

yü-zə-'bí-lə-tē & Electronic Health Records

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Behavior

Measure
+
Change
Behavior

Psychology

Psychology



Experimental



Human Factors

Engineering::Physics

as

Human Factors::Psychology

Usability

Usability Inherits From Cognitive Psychology

Methods of measuring behavior

- Reaction time → Performance
- Errors → Cognitive workload
- Eye tracking → Attention
- Survey → Satisfaction
- A rich history of constructing studies to understand and explain human performance

Principles of behavior that inform design

- Memory span
- Motor capabilities
- Choice theory
- Signal detection
- Applied psycholinguistics
- Principles embodied in user interface design to optimize user performance

usability

from O.Fr. usable (1311), from user (see use). Not a common word before c.1840.

The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use
ISO definition



A false statement,
with negative (No)
response

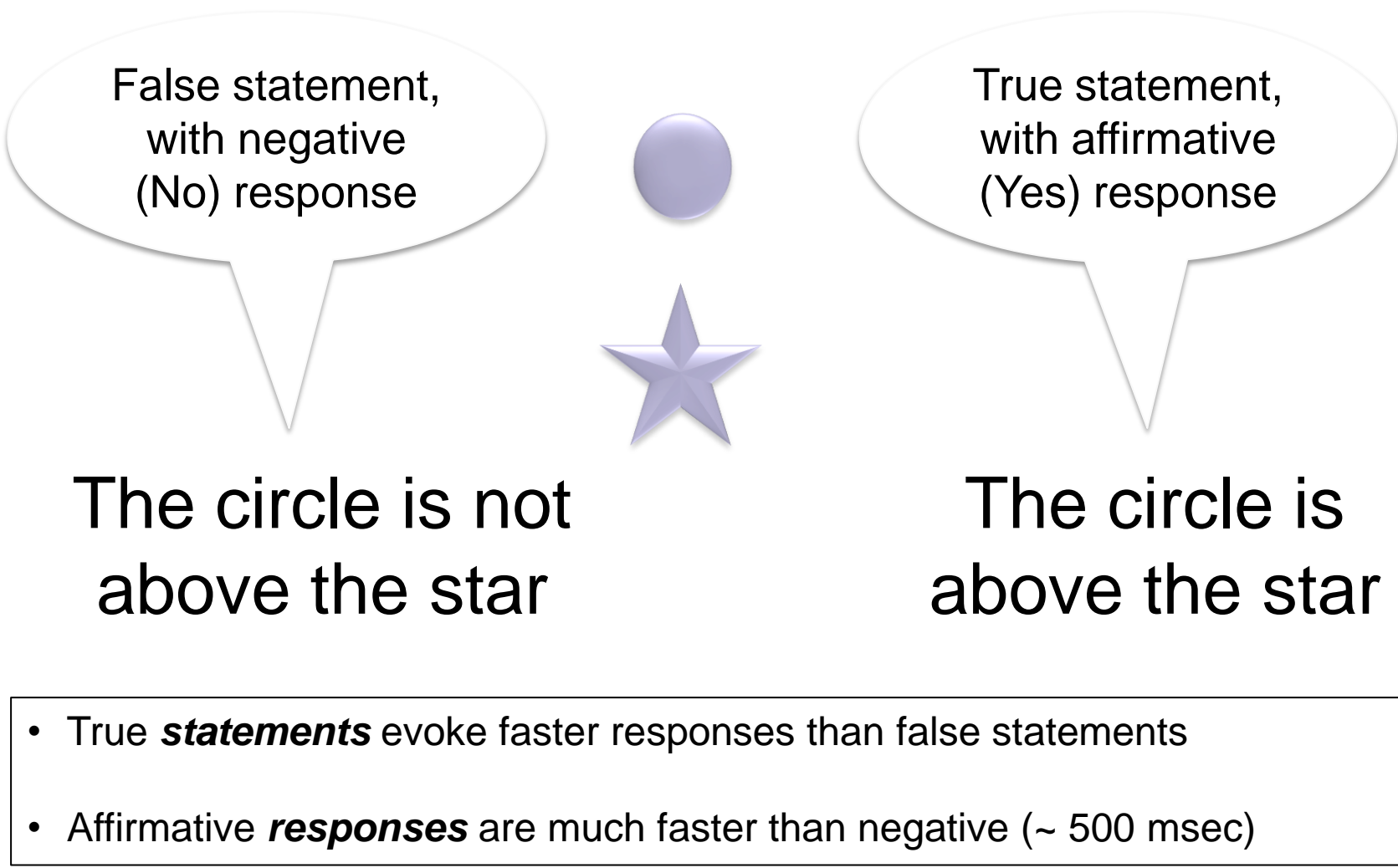


A true statement,
with affirmative
(Yes) response



Yes or No?

The circle is above the star



False statement,
with negative
(No) response

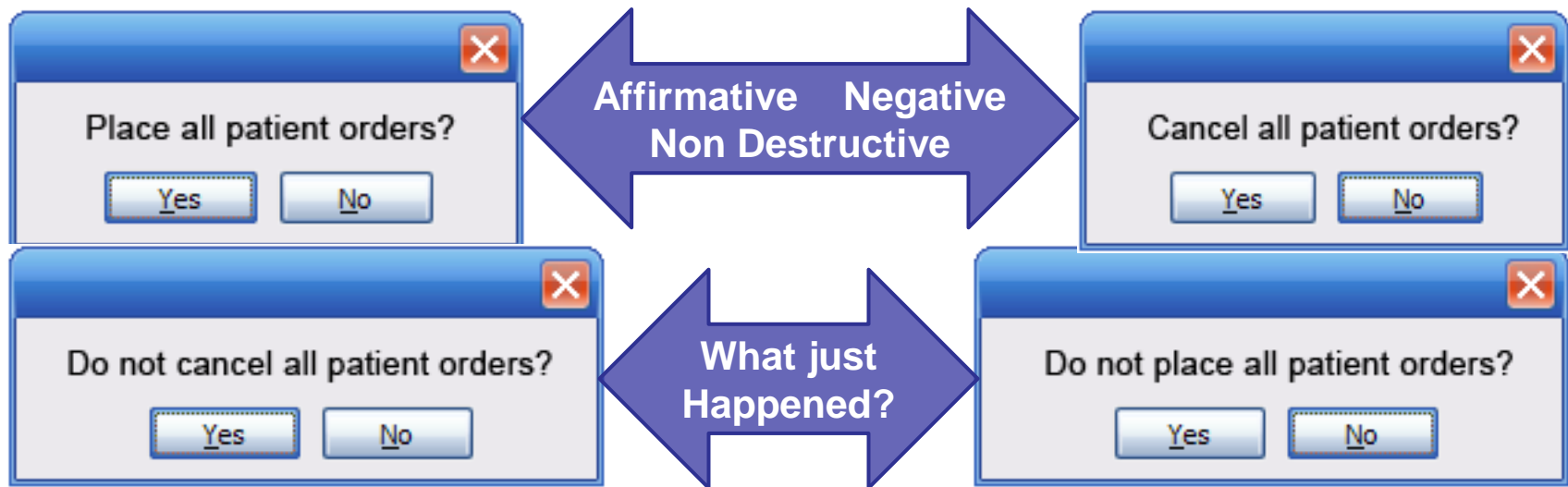
The circle is not
above the star

True statement,
with affirmative
(Yes) response

The circle is
above the star

- True **statements** evoke faster responses than false statements
- Affirmative **responses** are much faster than negative (~ 500 msec)

So Let's Think About Statements/Responses in CPOE...



Different phrasings are used when you want different responses

Statement Type

- True Affirmative
- False Affirmative
- True Negative
- False Negative

Use When

Fast, easy, low-cost-to-user outcome, confirmation only
Need user to think about the response, high cost to user
Should almost never use
Never use, unless trying to deceive user
e.g., Opt out response [] Do not send me the newsletter



The Usability Workbench...

Expert Review

Cognitive Modeling


Formative Usability Testing

Eye Tracking

Summative Usability Testing

The trick is which tool to use when...





Describe \leftrightarrow Improve

Development \leftrightarrow Deployed

Attention: Low \leftrightarrow High

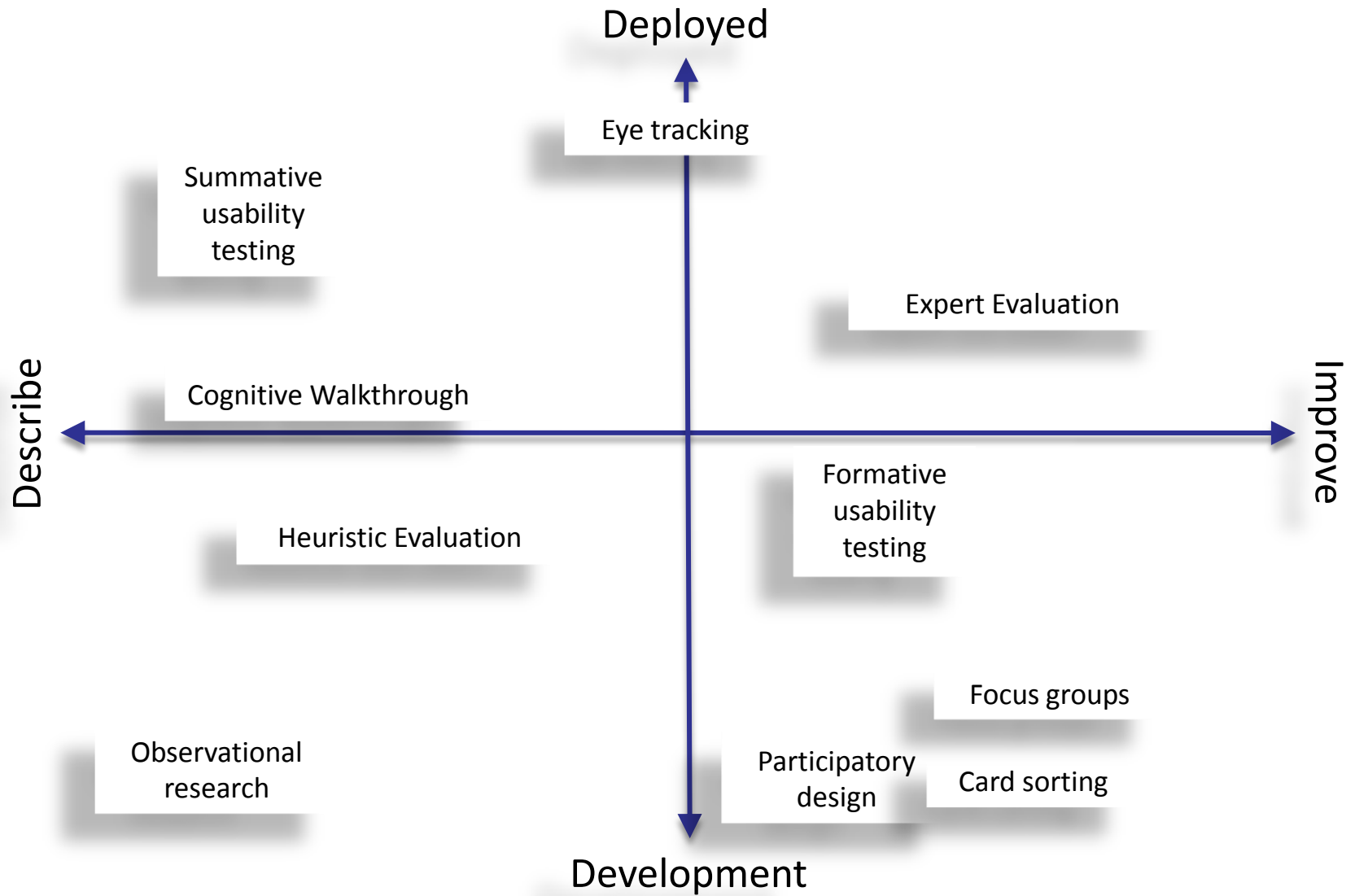
Qualitative \leftrightarrow Quantitative

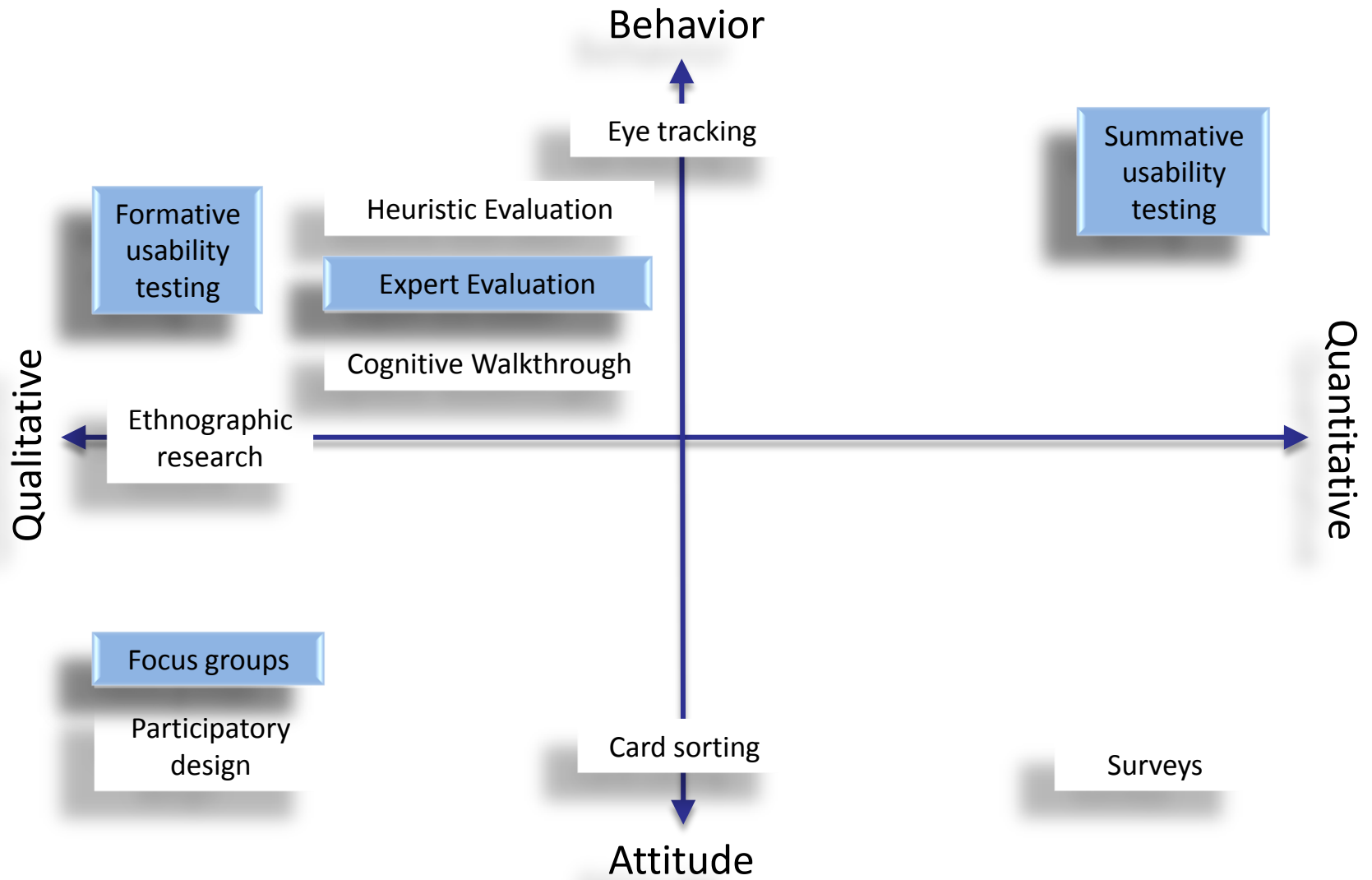
Absolute \leftrightarrow Relative

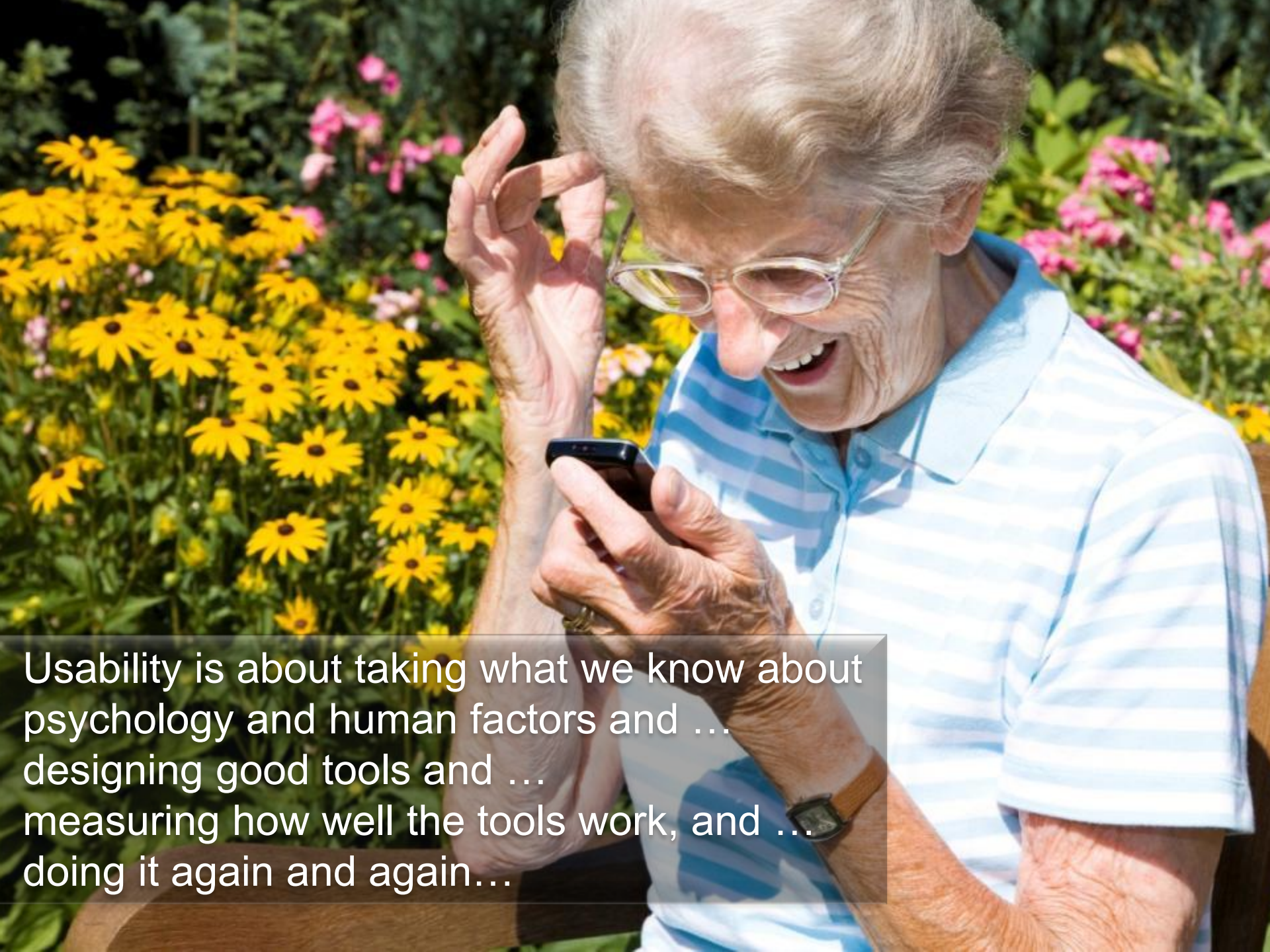
Novices \leftrightarrow Experts

Walk Up And Use \leftrightarrow Require Training

Attitudinal \leftrightarrow Behavioral







Usability is about taking what we know about psychology and human factors and ...
designing good tools and ...
measuring how well the tools work, and ...
doing it again and again...

A close-up photograph of a woman with brown hair, wearing a blue tank top, focused on shaping a white ceramic pot on a pottery wheel. Her hands are covered in white clay, and she is using a small wooden tool to refine the base of the pot. The background is blurred, showing a workshop setting.

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