SMS - a methodological boon for all the ages?

Erin Walsh & Dr. Jay Brinker (Swinburne)
- 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

Erin Walsh & Dr. Jay Brinker (Swinburne)
- Age-based differences in technology use and engagement (Vershanskaya, 2002)

- Differences between ages and their mobile usage – frequency and purpose (Devitt, 2009; Ling, 2002)

Erin Walsh & Dr. Jay Brinker (Swinburne)
SMS - a methodological boon for all the ages?
- 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 (Lobet-maris2002)
- Only really exploited in telecare settings (Barlow, 2007)
SMS
THE SAMPLE

ADULTS
631
Not serious
575
Too quick
496
Dodgy variance
258

CHILDREN
50

n = 308

5 - 17

18 - 79
- a methodological boon for all the ages?
SMS - a methodological boon for all the ages?

CAPACITY

CHILDREN
Half owned mobiles (54%)
Around half smart phones (51%)

ADULTS
All owned a mobile (13% multiple mobiles)
Most smart phones (75%)

52% Female
48% Male
**ATTITUDE**

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<th>Very good idea</th>
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5-17: Do you think psychology researchers should use SMS to talk with their participants?

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?
“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.”
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DATA QUALITY

16-item Acceptance and Action questionnaire
(Hayes et al, 2004)

Density plot of AAQ total scores

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

Data format:
A7 B1 C1 D7 E7 F4 G1 H1 I7 J7 K1 L7 M7 N7 O1 P7
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)
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)
Unified theory of acceptance and use of technology (Venkatesh et al. 2003)

The model:

- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Conditions
- Gender
- Experience
- Age

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Use

Behaviour

Behavioural Intention

Voluntariness of use

THE MODEL
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- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Conditions

Age

Behavioural Intention
Use Behaviour

Gender
Experience

SEM is intractable for this data
- Non-normality
- Binary outcomes → Bayesian approach

Logistic Regression

258

189/69
39/30

Non-normality
Binary outcomes

Logistic Regression

Voluntariness of use

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###STEPWISE REGRESSION

**First hurdle, adult sample**

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<td>0.94 (SE = 0.4) <strong>p= 0.02</strong></td>
<td>0.64 (SE = 0.17) <strong>p&lt;0.00</strong></td>
<td>0.29 (SE = 0.08) <strong>p&lt; 0.00</strong></td>
<td>0.25 (SE = 0.12) <strong>p=0.04</strong></td>
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<tr>
<td>-0.004 (SE = 0.011) <strong>p= 0.72</strong></td>
<td>-0.004 (SE = 0.011) <strong>p=0.68</strong></td>
<td>0.003 (SE &lt;0.00) <strong>p = 0.59</strong></td>
<td>0.02 (SE = 0.33) <strong>p=0.06</strong></td>
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**n = 258**

**Significant relationships as the UTAUT predicts,**

No sign of age moderating those relationships.
A PROPOSITION

Unified theory of acceptance and use of technology
(Venkatesh et al. 2003)

Performance Expectancy
Effort Expectancy
Social Influence
Facilitating Conditions
Age

Behavioural Intention
Use Behaviour
Voluntariness of use

Gender
Experience

SMS - a methodological boon for all the ages?
A PROPOSITION

Modified unified theory of acceptance and use of technology
(Venkatesh et al. 2003)

- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Conditions

Age

Behavioural Intention

Use Behaviour

Voluntariness of use

Gender

Experience
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**Performance Expectancy**

Age → Performance Expectancy

B = -0.034, p<0.000***

**Effort Expectancy**

Age → Effort Expectancy

B = -0.02, p<0.000***

**Social Influence**

Age → Social Influence

B = -0.003, p=0.415

**Facilitating Conditions**

Age → Facilitating Conditions

B = -0.020, p<0.000***
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

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

References:  
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