

This excerpt is from the project entitled “The Melonator” addressing an issue that exists with trying to minimize food waste when separating melons from the rind.

#### Element J: Documentation of external evaluation

The following entry would be likely to receive a **score of 3**, based on the EDPPSR. The entry contains evidence of evaluation by multiple stakeholders (“experts and consumers”). By providing at least some information to identify the evaluators (e.g., the name and school of one teacher, another reviewer’s status as presentation judge, the professional status of someone whose feedback was cited), the students make clear that these are “demonstrably qualified stakeholders.” While much of the feedback from experts was general and more in the order of praise than constructive feedback, there were a few specifics offered (e.g., making the product smaller and lighter, attaching the wire to the lateral support beams”). Feedback from consumers was somewhat more specific, particularly in the way of suggested improvements and concerns. To attain a higher score, students would need to document and synthesize evaluation data in more detailed and thorough way, and connect that synthesis more clearly to the design requirements that had been identified.

#### Engineering Design Process Portfolio Scoring Rubric Component and Element Titles

##### Component I: Presenting and Justifying a Problem and Solution Requirements

- Element A: Presentation and justification of the problem
- Element B: Documentation and analysis of prior solution attempts
- Element C: Presentation and justification of solution design requirements

##### Component II: Generating and Defending an Original Solution

- Element D: Design concept generation, analysis, and selection
- Element E: Application of STEM principles and practices
- Element F: Consideration of design viability

##### Component III: Constructing and Testing a Prototype

- Element G: Construction of a testable prototype
- Element H: Prototype testing and data collection plan
- **Element I: Testing, data collection and analysis**

##### Component IV: Evaluation, Reflection, and Recommendations

- **Element J: Documentation of external evaluation**
- *Element K: Reflection on the design project*
- Element L: Presentation of designer’s recommendations

##### Component V: Documenting and Presenting the Project

- Element M: Presentation of the project portfolio
- Element N: Writing like an Engineer

**Please Note: Elements M and N require no submission from the portfolio author(s) and are intended to be scored based on the portfolio work as a whole from what has been submitted from Elements A through L**

## Element J: Documentation of external evaluation

- 5** Documentation of project evaluation by multiple, demonstrably qualified stakeholders and field experts is presented and is synthesized in a consistently specific, detailed, and thorough way; documentation is sufficient in two or more categories to yield meaningful analysis of that evaluation data; the synthesis of evaluations consistently addresses evaluators' specific questions, concerns, and opinions related to design requirements.
- 4** Documentation of project evaluation by two or more demonstrably qualified stakeholders and field experts is presented and is synthesized in a generally specific, detailed, and thorough way; documentation is sufficient in at least one category to yield a meaningful analysis of that evaluation data; the synthesis of evaluations generally addresses evaluators' specific questions, concerns, and opinions related to design requirements.
- 3** Documentation of project evaluation by three or four demonstrably qualified stakeholders and/or field experts is presented and is synthesized in a somewhat specific and detailed way, but may not be thorough; documentation may not be sufficient in any category to yield a meaningful analysis of that evaluation data; the synthesis of evaluations addresses at least some of evaluators' specific questions, concerns, and opinions related to design requirements.
- 2** Documentation of project evaluation by two or three representatives of stakeholders and/or field experts (some of whom may not be demonstrably qualified) is presented and is synthesized in a somewhat specific and/or detailed but incomplete or overly general way; the synthesis of evaluations addresses at least a few of evaluators' specific questions, concerns, and/or opinions related to design requirements.
- 1** Documentation of project evaluation by one or two representatives of stakeholders and/or field experts is presented but synthesis is sparse, with few specifics/details; the synthesis of evaluations addresses only one or two of an evaluator's questions, concerns, and/or opinions related to design requirements.
- 0** Documentation of project evaluation by any representative stakeholder or field expert is nonexistent OR if included is minimal; synthesis is minimal or missing and if present, does not address any questions, concerns, or opinions of an evaluator related to design requirements.
- .....

Excerpt from the "Reflective Questions for Students" Document regarding Element F from the Innovation Portal Resources files;

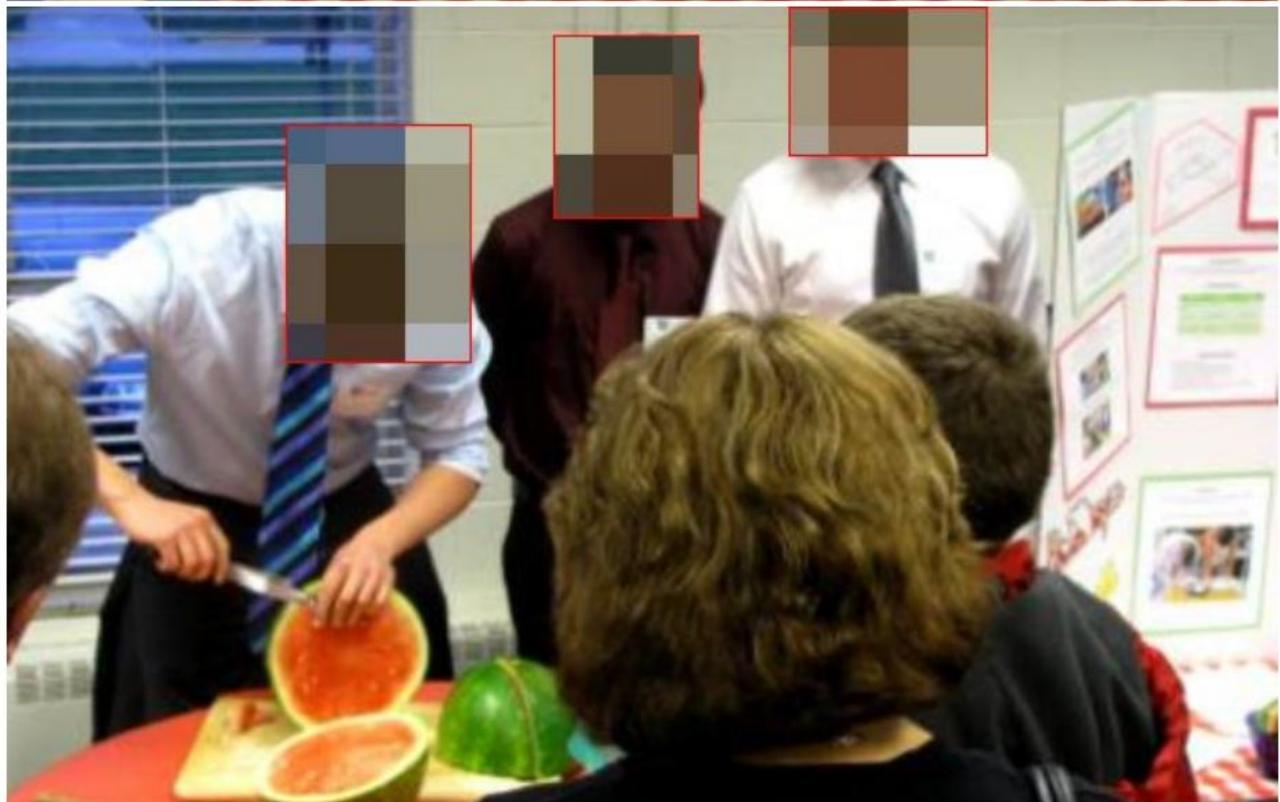
- **What do end-users and experts directly related to this project and problem statement think of the testing results and my/our conclusions about the effectiveness of this idea?**



005 - The Melonator

DOCUMENTATION OF EXTERNAL EVALUATION J

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N





Our team received feedback from many experts and consumers throughout the entire design process. We received feedback in many ways, most of it coming at the final engineering presentation. We also received feedback during the testing phase from our experts and from potential consumers. Much of the feedback we received about our product was positive, with only a few modifications suggested to us.

At the final presentation, many of the judges showed interest in our product. Most made comments on what they liked and what they thought we could do to improve our design. Multiple judges, and visitors alike, commented that if our product's design was optimized and it was sold, they would be among the first consumers to buy it.

- [teacher name redacted].
  - [school name redacted]
  - She said that we had a very good idea and design. She also commented on the grading sheet that she would buy our product. However, she suggested that we look into making our product smaller and weigh less. Also, she commented that it didn't seem like the roller served a purpose.
- Unknown Presentation Judge
  - He has something to do with engineering.
  - He asked if we had patented our product. He also asked if we had sold any and to notify him once our product was for sale.
- Mike H.
  - Engineer at GE medical. He has patents for some parts of the CT scan machine.
  - Thought that we had a great idea and really good first prototype. His criticism of our product was that we needed to find a more secure way to attach the wire to the lateral support beams.

As stated earlier, we got consumer feedback from a large amount of people at both the trade show and at home. In all honesty, the most common comment we received was something to the tune of "how much would you sell it for?". Many of the visitors at the trade show commented that they wish there was a product to simplify cutting melons and that if we could strengthen the wire so it could cut through the rind, they would buy our product. This is because then they would have extra clean up and our product might not be worth the price if multiple utensils were needed. The only other concern we heard was that our product is fairly large so for people with limited kitchen space, storage could be a problem. However, many consumers acknowledged the dangers of cutting a melon and said that this is why our product is particularly attractive. Our team has received encouragement to patent our idea from siblings (who happen to work in the engineering field) and a family friend (who advertises his products at trade shows).

After we received all of this input from consumers and experts, we decided to look back at our design specifications to see how our product performed. When we considered how others thought our product performed, we saw that it met all of the design specifications that we tested.

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