Student-Led Design of Online Tools to Support the Quality of Research Life at the University of Tokyo: A Survey-Based Approach

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Abstract
The Toward Diversity team consists of PhD students from four countries at the University of Tokyo (UTokyo). In June 2020, at UTokyo's Post-Corona Society Future Vision Symposium, we proposed to build a new online platform to support the quality of research life among students and faculty members. The platform is being designed to enhance research life in three areas: interactions between researchers, the balance between research and personal life, and mindsets and attitudes towards diversity. In order to gather feedback on the proposal, a survey was distributed and received 290 responses. The five lessons learnt are that: there is a demand for multiple functions including access to information and communication; the types of issues that people face vary mainly with age rather than gender or nationality; anonymity is preferred when using the platform; minorities are the majority at UTokyo, based on the survey respondents; and there is a demand for personalisation. After highlighting key features of the survey-based methodology, this paper explains how the results are being translated into system requirements for the online platform for research life support.

Keywords: Diversity, Higher Education, Learning Environment, Networking, Online Platform

1. Introduction

The Toward Diversity (2021) project was initiated in March 2019, under the University of Tokyo's (UTokyo) Global Leader Program for Social Design and Management (2021). The project was founded by nine graduate students, and initially focused on studying the "leaky pipeline" (Business at OECD, 2012) of female researchers between junior and senior positions at UTokyo. Our team conducted a one-year interview-based research project in FY2019, to identify the most significant causes and to draft potential solutions (Berthet et al., 2020). The causes are summarized in Figure 1 (left).

In FY2020, our objective shifted from research to action. In particular, we have realised that the above-mentioned causes have a negative impact not only on female researchers, but also on male researchers. For example, traditional academic role models (causes 2, 3) can increase pressure, create stress, and degrade the work-life balance of both male and female researchers. In other words, addressing these factors would create a more enjoyable and fruitful research environment for all members of the university. In addition, the COVID-19 pandemic has created new opportunities to launch online initiatives within UTokyo. In June 2020, the School of Engineering's Post-Corona Society Symposium (Faculty of Engineering, 2020) welcomed proposals to enhance UTokyo in the post-COVID era, offering funding to selected submissions.

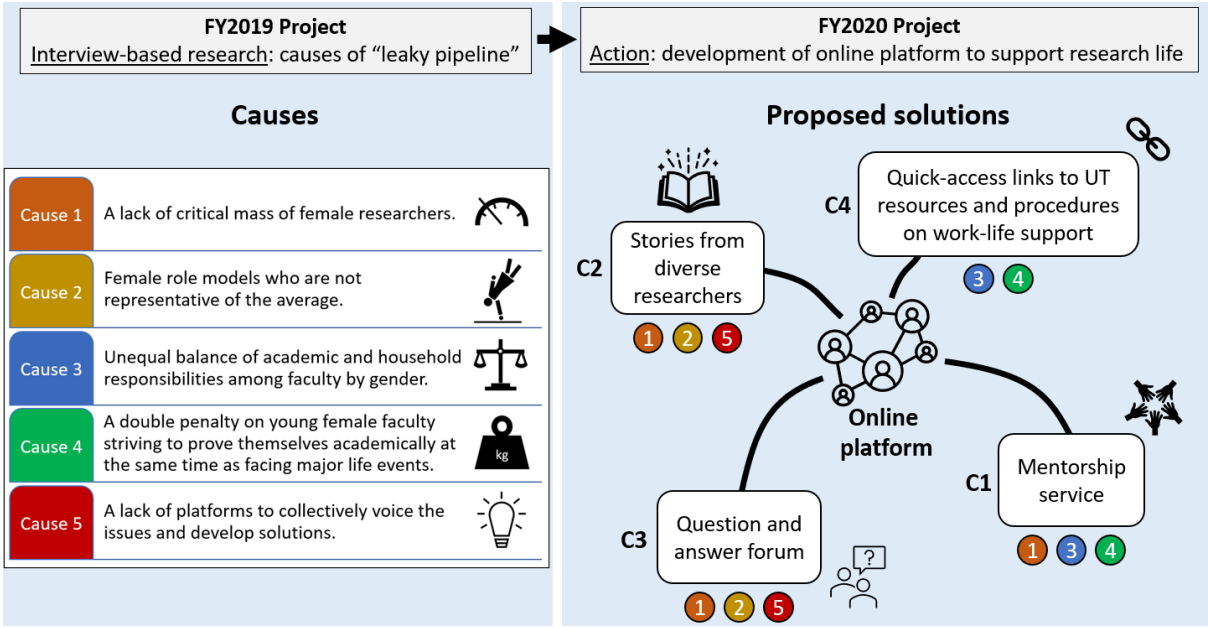

Figure 1: Linkage between FY2019 and FY2020 Projects: from Research to Action

Toward Diversity submitted a proposal to the symposium, which was accepted for development into a prototype: to create an online platform for supporting research life at UTokyo. The linkage between the proposed platform and the findings of the FY2019 project is shown in Figure 1. The platform – which will consist of a collection of tools for students, faculty members, and other researchers – aims to enhance research life in three areas: interactions between researchers, the balance between research and personal life, and mindsets and attitudes towards diversity. At present, the platform is at the concept stage, as shown in Figure 1 (right).

Before conducting a detailed design, a survey was distributed to gather insights from prospective users on: issues they face in their research life, the most popular current solutions, gaps in existing support services, and eventual differences between categories of users. This paper presents the survey methodology and explains how the trends identified in the survey results have been converted into system requirements for the online platform. The focus of this paper is on the user needs obtained from the survey responses, and the detailed design of the tools will be the subject of future work. We hope to convince the reader that students can play a useful role in developing new support systems for research life within higher education institutions.

The text is organised as follows. Section 2 introduces the conceptual design of the online platform. Section 3 explains the survey methodology. Section 4 summarises the survey results. Section 5 draws implications for system requirements of the online tools.

2. Conceptual Design of the Online Platform

The objective of the proposed online tools is to create an environment which supports all researchers at UTokyo to fruitfully pursue their research, and to achieve a balance between their personal life and research.

The online tools are planned to comprise two major parts, consisting of four components, as shown in Figure 1 (right). In Table 1 we identify the four components, their purpose, and missing information to be gleaned in the survey. We use the notation "C + component number" to refer to each tool. These will also be used later in the text.

Component	Function	Missing information
Mentorship service (C1)	Academic career advice and mentorship, open to all UTokyo students (as mentees) and faculty members (as mentors)	Is there demand (mentees)? Is there supply (mentors)?
Experience sharing (C2)	Providing relatable experiences of balancing research and life events	Is there interest?
Q&A forum (C3)	Casual and quick-response forum on research life, for daily usage	Is there demand (both Q side and A side)? Usage preferences?
Quick access links (C4)	Easy access to official research life support resources/services by UTokyo	Are official services already well known? Are other solutions used? Are there barriers?

Table 1: Components of Planned Online Platform to Support Research Life at UTokyo

The first part (C1) is an online platform for academic career advice and mentorship. In this mentoring system, students (as mentees) would be able to consult with faculty members or UTokyo graduates inside/outside UTokyo (as mentors), for advice on their academic career development. The system would be open to all students and faculty members. While an online platform for general career advice has already been developed at UTokyo (Career Support Office, 2021), to our knowledge a dedicated system for careers in academia does not yet exist. In our experience, many researchers at UTokyo tend to network only with members of their own laboratories or close group of peers. Therefore, it may be difficult to create connections beyond these surroundings, and so the proposed tool may help provide to access

more varied (and potentially more relevant) mentorship. In the survey, we assess whether there is supply (of mentors and mentees) and demand (for mentoring and receiving mentorship) for this tool.

The second part (C2, C3, and C4) is an application to share resources about the intersection between research and personal life. The tool would be open to all UTokyo members. This includes the following four components:

- An experience sharing portal (C2) to read or listen to experiences about balancing research and life events. This tool would enable students or researchers who are facing hurdles to find relevant advice and suggestions. Topics may be related to major life events or to everyday challenges, both of which impact the quality of research life. This tool is also expected to help UTokyo members to learn about the diversity of researchers within the university. One good example of an existing experience-sharing platform specifically for prospective – though ironically, not current – students is *Kimi no Todai* (2021). In the survey, we assess whether there is interest in experience sharing.
- A question-and-answer forum (C3) where users can share queries and provide answers to those in need. This would complement the experience-sharing platform. In the survey, we assess whether there is interest in a question-and-answer forum (both from those seeking and those willing to share advice), as well as how prospective users would like to interact with the tool (e.g. anonymously or not).
- Quick-access links to services for research life support at UTokyo (C4), which are currently scattered. Consolidating access to all the information in one place may make it easier to find services for work-life support at UTokyo (e.g. maternity/paternity leave procedures, applications for babysitting support, etc.). In the survey, we assess whether respondents are aware of existing support services, whether they prefer to use alternatives, and whether there are barriers to using them.

Overall, the above tools have strong potential: to encourage positive approaches to work-life balance, to empower students and faculty members to positively contribute to the UTokyo research environment, and to promote greater understanding of diversity. At the same time, Table 1 shows there is missing information to be gathered before the tools can be designed. In the next section, we introduce the survey approach we used to collect this information.

3. Survey Methodology

3.1 Objectives

In order to design an effective platform, a survey was distributed to gather feedback from prospective users: students, faculty members, and other researchers. The three objectives were:

- To understand the issues faced by diverse members of the UTokyo community, especially related to research and work-life balance.
- To identify gaps and barriers, as well as positive points, in current solutions.
- To identify improvements which are in highest demand.

In addition, the survey collected data on respondents' gender, origin, and age (among other variables), in order to understand potential differences between the expectations and needs of various platform users.

3.2 Design

The survey was designed based on feedback received over several weeks from UTokyo faculty members and from the UTokyo Office for Gender Equality among others (see Acknowledgments section for more details). On its opening page, the survey explained the background of this project, as well as the objectives of the proposed online tools.

The survey comprises 21 questions, divided into three modules. The title and purpose of each module are summarised in Table 2. More detail on the content follows in Section 3. (Note: the survey contained a fourth module on understanding of gender equality, but we decided not to include the findings in this paper.)

#	Title	Data collected	Purpose
1	Tell us about yourself	Basic personal information	Enable disaggregation of the data in subsequent sections by variables such as gender, age, and origin.
2	Tell us about your academic life at UTokyo	Issues faced in academic life	Identify what are the issues, and whether/how they are currently being addressed.
3	Tell us your opinions on the proposed academic career support tools	Most needed functions, and how to use them	Understand which functions should be prioritised, and identify eventual user-specific requirements.

Table 2: Structure and Purpose of the Survey Modules

The survey was distributed to students, researchers, faculty members, and graduates of UTokyo, via the Gender Equality Committees of the School of Engineering and School of Science among others (see Acknowledgements). The response period was 7-19 October 2020. 290 responses were received. The results are presented and analysed in the next section.

4. Survey Results

This section presents the survey results. One subsection is allocated to each survey module. In each subsection: the survey questions are shown; the responses are summarised; and the most interesting or surprising trends are highlighted.

4.1 Module 1: About the Participants

In Module 1, the objective (see Table 2) was to gather basic personal information on respondents to allow data disaggregation by age, gender and origin in later Modules. The questions are summarised in Table 3. The “Purpose” column highlights eventual links to the components of the online tools for which more information was required (see Table 1).

The distribution of the 290 survey respondents is representative of the average demographics at UTokyo in terms of age and origin, though not in terms of gender. Most respondents are under 30 years old (51%), then 30-45 (33%), and 45+ (15%); and most respondents are from Japan (85%). Most Japanese respondents have not spent over 6 months outside Japan.

For gender, four single-choice options were provided: “male”, “female”, “prefer not to say”, and “other”. The third option was selected by five respondents, and the latter option was not selected by any respondents. Therefore, disaggregation by gender is performed using two categories in this study. The female ratio among respondents (44%) is significantly higher than the average at UTokyo, which is likely due to a biased use of distribution channels for the survey (it is likely that the audience of the Office for Gender Equality has a high female ratio).

Regarding respondents’ affiliations, most of the respondents are students (Master’s, 26%; PhD, 24%), and faculty members (Assistant Professor, 10%; Associate Professor, 9%; Professor, 9%). Most current graduate students graduated from UTokyo before beginning their graduate degree (51%), followed by Waseda University (5%); and most faculty members were granted their final degree at UTokyo (63%), followed by Kyoto University (6%). Therefore, most of the respondents who are current graduate students and faculty members have stayed at UTokyo for several academic career steps, suggesting that there may be demand for advice on academic career planning within UTokyo, as well as a pool of existing potential mentors.

Question	Purpose
Q1. Grade or Position	For disaggregation
Q2a. If you are a student, which school were you affiliated with before entering UTokyo? / **Q2b**. If you are not a student, from which university were you granted your final degree?	Identify whether respondent has completed more than one “academic step” at UTokyo (*C1*)
Q3. Field of Study / **Q4**. Gender / **Q5**. Age	For disaggregation
Q6. Where are you from? / **Q7**. If you come from Japan, which prefecture are you from? If not, which country are you from? / **Q8**. Have you ever spent more than six months outside Japan?	Q6: For disaggregation Q7/8: Determine whether origin within Japan (Q7) or substantial experience abroad (Q8) has impact on Japanese respondents’ subsequent answers
Q9. Do you think you are a minority for whatever reason? / **Q10**. If yes, is there a person who belongs to the same minority group in the same laboratory, major, or graduate school as you?	Q9: For disaggregation Q10: Determine whether presence of other member of same minority group has impact on respondents’ subsequent answers

Table 3: Survey Questions in Module 1

Finally, half of respondents self-identified as a minority. For females, the ratio was around 60-70% of both Japanese and overseas respondents. For males, this was 56% of overseas and 41% of Japanese respondents. In other words, the minority is the majority in this survey. This result suggests that many minority groups exist inside UTokyo, both among males and females, though female respondents self-identified as a minority around 1.5 times more frequently than males. In addition, around half (41%) of those who self-identified as a minority do not have a person who belongs to the same minority in their academic

surroundings. The ratio was similar for males and females, and Japanese and overseas respondents. This suggests that both males and females may be at risk of social isolation within UTokyo, and especially females.

In summary, the main insights gathered in Module 1 are:
- The survey respondents provide a representative sample of the UTokyo community.
- Most respondents have stayed at UTokyo for several academic career steps (if applicable), suggesting that there may be demand for advice on academic career planning within UTokyo, as well as a pool of existing potential mentors.
- The majority of respondents (and especially females) self-identified as a minority, and for around half of such respondents, there is no person belonging to the same minority in their close academic surroundings, suggesting a risk of social isolation.

4.2 Module 2: Academic Life at UTokyo

In Module 2, respondents were asked whether they are facing issues in their academic life at UTokyo. The objective was to identify the issues, as well as whether/how they are currently being addressed. This information was expected to provide insights into functions required for all the online tools. The questions are summarised in Table 4.

Question	Purpose
Q11. If you are currently a student, do you plan to become a researcher after graduation?	Quantify demand for (academic) research career support (*C1*)
Q12. Do you have any issues in your academic life at UTokyo? (multiple choice)	Identify the issues (*C1*, *C2*, *C3*, *C4*)
Q13. Do people around you have any issues in their academic life at UTokyo? (multiple choice)	Understand perception of others' issues (*C1*, *C2*, *C3*, *C4*)
Q14. Who can you consult with about the issues?	Understand preferred solution methods (*C1*, *C2*, *C3*, *C4*)
Q15. If applicable, do you think you have difficulty solving the issues due to a lack of information for speakers of languages other than Japanese?	Assess barriers for internationals (*C4*)
Q16. Do you know which office(s) inside UTokyo can help you solve the issues?	Assess engagement with existing solutions provided by UTokyo (*C4*)

Table 4: Survey Questions in Module 2

Firstly (Q11), the majority of both male and female (undergraduate and graduate) student respondents plan to become researchers after graduation. A difference was observed between Japanese males and females. For Japanese males, 48% plan to continue in academia, and 13% in industry. For Japanese females, 32% plan to continue in academia, and 23% in industry. 14% of Japanese males plan to not continue research, compared to 30% of females. This suggests that there is a large pool of potential users of tools for research career development,

including with academia as a target. (The data for overseas students was not sufficient for meaningful analysis.)

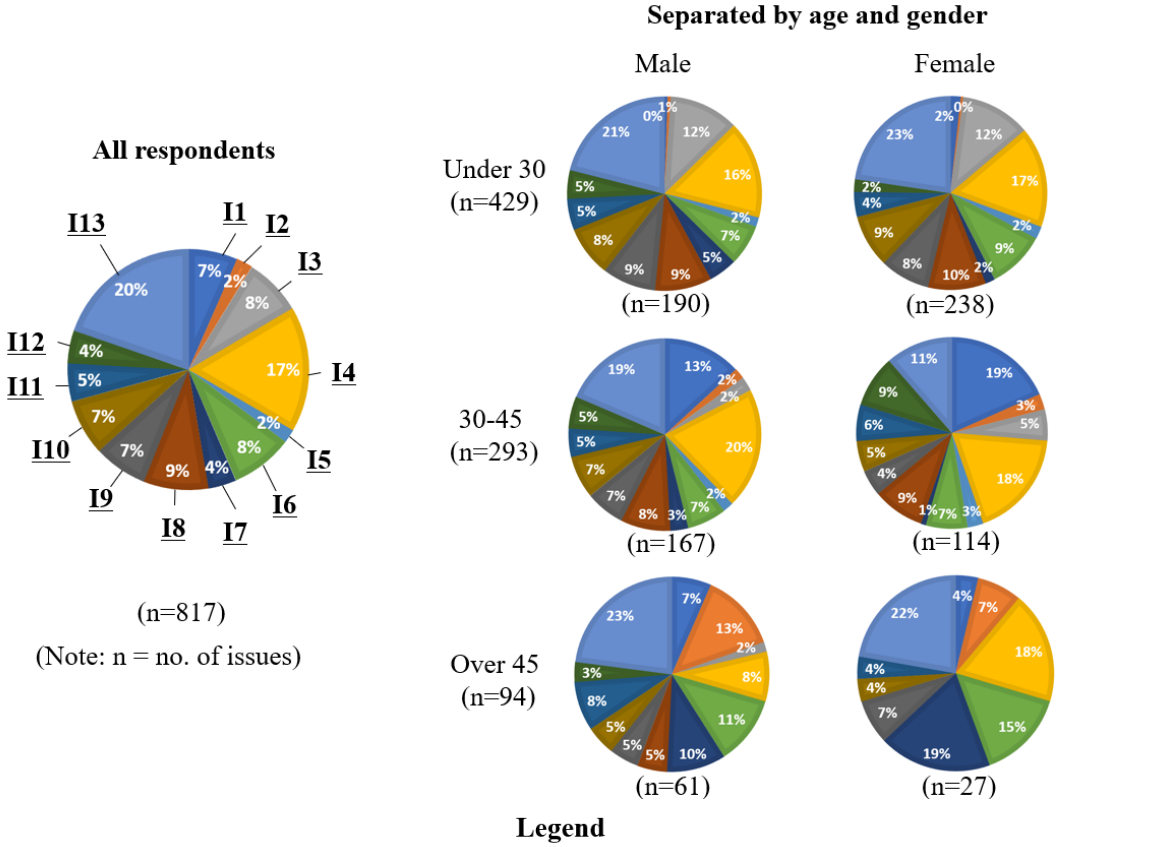

Figure 2: Answers to "Q12. Do You Have Any Issues in Your Academic Life at UTokyo?". (Top Left) All Respondents, (Top Right) Disaggregated by Age And Gender, and (Bottom) Multiple-Choice Options (Multi-Selection Permitted)

The next question (Q12) collected issues encountered in daily academic life, from a preassigned set of multiple-choice options. The results are shown in Figure 2. The most frequently reported issues are: "Research itself" (20%), and "Getting opportunities to develop my academic career" (17%). Similar answers were given by male and female respondents. On the other hand, when the results were separated by age group, clear trends were identified. The most frequent responses were:

- Under 30: "Research itself" (21-23%), then "Getting opportunities to develop my academic career" (16-17%), and "Balancing research with job hunting" (12%).
- 30 to 45: "Getting opportunities to develop my academic career" (18-20%), "Research itself" (11-19%), and "Balancing research with childcare" (13-19%).
- 45+: "Research itself" (22-23%), then "Balancing research with elderly care" (7-13%), and "Health" (11-15%).

The implications for the design of the online tools are discussed in Section 5. Regarding perception of others' issues (Q13), the results (not shown) present a similar trend.

Regarding currently preferred solution methods (Q14), the results show that most respondents feel they can consult with their friends (23%) and family (21%), suggesting the importance of personal ties. The option "Office or organisation" (both within and outside UTokyo) was selected in around 5% or fewer of responses, by all groups. This suggests there is limited usage of these resources.

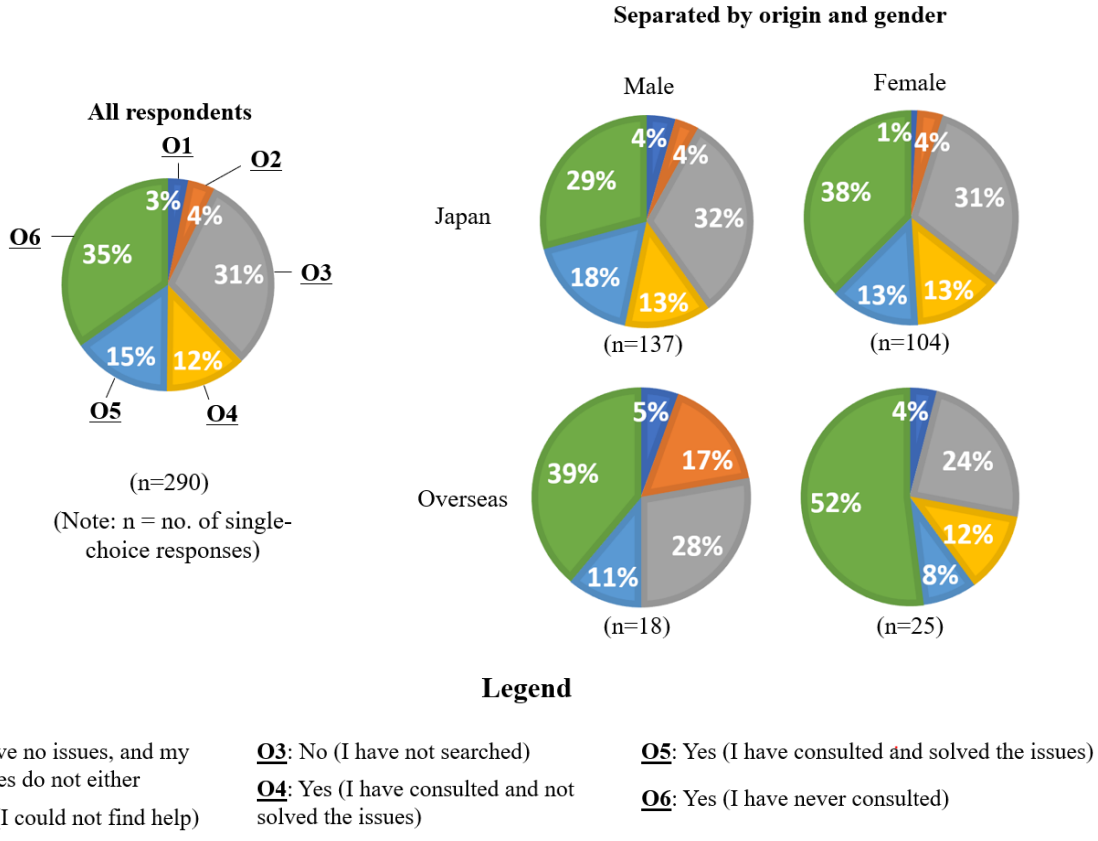

Figure 3: Answers to "Q16. Do You Know Which Office(s) Inside UTokyo Can Help You Solve the Issues?". (Top Left) All Respondents, (Top Right) Disaggregated by Origin and Gender, and (Bottom) Multiple-Choice Options (Single Selection Permitted)

Indeed, when asked whether they are aware of and use support services provided by UTokyo (Q16), respondents selected the option "Yes (I have never consulted)" the most frequently (35%), especially among females, as shown in Figure 3. This suggests that in general, those trying to solve issues know where to find help from UTokyo organisations, but choose not to use it. Also, the frequency of "Yes (I have consulted and solved the issues)" is almost the same as "Yes (I have consulted and not solved the issues)" suggesting that the support services provided at UTokyo may not match users' needs in a large number of cases. The implications for the design of the online tools are discussed in Section 5.

Regarding potential language barriers for accessing support services provided by UTokyo (Q15), 26% of respondents answered that they have difficulties overcoming issues they are facing due to a lack of information for non-Japanese speakers. However, Japanese respondents also reported difficulties, which suggests the question was not clear: some respondents may have been thinking of others' issues. Even so, this suggests a need for multilingual content in support services for research life.

In summary, the main insights gathered in Module 2 are:

- The types of issues that people face during their research life at UTokyo differ mainly by age-group, suggesting a relationship between the issues and life stages.
- When seeking help, the respondents rely on friends and family more frequently than on official support services provided by UTokyo.
- A lack of information for non-Japanese speakers may be preventing some UTokyo members from accessing official support services.

Overall, these results suggest the importance of lowering hurdles for using support services provided by UTokyo, as well as a potential need to re-evaluate whether the services match actual needs.

4.3 Module 3: Opinions on the Proposed Online Tools

Finally, in Module 3, respondents were asked to explain their preferences for the online tools. This included: which functions they feel are most needed, and whether to use them in an anonymous way. The objective was to understand which functions should be prioritised, and to identify eventual user-specific requirements. The questions are summarised in Table 5.

Question	Purpose
Q17/**Q18**/**Q19**. Which function do you think is the most / second most / third most needed for the online tools?	Identify overall priorities for online tools (*C1*, *C2*, *C3*, *C4*)
Q20. Would you like to try the tools if a sample version is launched?	Assess overall demand for online tools (*C1*, *C2*, *C3*, *C4*)
Q21. If you chose to use the online tools, would you prefer to remain anonymous?	Understand preferred usage method (*C1*, *C2*, *C3*, *C4*)

Table 5: Survey Questions in Module 3

As shown in Figure 4, the functions stated as the most needed by respondents (Q17) are, overall: “Reading stories of others’ experiences at UTokyo” (22%), “Posting questions and getting answers from mentors in an online forum” (17%), and “Searching for offices inside UTokyo where you can get support on your issue” (16%). Similar responses were given by Japanese males and females. For overseas UTokyo members, “Joining a community of people with similar issues and communicating” was the top choice (31%). These results show that there is a demand for multiple functions, including information on how to access UTokyo resources, and dialogue facilitation (reading/writing stories, communicating, and mentorship).

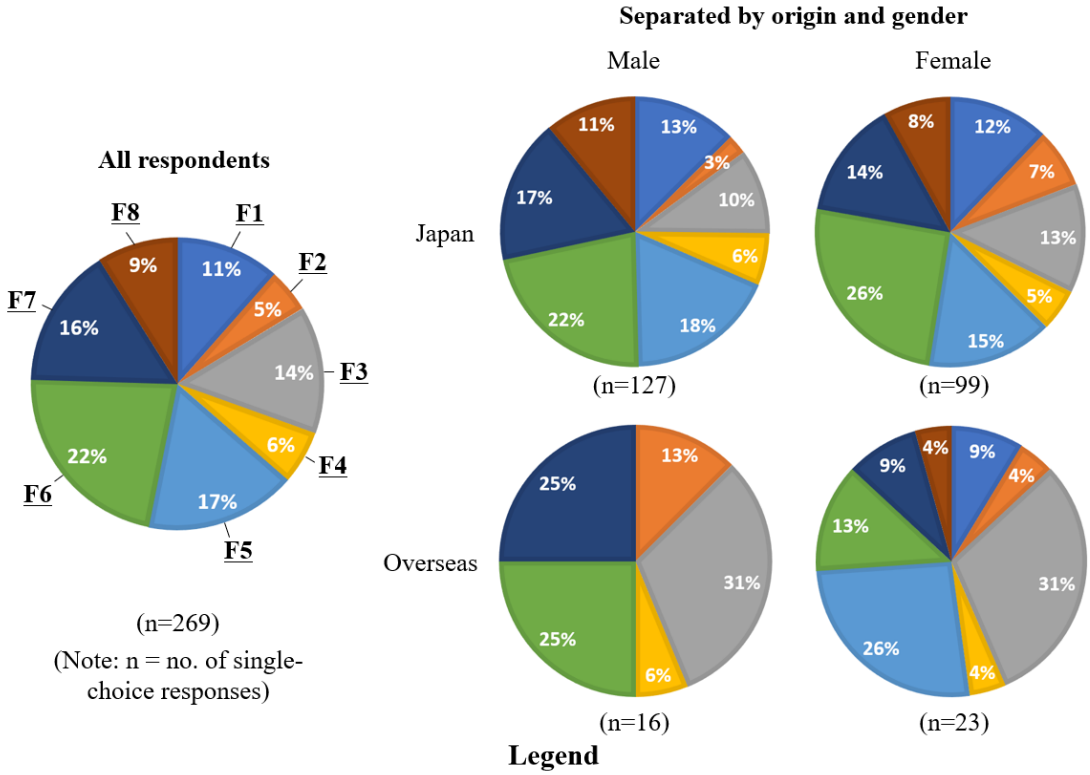

Figure 4: Answers to "Q17. Which Function Do You Think Is the Most Needed for The Online Tools?". (Top Left) All Respondents, (Top Right) Disaggregated by Origin and Gender, and (Bottom) Multiple-Choice Options (Single Selection Permitted. Total Not 290, as Free-Text Options Not Shown)

For those who self-identify as a minority (147 people), the responses (not shown) were not significantly different from the overall average. However, for the sub-group of respondents for whom there is no person belonging to the same minority in their academic surroundings (55 people), "Learning how to support those facing issues" appeared more frequently than the average (11% vs 6%). This suggests that this group has an especially high interest in supporting those in need. Therefore, tools to learn how to support those in need should also be considered for the platform.

Regarding the second most needed function (Q18), "Joining a community of people with similar issues and communicating" was the most frequent response (21%), both among Japanese and overseas males and females (results not shown). This option was especially popular among overseas members of UTokyo (as in Q17). Apart from this difference, the responses were similar to Q17. Respondents expressed no clear preference for the third most needed function (Q19).

When asked if they would like to try the proposed online tools (Q20), the majority of respondents (54%) said yes. The ratio of respondents who were "Not sure" is high (41%),

which may be due to a lack of specific details on the tools in the survey. Therefore, based on these results, there is strong overall demand for the proposed online tools.

Finally, when asked if they would prefer to remain anonymous when using the tools (Q21), the majority of respondents (64%) stated yes. The ratio was highest among overseas respondents (>70%), and among females (>65%). There was no significant difference for those who self-identify as a minority. One exception was for the sub-group without a person who belongs to the same minority in their academic surroundings. Respondents from this sub-group expressed a higher-than-average preference for anonymity (72%), and a lower-than-average preference for non-anonymity (2% vs 8% average). Based on these results, we learnt that there is a need for anonymity in the online tools.

In summary, the main insights gathered in Module 3 are:

- The majority of respondents stated that they would like to try the tools when a sample is launched, showing that there is demand for the tools.
- An even higher majority stated a preference to remain anonymous when using the tools.
- There is a similar level of demand for multiple functions, including communication (reading/writing stories, Q&A, mentorship), provision of information on how to access UTokyo resources, and learning resources to support those in need.
- Respondents who self-identify as a minority and for whom there is no person who belongs to the same minority in their academic surroundings expressed a higher preference for learning materials to support those in need.

In the next section, we distil the survey results into a list of lessons for the design of the online tools. First, we briefly review the limitations of the present survey methodology.

4.4 Limitations of Survey Methodology and Results

The main limitations of our survey method are summarised below:

- Demographic bias: The proportion of female respondents was higher than the average demographics at UTokyo. One cause was the survey distribution channels (see Section 4.1).
- Small sample size of non-Japanese respondents: This prevented meaningful analysis of differences between Japanese and overseas respondents, in some cases.
- Short response period: The response period for this survey was less than two weeks. Some respondents wrote in the free comments section that they would have preferred more time.
- Ambiguous question: In Q15, both overseas and Japanese respondents reported difficulties due to a lack of information for speakers of languages other than Japanese. Due to the question statement, it was unclear whether this difficulty referred to their own experience or to others'.

5. Lessons Learnt for Design of the Online Tools

Over 85% of respondents reported that they encounter issues in their academic life at UTokyo. This highlights the need for support services, including from within UTokyo. Overall, the survey results provide strong proof that there is demand for our proposed tools. Table 6 summarises this evidence, addressing the "missing information" items from Table 1.

Tool	Missing information	Findings
Mentorship service (C1)	Is there demand? Is there supply?	Yes: the majority of graduate students and faculty members have spent several academic stages at UTokyo, and the majority of grad. students plan to continue research (incl. in academia), suggesting that there is a pool of potential mentors/mentees.
Experience sharing (C2)	Is there interest?	Yes: this was the single most popular tool selected by respondents among available options.
Q&A forum (C3)	Is there demand (both Q&A)? Usage preferences?	Yes: there is demand both from recipients (Q) and helpers (A), and some respondents also expressed a demand for training to learn how to help others.
Quick access links (C4)	Are official services already well known? Are other solutions used? Are there barriers?	When seeking help, close personal connections are preferred to existing UTokyo services. Although many services are already known, there is still demand for easier access to information on where to find help. Most respondents reported not being able to solve their problems via UTokyo-provided services, suggesting a need to re-evaluate whether they are adapted to actual needs.

Table 6: Feedback Received on Components of Planned Online Platform

In addition, the survey results provide general insights into system requirements for the online tools. Specifically, we plan to take five main lessons forward to the detailed design stage:

- Lesson 1: Multiple functions. There is a similar level of demand for multiple functions for the online tools, including access to information (on UTokyo resources, and on how to help those in need), and communication (reading/writing stories, Q&A, and mentorship).
- Lesson 2: Designing content by age group. The types of issues that people face during their research life at UTokyo differ mainly with age, rather than other factors such as gender and nationality. Therefore, it may be important to divide content on the platform by age group.
- Lesson 3: Anonymity. Most respondents expressed a demand to remain anonymous when using the online tools. Therefore, incorporating anonymous features into the tools, and yet maintaining a balance with accountability (e.g. respectful discussions), is one priority.
- Lesson 4: Minorities are the majority. The majority of both male and (especially) female respondents self-identified as a minority in the survey. This shows that diversity and inclusion (including multilingual content) should be a cornerstone of the online tools, if they are to be availed of by diverse members of the UTokyo community.
- Lesson 5: Personalisation. Although most researchers are aware of existing support services offered by UTokyo, a majority chooses not to avail of these opportunities, turning instead to close connections such as family and friends when faced with an issue in their research life. This suggests that including a "personal touch" in the online tools may be key for their success. In addition, developing connections between UTokyo support services and external support may be necessary in some cases.

6. Conclusions and Future Work

In this study, we proposed a new online platform to support the quality of research life at UTokyo. The platform is planned to consist of four elements: an online tool for academic career advice and mentorship, an experience sharing portal, a Q&A forum, and quick-access links to services for research life support at UTokyo. In order to improve our concept design, we conducted a survey to assess current issues faced by UTokyo members in their research life, gaps and barriers in existing solutions, and improvements in highest demand. The 290 responses taught us five lessons which will be carried forward to the next stage of the design process: there is a demand for multiple functions including access to information and communication; the types of issues people face vary mainly by age rather than gender or nationality; anonymity is preferred when using the platform; minorities are the majority at UTokyo, based on the survey respondents; and there is a demand for personalisation.

We hope that this study will have two positive outcomes within UTokyo: to raise awareness among university decision makers of the unmet need for online tools to support the quality of research life at the university, and to highlight important focus areas based on the survey results. One recent noteworthy development is the launch in February 2021 of UTokyo Women (2021), an informal university-wide Slack-based exchange network with an emphasis on female researchers. The results of this study may play a role in expanding this network. In addition, we hope that our survey-based design methodology will inspire students in other universities to contribute to improving their own university environment.

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