Barriers to Salvaged Lumber Usage and Solutions to Increase Use in King County

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King County

Background

- In 2022, 184,736 tons of construction waste was sent to landfills, this waste is toxic to the surrounding environment.
- One solution to this waste issue is circularity, a type of economic model that is restorative in design, materials are being reused.
- Deconstruction is a process of taking apart buildings to preserve materials for reuse.
- The aim of my research is to understand **current perspectives** of circularity, identify **barriers** to using salvaged lumber, and identify **solutions** to these barriers.

Figure 1: Figure A and B depict examples of waste lumber from deconstruction.

Questions

What are current perspectives of circularity?

What are barriers to using salvaged lumber?

What are solutions to these barriers?

Internship/Methods

My internship was done with King County Solid Waste Division. This involved collecting information on interest and knowledge on a salvaged lumber warehouse through surveys (see fig 2. and 3.).

Research was done with human subject research and literature review.

- Human subject research done with surveys and interviews using contact list from site supervisors.
- Literature reviews were done using UW and Google Scholar databases.

Results

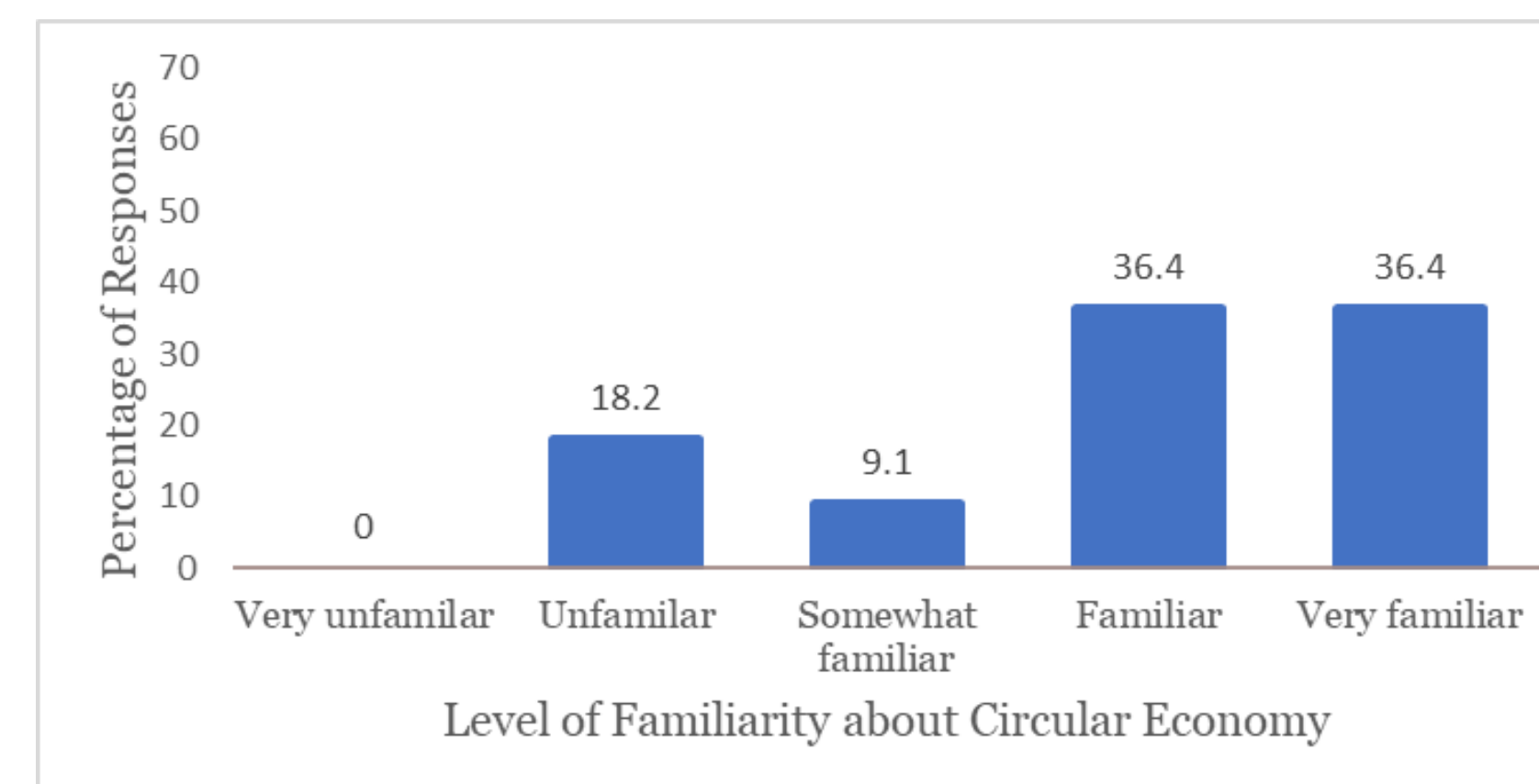### Interest and Knowledge in Circular Economy

Figure 2: level of familiarity about the circular economy from surveys. Data is shown in percentages on a likert scale, a system used to scale responses from negative to positive.
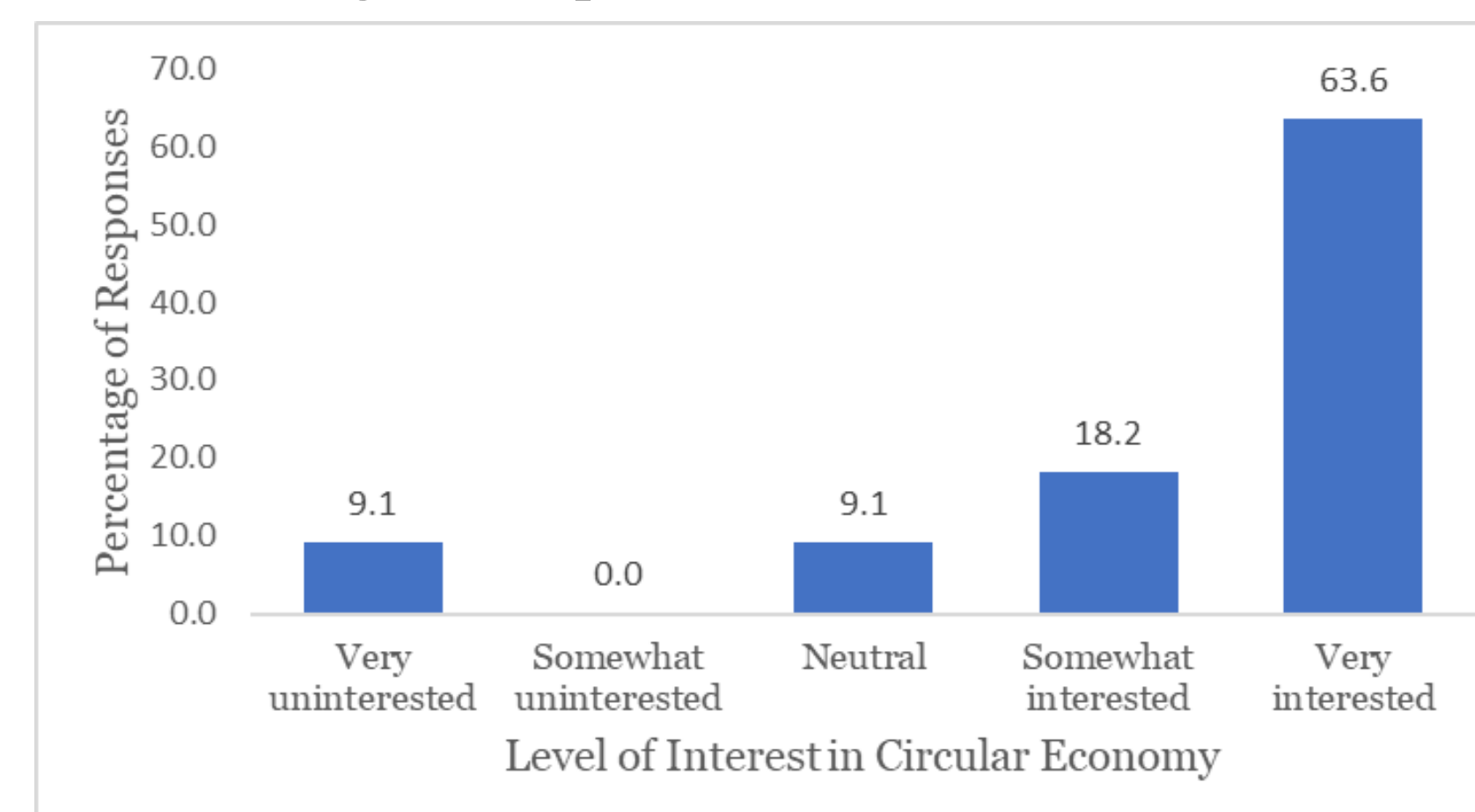

Figure 3: interest in participating in a circular economy from surveys. Data is shown in percentages on a likert scale, a system used to scale responses from negative to positive.
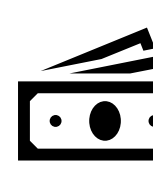
Barriers

Technology
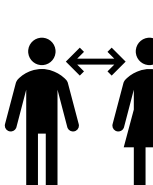Lack of technology to recycle materials, lack of reports on building materials needed for deconstruction.

Regulatory
Lack of policy incentive, inconsistency in building codes and material over time and location.

Financial
Expensive for usage, transporting, processing, and storage of salvaged lumber.

Social
Lack of interest or knowledge by consumers, perceived barriers due to lack of knowledge.
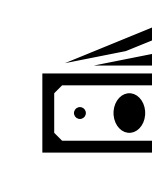
Results Continued

Solutions

Technology
More research on machines to clean and repurpose salvaged lumber, more detailed reporting about building materials when being built.
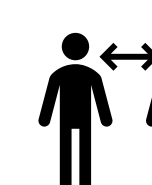
Regulatory
Increases in policy incentives for using salvaged lumber within green building criteria, policy standardization of building code and materials.

Financial
Salvaged lumber warehouse, training for specialized labor in industry and schools.

Social
Increases in education and awareness about sustainability in the construction industry, examples include workplace training and facilitation of clients sharing experiences.

Significance

- Research findings can be used to implement solution strategies within King County and industry.

Industry	Future
• More availability of reused material due to new deconstruction techniques. • Better cost efficiency within industry due to salvaged lumber warehouse.	• Policy incentives supporting circularity setting an example for future environmental policies. • Lumber cleaning technology to pave the way for future research.