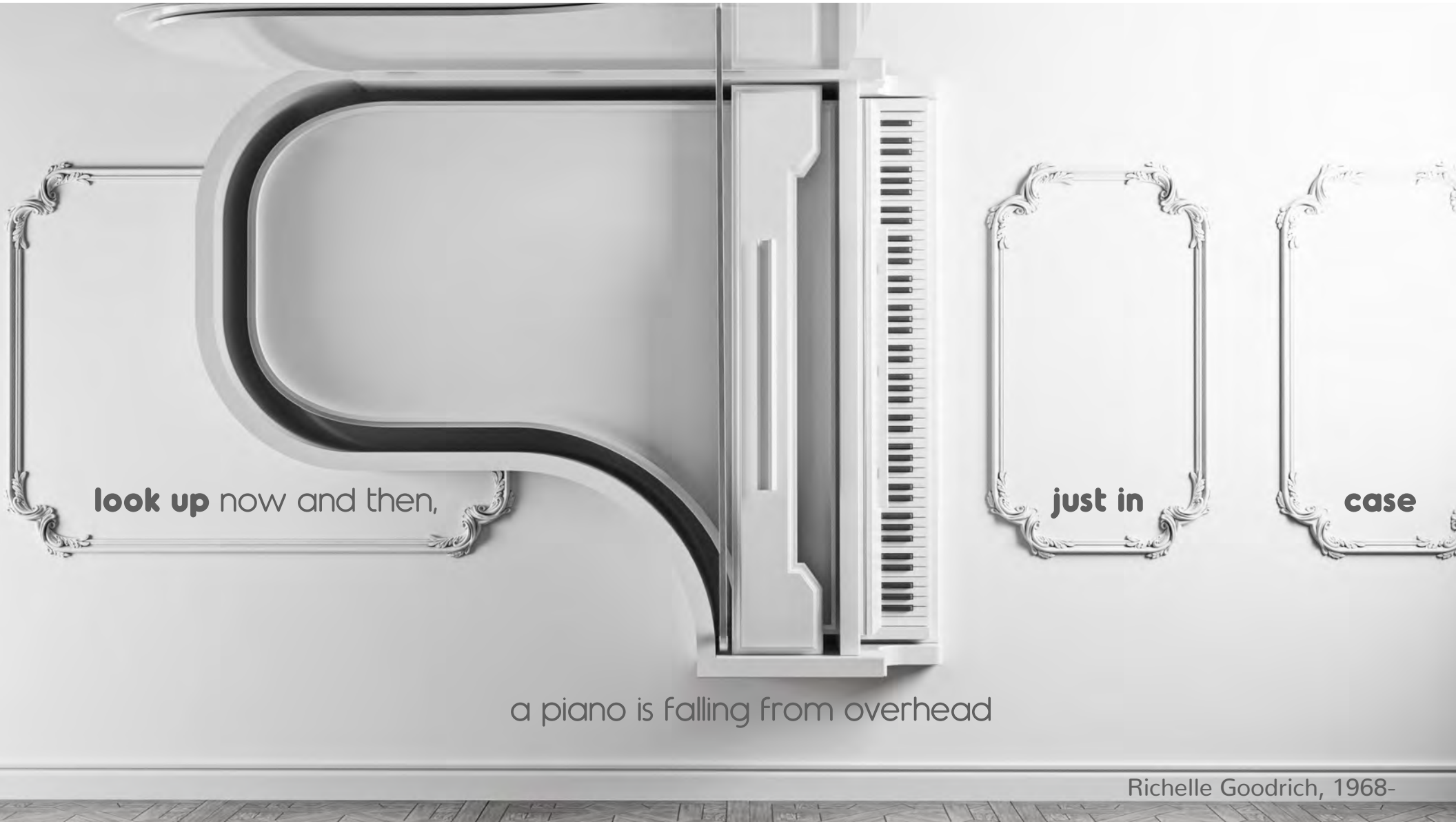
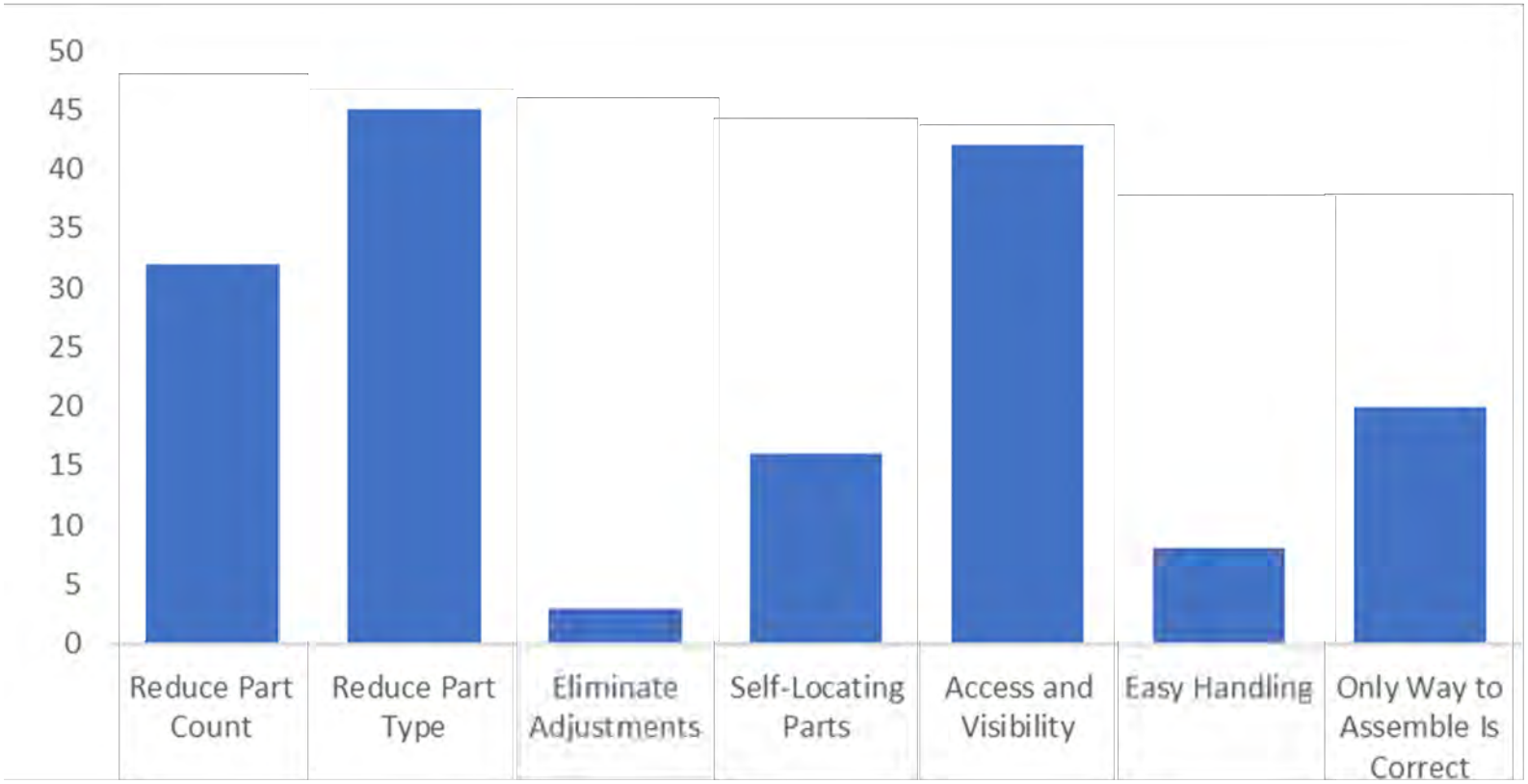


Richelle Goodrich, 1968-

2.009
2.009
2.009

2.009 mini quiz

list design for manual assembly guidelines.
as many as you can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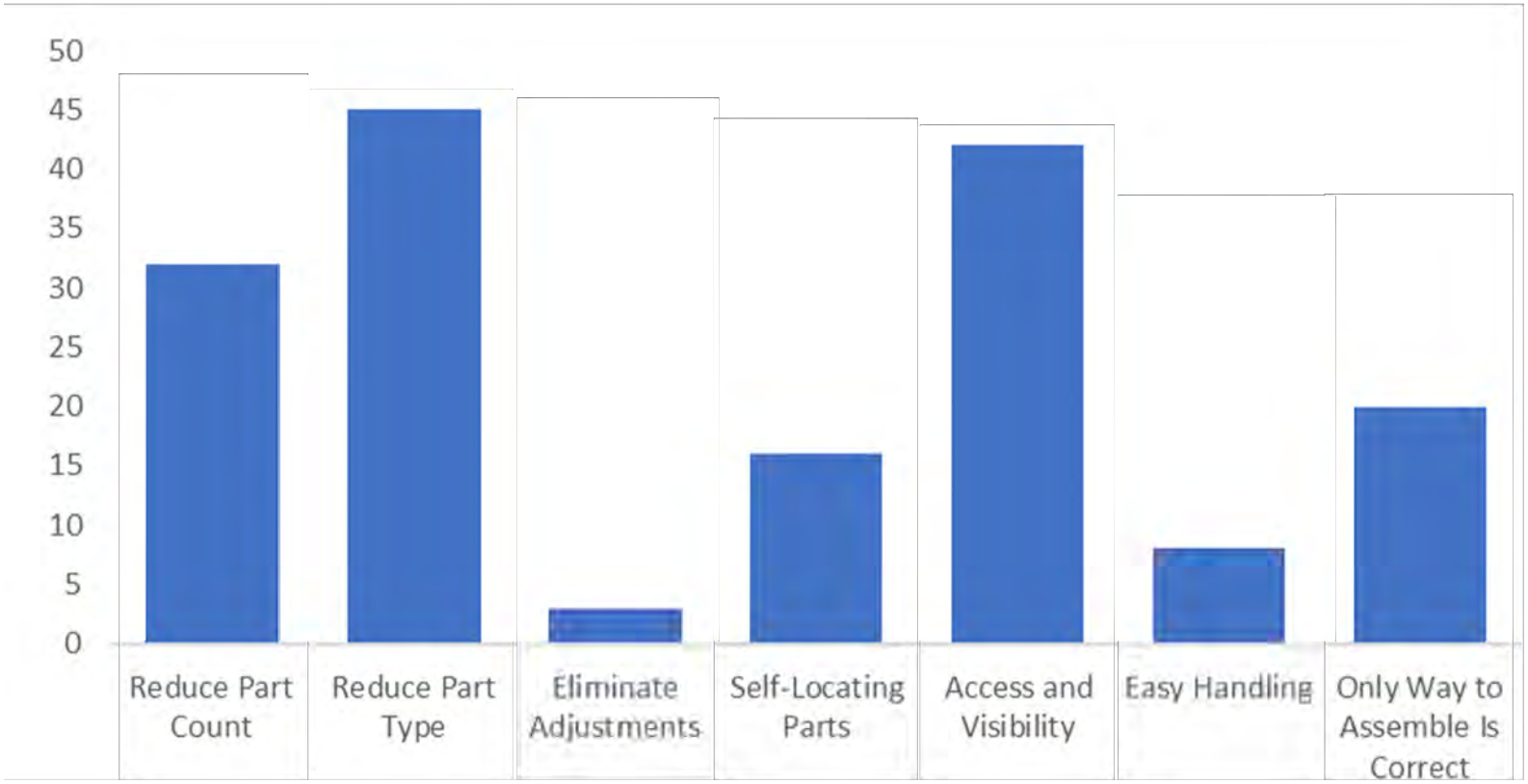
Reduce Part Count
Reduce Part Type
Eliminate Adjustments
Self-Locating Parts
Access and Visibility
Easy Handling
Only Way to Assemble Is Correct

Reduce Part Count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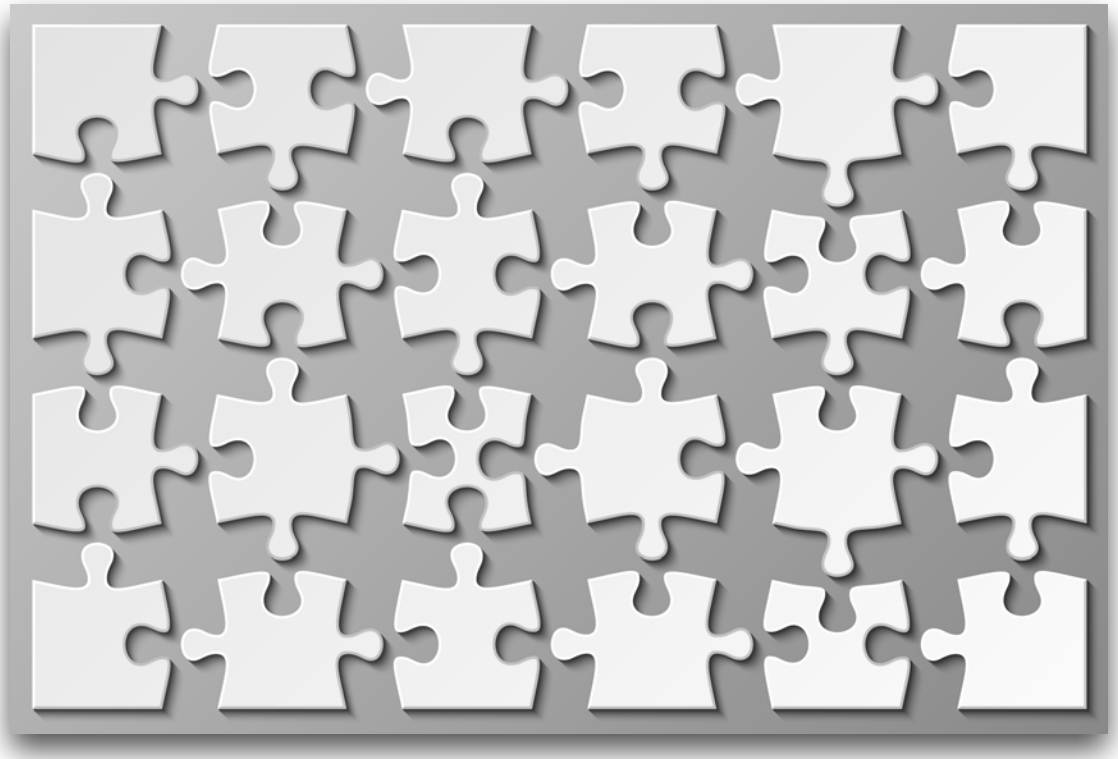

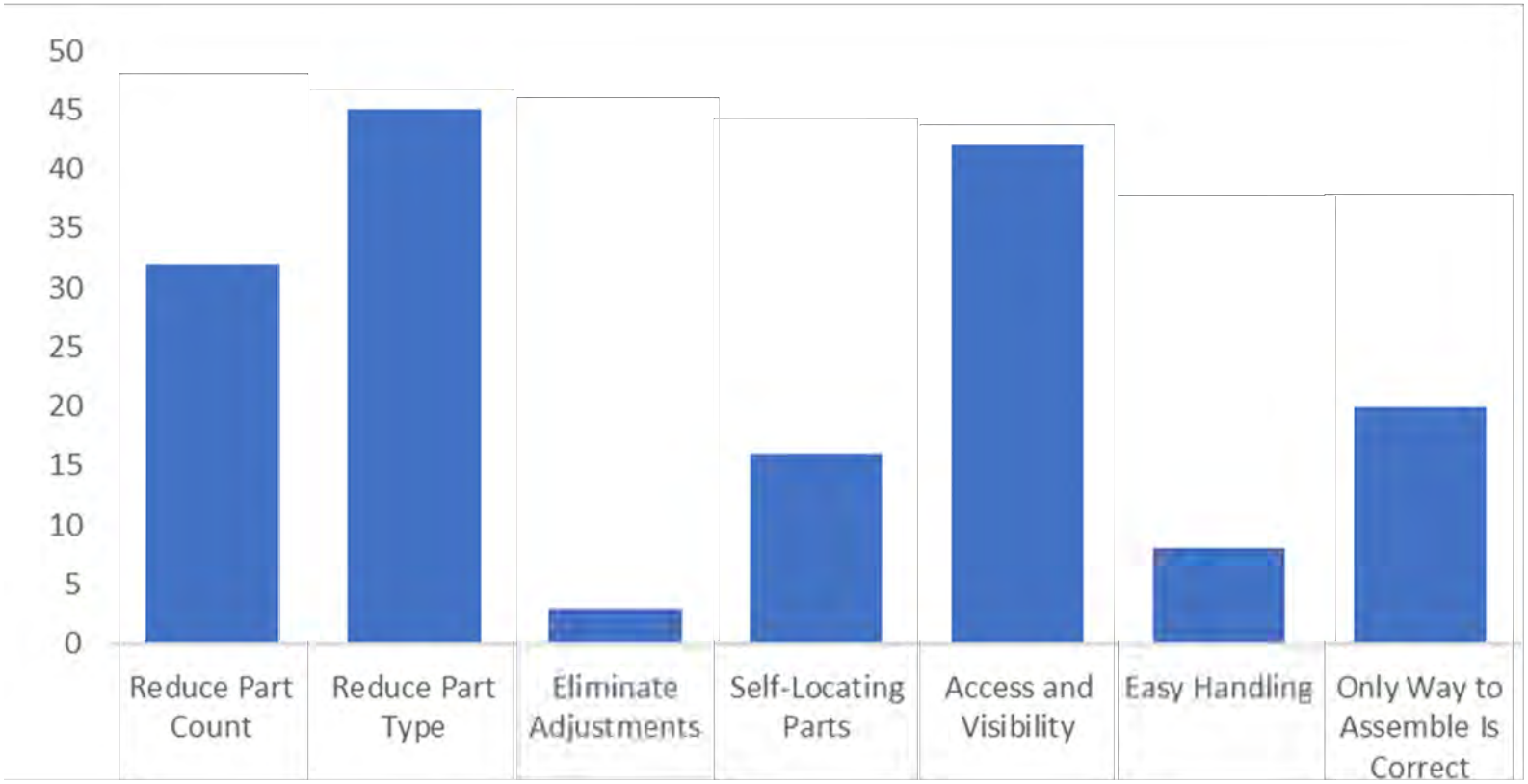
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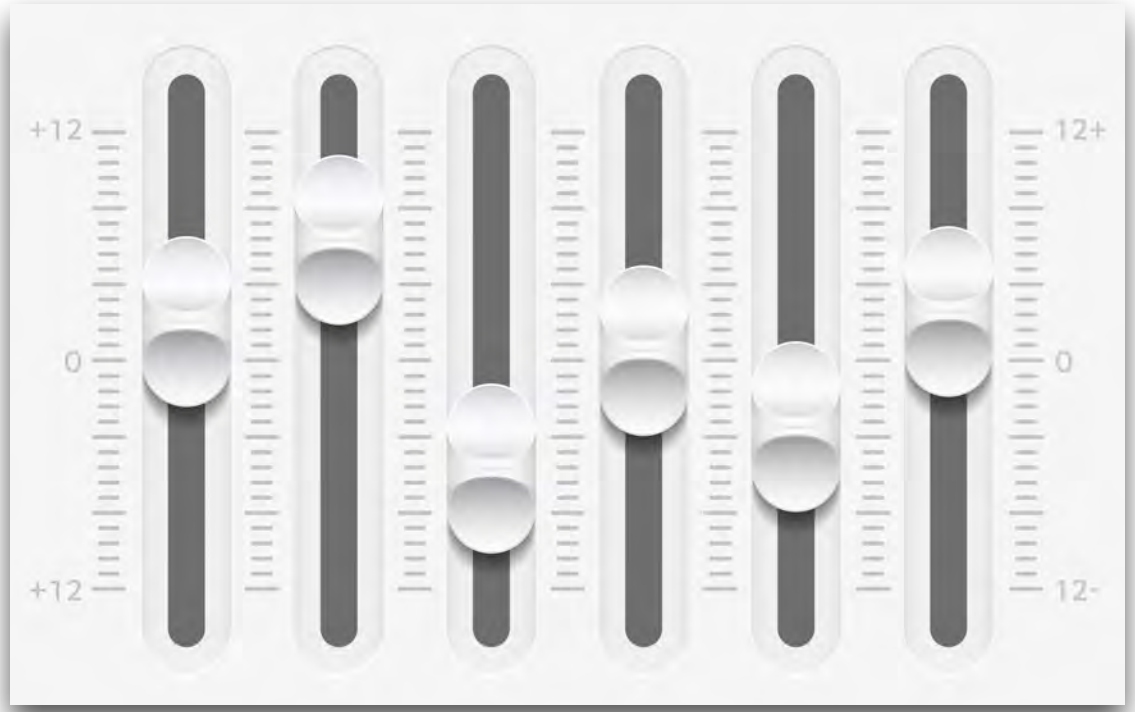
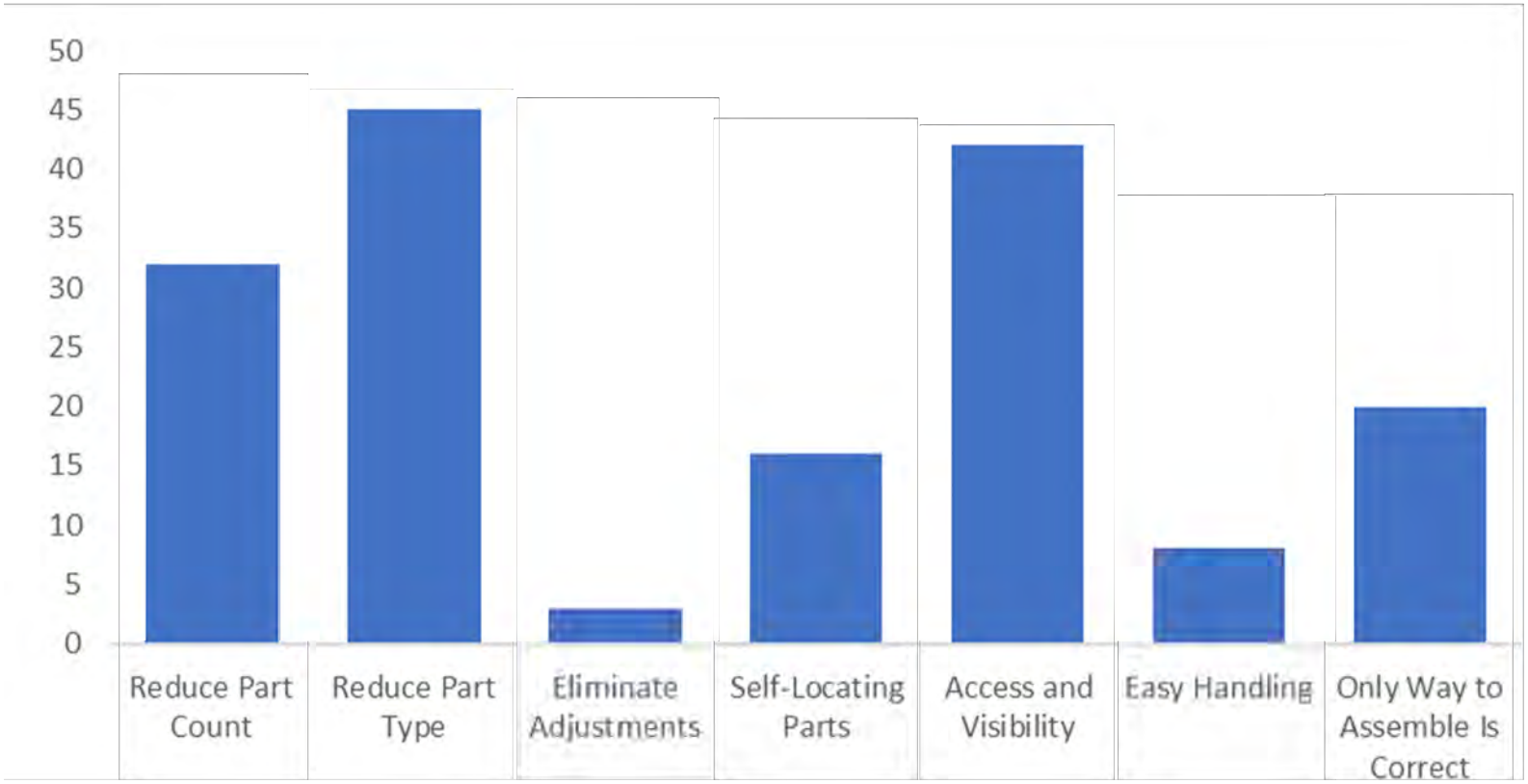


Eliminate Adjustments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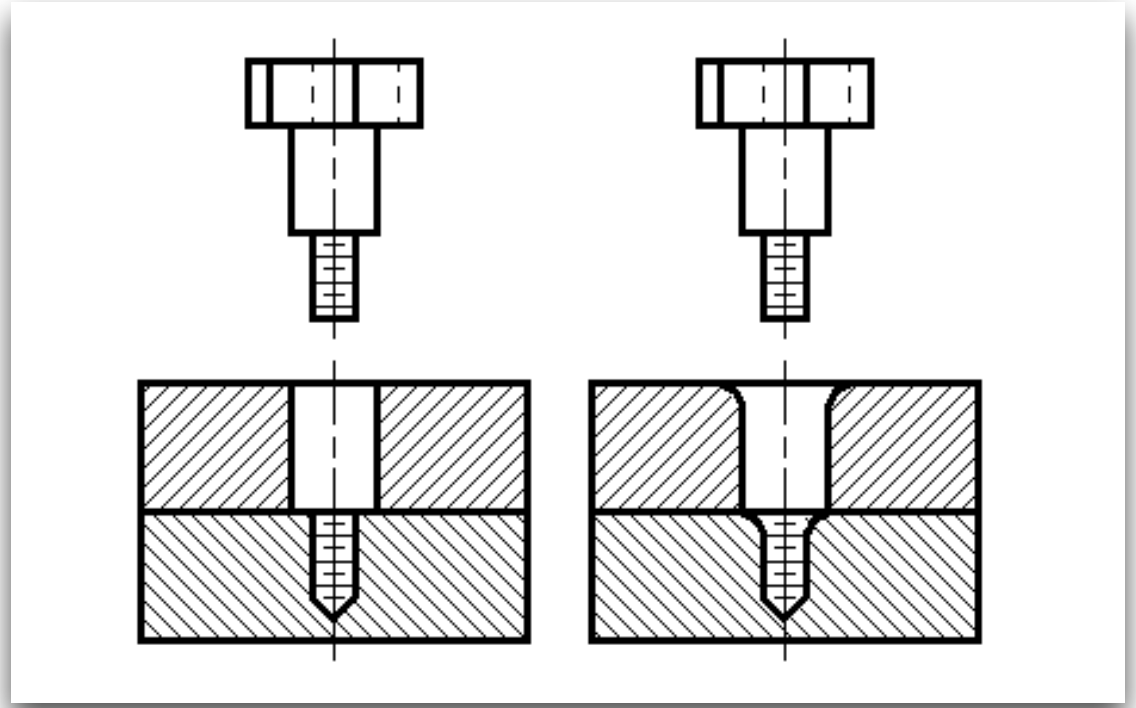
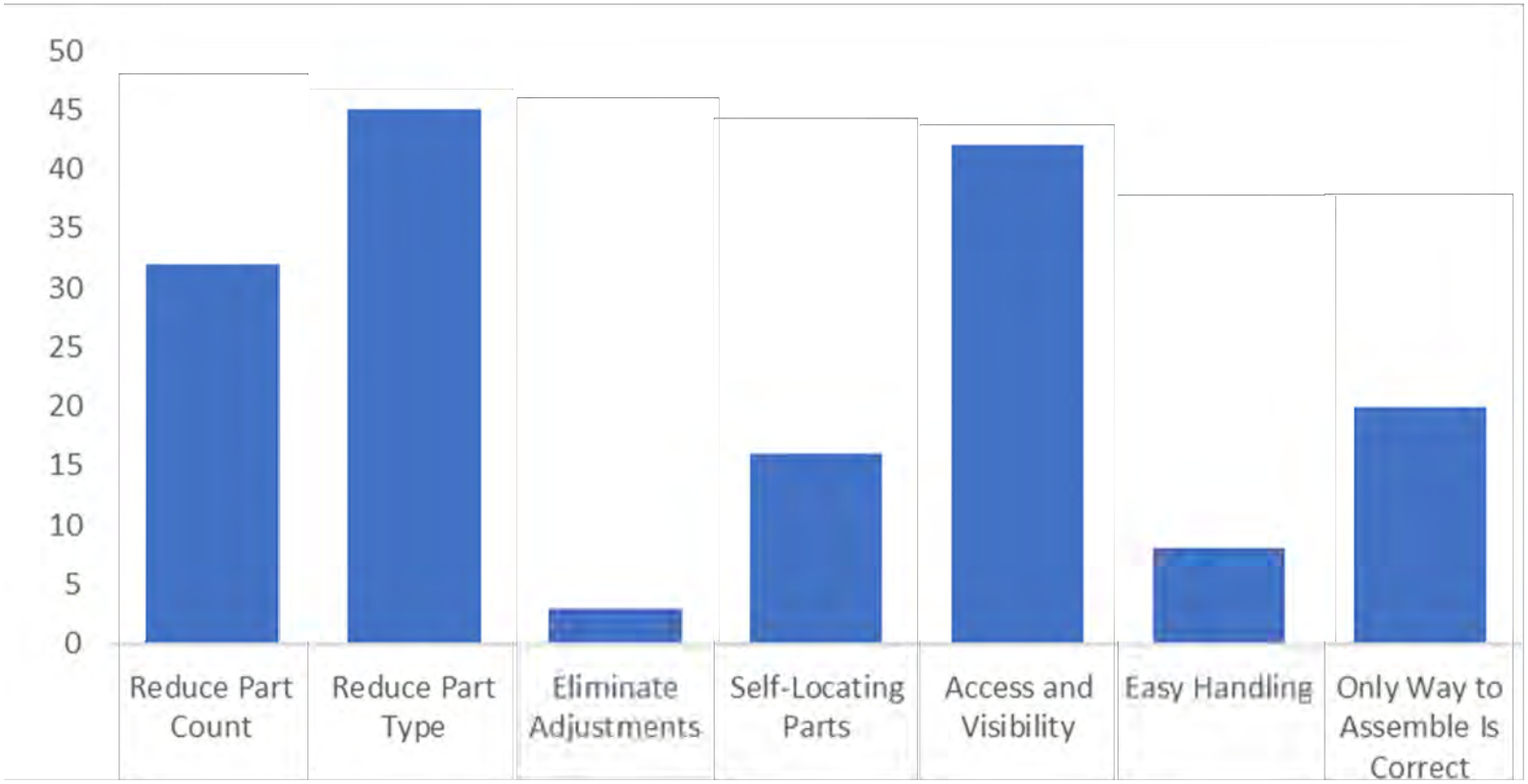
Self-Locating Parts

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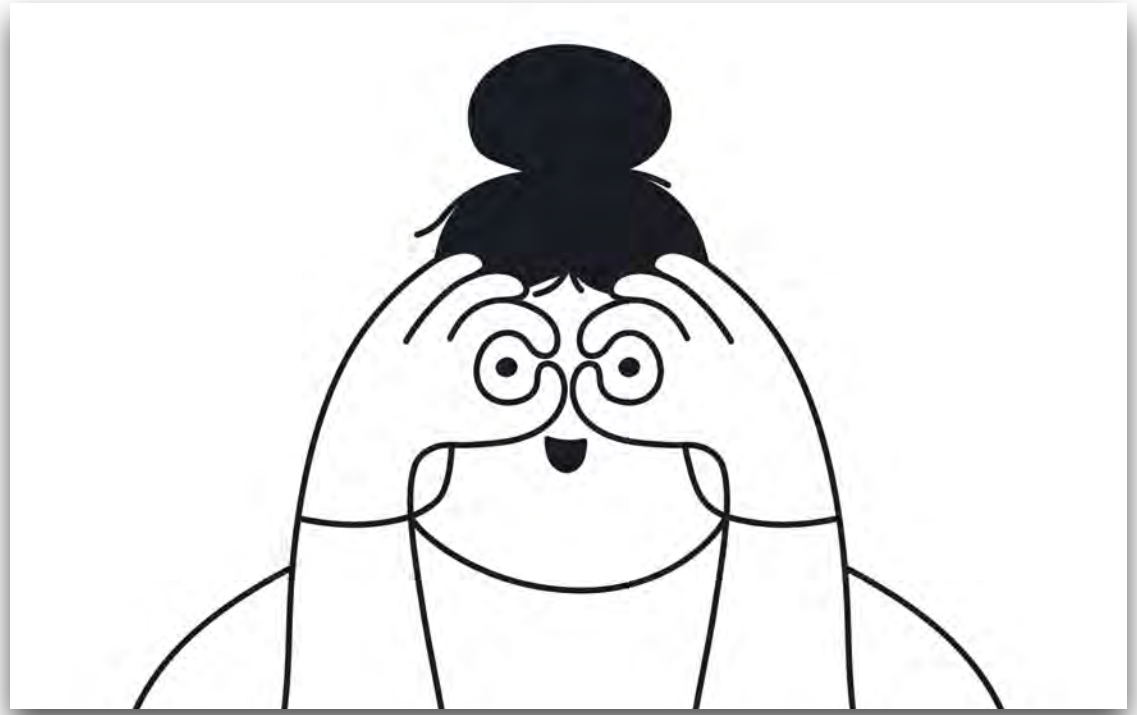
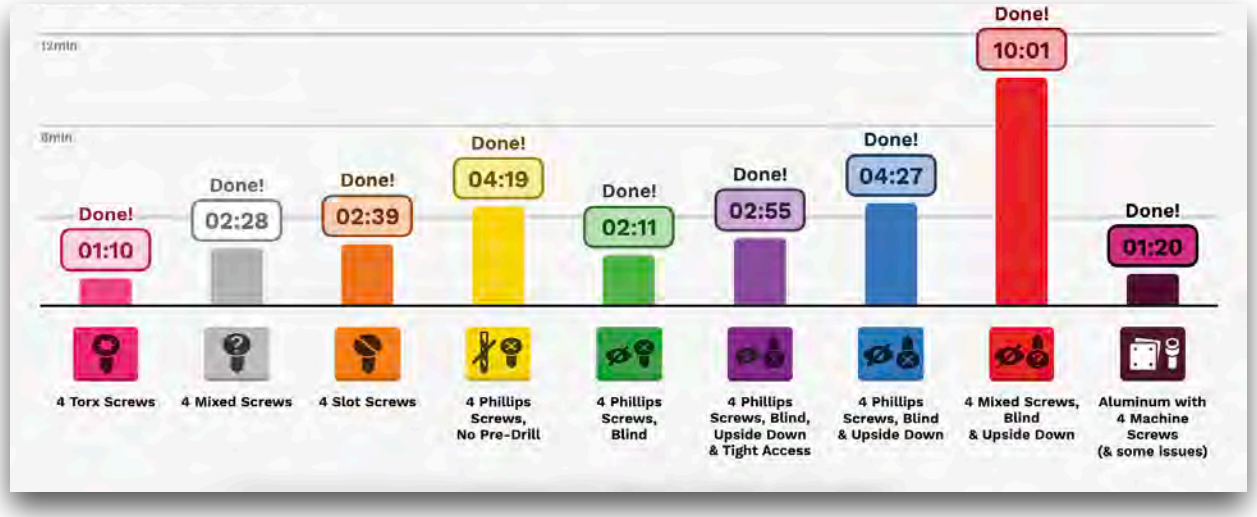
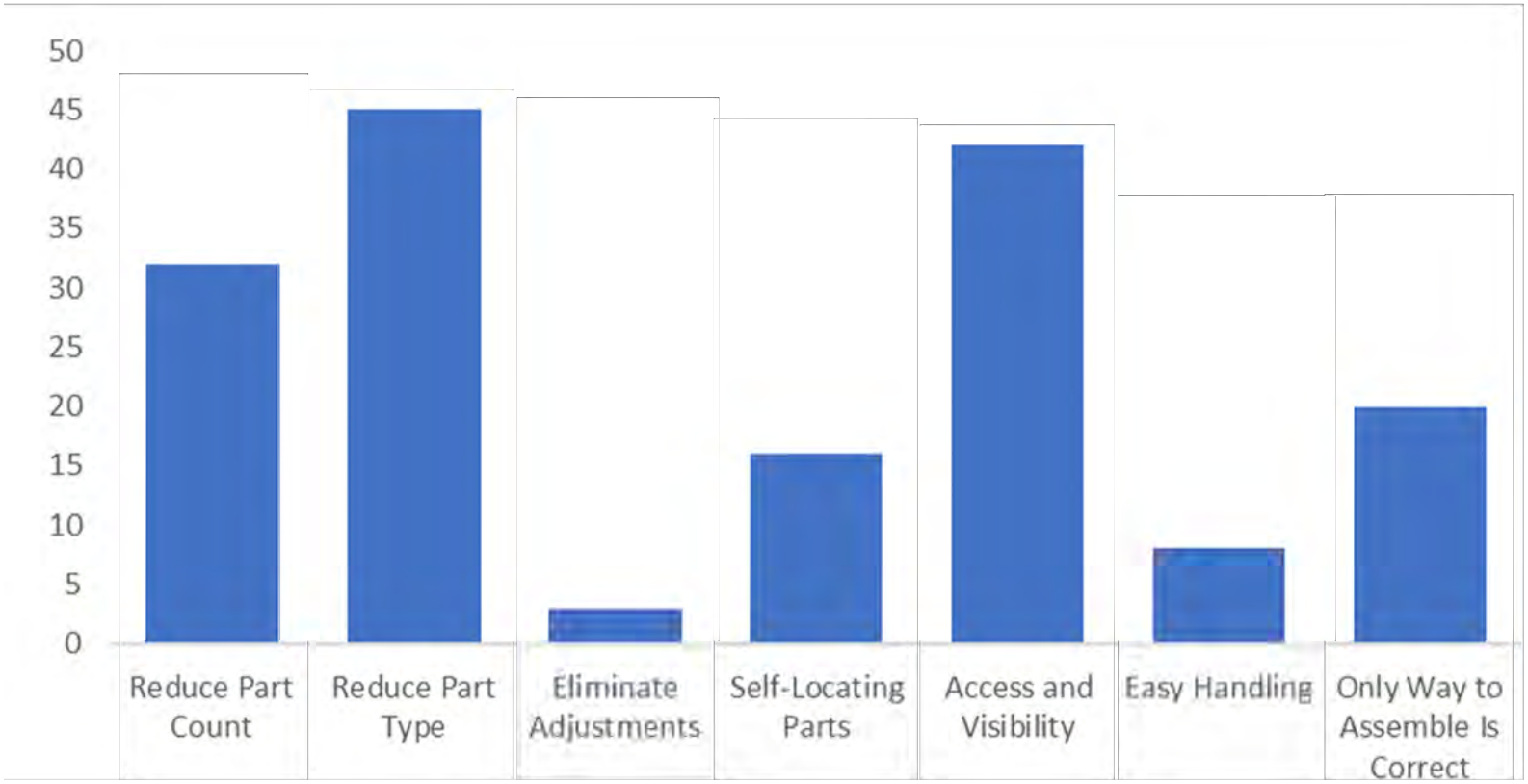


Access and Visibility


12min
8min
Done!
01:10
4 Torx Screws
Done!
02:28
4 Mixed Screws
Done!
02:39
4 Slot Screws
Done!
04:19
4 Phillips Screws, No Pre-Drill
Done!
02:11
4 Phillips Screws, Blind
Done!
02:55
4 Phillips Screws, Blind, Upside Down & Tight Access
Done!
04:27
4 Phillips Screws, Blind & Upside Down
Done!
10:01
4 Mixed Screws, Blind & Upside Down
Done!
01:20
Aluminum with 4 Machine Screws (& some issues)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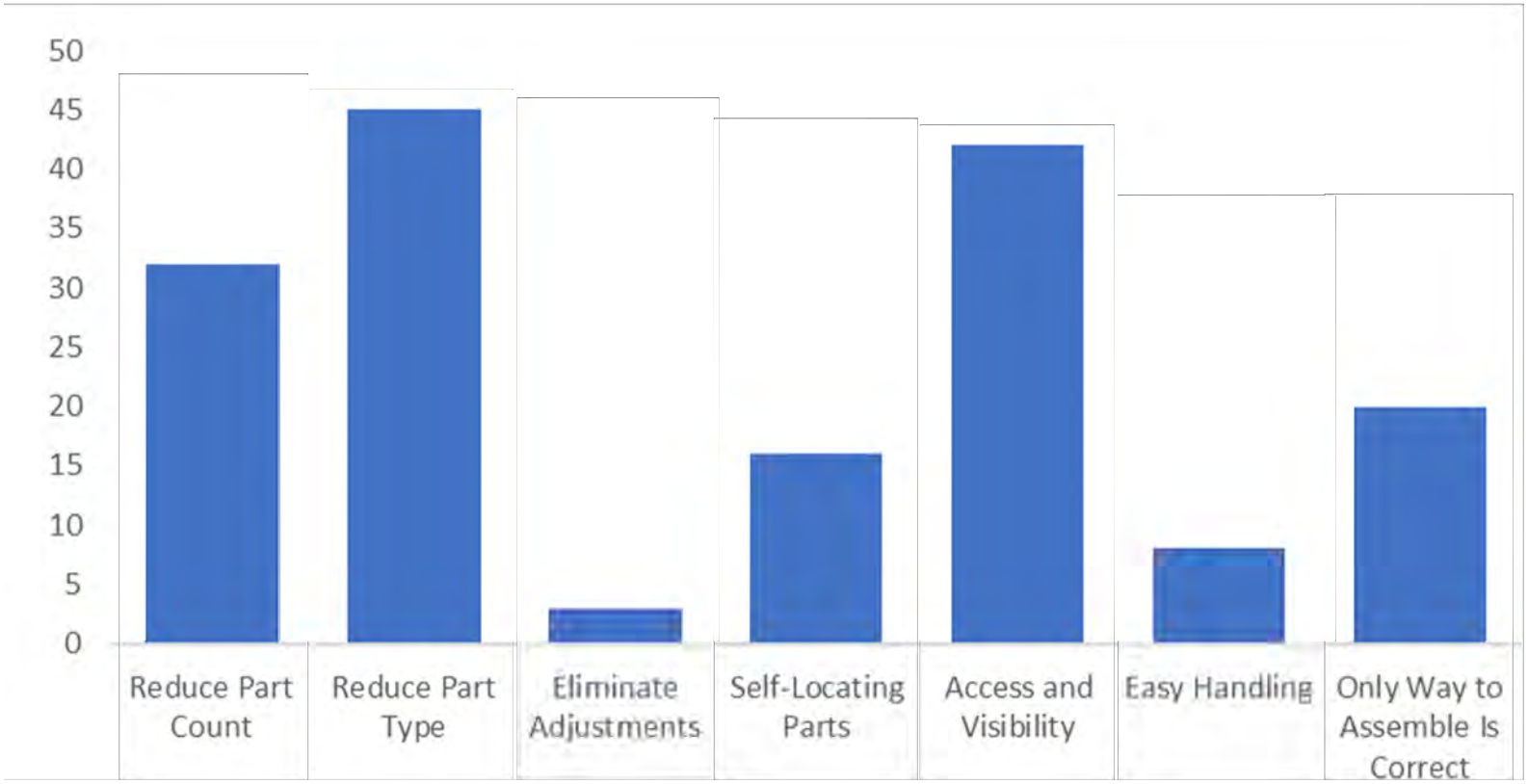
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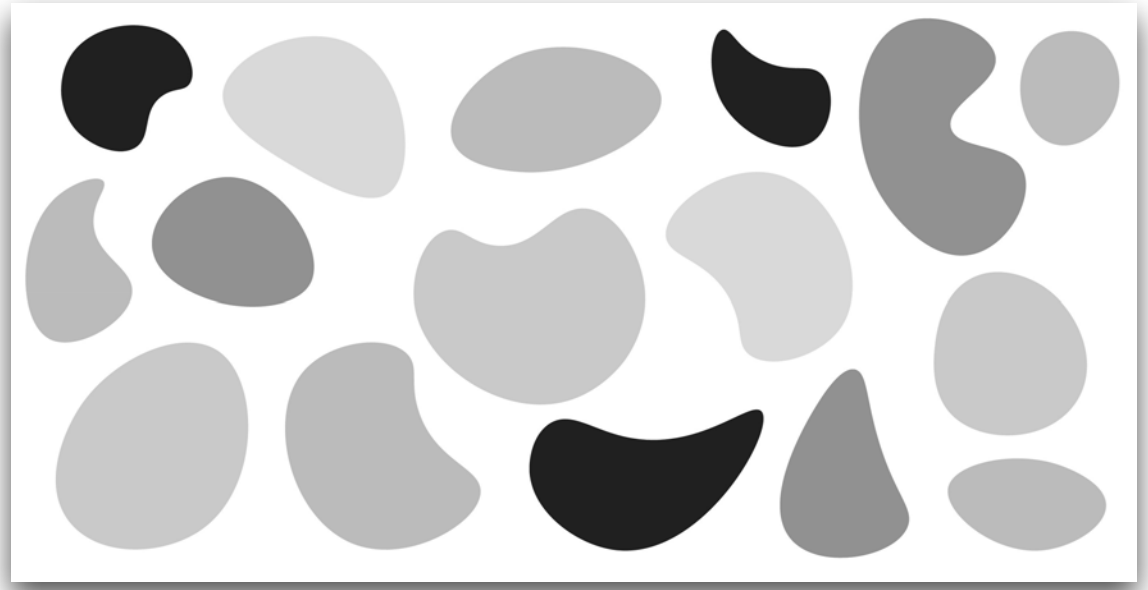

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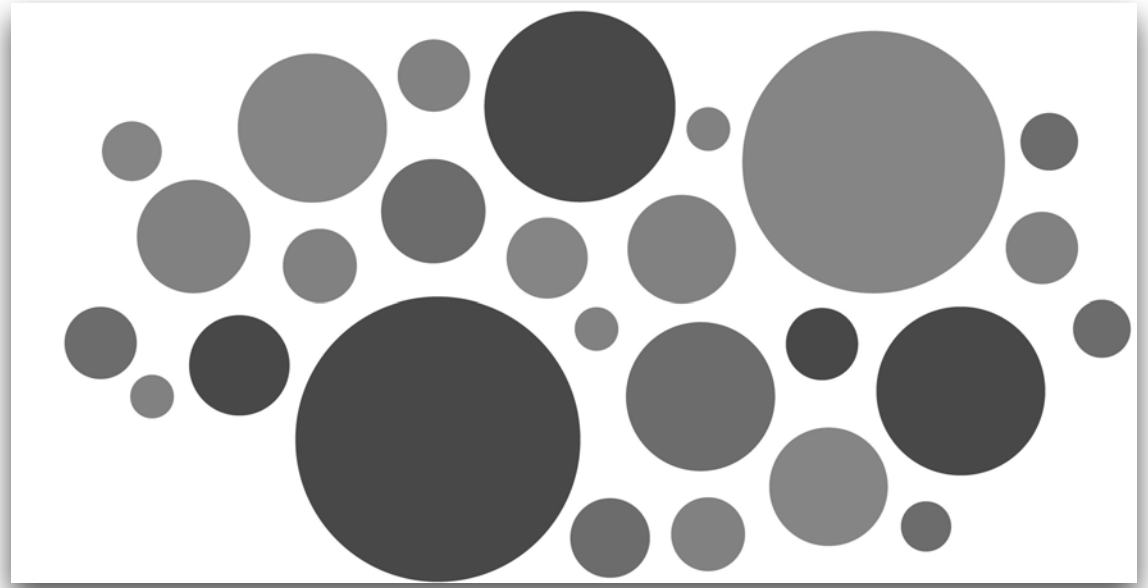

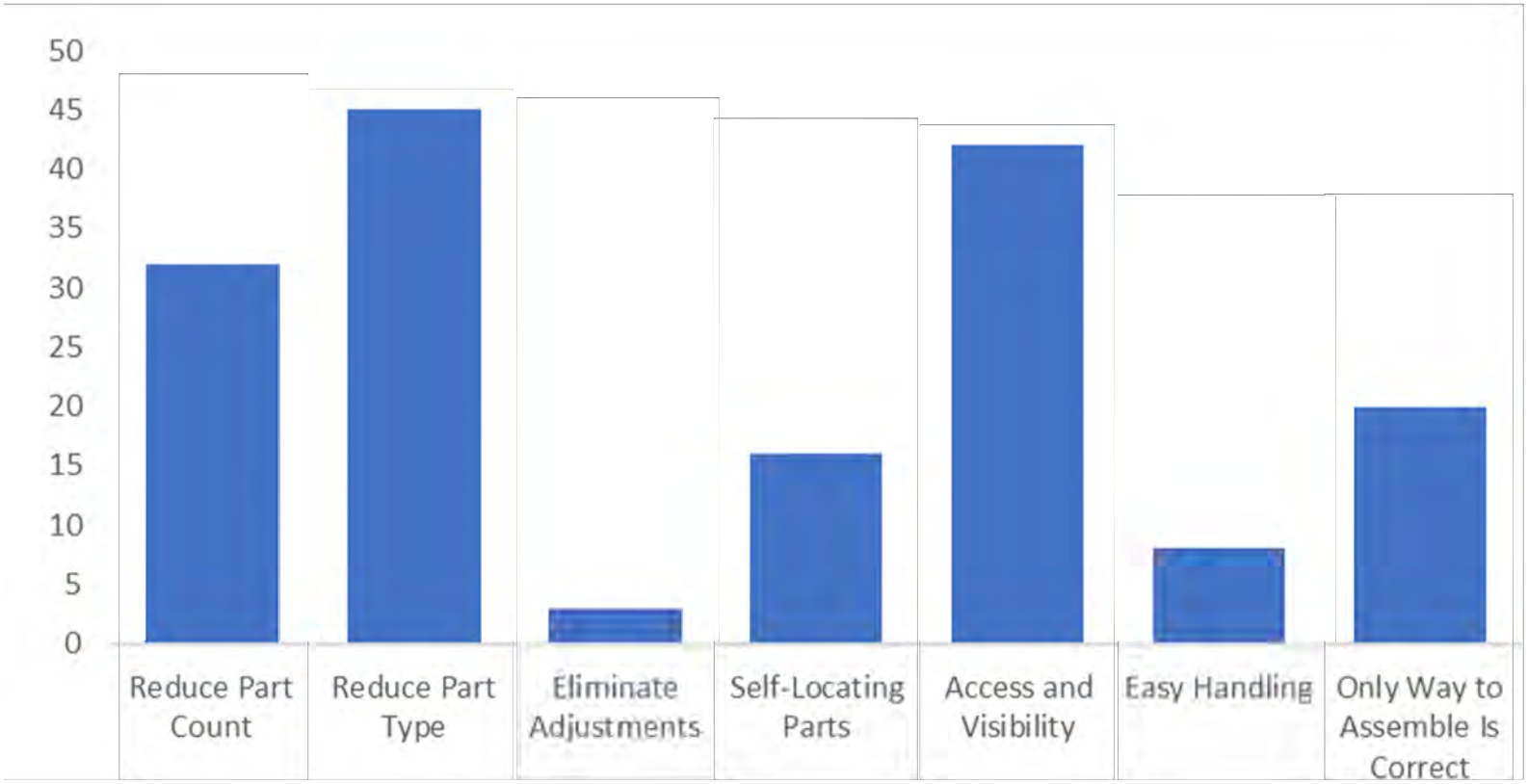
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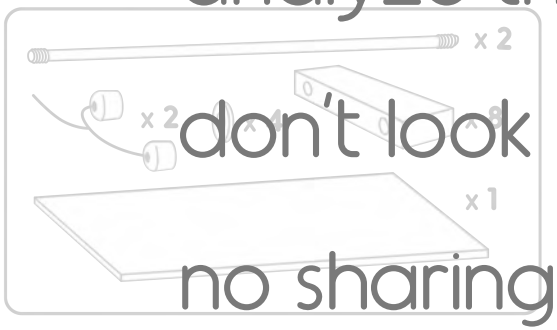
2.009 mini quiz

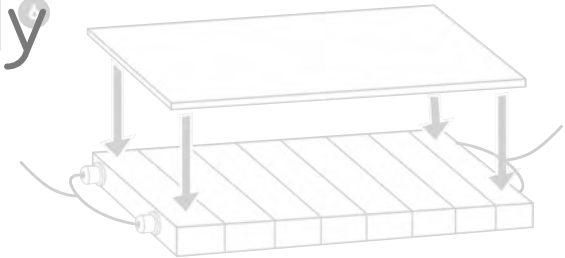


analyze the platen lift assembly

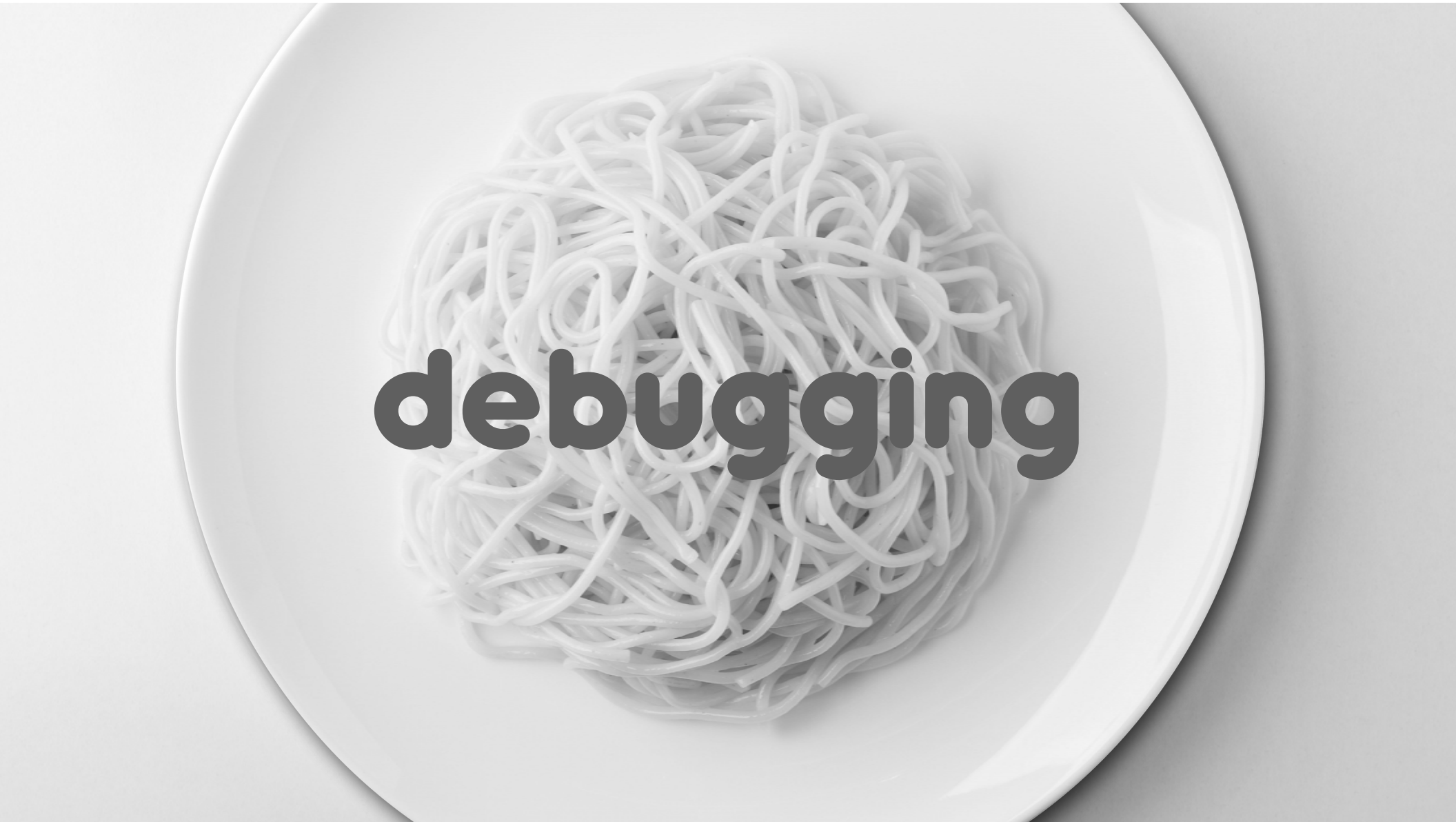
don't look yet!

no sharing. work independently

do as much as you can!

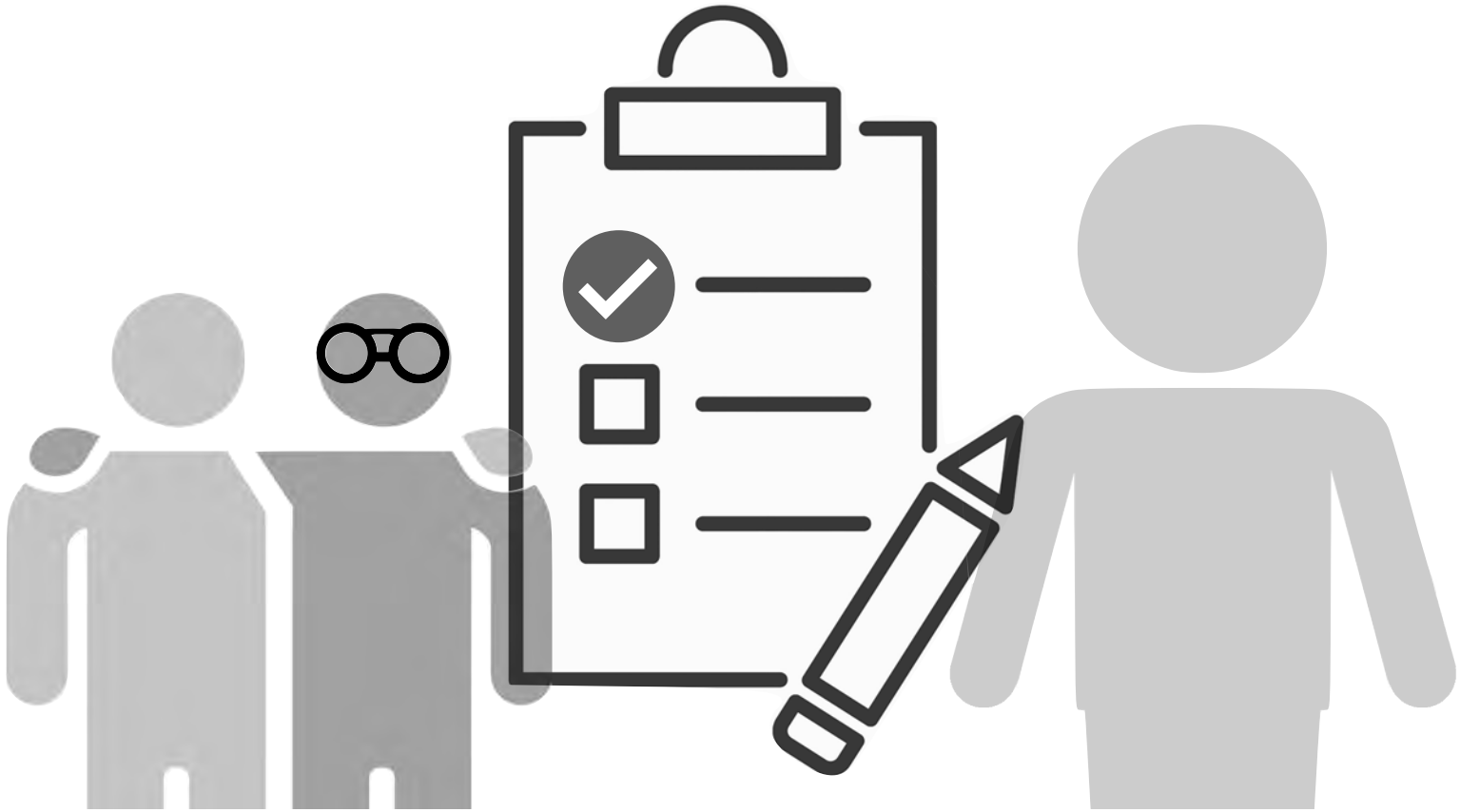


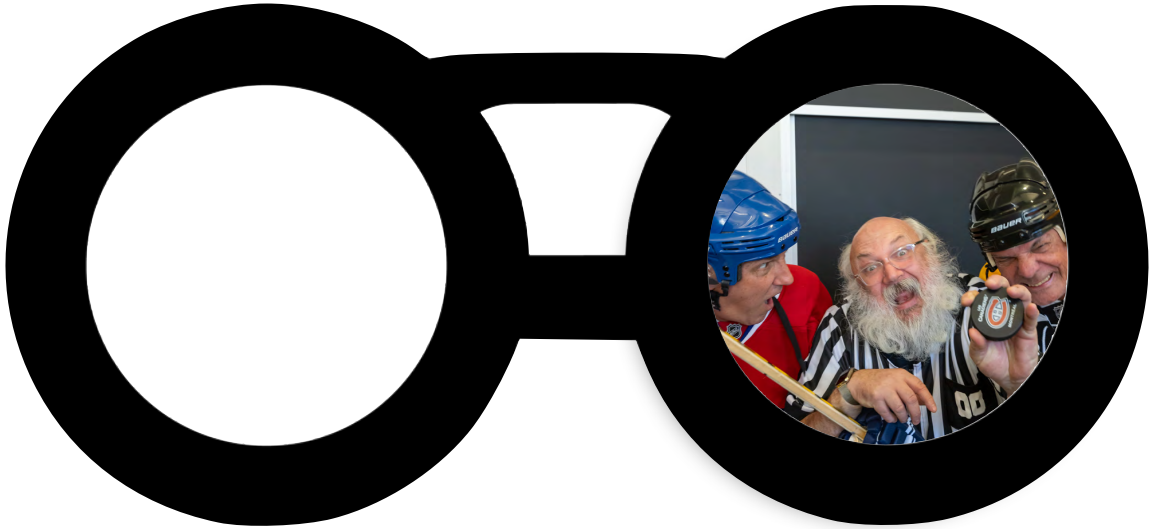
7 minutes


debugging

if it's **not tested** it **doesn't work**

if it's **not tested** it **doesn't work**




BAUER

BAUER
BAUER
BAUER
99

debugging

debugging

when something goes wrong

- stop, observe, and think
- don’t jump to conclusions
- document the circumstances

debugging

document the circumstances

- who observed the problem?
- what has been changed?
- describe the faulty behavior

what, when, where

debugging

form symptom statements

use an object-defect format

what, when, where

form symptom statements

use an object-defect format

the **product** made a **popping sound**,
emitted a **flash of light** and **smoke**

form symptom statements

use an object-defect format

+ the **product** made a **popping sound**,
emitted a **flash of light** and **smoke**

it **shorted** out

debugging

build a team to debug

system integrators may facilitate

transfer and explain your notes

2

debugging

make a plan!

are more experiments needed?

can the issue be isolated?

what else needs to happen?

debugging

execute the plan!

- generate hypotheses
- order by likelihood
- start with simple, least invasive

design time!

debugging

design and implement

test with mockups

carefully verify

5

debugging

inform!

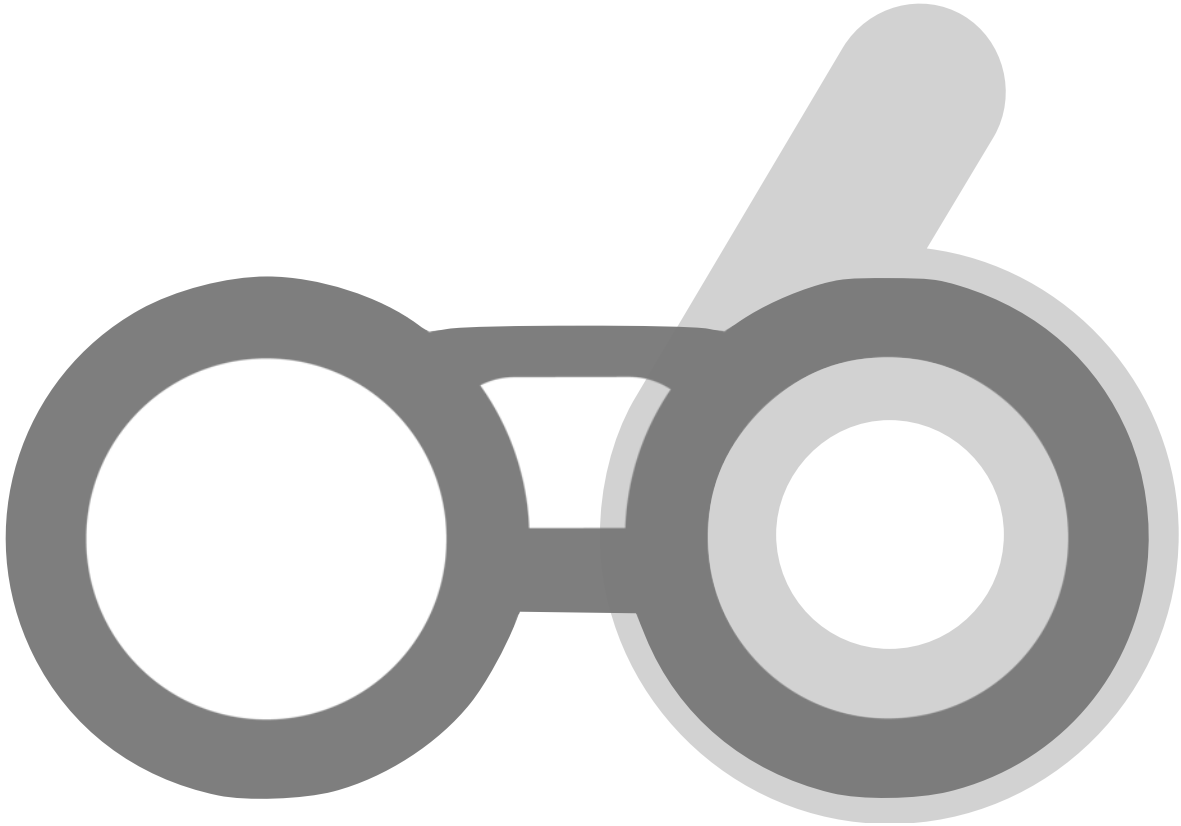
summarize the fault (**object—defect**)

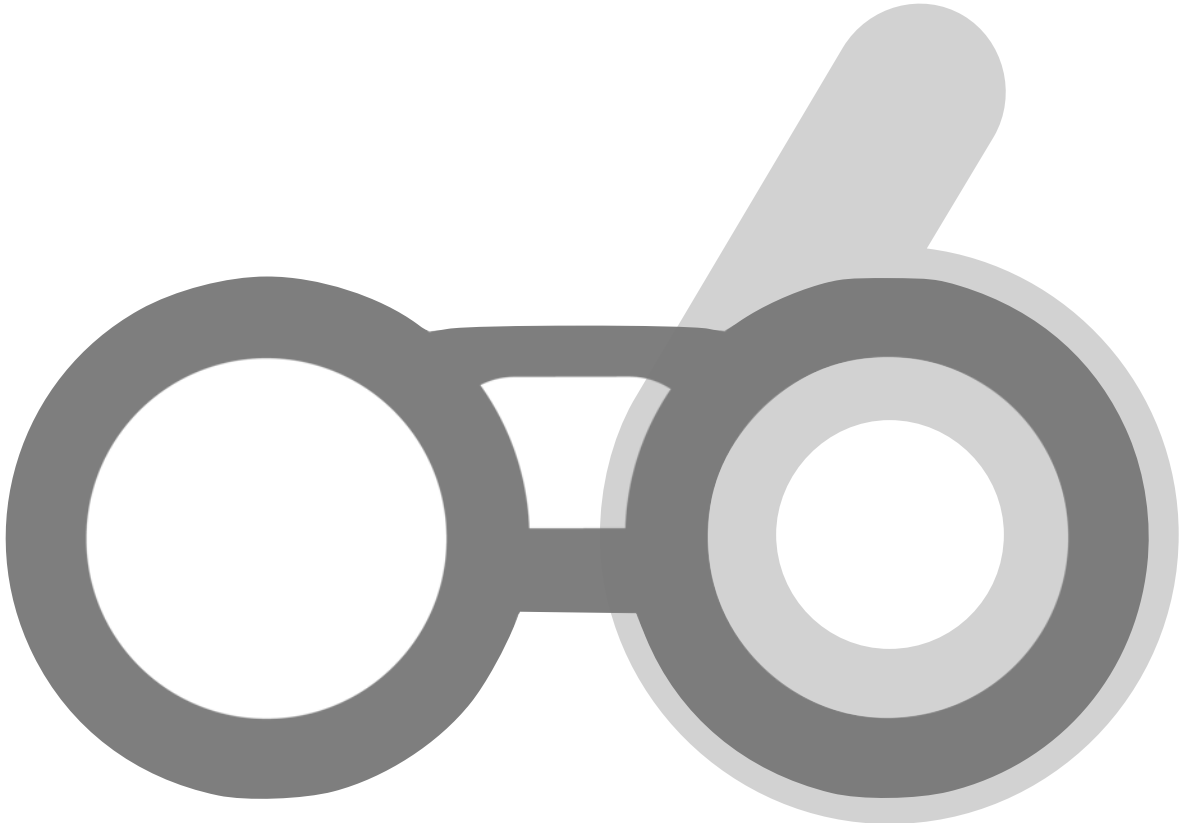
the **cause**(s), and the **solution(**s)

6

debugging

6





STILL ONE SMALL THING THAT I FEEL THE NEED TO SAY...