scholarships could be grants, projects etc.			
3.2.	**Management professional capacity**	Do you have encouragement of social engagement for students from university?	Y/N	If Y: Provide examples. If N: should it be? Why? If IDK: suggest link	
		Comments: Social engagement - donor days, voluntary work, political activities.			
3.3.	**Support and cooperation**	Do you have incentives and rewards for social engagement?	Y/N	If Y: What are they? Provide examples If N/IDK: should there be? Why?	
		Comments:			
4.	**Relevance or compliance with goals:**				

4.1.	Competence and achievements and recognition	Do you have formal recognition and reward for students' social engagement?	Y/N	If Y: Provide examples. If N: Should it be? What kind?	
		Comments: formal recognition – giving CP for some activities, recognizing the internship fully or partly.			
4.2.	Continuity of learning and employment	Does university have any tracking and engagement system of graduates working in the region?	Y/N	If Y: Did you get information about it? If N: Should they have? Why? If IDK: suggest link	
		Comments:			
4.3.	Equity and inclusion	Do you have any opportunities to discuss social, political, or ethical issues across the curriculum and in co-curricular programming?	Y/N	If Y: How often? Provide examples. If N: should there be such discussions? Why?	
		Comments:			

QUESTIONS FOR CHATBOT - OPTIMUM SET (10…15 minutes)

No	Area / Dimension	First Level	Answer	Second Level	Answer
1.	**Teaching Quality/ training:**				
1.1.	**Study process and Learning**	Do you have the opportunity to create a part of your study plan yourself?	Y/N	If Y: Have you taken the opportunity to do this (yes/no) • If yes - How often do you do it? • If no – Would you like to take such opportunity? If N: Would you like to have that opportunity?	Once in semester/ year
		Do you have to organize your own learning process (are there elements of self-directed learning?)	Y/N	If yes - Do this apply to every course? Y/N && If Y: How much/often do you have to involve yourself in the learning process? If N: would you like to be involved? Y/N	Never – Rarely – Sometimes – Always – Often
		Do you have internships / work-study placements in the region included in the Curricula?	Y/N	If Y: How many credit points you receive/ weeks/ hours? If N: should you have these? Why?	4/10/20
		Comments: in some country's internships are not included in study programs. Then this question could be replaced with company visits.			

1.2.	**Teaching and teacher professional capacity**	Do you have a possibility to evaluate teachers?	Y/N	If Y: How often? && If Y: Do you find it useful/impactful? (Y/N) • If Y: Why?	Times per semester/year
		Are teachers/professors involved in local community events / activities?	Y/N	If Y: How often? Provide examples. if N: Should they be involved? Why?	
		Comments:			
1.3.	**Curriculum**	Do you have a possibility to improve your study program?	Y/N	IF Y: How often? How does it happen? Provide examples. If N: Would you like to have such possibility? Why	Questionnaire, discussion, written
		Do you have studies abroad?	Y/N	If Y: How often? How many ECTS? If N: Why not?	1/2/3 times / semesters per year 30/60/90
		Do you have curricular (for-credit) research and leadership training with social engagement?	Y/N	If Y: Provide examples, how many credits, how often If N: should you have? Why?	
		Do you have any co-curricular activities which provides developmental pathways with increasingly complex forms of social engagement?	Y/N	If Y: How often? Provide examples. If N: should you have? Why?	
		Comments:			
2.	**Engaging /Inclusive environment:**				

2.1	**Accessibility**	Does your university have any student support and psychological support services?	Y/N	If Y: How easy is to access university support services? If N: Should they have? Why? If IDK: suggest link	Easy/average/ difficult
		Does the university have a career center?	Y/N	If Y: do you make use of it? Do you get info about the career center? If N: should there be one? Why? If IDK: suggest link	
		Are there internships/ work-study placements provided by your university?	Y/N	If Y: did you get any info about this? && if Y: did you get any intersnships from your uni? If N: should there be? Why	
		Have you had company visits during the study process?	Y/N	If Y: How many? If N: should there be some? Why?	1/10/20
		Comments: See comment at 1.1.			
2.2.	**Safety and well-being**	Does your university provide any sports activities/facilities?	Y/N	If Y: Do you participate in athletics? How many hours per week? Are they free of charge for students? If N: should it? Why?	1/3/10
		Comments: Also could be questions about data protection, knowledge about internet security etc.			
2.3.		1. Does your university have	Y/N	In what level these venues support/help	

	Infrastructure and resources	venues for students and communities?		your engaging activities?	
				How often do you use them?	
		2. Does your university support student communities and organizations?			
		Do you have any green campus/sustainability activities? / Do you consider your campus as green/sustainable?	Y/N	If Y: Are you also involved in these activities? How often? Provide examples. If N: should there be such activities? Why?	
		Comments: venues for students and communities – coworking spaces, workshop areas, incubators?			
3.	Good leadership/governance:				
3.1.	Organizational efficiency (including financial support)	Do you have organized support for volunteer work?	Y/N	If Y: Provide examples. If N: Should they be? Why?	
		Do you have any financial support/scholarships?	Y/N	How easy was it to apply for support/scholarship?	
		Have you applied for support/scholarship?	Y/N	If N/IDK: suggest links	
		Comments: Besides scholarships could be grants, projects etc.			
3.2.	Management professional capacity	Do you have encouragement of social engagement for students from university?	Y/N	If Y: Provide examples. If N: should it be? Why? If IDK: suggest link	
		Do you have any leadership training for working with the	Y/N	If Y: Did you take some training? Provide examples.	

		community and social actors?		If N: Should there be? Why? If IDK: suggest link	
3.3.	**Support and cooperation**	Does university have encouragement and measurement system of students' participation in democratic life?	Y/N	If Y: Provide examples If N/IDK: should they have it? Why?	
		Comments:			
4.	**Relevance or compliance with goals:**				
4.1.	**Competence and achievements and recognition**	Do you have formal recognition and reward for students' social engagement?	Y/N	If Y: Provide examples. If N: Should it be? What kind?	
		Do you have informal recognition and reward for students' social engagement?	Y/N	If Y: Provide examples. If N: Should they? What kind?	
4.2.	**Continuity of learning and employment**	Does university have any tracking and engagement system of graduates working in the region?	Y/N	If Y: Did you get information about it? If N: Should they have? Why? If IDK: suggest link	
		Do you have career exploration activities with social engagement?	Y/N	If Y: What kind? If N/IDK: Should there be such activities? What kind?	
		Comments:			
4.3.	**Equity and inclusion**	Do you have any opportunities to discuss social, political, or ethical	Y/N	If Y: How often? Provide examples.	

		issues across the curriculum and in co-curricular programming?		If N: should there be such discussions? Why?	
		Does student well-being is a priority for university?	Y/N	If Y: Examples? Education, social equity If N: should there be? Why?	
		Comments:			

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