

Ellis, D. A. (2020). *Smartphones within Psychological Science*. Cambridge University Press Errata. August 2021.

*These errata are predominantly typographical errors or short sections of text that benefit from additional clarification.*

#### Page 16

The sentence beginning ‘It is also...’ on line 30 should be split into two sentences and read:

‘Recent advances continue to improve or reject existing theory derived from lab-based experiments alone. However, it is equally important for the discipline to curate psychological models alongside the development of latent or observable measures that take advantage of new and emerging forms of data.’

#### Page 19

The sentence beginning ‘Research that applies smartphones...’ on line 13 should read:

‘Research that applies smartphones to real-world research is rarely straightforward, and data derived from devices directly can be difficult to handle *and* interpret (DeMasi, Kording and Recht, 2017; Orben and Przybylski, 2019).’

#### Page 20

On line 11 after the sentence ending ‘...(Mischel, 2004).’ an additional sentence should be inserted and read:

‘Psychologists who are interested in new and emerging forms of data, often without realising, already have an excellent handle on latent variables that are assumed to underpin specific datum – or how combinations of datum might lead to novel variables that represent latent variables.’

#### Page 42

The word ‘some’ is missing from line 5 and should read ‘...contrasted with some cohort-based designs (Khouja et al., 2019).’

#### Page 47

In Table 2.1, example ‘Measures’ listed may overlap. For example, ‘location’ could be a form of ‘passive behavioural observation’ as well as supporting ‘environmental tracking’ by providing contextual information about the environment when linked with a secondary data source (e.g., via Google Maps). Similarly, ‘activity levels’ can be passively recorded *and* support ‘physiological tracking’ alongside ‘respiratory function’ for example.

#### Page 57

A space is missing in the left-hand corner of Figure 2.3. This should read ‘...collectively by...’.

#### Page 62

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The sentence beginning ‘Alternatively,...’ on line 3 should refer to smaller samples and read:

‘Alternatively, carefully mapping and extrapolating specific psychiatric symptoms onto smartphone sensor metrics (in smaller samples) would also provide a stronger frame of reference going forward.’

#### Page 75

The first sentence of the final paragraph (line 33) beginning ‘Similar concerns...’ should read ‘Similar concerns have been raised about the negative impact of smartphones on caregivers.’

#### Page 76

A new paragraph should commence from the end of line 4 that begins ‘In recent...’

#### Page 81

At line 6 the text should be replaced from ‘These advantages...’ and read:

‘These advantages also extend to group co-operation on a larger scale with virtual communities often founded on common interests or goals. Recent examples include the open science movement. Despite efforts of some states to control technology, collective group action, for example, has also become possible where this would have previously been dangerous in F2F contexts (Liu, 2017). Breaking down social barriers, contact theory would support the notion that the processes involved with multifaceted cross-group interaction will provide many benefits that include improving attitudes towards outgroups. Such interactions may also assist with problem-solving, increasing cognitive flexibility and fostering creativity (Hodson et al., 2018). Even without social interaction, experiential diversity is associated with improved cognitive and affective functioning (Heller et al., 2020; Van Praag, Kempermann and Gage, 2000).’

At line 11, the sentence beginning ‘Similarly,...’ should then become a new paragraph and read:

‘Similarly, as the number of people connected to online dating platforms has increased, the diversity and number of potential partners has also increased accordingly. Using data from How Couples Meet and Stay Together (HCMST) surveys, Rosenfeld, Thomas and Hausen (2019) demonstrated that meeting partners online has now displaced all other ways of meeting a partner. Meeting through friends has been declining since 1995. The rise of the internet fuelled the first leap of this movement in the early 2000s. Smartphones have driven a second wave in the previous decade. Separate analyses from the same authors show that meeting through phone apps specifically was responsible for at least half of the growth in meeting online from 2010 to 2017.

Epidemiological evidence supports the notion that being in a positive long-term relationship (including marriage) is associated with well-being and has a protective effect (DeMaris, 2018). However, the variety of partner options may lead to a lack of commitment (Paul, 2014) or even an increase in objectification (Davidson et al., 2018). If developing new online connections via smartphones makes for weaker relationships because they have altered the romantic acquaintance processes, then this might provide sensible evidence for an

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evolutionary mismatch. This might include a decrease in marriage rates and an increase in break-ups or divorce (e.g., Paul, 2014), but such a relationship now only holds for rural areas (Murray, 2019).'

The text should continue as written from line 33 that begins 'In large...'

#### Page 82

The sentence beginning 'This evidence appears to...' on line 9 should read 'Robust research appears to...'

The text running from 'Indeed...' on line 10 and ending at '... and Gage, 2000).' on line 18 should be removed.

#### Page 107

The sentence on line 11 beginning 'They suggest...' should read 'They suggest that computer models could be better integrated with existing theory if feature sets are viewed as analogous to the role of an observer.'

The sentence on line 31 beginning 'Alternatively, general debates...' should read 'Alternatively, general debates concerning personality changes and the importance of context alongside advances in trait-state theory provide clues on how to move forward.'

#### Page 108

On line 38 '...and coded accordingly.' should read '...and coded by multiple observers.'

#### Page 110

On line 28 the word 'increase' should read 'improve'.

#### Page 111

After the sentence ending '...to occur.' on line 22, an additional sentence should be inserted and read:

'Assuming neuroticism is internalised, researchers might also hypothesise that it will manifest in traces that participants engage with habitually and do not attempt to control; (e.g., number of log ins, e-mail response times) as opposed to self-generated content (e.g., photos and status updates) (Hinds and Joinson, 2019).'

#### Page 112

On line 20 '...from behaviour...' to the end of the sentence should read '...from behaviour can augment or transform traditional (latent) measures of personality itself (Boyd et al., 2020).'

#### Page 121

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The study referenced on line 5 '(Sparrow, Liu and Wegner, 2011)' failed to replicate in 2018 along with many other high-profile social science experiments (Camerer et al., 2018). Design differences may have influenced the replication result, but this serves to illustrate why researchers should be encouraged to make all materials from published studies openly available. Only then can others conduct direct replications and magnify scientific knowledge.

Camerer, C. F., Dreber, A., Holzmeister, F., Ho, T. H., Huber, J., Johannesson, M., ... & Wu, H. (2018). Evaluating the replicability of social science experiments in *Nature and Science* between 2010 and 2015. *Nature Human Behaviour*, 2(9), 637-644.

#### Page 140

On line 17 the sentence beginning 'In terms of...' should read:

'More broadly, psychological impacts are often yoked to physical health, and smartphones may encourage sedentary behaviour. Physical injuries from distracted walking are increasingly common as mobile devices have become more popular (Povolotskiy et al., 2019).'

#### Page 161

The sentence on line 38 beginning 'Finally,...' should read 'CyBOK also aims...'

#### Page 171

The first paragraph under the subheading *Theory and Measurement* should be separated into 2 paragraphs and read:

'Issues pertaining to transparency remain front and centre. The replication crisis is well documented across psychological science as an increasing number of research findings have not held up to further scrutiny (Open Science Collaboration, 2015). Many studies across social science continue to be underpowered (Lakens, 2015; Maxwell, 2004) and distorted by publication bias (Francis, 2012). At the same time, an alarming number of individuals have been less than reliable in psychology, specifically including Eysenck, Zimbardo and Rosenhan (Cahalan, 2019; Pelosi, 2019; Reicher and Haslam, 2006). Other problems, however, may reflect serious theoretical and methodological shortcomings that will not be overcome by embracing open science practices.

In theory, many theoretical models and the statistics that support them can make useful predictions provided they are developed in an iterative fashion where new data leads to genuine modification or replacement (Box, 1976). In practice, the number and a complexity of interacting entities remains high in the real-world and will limit the formulation of perfect mathematical models (Hand, 2014; Phaf, 2020). Theory certainly appears to mean different things across sub-disciplines within psychological science. If a theory is only used to simplify the phenomena under investigation and allow for an improved understanding, this serves a very different purpose to how it is often described. As a whole, psychological theory has not attained the same standards in elucidating mechanisms as the physical sciences. Klein (2014) suggests this is due to the discipline's tendency to investigate hypotheses via binary opposition rather than via quantitative manipulation. Many theories are simply unable to fully explain a phenomenon, let alone generalise. Recently, this has been described as a gulf

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between qualitative claims made following empirical investigations and the statistical entities from which they draw breath (Yarkoni, 2019).'

#### Page 172

The sentence beginning 'Unlike gambling...' on line 27 should read 'Unlike gambling or allied behavioural addictions, we know even less about how similar processes might apply to general or specific technology use.'

#### Page 173

The paragraph that begins 'Theory certainly appears...' on line 8 should be removed.

#### Page 175

After the sentence ending '(Szot et al., 2019).'

 on line 15, an additional sentence should be inserted and read 'These issues equally apply to many short measures involving self-report as part of ecological momentary assessments.'

'becuase' on line 26 should read 'because'

The first sentence of the paragraph beginning 'Across...' on line 18 should read 'Unfortunately, across applied research at the present time, issues of...'

#### Page 177

The sentence beginning 'This involves...' on line 3 should read:

'This involves the use of purpose-built apps to capture complex patterns of usage from smartphones and has shifted from tracking general use (in hours) alongside single smartphone interactions (pickups) to generating feature level metrics from specific apps.'

The sentence on line 17 beginning 'Taken together...' should read:

'Taken together, a deeper understanding of how technology interactions map onto psychological processes or affordances will help researchers distinguish between positive and negative outcomes across multiple domains.'

The final paragraph (line 31) starting 'Going further,...' should read:

'Going further, while there is very little understanding of how general usage alone might cause psychological distress, genuine digital harms can be aligned with different technology interactions. As with passive vs active distinctions, similar dichotomies equally apply to such harms; for instance, writing a tweet containing misinformation is different from simply sharing an endorsement or viewing such material. However, 'misinformation', 'disinformation', 'fake news' and 'problematic content' are often used interchangeably, and the potential harm of such content is currently difficult to measure – as is the impact of any mitigations (e.g., removing content or fact checking). This is true of many other individual and societal digital harms following the increased adoption of hyperconnected systems. Descriptive strands of work would therefore help qualitatively define and quantitatively

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measure behavioural interactions as they relate to these psychological harms. This would, in turn, also act as a first step to help define and quantify online harm in other contexts by combining principles from psychological science, data visualisation and human–computer interaction.’

#### Page 179

At the end of the second paragraph where the final sentence ends ‘...(Johannes et al., 2019).’ (line 25), the following text should be inserted:

‘Psychology therefore has a tendency to consider why new technology is harmful at such a high-level to the point where it struggles to be involved productively when the same technology becomes a key component of everyday life. Genuine harms are very real and we only now starting to better understand issues that pertain to unequal access, cyberbullying, misinformation and security vulnerabilities. However, these harms are not specific to smartphones. They are universal and are as relevant to software developers as they are to behavioural scientists.’

#### Page 180

The sub-heading ‘Interdisciplinary Research, Speed and Productivity’ should read ‘Speed, Productivity and Interdisciplinary Research’.

The abbreviation for ‘Research Excellence Framework’, first mentioned on line 20, should appear in parentheses immediately after as ‘(REF)’. This abbreviation is used henceforth.

After ‘...(Martin, 2011).’ on line 21, an additional sentence should be inserted and read ‘It also determines how much funding is allocated to each institution by the UK Government’.

#### Page 182

From line 11 the text that begins ‘For example,...’ should read:

‘For example, publication expectations placed on researchers in terms of the REF appear on paper to be somewhat incompatible with an (often fundable) interdisciplinary research agenda (REF 2021, n.d.). Beyond impact, papers make up the bulk of REF outcomes, but these publications are submitted to traditional subject panels. Psychology, psychiatry and neuroscience form a single panel for example. Unfortunately, every discipline has its own hierarchy of what might be considered excellent research. While such hierarchies or related metrics like impact factor, are not meant to directly impact REF outcomes, having specific papers in the ‘right’ places remains core to hiring, probation and promotion.

Researchers who wish to pursue such a line of enquiry are driven to publish across multiple fields by default, to meet both personal research goals and those determined by their primary discipline in order to ensure long-term success. This can place early-career academics under significant pressure as they attempt to establish themselves as future leaders. Attempts to mold findings or methods to a specific journal can come at the expense of conducting the best science possible. This can also reduce the potential impact of work that might be better placed elsewhere and capture a readership who can put the research into practice.’

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At line 17 from ‘Many perhaps...’, the text should continue as originally written.

Page 223

The paper below is cited on page 105 as ‘(Boyd, 2020)’ and then as ‘(Boyd et al., 2020)’ on page 110. However, the full citation is missing from the Chapter 4 reference list and should appear as:

Boyd, R. L., Pasca, P., & Lanning, K. (2020). The personality panorama: Conceptualizing personality through big behavioural data. *European Journal of Personality*, 34(5), 599-612.