Exploring the Awareness of Mongolia's Young Generation on ICT-Supported Citizen Science and Its Potential

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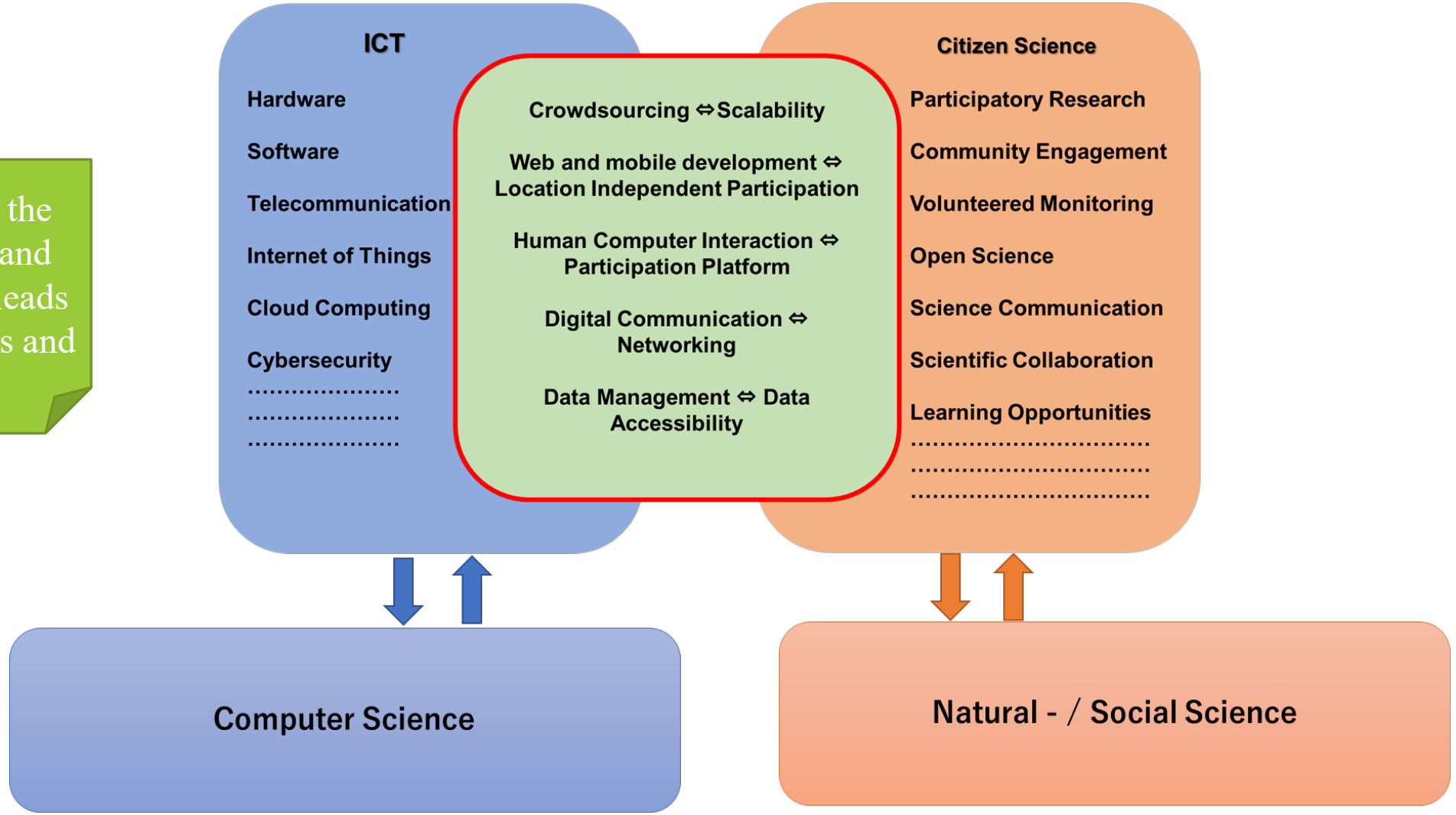
ICT-supported Citizen Science

Computer science brings the foundational knowledge and technical framework that leads to the systems, applications and tools used in ICT.



Mongolia

- One of the world's most sparsely populated countries
- Its vast land mass is underpopulated
  - Population concentration in urban areas
  - Harsh weather conditions in many other areas
- Increasing environmental challenges
  - Climate change
  - Extreme events
  - Air and water pollution

Mongolia

- Monitoring Mongolia's vast and diverse landscape is a major challenge, both logistically and financially.
- Approximately 83% of individuals use the internet (International Telecommunication Union, 2024). .
- Over 90% own a mobile phone (International Telecommunication Union, 2024).

Aim of This Research

- Investigate the current status and attitudes toward citizen science in communities where information about citizen science is scarce.
- Gather direct insights into the interests of local communities.
- Explore desirable ICT methods and tools that can effectively support the expansion of citizen science.

Methods

- Online survey was conducted in October 2024 among Bachelor's students at Mongolian University of Science and Technology.

- The form began with a brief introduction to the concept of citizen science, highlighting its benefits for both researchers and participants, and explaining how web technologies enable participation from any location.

- The background information, questions, and answer choices were provided in both Mongolian and English, minimizing any potential language barriers.

Questionnaire Design

General (Questions 1-3):

Overall perceptions and attitudes toward environmental and social challenges

Awareness (Questions 4-6):

Awareness of citizen science and related platforms

Engagement (Question 7):

Experiences with active participation in citizen science projects

Future Interest (Questions 8-9):

Potential involvement in citizen science and their preferred areas

Use of Web Technologies (Questions 10-13):

Technical insights relevant to the development of future citizen science applications

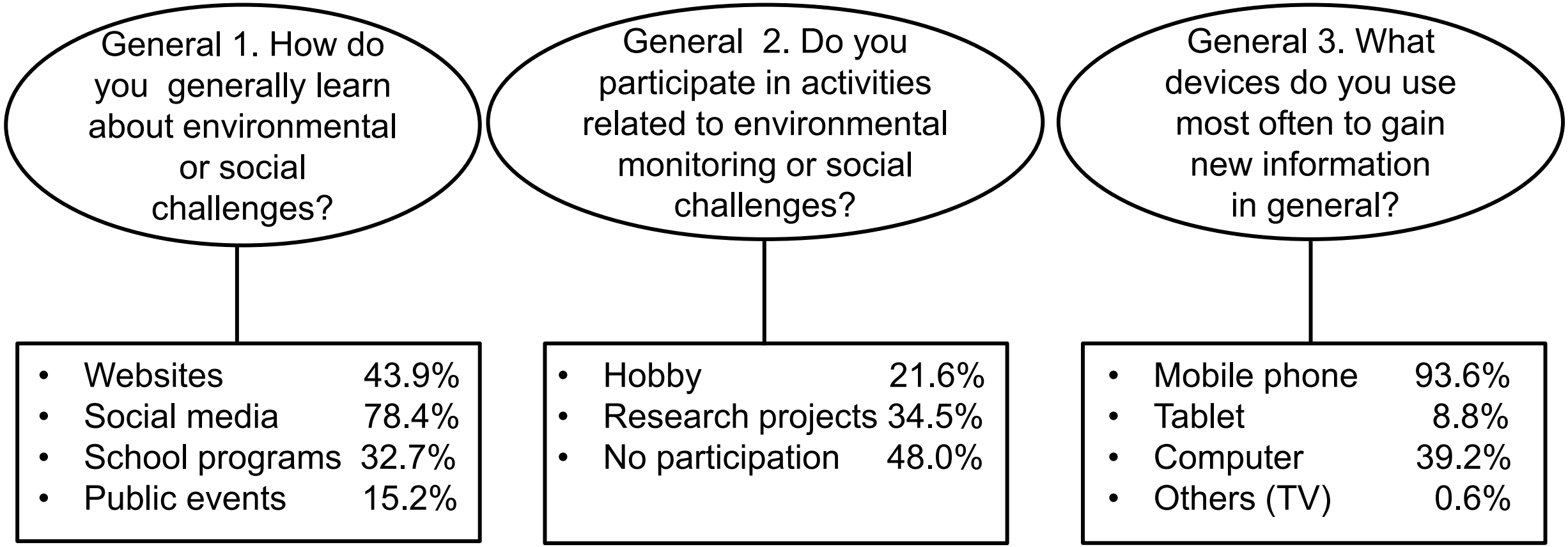
Participants

- A total of 171 students participated from different years of university (from freshman to senior)

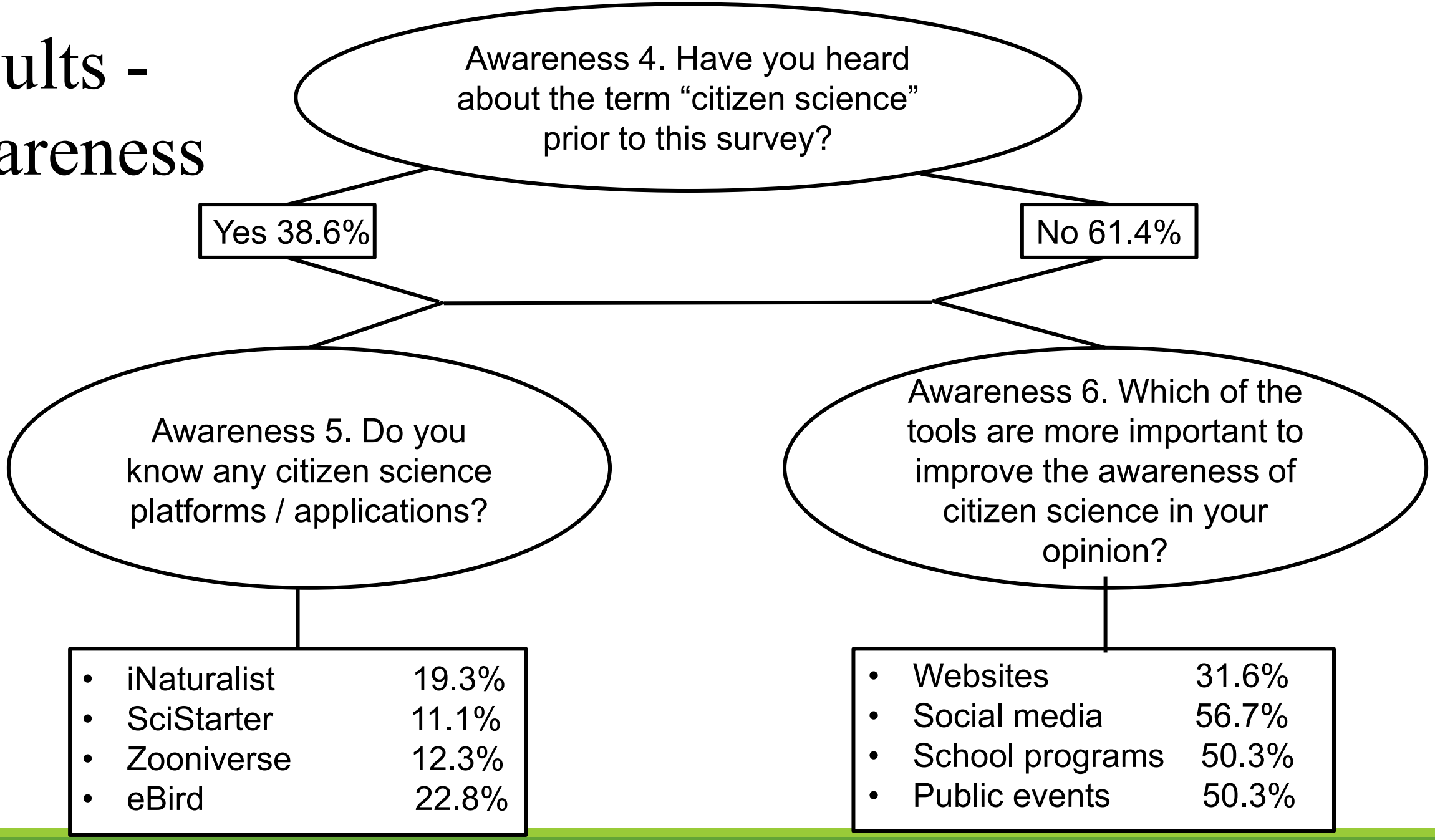
- 64% identifying as female and 36% as male

- Students had various majors: Engineering (37.4%), Social Sciences (59.6%), and Natural Sciences (3.0%).

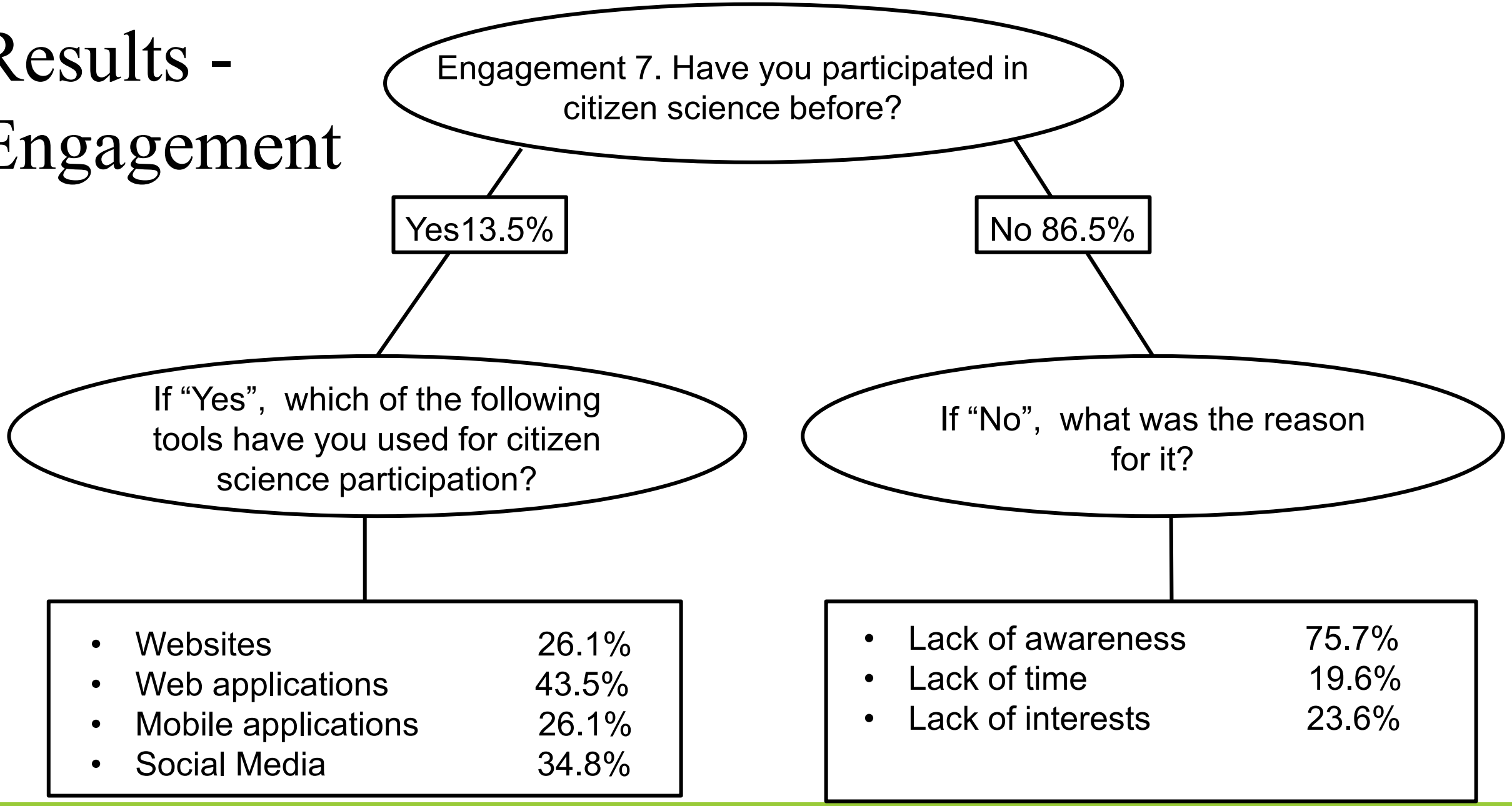
Results - General



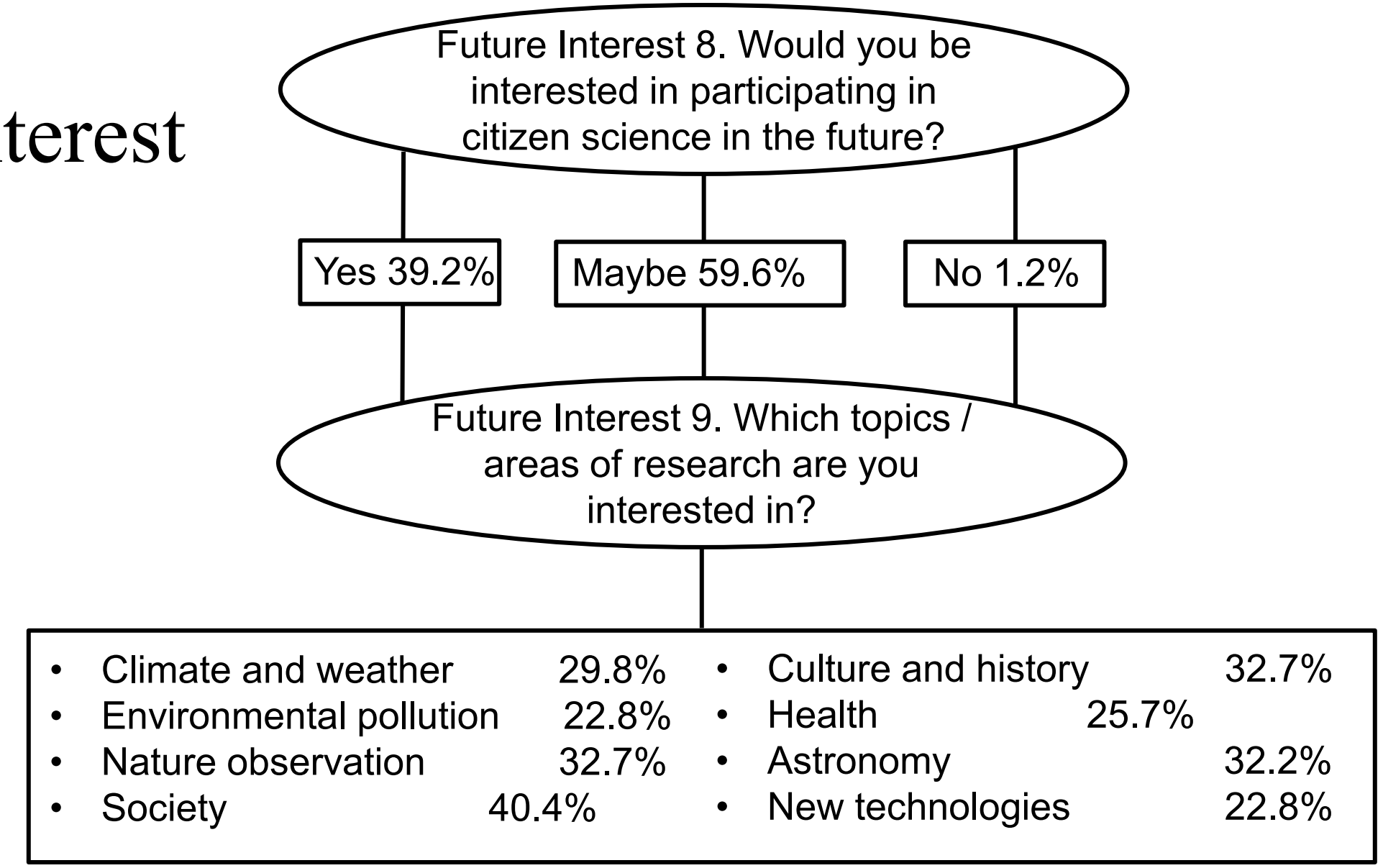
Results - Awareness



Results - Engagement



Results - Future Interest



Results - Use of Web Technologies

Use of Web Technologies 10. What is your preferred method for participating in citizen science?

- Websites 36.8%
- Web applications 25.7%
- Mobile applications 27.5%
- Social Media 41.5%
- In-person events 39.2%

Use of Web Technologies 11. How important is having a mobile application for your participation in citizen science?

- Very important 26.3%
- Important 64.9%
- Less important 8.8%

Use of Web Technologies 12. What key functionalities do you find most desirable in web- and mobile applications for citizen science?

- Interactive mapping for data visualization and analysis 36.3%
- Other data visualization and analysis tools (graphs and charts) 38.6%
- Offline data collection capabilities 45.0%
- Data access and download options for further analysis 26.3%

Use of Web Technologies 13. Which additional features would enhance your experience in web- and mobile applications for citizen science?

- Educational resources and tutorials 43.3%
- Gamification elements 14.0%
- Discussion forums 28.1%
- Data validation and feedback mechanisms by researchers and other participants 34.5%
- Shared project progress tracking and timelines 26.9%
- Participants-driven project idealization and proposal systems 28.1%

Findings

- ICT-supported citizen science for Mongolia needs to take into account:
  - **Social media and mobile phones** are key channels for accessing new information.
  - **Active promotion of projects** such as through social media, university programs, and public events is essential, to help raise awareness among individuals who may not have been familiar with such initiatives so far.
  - **Educational materials and data validation / feedback mechanisms** are preferred features.
  - **Offline capability is** considered particularly important, as it would minimize mobile internet consumption and mitigate the impact of sporadic Wi-Fi connections.

Thank you for your attention!

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