Design Processes in an Upper-Level Design Course: 
An Evaluation of Design Heuristics 
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1. MOTIVATION
- Successful concept generation as the source of successful innovations,
- Lack of instruction on systematic approaches to idea generation and innovative thinking

2. RESEARCH QUESTIONS
1. Evidence of Design Heuristics Use
   What evidence of Design Heuristics use during a heuristic-guided ideation session can be seen in later team designs?

2. Outcomes of Design Heuristics Use
   How do Design Heuristics contribute to the practicality and overall quality of designs across different contexts?

3. Impacts of Design Heuristics Use
   What are the impacts of Design Heuristics on solutions generated by design teams?

REFERENCES

3. METHODOLOGY
- Created timelines based on information pulled from team reports and ideation sessions
- Analyzed timelines for evidence of heuristic use and to explore how heuristic-inspired ideas evolved throughout students’ design processes. Sought to uncover patterns in:
  1. Degree of heuristic use
  2. Synthesis of the concepts present at various phases in the design process
  3. Nature of transformation in moving from one design phase to another
- 43 participants in eight design teams. 3 to 5 members per team

4. FINDINGS
- Each individual generated an average of 3.7 concepts, each team generated an average of 3.3 concepts.
- Most team-generated concepts different than individually generated concepts (2.6 concepts during the team ideation session not the same as those generated during the individual ideation session)

5. DISCUSSION
- Evidence of heuristic-driven concepts in all phases of design shows that heuristics support practicality
- Heuristics are applicable in a variety of design contexts
  - All teams studied working on different design problems they chose themselves

6. CONCLUSIONS and FUTURE WORK
- What approaches do teams use to develop their initial concepts using Design Heuristics?
- How can teams be most successful when using Design Heuristics?
- In which stages of design are Design Heuristics most useful?
- When do they lead to more creative, practical, useful solutions?
- How can we improve the integration and implementation of Design Heuristics into design courses?

ACKNOWLEDGEMENTS: This work was supported by NSF Grant # 1140256. The authors would like to acknowledge the students who participated in this study.