



# SMS

- a methodological  
boon for all the ages?

Erin Walsh &  
Dr. Jay Brinker  
(Swinburne)



Australian  
National  
University



- One of the most widely used data services worldwide (Kuntsche & Robert, 2009)
- 36.3 billion Short Message Service (SMS) were sent in 2011 in Australia (ACMA, 2011)
- Ideal for repeated measures and ecological momentary assessment studies

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- Age-based differences in technology use and engagement (Vershinskaya, 2002)
- Differences between ages and their mobile usage – frequency and purpose (Devitt, 2009; Ling, 2002)

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**CAPACITY**

**ATTITUDE**

**DATA QUALITY**

**BEHAVIOR**

**SMS**

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## BACKGROUND

- Mobile phones are a part of children's lives globally (Klimsa, 2006)
- 23% of children (aged 6-13) owned a mobile in Australia in 2007 (Downie, 2007), with the figure set to rise
- SMS has been used for research with children successfully before (i.e. Shapiro, 2008; Revelle, 2007; Dunton, 2011; Alfven, 2010)
- Mobile telephones are ubiquitous among adults (Anhoj & Moldrup, 2009)
- SMS capabilities are used daily by the majority of adults (Mackay & Weidlich, 2009)
- SMS is being increasingly adopted by the elderly (Ling, 2008) – in one study more than 75% of people aged over 45 use SMS (Lobetmaris2002)
- Only really exploited in telecare settings (Barlow, 2007)



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## THE SAMPLE

ADULTS

631

Not serious

575

Too quick

496

Dodgy variance

258

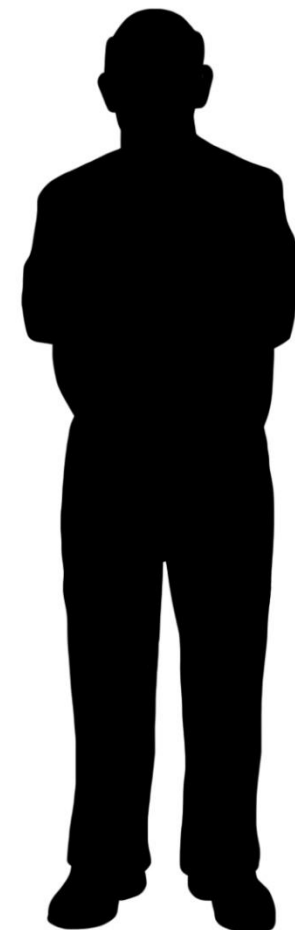
CHILDREN

50

$n = 308$



5 - 17



18 - 79

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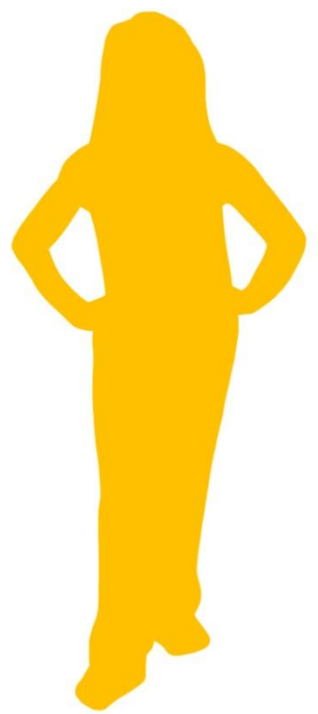


## CAPACITY

### CHILDREN

Half owned mobiles (54%)

Around half smart phones (51%)

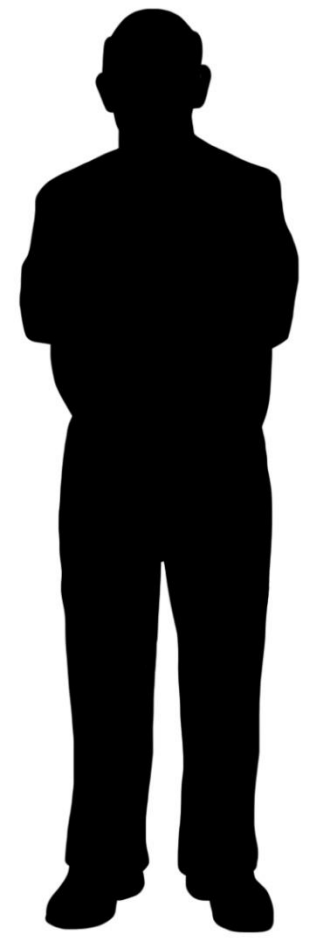


**5 -17**

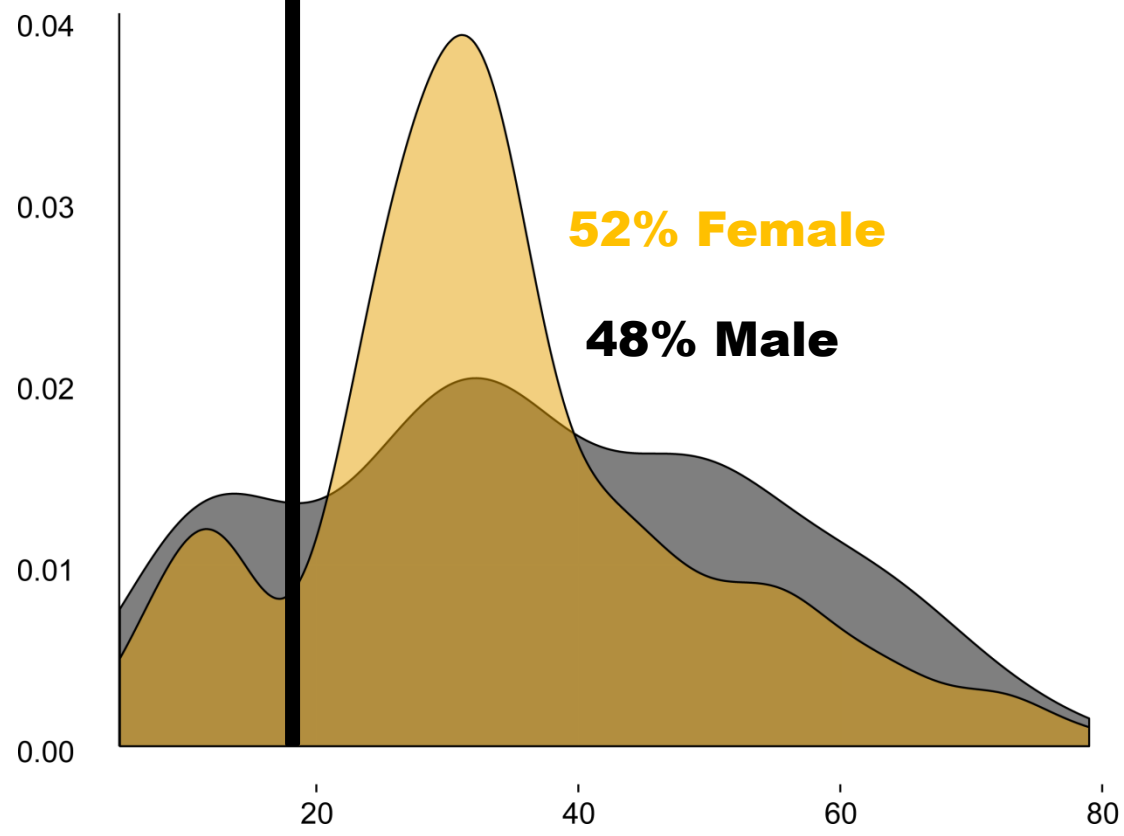
### ADULTS

All owned a mobile (13% multiple mobiles)

Most smart phones (75%)



**18-79**



# SMS

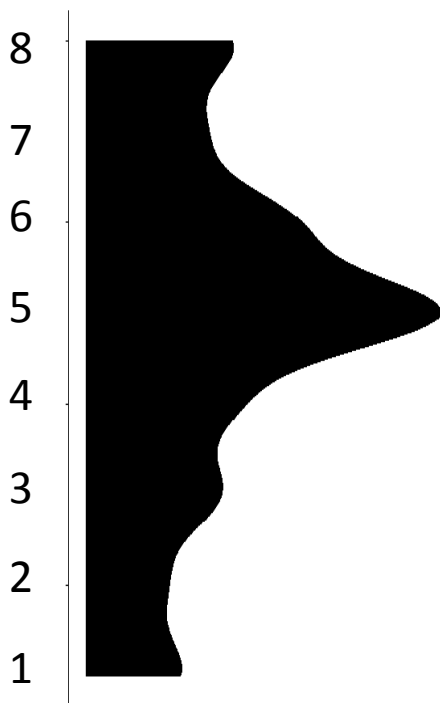
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## ATTITUDE

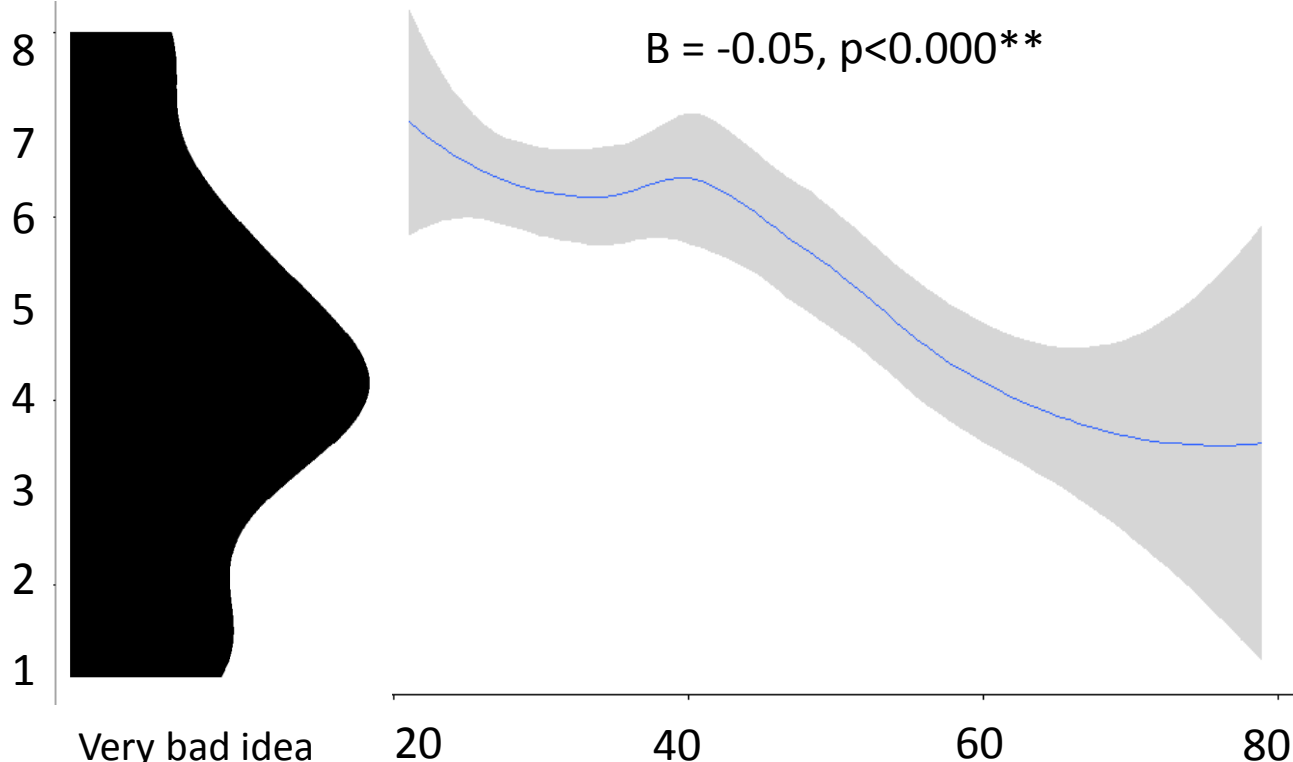
Absolutely!



Absolutely not!

**5-17:** Do you think psychology researchers should use SMS to talk with their participants?

Very good idea



**18-79:** Is using SMS for research is a good or bad idea?

Younger people are significantly more likely to think it is a good idea.

**Does this attitude translate into behaviour?**



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## BEHAVIOR

“ Would you be willing to spend some time completing some follow-up questions, via SMS? There is no incentive for answering these follow-up questions. If you’re willing, please write your mobile number here, and you will receive the questions via SMS within a week.”

69

Actually responded

30

Gave their number

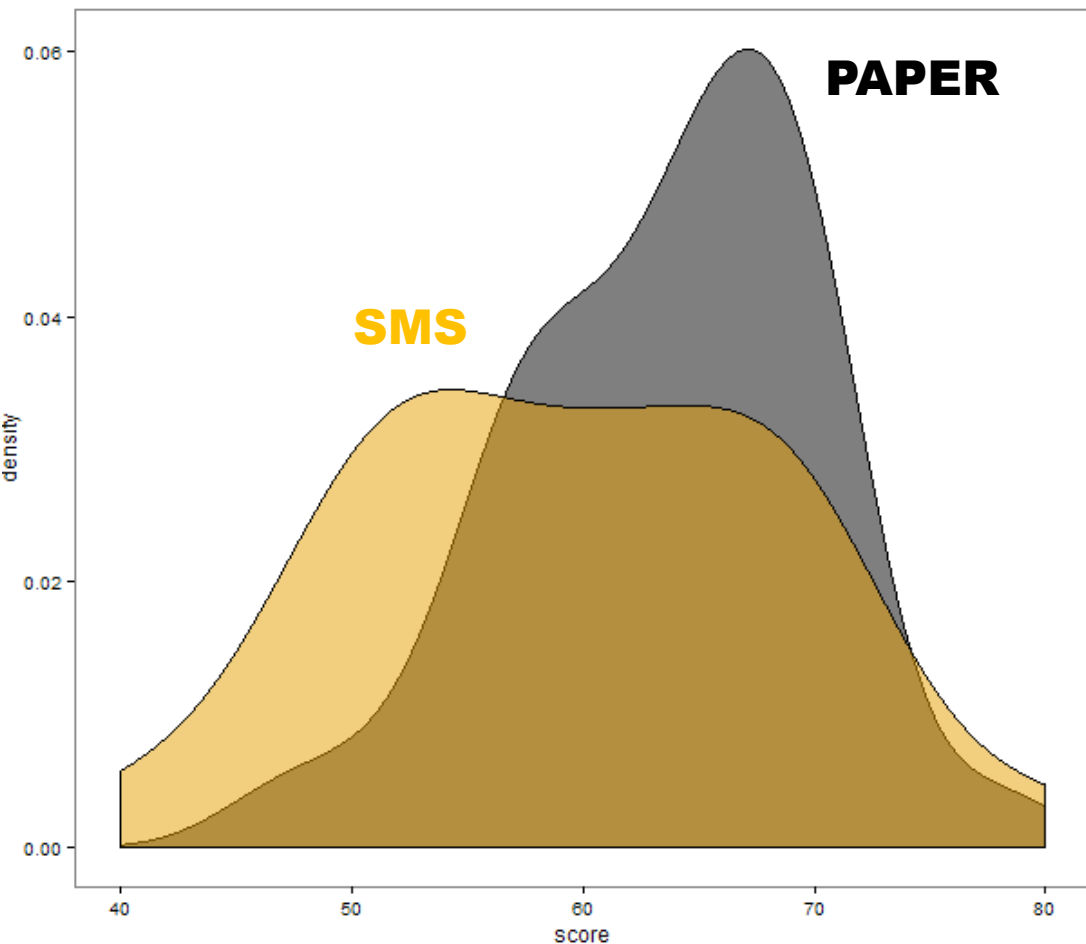
258

(631)





## DATA QUALITY



Density plot of AAQ total scores

## 16-item Acceptance and Action questionnaire

(Hayes et al, 2004)

Data format:

A7 B1 C1 D7 E7 F4 G1 H1 I7 J7 K1 L7  
M7 N7 O1 P7

- Data only had 10% missingness
- No range violations
- Decent internal consistency:
  - SMS data  $\alpha = 0.68$
  - Paper data  $\alpha = 0.63$

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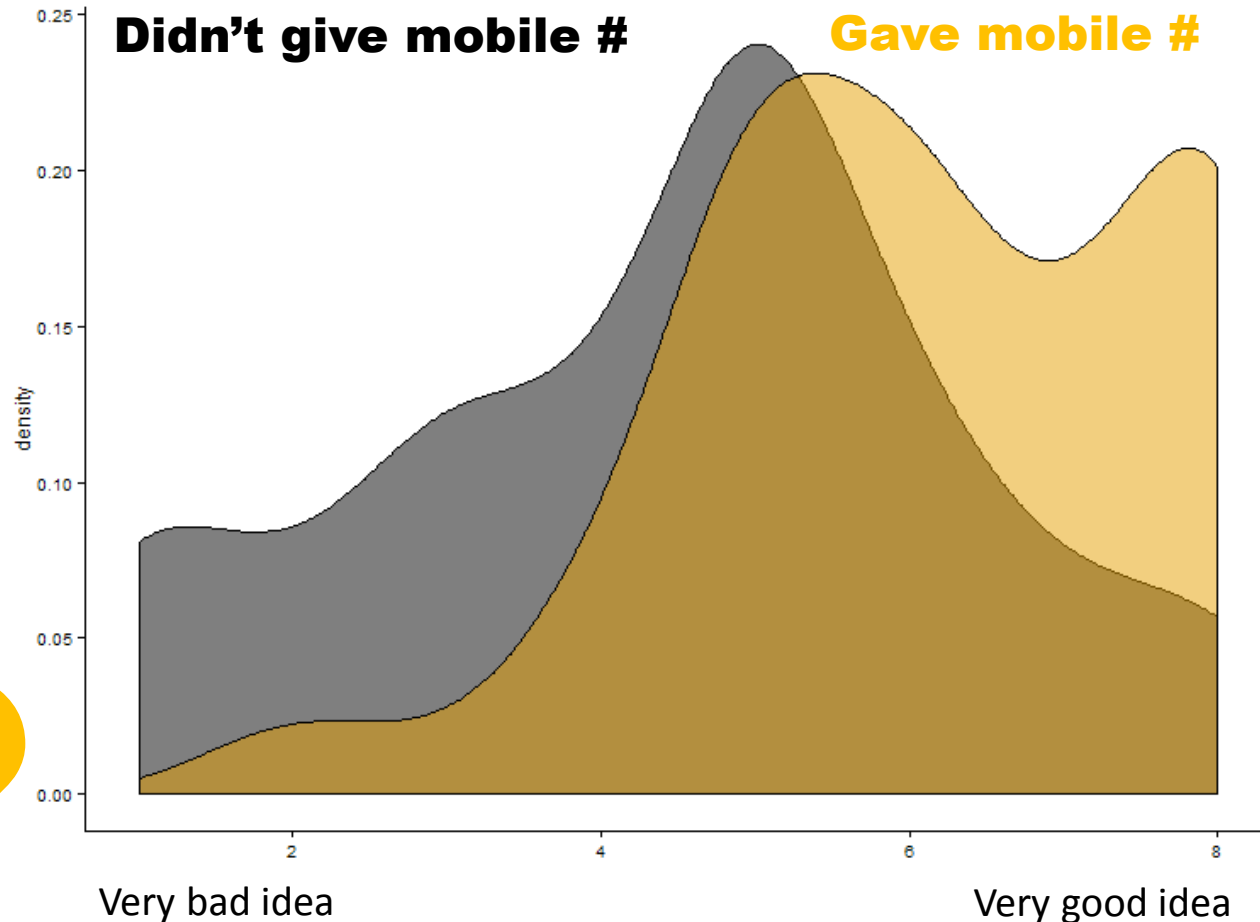


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## Why did some adults respond, whilst others didn't?

Some relationship between attitude and giving mobile ( $B = 0.52, p < 0.000^{***}$ )

Age isn't directly associated with behavioural intention ( $B = -0.021, p = 0.17$ )

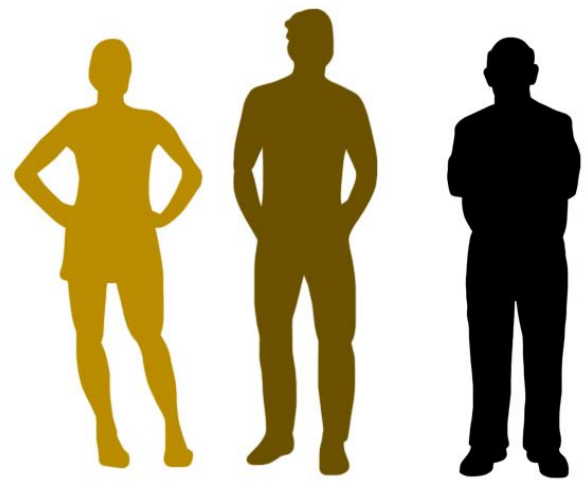
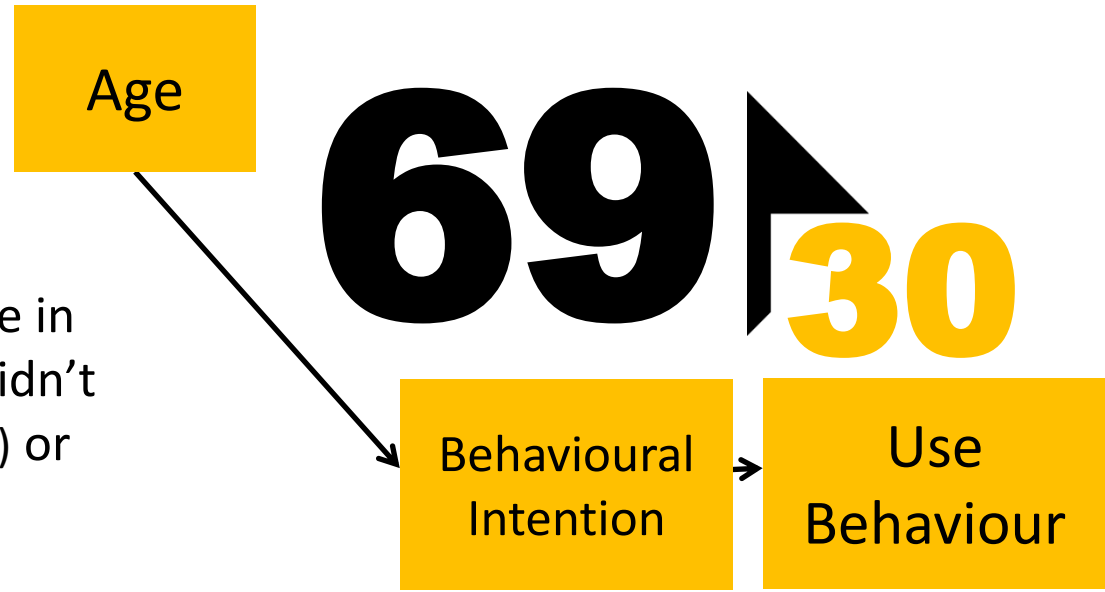


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## Why did some adults respond, whilst others didn't?

- There isn't a significant difference in age between those who did and didn't give their mobile number ( $p=0.208$ ) or those who did and didn't respond ( $p=0.07$ )



- Social factors surrounding SMS change with age (Ling, 2008)

- The older you get, the physically more difficult it becomes to use a mobile (Mallenius, 2007, Ling, 2008)



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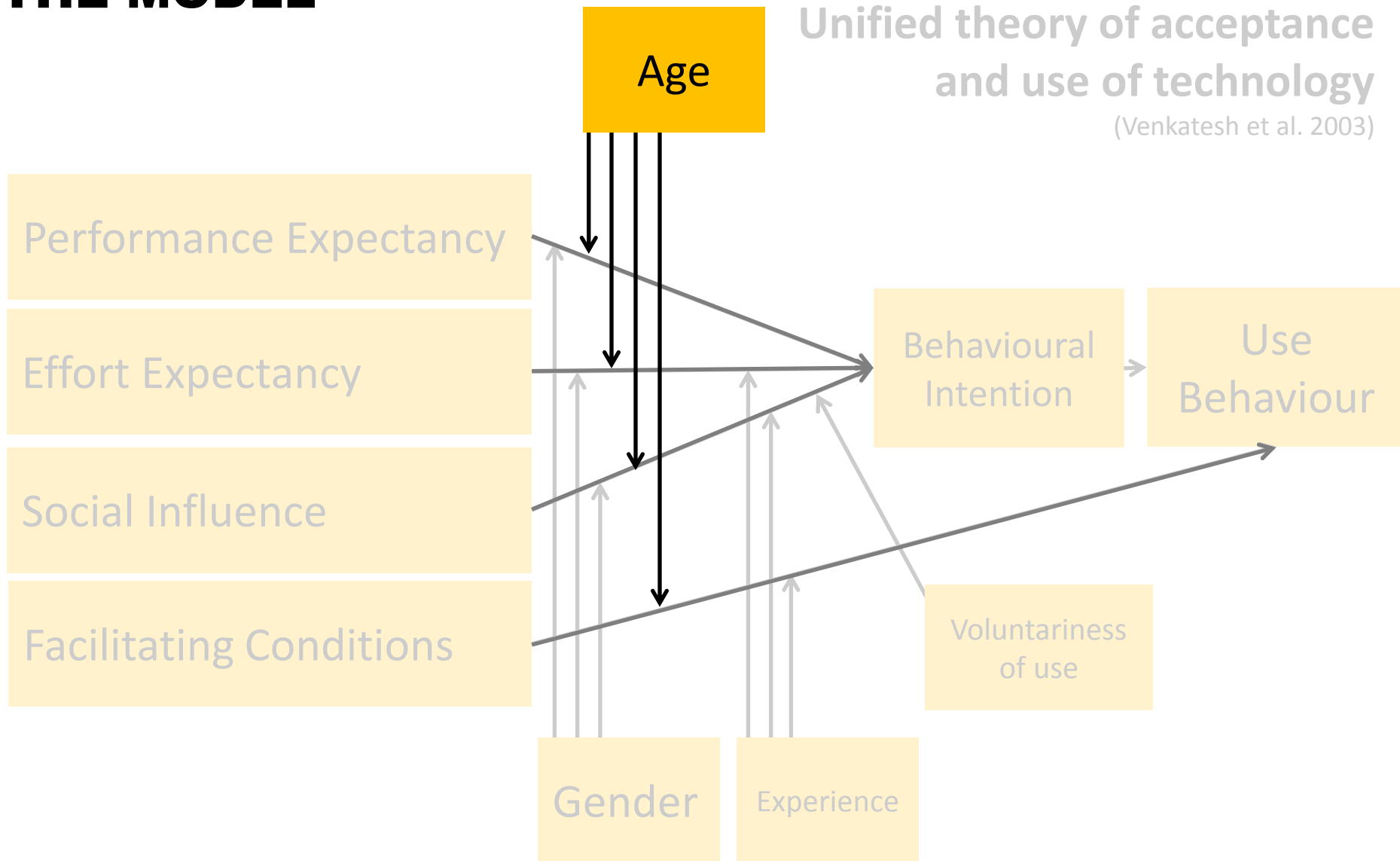
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## THE MODEL

Unified theory of acceptance and use of technology

(Venkatesh et al. 2003)



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# 258

Performance Expectancy

Effort Expectancy

Social Influence

Facilitating Conditions

Age

SEM is intractable for this data

- Non-normality
  - Binary outcomes
- Bayesian approach

## Logistic Regression

# 189/69

39/30

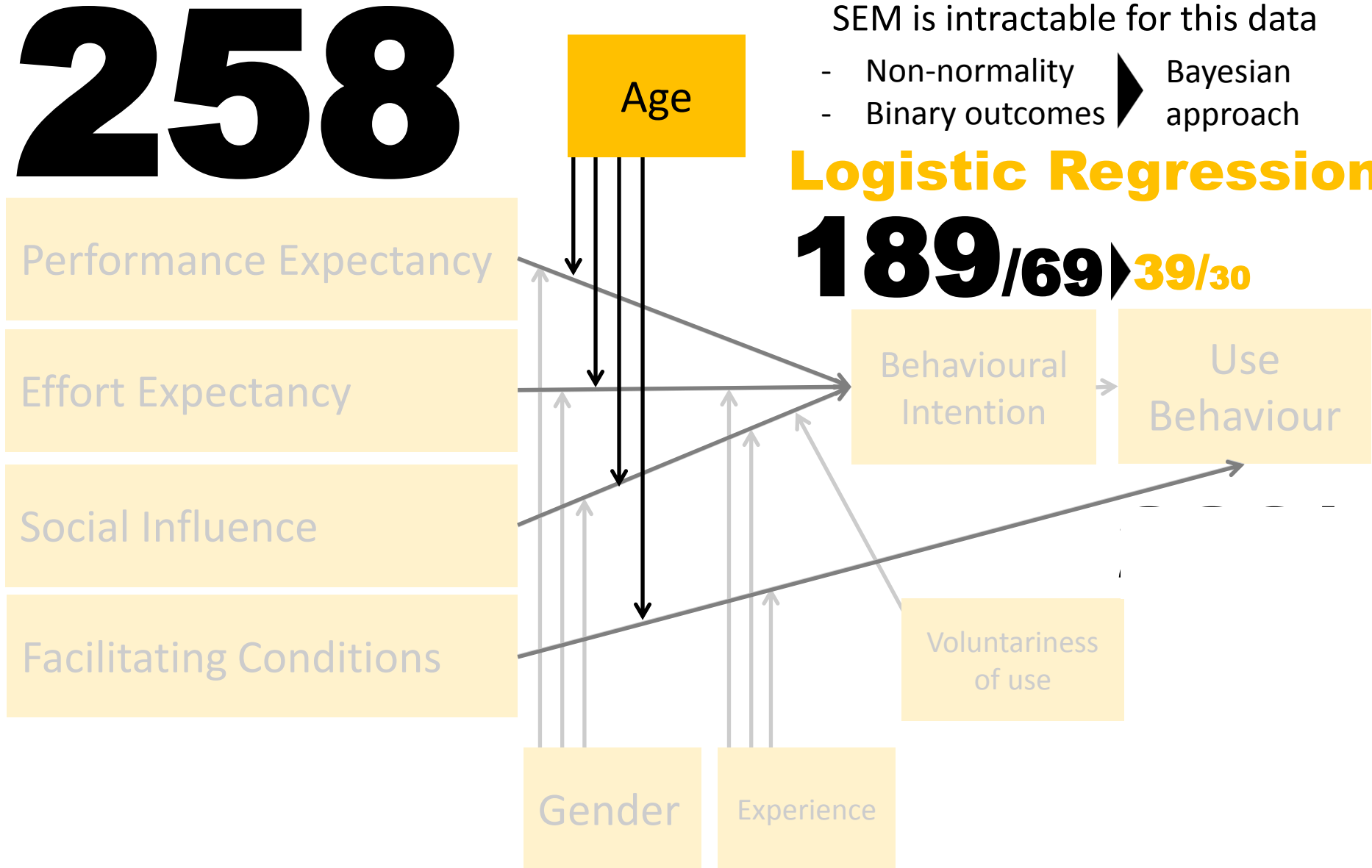
Behavioural Intention

Use Behaviour

Voluntariness of use

Gender

Experience



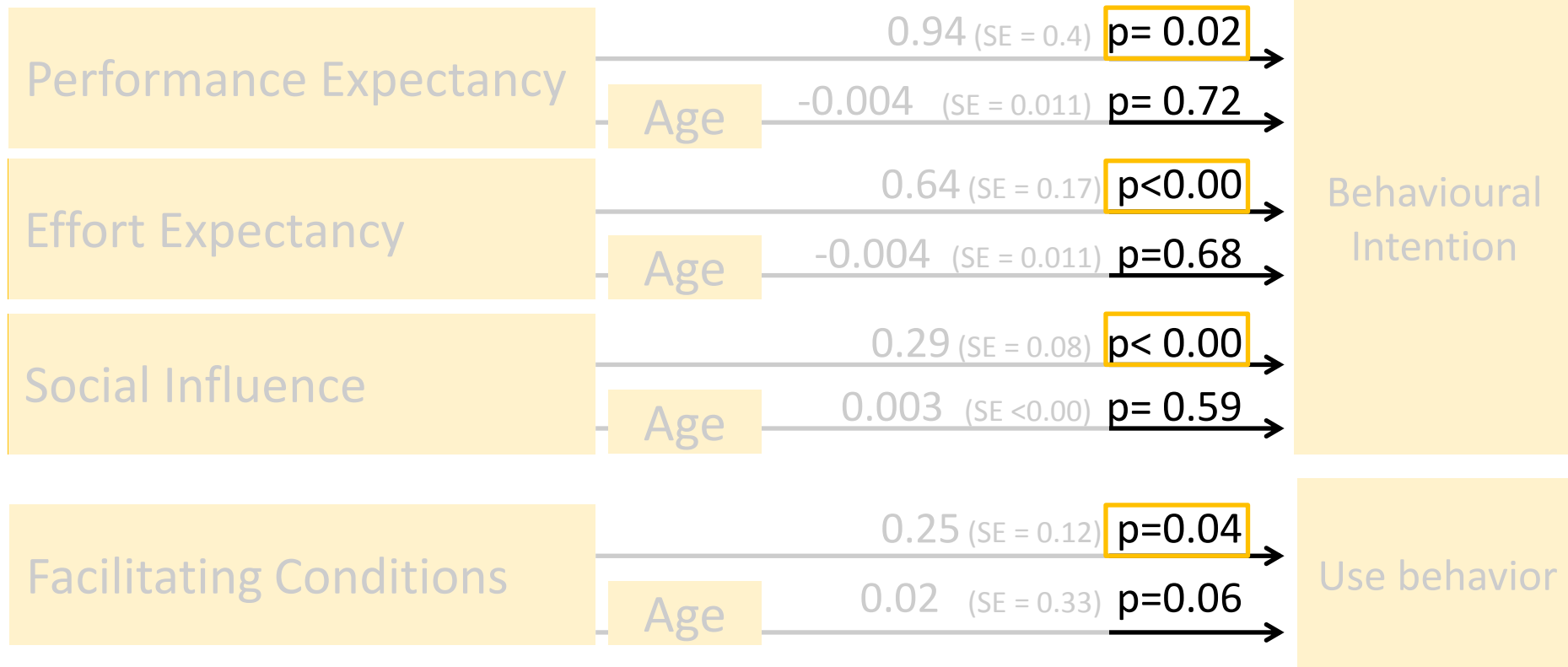
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## STEPWISE REGRESSION First hurdle, adult sample

(Mean item parcels)

*n* = 258

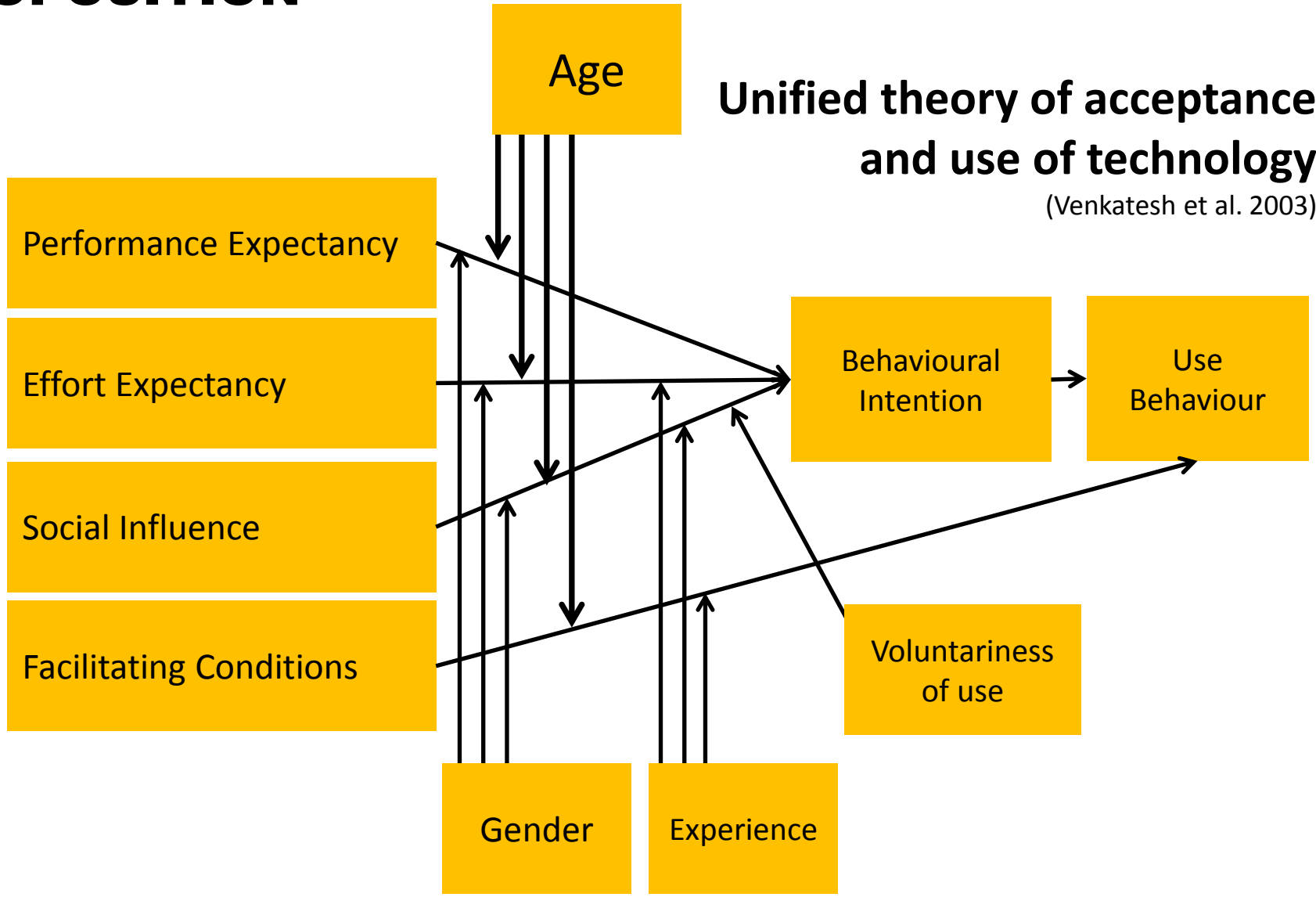


**Significant** relationships as the UTAUT predicts,  
No sign of age moderating those relationships.

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## A PROPOSITION





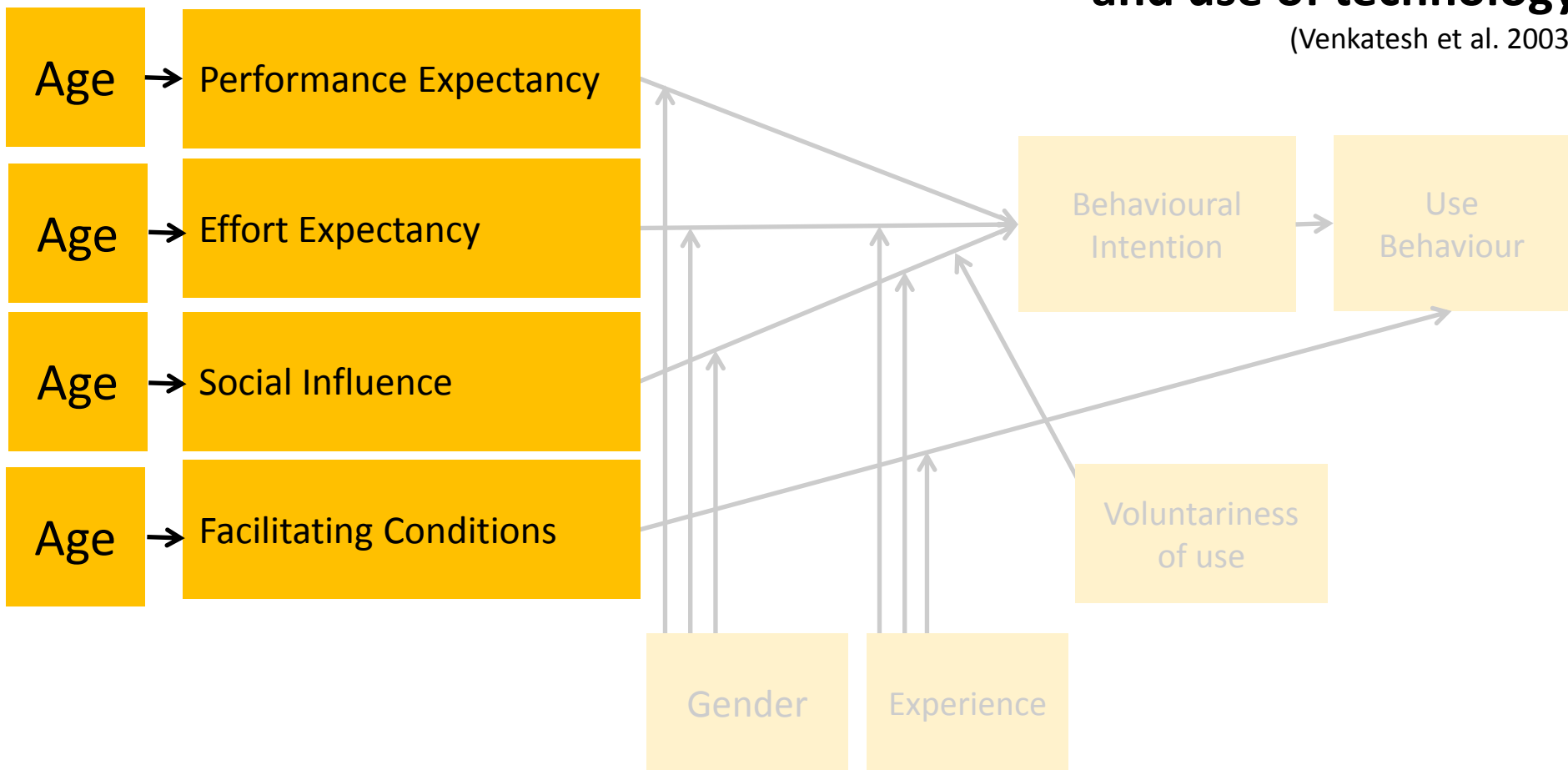
# SMS - a methodological boon for all the ages?



## A PROPOSITION

### Modified unified theory of acceptance and use of technology

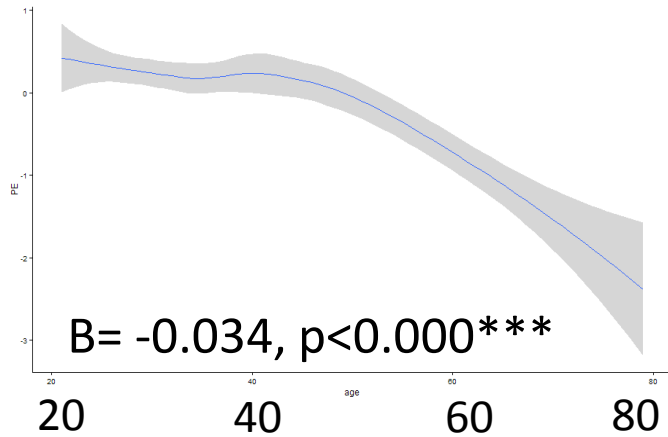
(Venkatesh et al. 2003)



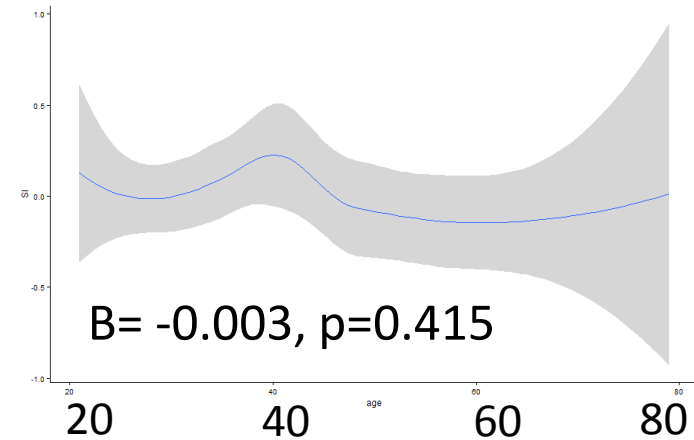
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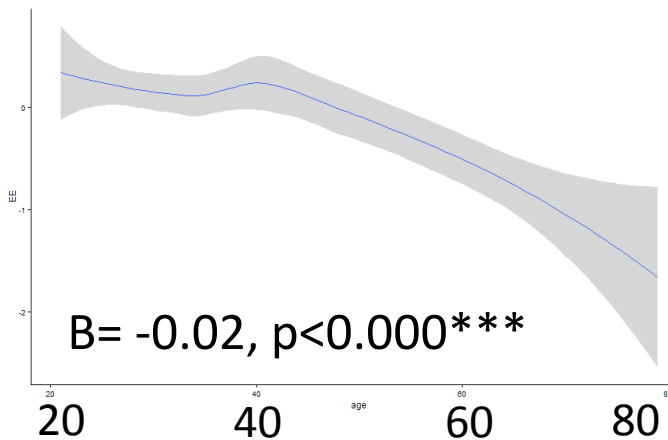
Age → Performance Expectancy



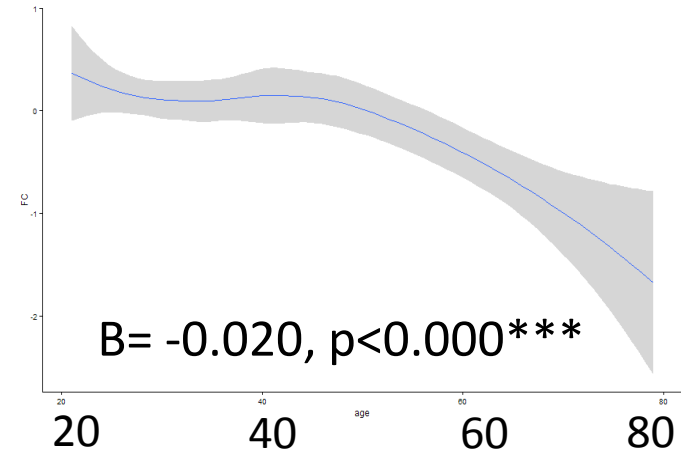
Age → Social Influence



Age → Effort Expectancy



Age → Facilitating Conditions



References:  
blsablfsbf

# SMS

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**Yes (sort of) – participant age is not a deal-breaker**

## **CAPACITY – YES!**

- Half of child sample have a mobile phone
- All of adult sample have a mobile phone, use SMS regularly.

## **ATTITUDE – SORT OF**

- Children 5-17 on the positive side of ambivalent
- In the 18-79 age group, younger people are significantly more likely to think it is a good idea.

## **DATA QUALITY -YES**

- Once recruited, data quality hits ceiling across all ages

## **BEHAVIOR – YES**

- Age was not directly associated with intention or participation behaviour, or as a moderator
- BUT was related to issues that in turn predicted use behaviour