How might we take the kid snacking experience to the next level? while staying true to the Mission and Values of Annie’s (Sustainability, Transparency, and Health)

note: this would be applied to the next 6 assignments and you don’t need to prototype anymore in this class (if you don’t want to)
Class is sponsored by General Mills
Because the class is sponsored, the University owns all IP (ideas, copyrights and patentable inventions) developed during the class.
General Mills has exclusive rights to the IP for the IP that they want to commercially use
General Mills has 6 months to decide which ideas they want to pursue
If General Mills decides not to pursue an idea, the student who developed the idea can request that the University transfer ownership to the student. The student can pursue the idea on their own.
If do not want to participate in the General Mills sponsored project, an alternative assignment will be provided.
evaluating creativity?
torrance test of creative thinking

originality - *statistical* rarity of the responses
fluency - total number of relevant ideas
flexibility - number of different categories
elaboration - amount of detail in the responses
evaluating creativity?
torrance test of creative thinking

individual scores at the end of the semester

creativity index (CI)
evaluating creativity?
Torrance test of creative thinking
evaluating creativity?
torrance test of creative thinking
evaluating creativity?
torrance test of creative thinking
evaluating creativity?
torrance test of creative thinking
evaluating creativity?
torrance test of creative thinking
evaluating creativity? 
remote associates test
“convergent thinking”

tap
dance
dance
dance

number “correct” out of 30

class avg

class avg
evaluating creativity?
remote associates test
“convergent thinking”

“Discovery consists in seeing what everyone else has seen and thinking what no one else has thought.”
-Albert Szent-Gyorgyi

MORE THAN ONE RIGHT ANSWER

ROCKING WHEEL HIGH chair rolling

chair rolling rolling rolling
evaluating creativity?
remote associates test
“convergent thinking”

“Discovery consists in seeing what everyone else has seen and thinking what no one else has thought.”
-Albert Szent-Gyorgyi

MORE THAN ONE RIGHT ANSWER

HEALTH
TAKER
LESS
evaluating creativity?
alternative uses test
“divergent thinking”

“Even the most creative people are still going to come up with many mundane associations,” Nemeth says. “If you want to be original, then you have to get past this first layer of predictability.” (2003)
the novel tail

kudrowitz and dippo, 2013

Order of Responses vs. Unoriginality of Responses

1st response = 50% occurrence

less than 10% occurrence

\[ y = 0.4x^{-0.5} \]

\[ R^2 = 0.94 \]

kudrowitz and dippo, 2013
evaluating creativity?

self evaluation

How creative are you? 0 (not) - 10 (highly)

class avg
evaluating creativity?  
correlations?

ALT vs. RAT

TTCT vs. ALT

TTCT vs. RAT
Evaluating creativity?

Interrelationships (r-squared)

<table>
<thead>
<tr>
<th></th>
<th>SELF</th>
<th>RAT</th>
<th>ALT</th>
<th>TTCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>RAT</td>
<td></td>
<td>0.04</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>ALT</td>
<td></td>
<td></td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>TTCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
evaluating creativity?
interrelationships

R² = 0.6242
INFORMATION SHEET FOR RESEARCH
[Creativity Tests and Product Design Idea Generation]

You are invited to be in a research study of the relationship between creativity tests and product design idea generation. You were selected as a possible participant because you will be producing all of the information as part of this class content. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Barry Kudrowitz from the College of Design, UMN

Procedures:

If you agree to be in this study, we would ask you to do the following things:
Do the homework assignments as you would normally and post to the blog according to the instructions.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. All of the assignments are still due as part of the class. However, please let me know if you do not want me to include your data in the research. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher(s) conducting this study is (are): Barry Kudrowitz, Cory Schaffhausen, and Caitlin Dippo. You may ask any questions you have now. If you have questions later, you are encouraged to contact them at [1], [2], barryk@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Research Subjects’ Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.
evaluating creativity
rainbow project  (cartoon caption test)
evaluating creativity
quantity vs. quality

You're fired in 3...2...1...

quantity of captions vs. total
humor score per subject

$R^2 = .64$

The best way to have a good idea is to have a lot of ideas.
-Linus Pauling

kudrowitz and wallace, 2010
evaluating creativity
advice from New Yorker winners Larry Wood and Patrick House

- Keep it brief / common simple monosyllabic words (i.e. keep it simple)

- **Theory of Mind** (i.e. what are the subjects thinking and feeling)

- Incorporate *everything* in the cartoon

- No proper nouns and no uncommon references

- Most important but not mentioned... Resolve the *Incongruity*!
## Evaluating Creativity

**Formula for Funny?**

<table>
<thead>
<tr>
<th>Ways to Say “You’re Fired”</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>You’re fired in 3...2...1...</td>
<td>0.84</td>
</tr>
<tr>
<td>I think we all saw this coming, you’re being fired. Into space.</td>
<td>0.56</td>
</tr>
<tr>
<td>You’re fired!</td>
<td>0.28</td>
</tr>
<tr>
<td>Boss: You are fired</td>
<td></td>
</tr>
<tr>
<td>Employee: ... (good thing I can hardly hear anything in this helmet)</td>
<td></td>
</tr>
</tbody>
</table>

*Argument against the “elaboration” factor on TTCT*
humor and creativity

“the person who is spontaneously humorous is, by the same token, spontaneously creative.”
~ J.D. Goodchilds

humor
the ability to perceive in an ingeniously humorous manner the relationship between seemingly incongruous things (morris, 1976)

creativity
forming of associative elements into new combinations which either meet specified requirements or are in some way useful (mednick, 1962)
Humor and creativity
Humor can be dissected, as a frog can, but the thing dies in the process and the innards are discouraging to any but the pure scientific mind. –E.B. White

Incongruity Theory

Superiority Theory
preferred by left brain dominant - Shammi and Stuss, 1999

Release Theory
Where does the general keep his armies? 
In his sleevies.
In an army base.
“armies” has two meanings
“tents?”
“army base?”

humor and creativity
a two stage mode of joke appreciation by Jerry Suls
associative thinking
meta-metaphorical thinking, symphony

“connecting two different universes of meaning through some similarity the two share” (von Oech)

“to see relationships between seemingly unrelated fields and to invent something new by combining elements nobody else thought to pair” (Pink)

making complex ideas easier to understand

head hammer head hammer head shark horseless carriage
associative tools
mind maps - tony buzan, 1970s
Start here ...
group mind maps
exploring a realm

no ideas yet... just a map of the space
associative tools
association maps
divergent + convergent

associative tools
association maps

Form
Round
Flat
1-10 cm dia
associative tools
association maps
associative tools
association maps

Biopsy Needle ➔ Form: long thin tube ➔ Finger Trap

figueredo, fienup, kudrowitz, wronski, slocum, brugge 2006
associative tools

crossing products

sometimes the most powerful ideas come from simply combining two existing ideas nobody else ever thought to unite. most inventions and breakthroughs come from reassembling existing ideas in new ways. - pink

“Reese’s Peanut Butter Cup Theory of Innovation”
associative tools

crossing products  
gutenberg’s genius = borrowing a mature technology from an entirely different field, and putting it to work to solve an unrelated problem... exaptation
associative tools

crossing products

"the enscribe" whiteboard table
associative tools
crossing products

The Strumbone: the guitar played like a trumpet
associative tools

crossing products

- pencil
- toothbrush
- vacuum
- flower pot
Write down the name of three snack related products

Exchange

take out notebook
You're fired in 3...2...1...

You're fired in 3...2...1...

quantity of captions vs. total humor score per subject

$R^2 = .64$

Kudrowitz and Wallace, 2010
Humor and Creativity

Quantity of ideas vs. creativity of ideas per subject

R² = .82

Quantity of captions vs. total humor score per subject

R² = .64

Kudrowitz and Wallace, 2010
humor and creativity

quantity of ideas vs. creativity of ideas per subject

R² = .82

quantity of captions vs. total humor score per subject

R² = .64

kudrowitz and wallace, 2010
humor and creativity

Average Quantity of Captions and Product Ideas

- 17% more captions
- 20% more ideas

Average Count of Humor 2-Scores and Creativity 2-Scores

- 32% more humor 2s
- 21% more creative 2s

kudrowitz and wallace, 2010
humor and creativity
divergent thinking, associative thinking, lateral thinking
improv games

36% more ideas!

bonding
playing
comforting
lowering inhibitions

listening
making associations
manipulating ideas
building on ideas
going for quantity
deferring judgement
courage wild ideas

kudrowitz and wallace, 2010
zip zap zop
listening.
being ready to act.
samurai
listening.
being ready to act.
word ball
listening.
being ready to act.
making associations
illogical word ball
listening.
being ready to act.
making associations
5 things
going for quantity
team building

1. __________________________
2. __________________________
3. __________________________
4. __________________________
5. __________________________
look at me! manipulating an idea.

“Discovery consists in seeing what everyone else has seen and thinking what no one else has thought.”

-Albert Szent-Gyorgyi
doesn’t play just lead to silly ideas?

- Sneeze Gun
- Fall Apart Gun
- Fart Darts
doesn't play just lead to silly ideas?

1. playfulness and creative abilities are correlated

quality of playfulness correlated significantly with measures of divergent thinking
(Lieberman 1965)

strong correlation between social make-believe play and divergent thinking measures
(Johnson 1976)

expression of affect in play was significantly, positively related to divergent thinking
(Russ and Grossman 1990)

divergent problem solving skills facilitates the development of play skills and vice versa
(Wyver and Spence 1990)

quality of fantasy and imagination in early play predicted divergent thinking over time
(Russ et al 1999)
doesn’t play just lead to silly ideas?

2. playful environments are healthy for innovation

“noise-free environments end up being too sterile and predictable in their output. the best innovation labs are always a little contaminated.”  - johnson

“To invent, you need a good imagination and a pile of junk.”

- Thomas Edison, 1097 patents

attractive things work better
- Don Norman
doesn’t play just lead to silly ideas?

3. uninhibited thinking can lead to discovery
doesn’t play just lead to silly ideas?

4. silly ideas can be stepping stones

“the bad version”- by scott adams

When you feel that a plot solution exists, but you can't yet imagine it, you describe instead a bad version that has no purpose other than stimulating the other writers to imagine a better version. The first step in thinking of an idea that will work is to stop fixating on ideas that won't. The bad version of an idea moves your mind to a new vantage point.
5. playful products can be more effective products

Products and systems that make you feel good are easier to deal with and produce more harmonious results

- Norman
doesn’t play just lead to silly ideas?

5. playful products can be more effective products

Products and systems that make you feel good are easier to deal with and produce more harmonious results.

- Norman
6. silly ideas today may be innovative ideas tomorrow

“If at first, the idea is not absurd, then there is no hope for it.”
~Albert Einstein
doesn’t play just lead to silly ideas?

“humor is tragedy plus time” - mark twain
“innovation is humor plus time” - me

6. silly ideas today may be innovative ideas tomorrow
physicians who spent at least three hours a week playing video games made about 37 percent fewer mistakes in laparoscopic surgery and performed the task 27 percent faster than their counterparts who did not play. (CBSNews, 2004)

7. play is how we learn

on tests of visual perception, game players scored 30% higher than non-players. playing video games enhanced individuals ability to detect changes in the environment and their capacity to process information simultaneously. (green and bavelier, 2003)

physicians who spent at least three hours a week playing video games made about 37 percent fewer mistakes in laparoscopic surgery and performed the task 27 percent faster than their counterparts who did not play. (CBSNews, 2004)
doesn’t play just lead to silly ideas?

8. silly ideas are serious industry
class logistics
second assignment (part 1)
watch a comedy
play improv games
play a board game
... get in a playful mood

“If you want creative workers, give them enough time to play.” - John Cleese
class logistics
second assignment (part 2)

make a fun, engaging and legible mind map for the theme of snacking (in general). this is not idea generation just exploration of the space! every node should have a text label.

use this map to find 2-3 sub-themes of snacking that you are interested in further exploring. explicitly state these sub-themes. mind the scope of the sub-themes

- eating = too broad
- games related to pretzels = too specific
- honey filled pretzel bits = this is an idea not a sub theme
- air traffic control = too distant
- the lunch box = appropriate scope for a sub-theme
- gluten free = appropriate scope for a sub-theme
- packaging games = appropriate scope for a sub-theme
class logistics
second assignment (part 3)

ten silly ideas with sketches  (kid snacking experience)
can use cross products and association maps
keep it playful

1. playfulness and creative abilities are correlated
2. playful environments are healthy for innovation
3. uninhibited thinking can lead to discovery
4. silly ideas can be stepping stones
5. playful products can be more effective products
6. silly ideas today may be innovative ideas tomorrow
7. play is how we learn
8. silly ideas are serious industry
class logistics
second assignment (part 3)
ten silly ideas with sketches (kid snacking experience)
can use cross products and association maps
keep it playful

each of the 10 ideas should be
a separate (legible) scan of a
full page landscape orientation
sketch in your notebook with a
title
class logistics
second assignment

be creative while doing the assignment but not creative with the rules of the assignment (we are trying to teach you a process)

half points will be given for partially complete sections

these should be clear headings in this order so it is simple for us to find and give you points

<table>
<thead>
<tr>
<th>Do something fun</th>
<th>1 = A short description of what you did with a photo! 0 = No documentation what you did.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mind Map (embedded)</td>
<td>1 = A well formatted image of your mind map that explores the domain of “snacking.” Every item on the map has text and text is clean and legible. The mind map shows that you thought through many of the topics related to snacks 0 = No mind map</td>
</tr>
<tr>
<td>Mind Map (link)</td>
<td>1 = A link to a downloadable PDF or JPG of your mind map and the map is large enough to be printed at high quality (at least 200dpi) on 8.5”x11” paper. The map could be larger if needed to be able to read all of the text. 0 = No linked mind map</td>
</tr>
<tr>
<td>Mind Map (summary)</td>
<td>1 = Essentially this is a reflection on your mind map. This should be a short summary to be completed after you make your mind map. It should describe what you think the major classifications are within the snacking domain and how you decided to organize our thoughts. 0 = No summary statement</td>
</tr>
<tr>
<td>Suggested Themes</td>
<td>1 = A list of 2 or 3 themes that you think are interesting to explore within the domain of “kid snacking.” These themes should be of the right scope as described in class and pulled directly from your mind map. 0 = Did not list themes</td>
</tr>
<tr>
<td>10 Silly Ideas</td>
<td>5 = A half point for every “silly” idea that is presented with a cleanly documented sketch and title 0 = Did not include any idea sketches</td>
</tr>
</tbody>
</table>

blog post due 9/30
updates due 10/5
peer review due 10/7

post title: associations
class logistics

next week will be the first online creativity test
this is part of your overall class grade
(watch your email)
team emails creativity#@umn.edu
plan travel in advance!

class logistics

site visit - Thursday, 2:45

HUGE

wear comfortable clothes and shoes

tane danger, brandon boat, and the theater of public policy
assignment 1

create a new cookie
creative in flavor, form, texture and/or etc
How do you grade creativity?

**assignment 1**

be creative while doing the assignment but not creative with the rules of the assignment (we are trying to teach you a process)

half points will be given for partially complete sections

these should be clear **headings** in this order so it is simple for us to find and give you points

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = A short introductory summary statement about your process and this experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = No statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Final Idea</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = Clear explanation of final idea with the name of the cookie, a note on why you feel it is creative, and a well photographed image of the cookie,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = No documentation of final idea, missing final image, or description</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Recipe</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = A concise recipe with quantities of ingredients and instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = No documentation of recipe</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Idea Generation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = Documentation of idea generation process: a short statement on your idea generation process including your inspirations and which ideas you decided to test, and a listing of different ideas (at least 10) as an image or images from your notebook.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = No record of idea generation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Idea 1 Test</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = Documentation of testing one direction with clear photographs, a textual description of your evaluation of this idea and what you learned.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = Did not document testing an idea</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Idea 2 Test</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = Documentation of testing a very different idea with clear photographs, a textual description of your evaluation and what you learned. You are welcome to and encouraged to test more than two concepts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = Did not document testing a second idea</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Iteration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = Documentation of improving a specific idea through iteration, manipulation, and/or modification. This should include clear photographs of the changes and a textual description of the process and evaluation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 = Did not document iteration</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peer Evaluated Creativity</strong></td>
<td>Scaled out of 2 (in class)</td>
<td></td>
</tr>
<tr>
<td><strong>Peer Evaluated Taste</strong></td>
<td>Scaled out of 1 (in class)</td>
<td></td>
</tr>
</tbody>
</table>
Assignment 1

Create a new cookie

Final cookie
Assignment 1

Create a new cookie

Idea generation
assignment 1
create a new cookie
testing ideas
assignment 1
create a new cookie
iteration
assignment 1
create a new cookie
photo presentation suggestions

lighting  cropping  blurry  thumbs  orientation
 assignment 1  peer review suggestion for improvement in the format “I like… I wish… what if…”

<table>
<thead>
<tr>
<th>Your Creativity Counselor</th>
<th>Your Title</th>
<th>Your Last Name</th>
<th>Your First Name</th>
<th>Your Blog URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Bromback</td>
<td>Luke</td>
<td>medium.com/@bromb010</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Erickson</td>
<td>Abigail</td>
<td>medium.com/@eric2768</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Lamachia</td>
<td>Justin</td>
<td>medium.com/@lamac003</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Lapoint</td>
<td>Ashley</td>
<td>medium.com/@lapoi037</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Oja</td>
<td>Liana</td>
<td>medium.com/@ojaxx029</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Pham</td>
<td>Tuan</td>
<td>medium.com/@phamx381</td>
</tr>
<tr>
<td>Gabby</td>
<td>1</td>
<td>Scott</td>
<td>Colin</td>
<td>medium.com/@scott988</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Bang</td>
<td>Haeun</td>
<td>medium.com/@haeun001</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Bennett</td>
<td>Nathan</td>
<td>medium.com/@benne695</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>DuBois</td>
<td>Riley</td>
<td>medium.com/@duboi109</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Gee</td>
<td>Kyle</td>
<td>medium.com/@geexx060</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Kumar</td>
<td>Neel</td>
<td>medium.com/@kumar241</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Schepers</td>
<td>Van</td>
<td>medium.com/@schep064</td>
</tr>
<tr>
<td>Ethan</td>
<td>2</td>
<td>Voigt</td>
<td>Leah</td>
<td>medium.com/@voigt150</td>
</tr>
<tr>
<td>Zach F</td>
<td>3</td>
<td>Fugutt</td>
<td>Henry</td>
<td>medium.com/@fugui002</td>
</tr>
</tbody>
</table>

the worst feedback you can give...
cookie # ___
cookie name ________________________________________

brief description (if needed)

circle if cookie contains any of the following:

Milk/Dairy
Eggs
Peanuts
Fish/Shelfish
Tree nuts (cashews/walnuts)
Wheat
Soy
Meat

x4
questions!