Linking Creativity Measurements to Product Market Favorability: A Data-mining Approach

Christian Lopez [1], **Xuan Zheng** [1], **& Dr. Scarlett Miller** [1,2]

[1] Department of Industrial and Manufacturing Engineering,
[2] School of Engineering Design Technology and Professional Programs
The Pennsylvania State University, University Park

Creative products that go beyond the expectation of functionality are more appealing to consumers

[Oman et al. 2013]
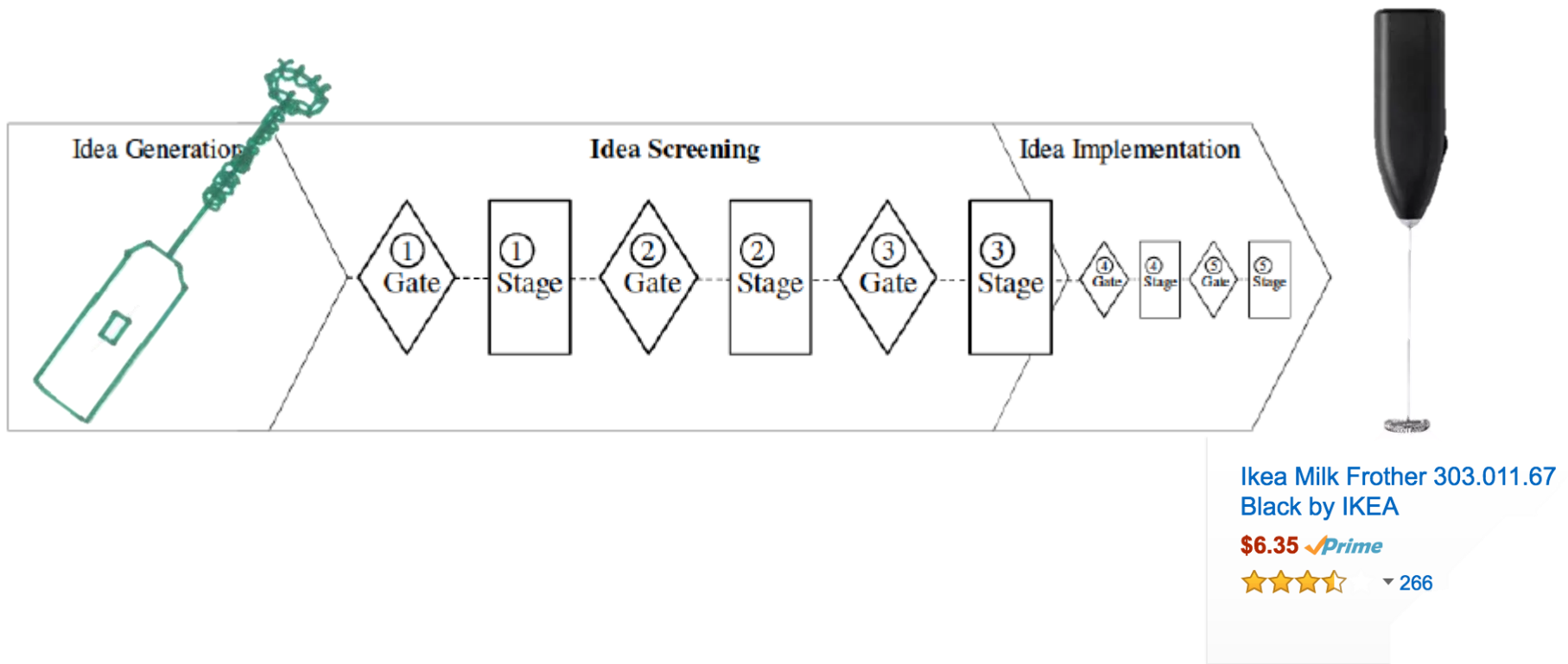
Brainstorming

**Design by Analogy**

Gallery

C-Sketch

TRIZ

Researchers have focused on developing methods for increasing creativity during idea generation

[Osborn 1971; Altshuller, 1985; Smith 1998; Kulkarni et al. 2012]

Concept selection methods need to provide decision-makers with valuable information

Idea Generation | Idea Screening | Idea Implementation

① Gate ① Stage ② Gate ② Stage ③ Gate ③ Stage ④ Gate ④ Stage ⑤ Gate ⑤ Stage

Ikea Milk Frother 303.011.67 Black by IKEA
$6.35 ✓Prime
★★★☆ ▾ 266

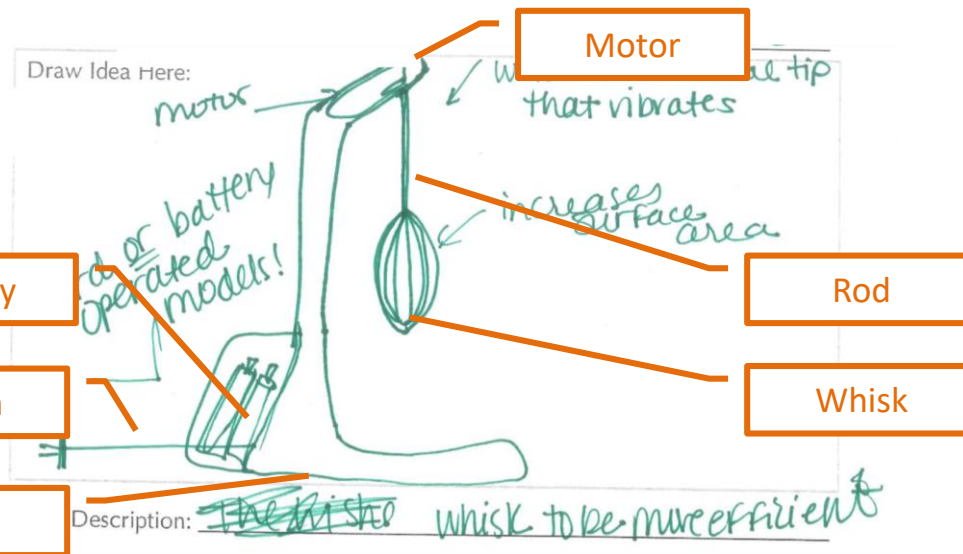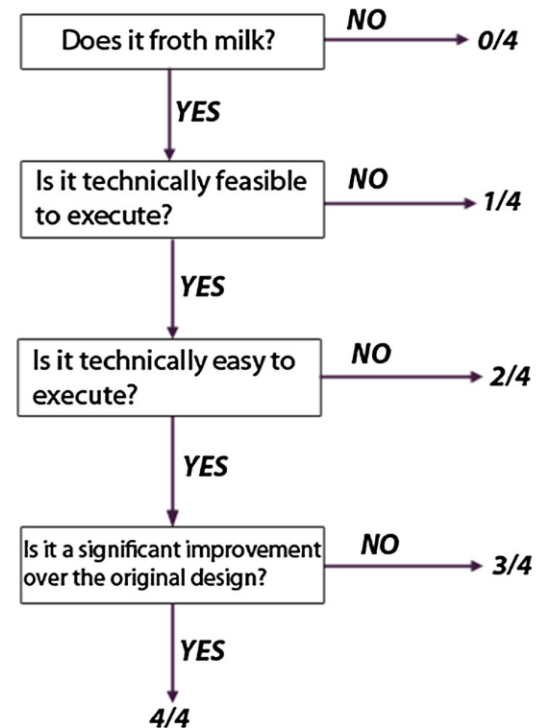# Creative ideas are often rapidly filtered out during the concept selection process [Rietzschel et al. 2006]
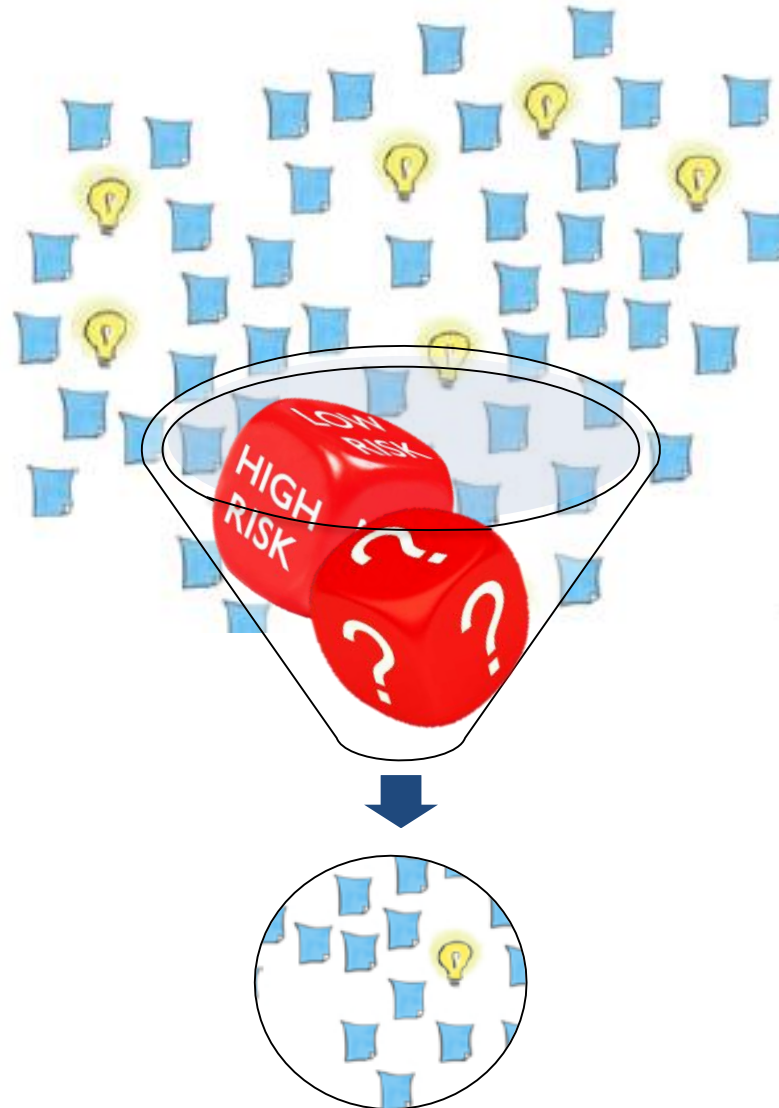
There is a need for more effective mechanisms to inform decision makers and to support the flow high-potential ideas

The Shah, Vargas-Hernandez, and Smith (SVS) method measures the relative creativity of ideas

Novelty

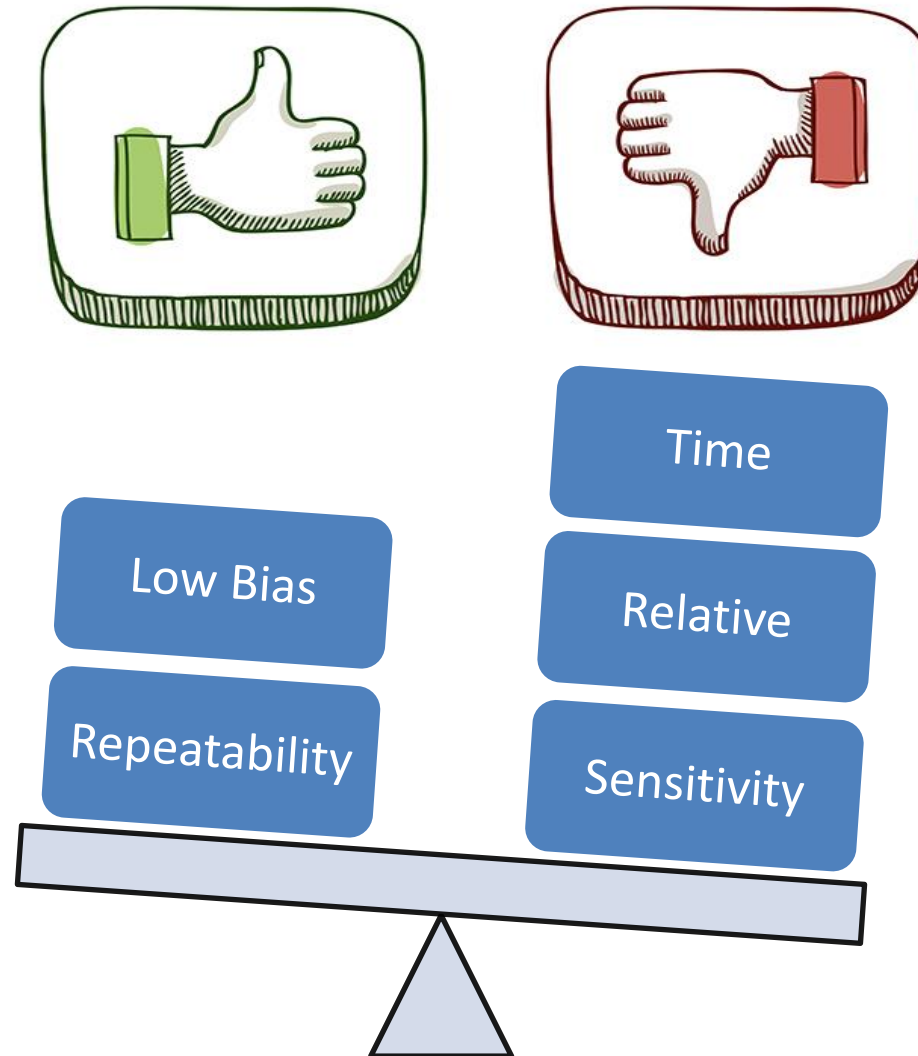**Quality**

Feature-tree analysis has become widely used in engineering design

[Srivathsavai et al. 2010]

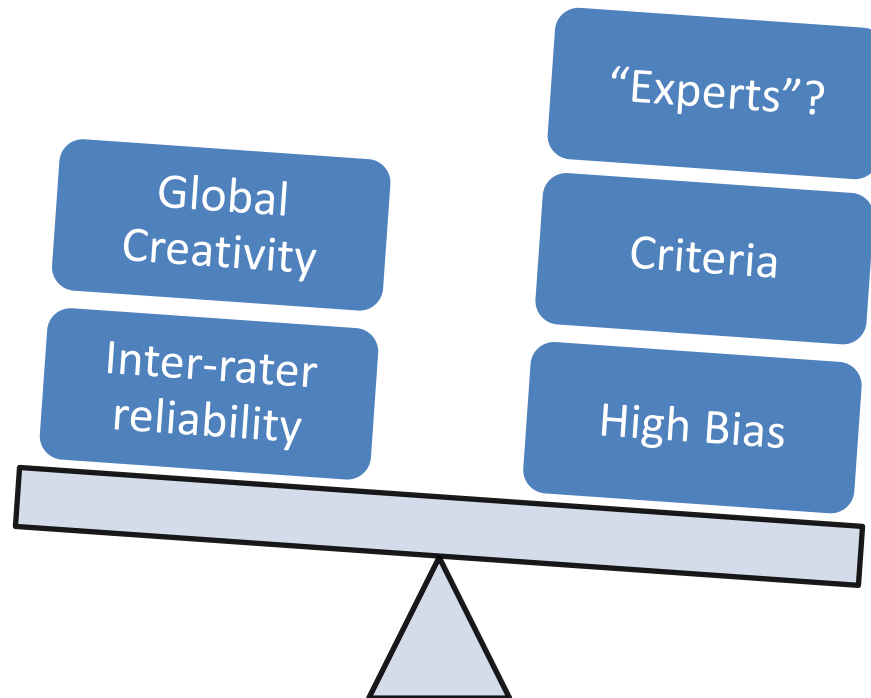Low Bias

Repeatability

Time

Relative

Sensitivity

Amabile's Consensual Assessment Technique (CAT) measure global creativity of ideas.

[Amabile, 1982]

The CAT has been called the "gold standard" of creativity assessment

[Baer et al. 2009]

Online customer reviews have been used to inspire new product development and modification.

[Park & Lee, 2011; Decker & Trusov, 2010]

⭐⭐⭐⭐⭐ **Frother from Heaven**

By Amazon Customer on September 24, 2016

Size: Pack of 1 | Verified Purchase

okay this little Ikea Frother is the Bomb!! I so love it to death lol. I would truly recommend this to anyone out there that is just starting to make froth and learning because it works so good. I give this as a gift as well. Great product

‣ Comment | Was this review helpful to you? Yes No Report abuse

⭐⭐⭐⭐⭐ **cheap but works perfect**

By Raul Frances, MD on September 23, 2016

Size: Pack of 1 | Verified Purchase

When I bought it, I doubted it works well because of the cheap price. After a couple of weeks of using it, I can say that it works very well.

‣ Comment | Was this review helpful to you? Yes No Report abuse

⭐☆☆☆☆ **Broke after one week. Only used maybe 3 times ...**

By Tracy Schwandt on September 22, 2016

Size: Pack of 1 | Verified Purchase

Broke after one week. Only used maybe 3 times for frothing coffee, went to pick it up by the metal end and it just fell apart!

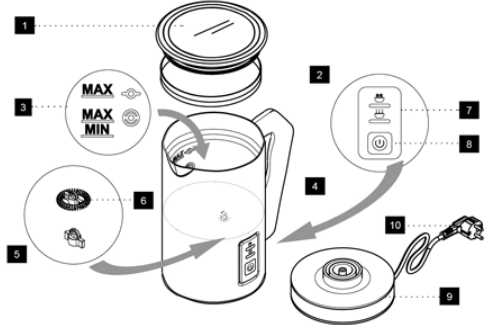‣ Comment | Was this review helpful to you? Yes No Report abuse

⭐⭐⭐⭐⭐ **Five Stars**

By Amazon Customer on September 22, 2016

Size: Pack of 1 | Verified Purchase

pretty good. It needs 2 AA batteries.

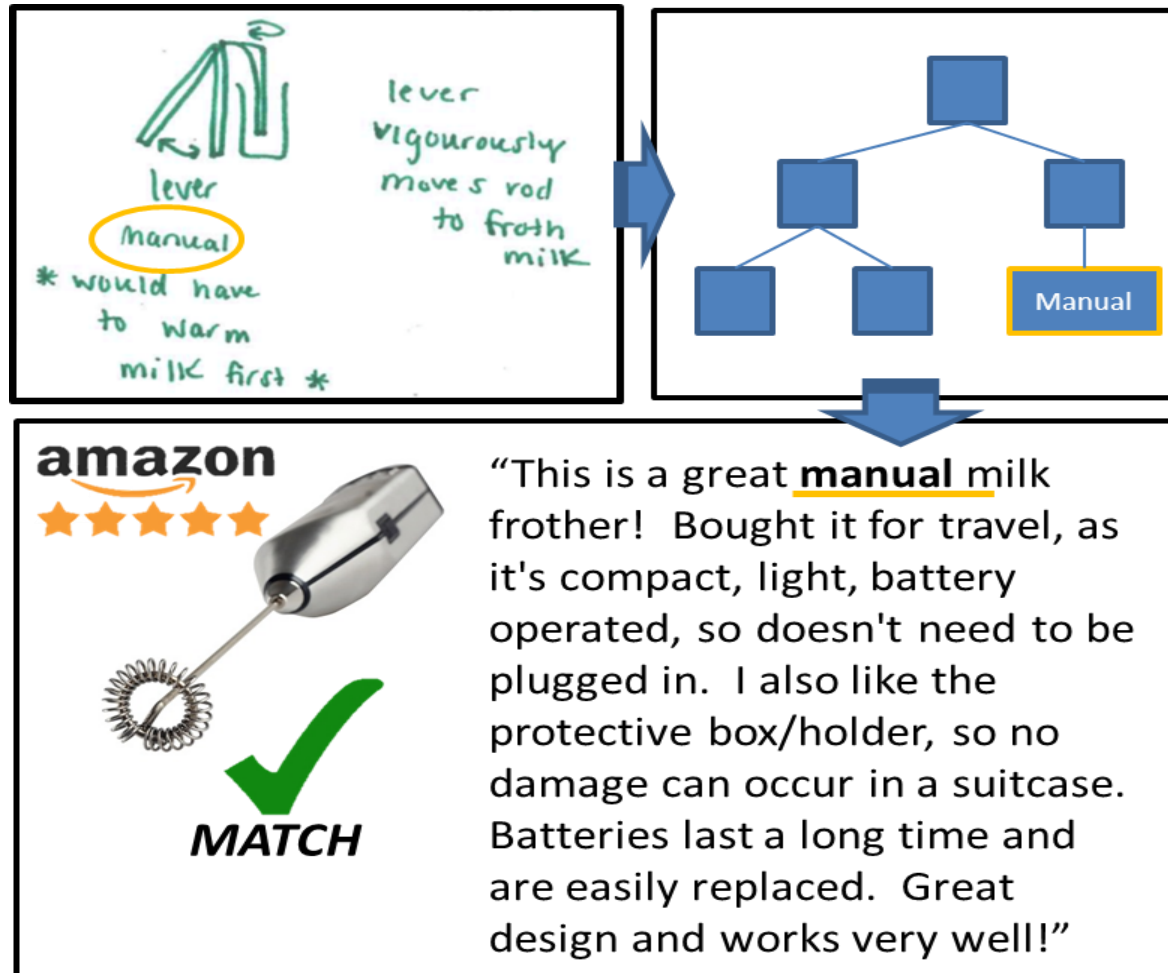‣ Comment | Was this review helpful to you? Yes No Report abuse

Target Customers

Future Product Features

11

New Product Favorability is estimated from online customers' reviews of existing products that shared similar features.

*"You may not like a recipe, but you like **some of the ingredients** in the recipe. So you **take what you like**, maybe add in some new ingredients and create a new recipe."*
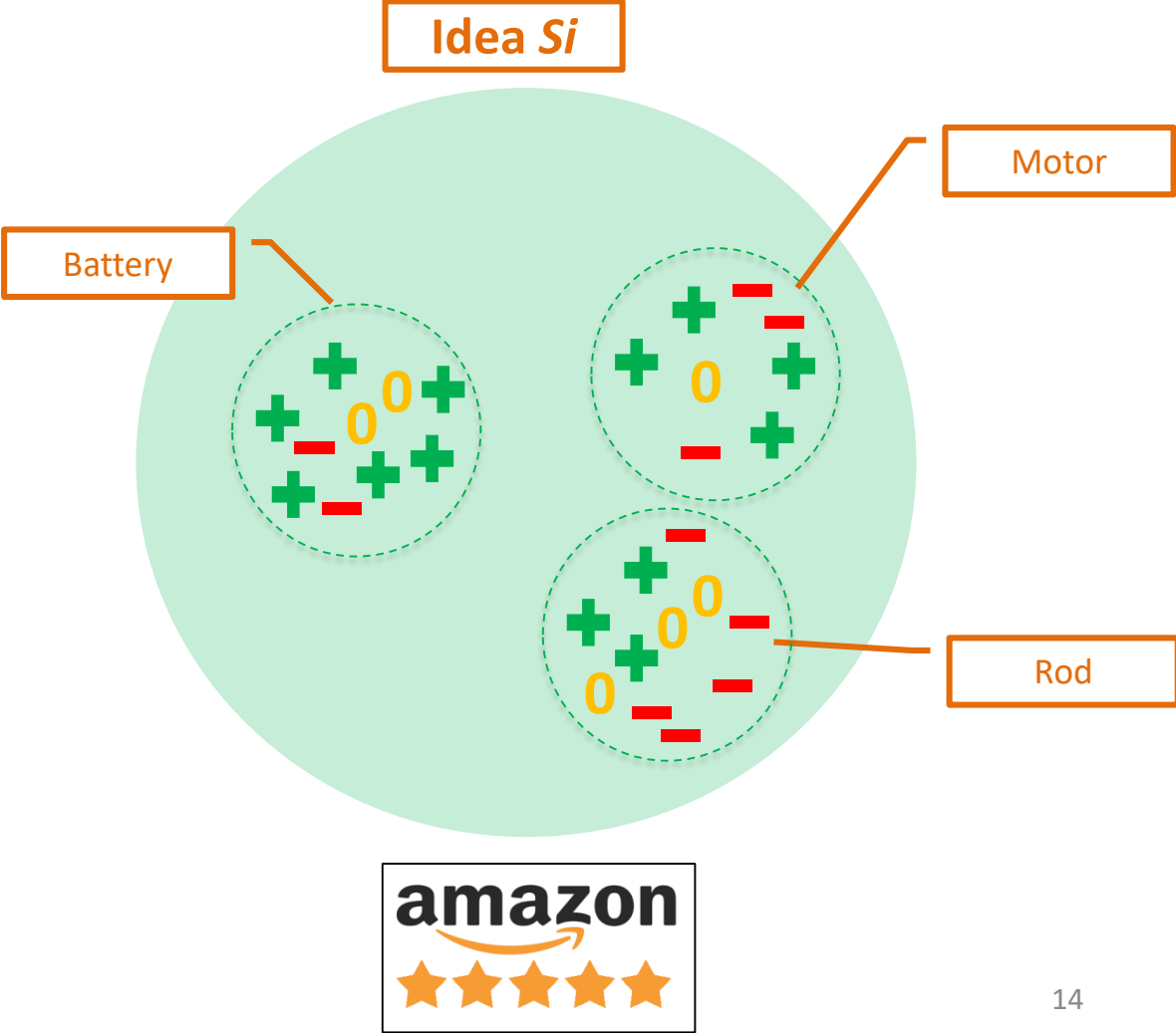
[Herring et al. 2011]

The New Product Idea Favorability (NPF) is composed of three elements:
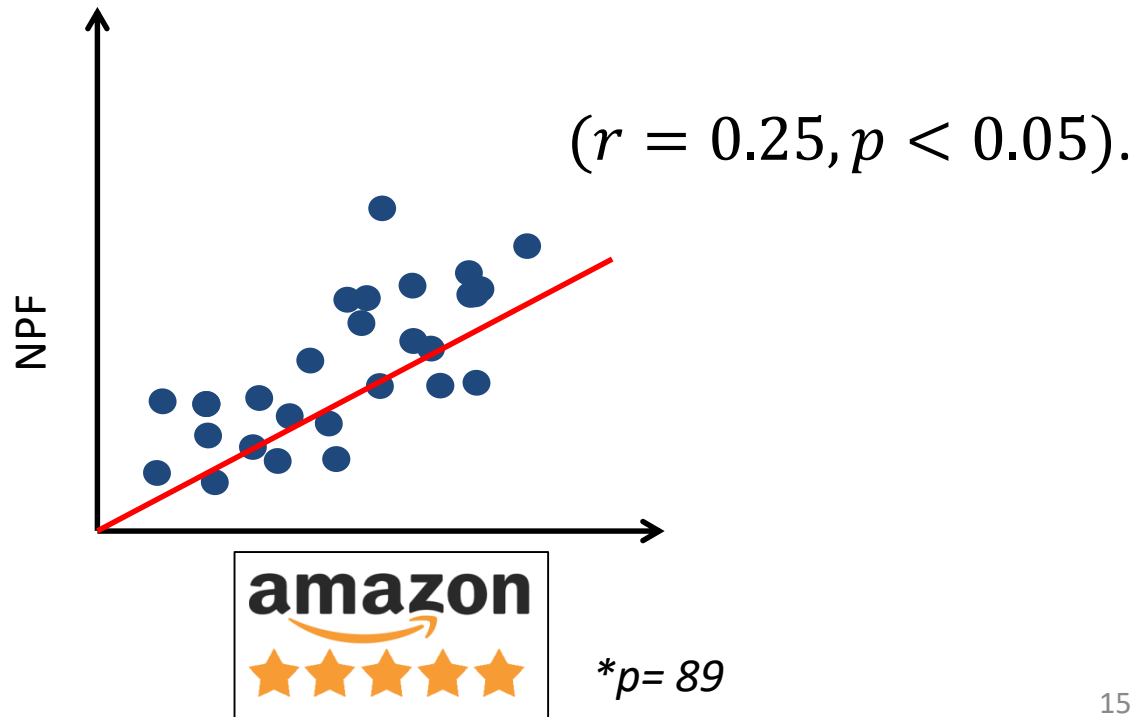
Case Study: **Design of a novel and functional Milk Frother.**

- n=930   Product Ideas
- *R=8,628   Amazon customer reviews*
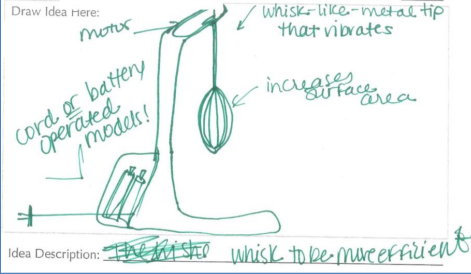- *p= 166   Milk frother products*

NPF
Leave-one-out
$Validation$

$(r = 0.25, p < 0.05).$

NPF

amazon

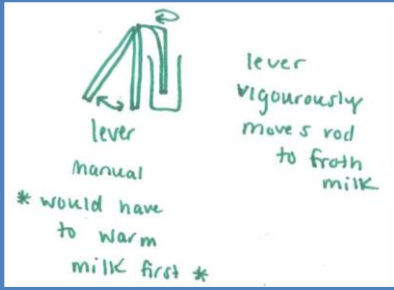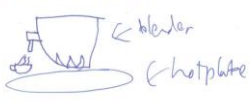★★★★★   *p= 89

RQ1: Is there a relationship between the SVS *Novelty* and *Quality* score and the NPF?

RQ2: Is there a relationship between the CAT *Novelty* and *Quality* score and the NPF?

Idea	Num. of features	Sample features	SVS Novelty (r=0.35)	NPF
	16	Stand, whisker, battery,	0.88	0.0311
	8	**Rod**, Lever, **Manual**	0.82	0.0018
	5	**Stirring**, **Heat**	0.59	0.0170
	1	Shaking	0.44	0.0002

SVS Quality r=0.08

CAT Novelty τ=-0.08

CAT Quality τ=-0.06

Future work should focus on exploring other product features, task design, and concept selection methods.

- ✓ **Customer Reviews can help inform decisions-maker in the early stages of the product development process**

- ✓ **The NPF can measure the creativity and favorability of ideas**

- ✓ **Data-mining and sentiment analysis of customer reviews is a promising areas of future research**

Thank you!

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