Validating the Episodic Empowerment Scale: Integrating psychometrics into experimental social psychology

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Abstract

Validating the psychometric properties of self-report manipulation checks has been largely ignored in experimental social psychology. This issue is notable in the increasingly popular experimental research on power. While various power manipulations have been developed, relatively little attention has been given to the creation of valid and reliable self-report manipulation checks, which usually consist of a single item. Further, it is unclear whether existing measures of power adequately capture the episodic nature of power manipulations. With the aim of addressing these issues, this thesis presents preliminary research on the validation of an episodic measure of empowerment: The Episodic Empowerment Scale (EES). In this study, participants (n=125) were randomly allocated to a low- or high-power manipulation, and then completed the EES along with scales measuring related constructs in the nomological network (e.g., control, self-esteem, affect, and behavioural activation/inhibition). In addition to reporting on the initial development of the scale, this thesis reports on its internal consistency, reliability, and construct validity across the high and low power conditions. Further, it investigates the sensitivity of the EES to detect changes in power compared to established measures in an experimental setting. Based on this study, the EES represents a brief, valid, and sensitive measure for capturing episodic empowerment. Findings are discussed within the broader context of validating self-report manipulation checks and the importance of employing robust and modern psychometric techniques in experimental social psychology research.

Declaration

This thesis contains no material which has been accepted for the award of any other degree of diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

Contribution Statement

The broad concept of this project had been discussed by my supervisors prior to my involvement. Embarking upon the thesis, I collaborated with my supervisors to generate and refine the main research questions and suitable methodology. I conducted the literature review, wrote the ethics application and pre-registered the study. I developed the survey instrument and managed its implementation on Qualtrics. I recruited participants through the Research Participation System and social media. My principal supervisor provided guidance on the application of relevant *R* coding and packages, and I conducted the statistical analysis. I generated all the output, including tables, and wrote the thesis.

Validating the Episodic Empowerment Scale: Integrating Psychometrics into Experimental Social Psychology

Power is an inescapable feature of the human experience. It is a driving force in social relationships, it pervades places of work and leisure, and its effects on behaviour can be profound (Galinsky et al., 2015). For social psychology, the study of power at the individual level has become increasingly popular over the past two decades, driven partly by innovations in the experimental manipulation of power, and partly by the development of novel ways of measuring power.

New methodologies have allowed researchers to manipulate individuals' sense of power. These innovations include recall tasks, where participants must reflect on a specific situation from their past in which they had an experience of feeling powerful (Galinksy et al., 2003). Other manipulations seek to activate feelings of power via semantic priming, or presentation of power-oriented words (Smith & Trope, 2006), visual priming, through the use of images of power (Torelli et al, 2012), or physical manipulations (Carney et al., 2010). In terms of measurement, the Personal Sense of Power Scale (PSPS; Anderson et al., 2012) was developed with the aim of capturing an individual's feelings of power. Since its inception, it has rapidly become one of the most widely used measures in power research, with over 700 citations in its first nine years of existence (Körner et al., 2021).

Taken together, these approaches have led to an abundance of research into individual power in the field of social psychology. However, experimental manipulations are useful only insofar as they genuinely influence the psychological domains that they claim to influence (Southward & Sauer-Zavala, 2020). Further, psychometric measures are only meaningful if they are valid, reliable, and sensitive to the construct they aim to capture (Flake et al., 2017). Yet, for both innovations, there is some question as to whether they fulfil these methodological and conceptual obligations. In the case of experimental manipulations, one of

the most important means of assessing their validity – the manipulation check – is not widely utilised; moreover, the vast majority of studies that do conduct manipulation checks do so using unvalidated, *ad hoc* measures (Chester & Lasko, 2021). In terms of measuring power, the PSPS was not developed to measure changes in state power as elicited by experimental manipulations; rather, it was designed to capture a sense of power in enduring relational contexts, in a manner more akin to a trait measure (Anderson et al. 2012).

There is an opportunity to address both of these limitations. The purpose of the current study is to develop and validate a scale that measures episodic empowerment, or the state changes in power that experimental manipulations are intended to evoke. Successful development of this scale provides researchers with a validated tool with which to perform manipulation checks. As a consequence, researchers will be able to assess the validity of experimental power manipulations with greater confidence and, as a corollary, enhance the verity and dependability of their findings.

The remainder of this section will proceed in two parts. First, I define power. I will then outline the emergence of power research at the individual level, particularly with regards to the development of power manipulations and the vital importance of ensuring the construct validity of these manipulations. The conceptualisation of power as either state or trait, and the consequence of this distinction for measurement are also explored. Second, I outline the steps and considerations involved in developing a new scale, drawing on relevant theories of power in order to refine my hypotheses.

Defining Power

For many scholars, power is the ability – either potential or actual – to influence others (Guinote, 2017; Anderson et al., 2012). Dahl (1957, p. 203) suggests that an individual has power if they can get another person to "do something that … [they] would not otherwise do". Others extend this definition to include the ability to control resources that are valuable

to people, and thus influence their feelings and behaviour (Emerson, 1962; Magee & Galinksy, 2008; Fiske, 1993). Power has also been framed as the ability to identify relevant rewards and punishments at the personal level; or to feel free from constraints in doing so (Leach et al., 2017).

This thesis incorporates elements from across these definitions and adopts the perspective of Lammers and colleagues (2016): Power can be subjectively experienced as the *ability to* influence others, but it may also encompass *freedom from* the influence of others. By using this definition, we aim to avoid reductively distilling power to, or confounding it with, simply control or simply autonomy. Though incorporating subtlety different elements, previous research nonetheless suggests that power, in terms of its factor structure, is a unidimensional construct (Anderson et al, 2012; Körner et al., 2021).

Social Psychology and the Analysis of Individual Power

The systematic analysis of individual power has been a focus of social psychology since at least the middle of the Twentieth Century (e.g., Adorno et al, 1950; Milgram, 1963). Historically, social psychologists relied on attempts to manipulate the structural power of research participants, either through ethically dubious means (e.g., Milgram, 1963), or through assigning hierarchical roles to people in the form of manager-subordinate role play (e.g., Kipnis et al., 1976). While seemingly effective (Kipnis et al., 1976; Kipnis et al., 1980), later researchers speculated that structurally manipulating power may produce confounding effects, largely due to the way in which powerful people are normatively expected to act in those types of situations, rather than as a direct influence of power (Galinsky et al., 2003).

In response, Galinsky and colleagues (2003) developed the episodic power recall task. In these tasks, participants are asked to recall, and write about, a time when they personally experienced power: ‘High-power’ participants do so for a time where they felt that they possessed power, and ‘low-power’ participants do so for a time when they did not. Having

recalled this personally relevant experience, participants are then primed to feel powerful or not, depending on their assigned condition (Galinsky et al., 2003). The episodic recall task is simple to administer and, since its introduction, has become one of the most widely used power manipulations in experimental social psychology, with over 2000 Google Scholar citations at the time of writing. Other power manipulations have also emerged. Some aim to elicit feelings of power through the use of power-related language (Anderson & Galinsky, 2006), while others employ visual imagery (Torelli et al., 2012). Physical manipulations have also been used to evoke individual feelings of power, through actions such as hand gestures (Schubert & Koole, 2009), changes to posture (Carney et al., 2010), and altering seating positions (Briñol et al., 2007).

This proliferation of power manipulations has afforded researchers an abundance of methodologies for experimental studies. However, as Festinger (1953, p.145) observed, "it is rarely safe to assume…that the operations used to manipulate variables will be successful". Indeed, the extent to which an experiment can test its hypotheses depends, among other things, on the ability of the independent variable to manipulate its intended target (Wilson et al., 2010). In other words, it is essential to ensure that these power manipulations demonstrate construct validity. This is of paramount importance to a field such as social psychology that has, in recent years, been subject to considerable criticism due to issues of replicability (e.g., Camerer et al., 2018).

The Challenge of Construct Validity in Experimental Power Manipulations

Researchers in social psychology have argued for some time that experimental manipulations should be examined empirically before being employed, to ensure that they have an effect on the intended construct (Cook & Campbell, 1979). Others have proposed that the development of manipulations should be subject to the same stringent methodological considerations that are typically used when designing new measurement scales (Shadish et

al., 2002). Each of these approaches are vital in ensuring the construct validity of those manipulations. Yet they are infrequently utilised in social psychology. Instead, the validation of manipulations has tended to be done in a relatively informal manner, and through the use of comparatively simple techniques: Manipulation checks (Ejelöv & Luke, 2020; Hauser et al., 2018).

Manipulation checks are measures designed to detect whether a manipulation exerted an influence on the intended construct (Ejelöv & Luke, 2020). They generally consist of a small number of questions that try to gauge participants' perception of, or reaction to, their assigned experimental condition (Hoewe, 2017). In the case of power, they should be able to determine whether the power manipulation had an effect on the conceptual construct of power. In the absence of a such a check, researchers cannot be certain that a power manipulation had an influence on participants' perceived sense of power (Hauser et al., 2018). Rather, they must accept, at face value, that their chosen manipulation had the effect they expected of it: A far weaker form of validity (Chester & Lasko, 2021).

Despite the importance of manipulation checks, there is evidence to suggest that they are not widely used. A recent meta-analysis found that only around one-third of experimental manipulations in social psychology research were subject to a manipulation check (Chester & Lasko, 2021). Of these manipulation checks, less than five per cent were conducted using a validated measure; the remainder consisted of unvalidated, *ad hoc* checks created by the researchers for the purposes of their study (Chester & Lasko, 2021). The significance of these findings cannot be overstated: The majority of research using manipulations in social psychology does not assess the construct validity of those manipulations. Where validation is attempted, it is overwhelmingly done through the use of unvalidated measures. If researchers cannot be sure that their experimental manipulations are valid, then there is cause to doubt the veracity of findings that emerge from such research.

Conceptualising and Measuring Power: State or Trait?

The growth of power research, coupled with the apparent lack of validated measurement checks more broadly, presents an opportunity: To find, or develop, a measure that is able to fulfil the role of measurement check. The most widely used measure of personal power in social psychology is currently the PSPS (Anderson et al., 2012). However, this scale was developed and validated as a measure of power in specific and enduring socio-relational contexts. For instance, the scale asks participants to rate their agreement with statements such as, "I think I have a great deal of power", but it prefaces these statements with specific instructions, such as, "In my relationship with my mother…", "In my sorority…", and "In my relationships with others…" (Anderson et al., 2020, p.344). By framing power within certain social contexts, it is possible that the PSPS elicits from participants a generalised response. For instance, there is no opportunity for a participant to respond that, in some situations, they feel very powerful within their sorority, but in other situations *with the same group*, they feel powerless. There is some empirical evidence in support of the argument that the PSPS may not be sufficiently sensitive to episodic changes in state power. Several studies have found no effect of established power manipulations when using the PSPS (Deuter et al., 2016; Heller & Ullrich, 2017; Khademi et al., 2021). Thus, the PSPS arguably captures trait, rather than state, power.

It is possible to conceptualise power as both state and trait. The latter, as alluded to above, may be viewed as the habitual sense of power an individual feels in a general sense (Chen et al., 2009). In contrast, state power refers to the feeling of power an individual has in a given moment (Schmidt-Barad & Uziel, 2020). The current thesis extends upon the concept of state power by proposing the construct of episodic empowerment. There are two elements that distinguish episodic empowerment from a more generalised understanding of trait power, and align it more closely with the type of power elicited by power manipulations. First,

episodic empowerment is inherently transitory: It refers to state, not trait, power. The power manipulations referred to above do not change an individual's amount of structural power in an objective way; rather, they prime power in a temporally limited way (Galinsky et al., 2015). A valid check on these manipulations should incorporate the fleeting nature of this type of power.

Second, episodic empowerment involves the gaining of power (or the loss of power in the case of episodic *dis*empowerment) in a specific situation. As such, there is a fundamental change in the amount of power the perceives themselves able to exercise. Notably, this conceptualisation of episodic empowerment allows for there to be incongruity between trait and state power. It acknowledges that an individual may gain or lose power in any situation. Indeed, there may be situations in which an individual possesses objective power, but feels disempowered, and vice versa (Galinksy et al., 2015).

Therefore, the development of a scale that measures episodic empowerment would provide researchers with an important tool for gauging the construct validity of their power manipulations, and thus enhancing the credibility and dependability of their findings.

Scale Development

Development of new measurement scales generally proceeds in three stages: Item development, scale development, and scale evaluation (see Boateng et al., 2018 for a review). While item and scale development will be discussed in the Methods section of this thesis, scale evaluation requires additional theoretical scaffolding and is discussed here. The purpose of scale evaluation is to test the reliability and the validity of the measure. To test the former, well-established means such as coefficients alpha and omega may be used (Flora, 2020). Different types of validity are involved in the latter: Concurrent validity (the extent to which the new scale is associated with existing measures of the same construct at the same time), convergent validity (the extent to which the scale correlates with measures of similar

constructs), and discriminant validity (the extent to which the construct being measured is different from other constructs) (Boateng et al., 2018).

In establishing these forms of validity, it is necessary to place the latent construct being examined – in this case, episodic empowerment – within a nomological network. A nomological network is a conceptual collection of relationships that the latent construct has with other constructs; closely related constructs will display stronger associations than more distantly related constructs (Chester & Lasko, 2021). Determining the relationships that constitute a particular nomological network should be driven by relevant theory (Gray, 2017).

To develop the nomological network for episodic empowerment, this thesis draws on the approach-inhibition theory of power (Keltner et al., 2003), which has been widely adopted in social psychology research (Galinsky et al., 2015). This theory posits that higher levels of power activate an individual's behavioural approach system, whereas low power activates the behavioural inhibition system (Keltner et al., 2003). The result is that those with power are more likely to display approach behaviours, such as pursuing goals or seeking rewards, while those without power are more likely to be behaviourally inhibited, guarding themselves against danger through increased vigilance to threats (Kelter et al., 2003).

In this section, I will discuss the constructs within the nomological network of episodic empowerment, and how they inform my hypotheses.

Trait power

It is common practice in establishing concurrent validity to employ an established, gold-standard measure against which to compare a new scale (Boateng et al., 2018). The PSPS is the most widely used power measurement scale in social psychology (Galinsky et al., 2015), and will fulfil this role in the present study. Though I argue that trait power and episodic empowerment are distinct constructs, they are not likely to be entirely independent

(Schmidt-Barad & Uziel, 2020) and, as such, there is likely to be a positive association between episodic empowerment and trait power.

Affect

Positive affect makes it easier to pursue goals: An approach-oriented behaviour (Higgins, 1992). Further, there are physiological indicators of the approach system that are associated with more positive affect, such as increased left frontal lobe activity and dopamine release (Ashby et al., 1999; Sutton & Davidson, 1997). However, empirical findings related to power and affect present a mixed picture, with some research suggesting a link, but several studies finding no relationship (Berdahl & Matorana, 2006; Galinksy et al., 2003; Gonzaga et al., 2008; Langner & Keltner, 2008; Rucker & Galinksy 2008; Schmid-Mast et al., 2009; Smith & Bargh, 2008; Weick & Guinote, 2008). Galinksy et al. (2003, p. 436) have argued that more research is needed to understand when power does or does not affect one's emotions. We suggest that, rather than power itself, it is the gaining or losing of power that may evoke an affective response, such that empowerment elicits positive emotions and disempowerment elicits negative emotions.

Behavioural activation / inhibition

The approach-inhibition theory of power suggests that people who possess power demonstrate a "generalised approach orientation" (Guinote, 2017, p. 361). People who have, or gain, power are more confident (Fast et al., 2009). They are more prone to action (Galinsky et al., 2003) and less vigilant towards threats or potential losses (Willis et al., 2011; Inesi, 2010). Conversely, individuals with low levels of power tend to inhibit their behaviours and are more attuned to potential threats (Gray & McNaughton, 2000). Carver and White (1994) developed a set of measures to capture behavioural activation and inhibition, and it is expected that the newly developed scale would correlate positively with activation, and negatively with inhibition.

Self-esteem

People in positions of power have greater self-esteem compared to those with low power (Fast et al., 2009; Wojcizske & Struzynska-Kujalowicz, 2007). Further, power has been found to increase an individual's confidence in their own knowledge and abilities (Tost et al., 2012). It also appears that power may improve an individual's perception of physical reality: Individuals who have been subject to high-power manipulations view themselves as physically taller than they actually are (Duguid & Goncalo, 2012), and also tend to underestimate the height of others (Yap et al, 2013). As such, I anticipate episodic empowerment to be associated positively with self-esteem.

Sense of control

Control – particularly over valued resources – is regarded as an important element of power (Magee & Galinksy, 2008; Fiske, 1993). However, it is not simply the amount of control one possesses, but rather one's perception of that control, that is likely to be associated with empowerment: Being able to control a resource is unlikely to affect a person's sense of power if they do not know, or do not believe, that they control the resource. Individuals who believe that they are able to exercise control over their lives are likely to also feel a sense of autonomy (Anderson et al., 2012; Körner et al., 2021). I therefore expect a person's perceived sense of control over their lives to correlate positively with episodic empowerment.

Beliefs about power

One of the more novel recent approaches to exploring power can be found in the work of Ten Brinke and Keltner (2022). They propose that people tend to hold one of two beliefs about power: That it is gained and maintained either through coercive means, or through collaborative means. Coercive beliefs about power centre upon notions of ruthlessness, the importance of being feared and the use of force. Collaborative beliefs, in contrast, reflect

values of respect, morality and equity in the use of power (ten Brinke & Keltner, 2022). Motivated reasoning theory argues that people have a tendency towards biased reasoning in support of their actions and self-image (Kunda, 1990; Lodge & Taber, 2013). Further, social dominance theory suggests that people in positions of power hold beliefs that legitimise that power, whereas people without power are more likely to hold beliefs that delegitimise that power (Sidaneus & Pratto, 1999). Taken together, these factors would suggest that episodic empowerment has a positive association with collaborative theories of power, and a negative association with coercive theories.

Agreeableness

In order to gain a measure of divergent validity, it is important to include a variable with which episodic empowerment is not expected to correlate. Several studies have found no association between power and agreeableness (Körner et al., 2021; Anderson et al., 2012; Yazdi & Mustamil, 2015), and nor does it appear to have any theoretically justifiable association. Further, agreeableness is a trait construct, and should be conceptually distant from episodic empowerment.

The present study

This study aims to develop and test the psychometric properties of an Episodic Empowerment Scale (EES). It will do so by utilising established methods of scale development in conjunction with the power manipulation developed by Galinsky et al., (2003). The following hypotheses are drawn from the theoretical and empirical evidence presented above, and are tested in the present study.

Hypothesis 1: In line with previous research into the factor structure of power (Anderson et al, 2012; Körner et al., 2021), it is hypothesised that the EES will have a unidimensional factors structure.

Hypothesis 2: In line with the nomological network outlined above, there will be positive associations between episodic empowerment and:

a) trait power
b) positive affect
c) behavioural activation
d) self-esteem
e) sense of control
f) collaborative theory of power

There will be negative associations between episodic empowerment and:

g) behavioural inhibition
h) negative affect
i) coercive theory of power

There will be no association between episodic empowerment and:

j) agreeableness

Hypothesis 3: The new unidimensional scale will have adequate levels of internal consistency reliability.

Hypothesis 4: There will be a significant difference in scores on the EES between participants allocated to the high-empowerment condition compared to the low-empowerment condition.

Hypothesis 5: The EES will share similar associations with the other measured variables in both the high- and low-empowerment conditions. That is, I expect correlations between the EES and other measures to be statistically the same irrespective of condition.

Method

Transparency and Openness

The current study was preregistered at AsPredicted.org, and a copy of the preregistration document is included in Appendix A.

Previous research (Bartholomaeus et al., 2022) has reported an average effect size of $d = 0.71$ for the effect of power manipulations on empowerment, as measured using a scale that shared several items with the proposed episodic empowerment scale. An *a priori* power analysis indicated that, to detect an effect size of $d = 0.71$ at an alpha level of $\alpha = 0.05$ and a power level of $1–\beta = 0.95$, a sample of $N = 106$ was required. This sample size estimate provided a lower bound for detecting a significant difference between conditions.

While a formal *a priori* power analysis is not possible for an exploratory factor analysis (EFA; McCallum et al., 1999), simulation studies have suggested that, for factors with five to eight indicators and wide to high communality, samples should range between 100 to 140 participants (Mundfrom et al., 2005). I therefore aimed for a sample size towards the higher bound of this estimate. Inclusion criteria were that participants be over the age of 18 and able to provide informed consent. As the primary pathway for attracting participants was through a university research participation pool, I elected to end data collection at the end of the year's first semester.

Participants

Of the 198 responses recorded by the data collection platform, 70 were missing all item responses and so were excluded. In line with the pre-registration plan, three participants were excluded due to their survey completion time exceeding two standard deviations of the mean. All participants completed at least one of the instructed attention checks correctly.

Participants were 125 adults recruited from a first-year undergraduate university research participation pool and social media posts, both in Australia. The age range was 18 to

66 years (M = 21.2, SD = 7.62). Participants were 73.6% female (n = 92), 23.2% male (n = 29). Most participants (n = 81) reported Australian nationality (64.8%), with other notable national backgrounds being south Asian (15.2%), European (8.8%) and British (4.8%).

Procedure

The current study was approved by the University of Adelaide's Human Research Ethics Committee (number: 22/24). First-year psychology students at a large Australian university were invited to participate for course credit. The study was also advertised via social media posts on the author's Facebook page. It comprised a survey which was accessed online via the Qualtrics platform and took approximately 15 minutes to complete (see Appendix B). A survey preamble explained that participation was voluntary, and that withdrawal would not attract any adverse consequences.

Participants first provided informed consent and were then randomly allocated to one of two conditions: High-empowerment or low-empowerment. In the high-empowerment condition, participants were asked to recall a time where they felt empowered, and then to write 100-150 words about that experience. In the low-empowerment condition, participants were asked to do the same, but for a time where they had been disempowered. This manipulation is based on the work of Galinsky et al. (2003) and is one of the most widely used priming manipulations in the area of power research. The instructions for both conditions followed a similar script:

> In this section, I would like to know about a time when you felt [dis]empowered. Specifically, please recall a situation from your life in which you gained [lost] power. For example, think of a time when you took [lost] control of a situation; or a time in which you gained [lost] authority over others; or gained [lost] the freedom to do as you wished.

Participants in both conditions were then provided identical instructions on how to recall and record this experience:

> Take a moment to really re-live this event as vividly as possible. Please describe this situation in as much detail as you can—what happened and how did it make you feel?

All participants then completed 20 candidate items from the proposed episodic empowerment scale, presented in random order. This was followed by measures of trait power, self-esteem, affect, sense of control, behavioural activation/inhibition, lay theories of power, and agreeableness. This approach was based on previous studies that have successfully developed or validated power-related scales (Anderson et al., 2012; Körner et al., 2021). On completion of the online survey, participants provided demographic information, and were debriefed on the study's purpose and the randomisation process. Information on support services was also provided in case any of the questions or reflections had caused distress.

Measures

Episodic Empowerment Scale Development

Items were chosen for the new scale using a combination of deductive and inductive generation processes. Initial component items were based on the scale used by Strelan et al. (2020). Using a deductive approach, the author generated a larger item pool based on this scale and a review of the broader literature regarding power and empowerment. Items were further developed inductively through discussion with research colleagues and peers.

Preliminary content analysis was conducted through the judgement method (Boeteng, 2018; DeVellis, 1991). An independent review was conducted by a panel of four experts with the following profile: (i) University education at the postgraduate level in psychology, (ii) in-depth knowledge of social psychology, (iii) well-versed in the subject matter of

power/empowerment, and (iv) experience in conducting empirical research. The purpose of the expert review was to identify items that were appropriate, interpretable, and accurately captured the construct of episodic empowerment. The panel's feedback on interpretability and face validity was used to refine or remove items prior to distribution. Following this phase, a total of 20 items were included in the scale that was administered to participants.

The following measures were also used. Unless otherwise noted, scores on all multi-item scales were averaged, with higher scores indicating a greater degree of endorsement or presence of the construct.

Perceived Sense of Power Scale (PSPS)

The PSPS (Anderson et al., 2012) was used to measure trait power, and contains eight items (e.g., "In my relations with others, my opinions are often ignored"). Responses were rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The PSPS has demonstrated good internal consistency, with alphas ranging from .77 to .92 (Anicich et al., 2021; Duan et al., 2017). It displayed similar internal consistency in the present study (α = .88).

Scale of Positive and Negative Experience (SPANE)

To measure positive and negative affect, the SPANE scale was used (Diener et al., 2009). Twelve items captured affect, with six measuring negative (e.g., "Right now, I feel sad") and six measuring positive (e.g., "Right now, I feel joyful"). Participants were directed to focus on their current mood, in an adjustment to the scale's original instructions which uses the previous four weeks as its time frame. Responses were rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Good internal consistency has been demonstrated by both positive and negative SPANE subscales, with an alpha range of .80 to .93 for positive affect and .77 to .82 for negative affect (Jovanovic et al., 2021; Bartholomaeus et al., 2022).

In the present study, both the positive (α = .82) and negative (α = .88) SPANE scales showed similar internal consistency.

Behavioural Inhibition System/Behavioural Activation System (BIS/BAS) Scale

Behavioural inhibition and activation were measured using Carver and White's BIS/BAS Scale (1994). This scale yields two scale scores: The BIS score is assessed by seven items (e.g., "Criticism or scolding hurts me quite a bit") and the BAS score is assessed by 13 items (e.g., "When I want something, I usually go all out to get it"). Participants rated their responses on a 4-point scale from 1 (*very false for me*) to 4 (*very true for me*). Both subscales have demonstrated acceptable levels of internal consistency, with alphas ranging from .75 to .79 for BIS and .72 to .76 for BAS (Che et al., 2020; Franken et al., 2005; Vandeweghe et al., 2016). The BIS subscale in the current study displayed acceptable internal consistency (α = .78), as did the BAS subscale (α = .87).

State Self-esteem Scale (SSES)

Seven items of the SSES (α = .91 in the present study) were used to measure participants' sense of self-esteem at the time of responding (Heatherton & Polivy, 1991). Participants rated the extent to which they agreed with the items (e.g., "I feel displeased with myself") on a scale ranging from 1 (*not at all*) to 5 (*extremely*). All items on this scale were reverse coded, with a higher score indicating a higher level of state self-esteem. Internal consistency of the scale has been supported in previous research, with an alpha range of .72 to .88 (Linton & Marriott, 1996; Bozorgpour & Salimi; 2012; Brito et al., 2022).

Sense of Control Scale (SoCS)

The SoCS is a measure of a person's sense of control over their life (Lachman & Weaver, 1998). Respondents rated how much they agreed with twelve items on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Two subscales comprise the SOCS: The personal master subscale (e.g., "I can do just about anything I set

my mind to") and the perceived constraint subscale (e.g., "There is little I can do to change the important things in my life"). Scores on the latter subscale were reverse coded. Good internal consistency reliability has been reported for the SoCS with an alpha range of .85 to .87 (Robinson & Lachman, 2018; Ward, 2013). The current study found similar reliability of this scale (α = .87).

Theories of Power Scales (TOPS)

The TOPS was used to measure participants' beliefs about how power is gained and maintained (Ten Brinke & Keltner, 2022). Two scales comprise the TOPS: The coercive power scale (e.g., "Maintaining power requires ruthlessness"), and the collaborative power scale (e.g., "Gaining power requires collaboration with other individuals"). Participants rated their agreement with each item on a scale ranging from 1 (*strongly disagree)* to 7 (*strongly agree*). In a series of studies in which this scale was developed and validated, the authors reported internal consistency reliability alphas ranging from .82 to .89 for both the coercive and collaborative power scales (Ten Brinke & Keltner, 2022). In the present study, both the coercive power scale (α = .88) and the collaborative power scale (α =.91) demonstrated good internal consistency.

Big-Five Inventory Short Form (BFI-SS)

The agreeableness subscale of the BFI-SS (Soto & John, 2017) measured agreeableness using six items (e.g., "I'm someone who assumes the best about other people"), three of which were reverse coded. Participants responded on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The agreeableness subscale has demonstrated internal consistency reliability in previous research, with alphas in the range of .72 to .83 (Gurven et al., 2013; Balgiu, 2018). Acceptable reliability was also found in the present study (α = .71).

Statistical Approach

Analyses were conducted with the *R* statistical package (Macintosh version 2022.02.3; R Core Team, 2022). Ancillary analysis packages used in *R* included *psych, EFA tools, car, MBESS, cocron,* and *cocor*.

EFA was used to determine the factor structure of the new scale, and in item reduction. Bartlett's test of sphericity (Bartlett, 1950) was used to ensure that significant correlations existed among variables within the dataset. The Kaiser-Meyer-Olkin (KMO) statistic (Kaiser & Rice, 1974) was used to assess sampling adequacy, and was required to exceed 0.7. Extreme multicollinearity and singularity were screened for using the determinant of the R-matrix, which was required to be less than 0.00001 (Field, 2018).

In line with the advice of Velicer et al. (2000), parallel analysis was used in conjunction with visual inspection of Scree plots and Eigenvalues to determine the appropriate number of factors to retain. As per Norman and Streiner (2014), coefficients greater than .3 were considered salient. An iterative approach was used for item reduction, such that items with the lowest loading pattern coefficients were removed at each iteration. The root mean square error of approximation (RMSEA) and the Tucker Lewis Index (TLI) were used to guide this process, with target values of RMSEA < .05 and TLI > .95 (Marsh et al., 2004).

Upon completion of the EFA and final selection of items for the EES, coefficients alpha and omega were calculated to test Hypothesis 3. In order to explore Hypothesis 2, zero-order correlations were calculated between the EES and all other psychometric measures. A t-test was used to compare the difference in scores between the high- and low-empowerment conditions, in line with Hypothesis 4. Finally, and to test Hypothesis 5, Fisher's Z-transformation (Fisher, 1915) was used to compare the magnitude of correlations between the EES and other measures based on condition (i.e., high-empowerment vs. low-empowerment).

Results

In this section I first report on initial data screening, followed by the factor structure and item selection of the EES. I then report on the new scale's reliability, followed by the associations with other psychometric measures within the nomological network. Following this, the results of between-group comparisons regarding episodic empowerment and correlations are reported. Finally, I report the findings of two additional exploratory analyses.

Data Screening

The determinant of the R-matrix was < 0.00001, and the KMO statistic was .93. The result of Bartlett's test of sphericity was significant, $\chi^2(190) = 1863.07$, $p < .001$. The correlation matrix was therefore deemed suitable for factor analysis.

Factor Structure of the Episodic Empowerment Scale

Initial inspection of Eigenvalues and parallel analysis suggested that three factors should be retained (see Table 1), while visual inspection of the Scree plot suggested a single factor. As a unidimensional factor structure was anticipated and theoretically appropriate, both the three- and one-factor solutions were examined in sequence.

The EFA revealed a very strong unrotated first factor, accounting for over half (53%) of total item variance. The second largest factor accounted for only 4.4% of the variance (Table 1). Further, the three-factor solution was not adequate: Though six items loaded saliently on the third factor, two of these items also loaded onto the first factor. Further, the remaining four items ("I feel weak", "I feel exploited", "I feel inferior", "I feel ignored") constituted the only four negative items in the scale. There is evidence that the use of negatively worded items may induce systematic measurement error into self-report surveys (DiStefano & Motl, 2006; Quilty et al., 2006). Indeed, some studies have found that the use of mixed valence wording can introduce method effects such that additional constructs are

Table 1.

Eigenvalues, percentages of variance and cumulative percentages for unrotated factor for 20 candidate items of EES

Factor	Eigenvalue	% of variance	Cumulative %
1	10.53	52.6%	52.6%
2	1.35	4.4%	57.0%
3	1.17	3.8%	60.1%

observed beyond those anticipated theoretically (Marsh et al., 2010; Zeng et al, 2020). On the assumption that this was an example of such a method effect, and on the basis of the strong unrotated first factor, factor analysis proceeded based on a single factor using the maximum likelihood factoring method.

Item Analysis

Items were removed iteratively, with the lowest pattern coefficients being eliminated at each step. In Model 1, all items were retained. In Model 2, items with factor loadings < .5 were removed. In Model 3, factor loadings < .65 were removed. In Model 4, items with factors loadings < .7 were removed, and in Model 6, only items with a factor loading exceeding .8 were retained. Once the RMSEA and TLI target values were achieved, model modification ceased, and model 6 was accepted. Model 6 accounted for the largest proportion of variance, as well as the most appropriate fit as determined by the RMSEA and TSI TLI indices. Table 2 outlines this process, along with item loadings, the proportion of variance explained by each model, RMSEA, and TLI.

Table 2.

Item reduction during EFA: Item loadings, proportion of variance explained, RMSEA and TLI.

Item	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Factor loadings					
1	0.795	0.795	0.801	0.812	0.814	0.801
2	0.869	0.870	0.873	0.882	0.872	0.855
3	0.856	0.858	0.857	0.857	0.882	0.884
4	0.811	0.811	0.811	0.804	0.824	0.836
5	0.881	0.883	0.880	0.874	0.866	0.882
6	-0.640	-0.632				
7	0.694	0.692	0.696			
8	-0.421					
9	0.788	0.788	0.782	0.772		
10	0.623	0.626				
11	0.753	0.753	0.760	0.771		
12	0.797	0.800	0.809	0.827	0.795	
13	0.662	0.660	0.655			
14	0.738	0.736	0.726	0.698		
15	0.727	0.729	0.731	0.742		
16	-0.470					
17	0.705	0.708	0.710	0.708		
18	-0.644	-0.635				
19	0.703	0.703	0.696			
20	0.711	0.708	0.698			
Proportion of variance explained	52.4%	55.9%	59.1%	63.6%	71.0%	72.6%
RMSEA	0.102	0.103	.119	.127	.083	0
TLI	0.851	0.87	.868	.896	.977	1.02

Note. RMSEA = Root mean square of approximation index; TLI = Tucker-Lewis Index

Descriptive Statistics and Reliability Analysis

The resulting five-item scale demonstrated excellent internal reliability consistency, with an overall coefficient alpha of .93, $CI_{95\%}$[.91,.95] and omega of .93, $CI_{95\%}$[.91,.95]. The five items retained from the 20 candidate items are outlined in Table 3.

Table 3.

Items retained in the Episodic Empowerment Scale

Item	Description
1	Right now, I feel confident
2	Right now, I feel empowered
3	Right now, I feel that I have power
4	Right now, I feel like I am in charge
5	Right now, I feel that I can take charge of situations

Scale reliability could not be improved by the removal of any further items (see Table 4). This five-item Episodic Empowerment Scale was used in all subsequent analyses, and is hereafter referred to as the EES.

Table 4.

Descriptive statistics and item analysis for Episodic Empowerment Scale (EES)

Item	Mean	SD	skew	Kurtosis	h^2	Alpha if item deleted
1	4.36	1.69	-0.25	-0.91	0.64	.92
2	4.36	1.70	-0.32	-0.91	0.73	.91
3	4.40	1.62	-0.36	-0.84	0.78	.91
4	4.08	1.72	-0.30	-0.88	0.70	.92
5	4.70	1.70	-0.55	-0.60	0.78	.91

Hypothesis Testing: The Nomological Network

All associations between the EES and related psychometric measures were in the expected directions (see Table 5). Strong positive, significant associations were observed between empowerment and trait power, positive affect, control, and behavioural activation. High negative correlations were observed between scores on the EES, negative emotions and behavioural inhibition, all of which were significant. Small to moderate significant correlations were found between EES and self-esteem as well as theories of power. No association was observed between the EES and agreeableness.

Table 5.

Nomological validity of the EE Scale: Zero-order correlations with dependent measures

Measure	Expected correlation	Observed correlation (*r*)	*p*-value
Trait power	+	.55	< .001
Negative affect	-	-.61	< .001
Positive affect	+	.66	< .001
Behavioural activation	+	.54	< .001
Behavioural inhibition	-	-.51	< .001
Self-esteem	+	.29	< .001
Sense of control	+	.60	< .001
Collaborative theory of power	+	.31	< .001
Coercive theory of power	-	-.30	< .001
Agreeableness	0	-.01	.873

Hypothesis Testing: Between-group Difference

As predicted, participants in the high-empowerment condition (M = 4.91, SD = 1.56) scored significantly higher than participants in the low-empowerment condition (M = 3.83, SD = 1.20) on the EES, $t(112.77) = 4.31$, $p < .001$.

Hypothesis Testing: Comparing Correlations

The correlations between scores on the EES and other psychometric measures were statistically the same, irrespective of empowerment condition. Notably, for agreeableness, the association with empowerment in the low-empowerment condition (r = -.289) was negative, whereas in the high-empowerment condition (r = .143) it was positive. However, this difference was not statistically significant when adjusting for multiple comparisons (see Table 6).

Additional Exploratory Analysis

To further explore the robustness and sensitivity of the new EE Scale, two additional analyses were conducted.

First, the coefficient alphas for the EES were compared between conditions, using the methods developed by Feldt et al. (1987). There was no significant difference between the coefficient alphas in the high-empowerment condition (r = .90) compared to the low-empowerment condition (r = .93), $\chi^2(1) = 1.28$, p = .258.

Second, to explore the sensitivity of the EES when compared to existing measures of power, an independent samples t-test was conducted on responses to the PSPS (Anderson, 2012), which measured trait power. As reported above, scores on the EES were significantly different between the high- and low-empowerment conditions. However, the independent t-test revealed that there was no significant difference in trait power between the high-empowerment (M = 4.38, SD = 0.99) and low-empowerment (M = 4.38, SD = 1.02) conditions, $t(122.96) < .001$, p = .999.

Table 6.

Comparison of correlation coefficients between EES and dependent measures across Empowerment conditions

Measure	Low Empowerment correlation coefficient (n=61)	High Empowerment correlation coefficient (n=65)	Fisher's z-score	p-value
Trait power	.517	.694	-1.54	.122
Negative affect	-.590	-.572	-.148	.882
Positive affect	.584	.684	.917	.359
Behavioural activation	.567	.495	.548	.584
Behavioural inhibition	-.531	-.466	-.472	.637
Self-esteem	.363	.400	-.236	.813
Sense of control	.678	.481	1.64	.102
Collaborative theory of power	.301	.134	.959	.338
Coercive theory of power	-.248	-.333	.507	.612
Agreeableness	-.289	.143	-2.41	.016

Note. A Bonferroni-adjusted alpha of .005 was used to control for family-wise error.

Discussion

The aim of the present study was to develop and test the psychometric properties of a scale to measure episodic empowerment. Results support Hypothesis 1, in that the EFA yielded a single factor solution for the construct of episodic empowerment. Hypothesis 2 was also supported through the expected correlations between the EES and related constructs within the nomological network: Trait power, affect, behavioural activation and inhibition, self-esteem, sense of control, and lay theories of power. The direction and magnitude of these correlations was similar to previous research that has sought to develop or validate scales to measure power (Anderson et al., 2012; Kocur & Mandal, 2018; Körner et al., 2021; Wang, 2015). The high levels of internal consistency reliability demonstrated by the EES support Hypothesis 3 and are in line with similar measures reported by Anderson et al. (2012), Körner et al., (2021) and Van Kleef et al. (2015). The EES also detected a significant difference between the high- and low-empowerment conditions, supporting Hypothesis 4. Results support Hypothesis 5, in that the correlations between EES and related measures were statistically the same across both the low- and high-empowerment conditions. Finally, additional exploratory analysis demonstrated that the internal consistency reliability of the EES was stable across both conditions, and that the most widely used existing measure of power – the PSPS – did not detect an effect of the power manipulation.

Theoretical Implications

The factor structure and reliability of the EES

The first contribution of the current study is in supporting the conceptualisation of episodic empowerment as a unidimensional factor. Previous research has tended to view power (in its trait form) as unidimensional (see Galinksy et al., 2015 for a review), as does the preeminent existing scale used in most power studies in social psychology (Anderson et al., 2012). The current study differs from these conceptualisations only in its emphasis on the

transient nature of empowerment (as opposed to the enduring nature of trait, or generalised, power), and thus it is encouraging that the factor structure of EES reflects existing research.

In addition, the newly developed EES demonstrated internal consistency reliability with coefficients alpha and omega both exceeding .90. The internal consistency reliability of the EES therefore surpasses most common thresholds for acceptability in both alpha and omega (Flora, 2020; Revelle & Zinbarg, 2009). Moreover, it is notable that the EES comprises just five items. Coefficient alpha is known to increase as the size of an instrument increases (Cortina, 1993). Thus, for the EES to yield a coefficient exceeding .90 while remaining concise suggests genuine reliability as opposed to this reliability being merely an artefact of survey length.

Delineating episodic empowerment and trait power

A second theoretical contribution is in helping to distinguish between concepts of trait power and episodic empowerment. The positive correlation between EES and trait power was expected. Though this thesis argues that episodic empowerment is distinct from habitual, trait power, that is not to say that the two constructs should be considered entirely independent of one another (Schmidt-Barad & Uziel, 2020). For instance, individuals who are chronically powerful may be more likely to behave in a manner that increases their feelings of empowerment across contexts (see Bandura, 1999). In contrast, those who are habitually low in power may be predisposed to inhibit their behaviours and avoid risk, which may reduce their feelings of empowerment in a given situation (Keltner et al., 2003). The correlation between scores of the EES and trait power, while strong, was not so high as to suggest redundancy, providing a measure of discriminant validity between the two constructs.

Moreover, previous studies that have compared trait and state measures of the same construct have reported correlations of similar magnitude to those observed in the current study. For instance, Vitasari et al. (2011) found that state and trait measures of anxiety were

significantly associated at r = .61, while Deffenbacher et al. (1996) reported a significant correlation of r = .55 between state anger and trait anger. These associations are comparable to the r = .55 observed in the present study. Taken together, this correlation and its consistency with existing research helps add additional support to the discriminant validity of the EES.

The nomological network and broader theory of power

Construct validity of the EES was supported through the correlations with associated constructs in the nomological network. These were significant and in the hypothesised directions for behavioural activation, behavioural inhibition, positive affect, negative affect, and self-esteem. Together, these findings support the approach-inhibition theory of power proposed by Keltner et al. (2003). Strong correlations were observed in the present study between the EES and affect (r = -.61 for negative emotions and r = .66 for positive emotions) as well as behavioural activation and inhibition (r = .54 for activation and r = -.51 for inhibition). Each of these hypothesised associations were derived from the approach-inhibition theory of power.

Previous research has attempted to explain the pathway between the behavioural approach/inhibition systems and affect in a number of ways. For instance, increased dopamine and activity in the left frontal lobe – key indicators of the approach system – have been associated with greater positive affect (Ashby et al., 1999; Merchan-Clavellino et al., 2019; Sutton & Davidson, 1997). Further, physiological markers of behavioural inhibition, such as activity in the right frontal cortex, correlate with negative emotions (Biuckians et al., 2007; DePue, 1995). Several studies have also linked greater trait power to more positive affect (Berdahl & Martorana, 2006; Langner & Keltner, 2008; Gonzaga et al., 2008; Schmid-Mast et al., 2009). The current study extends these findings by demonstrating a positive association between episodic empowerment and behavioural activation and positive affect,

and a negative association with behavioural inhibition and negative affect. It is likely, therefore, that episodic empowerment elicits similar responses to the behavioural activation and inhibition systems as trait power, which account for the observed associations. Given the mixed findings of previous research regarding power and affect, the current study lends support to the proposition that it is the *process* of gaining (or losing) power that elicits an affective response, and not simply the habitual possession of power.

The association between EES and self-esteem, though significant and in the expected direction, were comparatively modest. It may be that self-esteem is more sensitive to longer-term changes in trait levels of power rather than transient fluctuations in episodic empowerment. For instance, a recent study by Braun et al. (2022), found that trait measures of self-esteem captured greater proportions of variance than state measures. If self-esteem is more a trait than a state, then the causal impact of episodic empowerment is likely to be weaker, and thus the correlation lower. Chester and Lasko (2021) refer to this as the nomological 'shockwave': A diminishing association between the target construct (in this case episodic empowerment) and associated constructs as those constructs become theoretically more distant. An interesting avenue of future research would be to include both state and trait measures of self-esteem as dependent variables in a power manipulation study, in order to test this supposition.

The correlations between EES and lay theories of power were also significant and in the predicted directions: Positive for collaborative theories of power and negative for coercive theories of power. This may also provide indirect support to the approach-inhibition theory of power. One of the tenets of this theory is that behavioural inhibition is associated with greater vigilance to threats and potential danger (Keltner et al. 2003). Individuals that have been primed to feel disempowered may perceive those who possess power to be a potential threat (see Ten Brinke & Keltner, 2021).

In the current study, the power manipulation specifically instructed participants in the low-empowerment condition to remember a time when they "lost power…lost authority over others or…lost the freedom to do as [they] wished". In each of these instances, it is conceivable that such lost power may have been awarded to another individual, which in turn may provoke feelings of mistrust, anger or vigilance towards that person (Keltner et al., 2003). Such feelings could lead to a more generalised distrust of both those in power, and the means by which they came to possess it. For example, Tan and Kraus (2018) found that people with chronically low levels of power are less trusting and more cynical of both those in power, and of political systems more generally. Similarly, Brandt et al. (2014) reported lower levels of trust in politics and society for those with a lower socioeconomic status. The current study adds to these findings in that episodic empowerment, and not just trait power, may also elicit such beliefs about power.

In contrast, the association between EES and collaborative theories of power supports elements of both motivated reasoning theory and social dominance theory. Firstly, individuals are likely to display biases in support of their position and self-image, such that the self is viewed in a positive light (Lodge & Taber, 2013). It is likely that people in possession of power – even if that power is only transient, in the form of episodic empowerment – will believe this power to be legitimately gained (Sidaneus & Pratto, 1999). The theories of power scales (Ten Brinke & Keltner, 2021) are a relatively new construct, and future research would benefit from further exploration of their associations with empowerment.

Finally, no correlation was observed between EES and agreeableness, as predicted. This is consistent with previous research (Körner et al., 2021; Anderson et al., 2012; Yazdi & Mustamil, 2015), and helps lend further discriminant validity to the construct of episodic empowerment. Generally, elements of the Big Five Personality Inventory are viewed as

enduring traits (Soto & John, 2017), and thus are not likely to be especially sensitive to state changes in empowerment. Further, from a theoretical perspective, there are few grounds to suggest that episodic empowerment would lead to changes in agreeableness.

Practical Application: EES and Manipulation Checks

The central practical contribution of the current study is in demonstrating the construct validity of a scale that measures episodic empowerment. The EES represents a brief and robust scale that could be gainfully employed as a manipulation check in power research. Crucially, the EES has demonstrated sensitivity to arguably the most widely used power manipulation in social psychology: Galisnky and colleagues' (2003) recall manipulation. The use of manipulation checks is fundamental to the validity of studies that utilise power manipulations. However, a recent systematic review by Chester and Lasko (2021) found that only one-third of power-related studies employed such a check. Further, the same review reported that over 95% of those studies that did use a manipulation check did so with an *ad hoc* measure that had not been previously validated (Chester & Lasko, 2021). The development of the EES as a brief, sensitive, and valid measure of a manipulation's effect and accuracy is thus an important contribution to experimental social psychology.

Notably, in the current study, the primary existing measure used in power manipulation research – the PSPS – found no difference between the high- and low-empowerment conditions. This suggests two things: First, that the two scales may be measuring different constructs, as predicted, with the EES capturing the episodic nature of empowerment, and the PSPS measuring trait power. Second, that the PSPS is not as sensitive to transient changes in state power (i.e., episodic empowerment). This lends further support to the use of EES in studies requiring either a manipulation check, or a dependent measure of empowerment.

It is important to note, however, that the PSPS scale developed by Anderson et al. (2012) has been used widely in power research and generally, though not exclusively (e.g., Deuter et al., 2016; Heller & Ullrich, 2017; Khademi et al., 2021) does appear sensitive to power manipulations. It is possible that methodological factors in the current study had an impact on responses to the PSPS and not the EES. For example, the EES was placed at the beginning of the survey for all participants, while the PSPS appeared later. Order effects are a well-documented phenomenon in psychology research (see Strack, 1992), and it is possible that the order in which measures were presented in the survey influenced respondents' answers to subsequent scales. Additionally, though completion time for the entire survey was less than 15 minutes in most cases, it is not known for how long the power manipulation primed the respondent. Thus, the potency of the power manipulation may have waned between participants completing the EES and the PSPS, resulting in no difference between groups later in the survey. Nonetheless, the current study provides promising evidence that the EES may be a more sensitive measure of empowerment compared to existing scales, and would thus provide a valuable manipulation check for experimental research.

Limitations and Future Directions

The current study has limitations. Firstly, it relied on a sample of convenience that was largely drawn from a student population with a mean age of 21.2 years. There are considerable grounds for doubting the generalisability of results from such a specific group to broader populations (Henrich, 2010). For instance, it is very likely that university-age students have a different understanding of power and empowerment compared to individuals with more "worldly experience" (Anderson et al., 2012, p. 337). Similarly, though the sample was reasonably diverse in terms of nationalities, almost two-thirds of the participants were Australian, and only one participant reported being of an Aboriginal or Torres Strait Islander background. Not only are minority groups' experiences of power different from majority

groups (Bloemraad & Schönwälder, 2013), but these experiences may also vary for each individual ethnic group (Booth et al., 2011). It would therefore be extremely valuable to identify any cross-cultural differences that may exist in the experiences of episodic empowerment.

Further, the current study did not explore any differences in episodic empowerment based on demographic factors such as gender, education or socioeconomic status. Future research would benefit from their inclusion in analyses for two key reasons. First, it would permit some examination of the boundary conditions of the empowering effects that were observed. Gender, for instance, is a key boundary condition with regards power in general (Carli, 2002), and it would be beneficial to an understanding of episodic empowerment to explore this further. Second, it is important to ensure that the EES itself displays appropriate measurement invariance (i.e., that it functions equivalently at detecting episodic empowerment for both men and women, for example).

There are also potential methodological limitations to the present study. As noted, the order in which measures are presented in a survey may affect how participants respond (Strack, 1992). While perhaps most pertinent when comparing the EES and PSPS scales, it is also possible that order effects could influence participants' responses to any of the measures included in the survey. To mitigate this, future studies using a similar approach could present the measures in random order. Further, the sensitivity of the EES could be tested in future research by placing it towards the end of the survey, rather than at the beginning. However, this does present a separate potential issue, in that it is not presently known how long power manipulations endure. Finally, though this thesis has developed a brief, validated, and sensitive measure of episodic empowerment, there is no guarantee that future researchers will use it as a manipulation check.

Beyond these limitations, the current study presents a number of avenues for future research. Firstly, the power manipulation used in the present study is only one of several that are commonly found in social psychology research. The sensitivity of the EES could be further established by applying it in studies that use other manipulations. An important caveat here is that the EES will only detect an effect if these other manipulations are actually manipulating power; if they are not, then we would not expect the EES to find any effect. This, in itself, may be useful in understanding the extent to which existing power manipulations are valid and effective.

Secondly, future research might use the EES in conjunction with trait measures of power, such as the PSPS, to explore the impact of any incongruence between the two. For instance, people who have high levels of trait power may feel threatened or vulnerable when facing episodic disempowerment, while chronically low-powered individuals may feel overwhelmed or ill-prepared to dealing with instances of episodic empowerment (Schmidt-Barad & Uziel, 2020). The implications of this incongruence for affective, cognitive, and behavioural outcomes may be a socially important area of research.

Finally, the current study assigned participants to only high- and low-empowerment conditions. Some authors have suggested that many people habitually occupy a middle ground in terms of power, but that they are consistently faced with both empowering and disempowering situations, resulting in a constant process of adjustment in terms of behaviour (Anicich & Hirsch, 2017). The EES, in conjunction with trait measures of power, might be usefully employed to examine the effects of this process, perhaps through a repeated-measures, crossover design.

Conclusion

The present study reports on the development and validation of a measure of episodic empowerment: The EES. Through EFA, reliability analysis and the testing of a nomological

network, the EES has been established as a valid and sensitive measure of episodic empowerment. It is associated with theoretically related constructs such as behavioural activation/inhibit, affect, self-esteem, control and theories of power in the expected directions, while it is not associated with the theoretically distant concept of agreeableness. Conceptually, the findings of the present study add to the literature on trait power and empowerment, specifically in helping delineate the two constructs. Practical value of the EES lies in its ability to function not only as a dependent measure in power research, but crucially as a valid check on power manipulations. The EES has utility in testing the validity of other power manipulations, and exploring the effects of any incongruence between trait power and episodic empowerment. Future research should aim to replicate this study with more representative samples, and explore the influence of order effects.

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Appendix A.

Pre-registration document

ASPREDICTED

Wharton CREDIBILITY LAB
University of Pennsylvania

CONFIDENTIAL - FOR PEER-REVIEW ONLY

Episodic Empowerment Scale - Development and Validation (#93965)

Created: 04/12/2022 03:45 PM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review.
A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

---

1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
The study is designed as a survey to develop and test the psychometric properties of an Episodic Empowerment Scale (EES). The following hypotheses will be tested in this study:

H1: We expect the EES to have a unidimensional factor structure.

H2: There will be positive associations between the EES scale and:
a) state power.
b) positive affect.
c) sense of control.
d) Self-esteem.
e) behavioural activation.
f) collaborative theory of power.

There will be negative associations between the EES scale and:
g) negative affect.
h) behavioural inhibition.
i) coercive theory of power.

There will be no association between the EES scale and:
j) agreeableness.

H3: The new unidimensional scale will have adequate levels of internal consistency reliability.

H4: there will be significant differences in EES scale levels reported by participants in the high (empowered) compared to low (disempowered) power conditions.

H5: we expect the EES to share similar associations with the other measured variables in both conditions. That is, we expect the associations outlined above (in H2) to not be significantly different between conditions; for example, the positive association between the ESS and positive affect should be the same across conditions.

3) Describe the key dependent variable(s) specifying how they will be measured.
Episodic Empowerment will be measured using a scale developed by the researchers, based on Strelan at al. (2020).
Chronic/state power will be measured using the Perceived Sense of Power Scale (Anderson et al., 2012).
Affect will be measured using the scale of Positive and Negative Experience (Diener et al., 2009).
Behavioural inhibition and activation will be measured using the Behavioural Inhibition System/Behavioural Activation System Scale (Carver & White, 1994).
Self-esteem will be measured using the State Self-esteem Scale (Heatherton & Polivy, 1991).
Sense of control will be measured using the Sense of Control Scale (Lachman & Weaver, 1998).
Beliefs about power will be measured using the Theories of Power Scales (Ten Brinke & Keltner, 2020).
Agreeableness will be measured using the Big-Five Inventory Short Form (John et al., 1991; Soto & John, 2017).

4) How many and which conditions will participants be assigned to?
Participant will be randomly allocated to one of two conditions: Empowered or Disempowered. We will use a manipulation based on Bartholomaeus et al. (2022), which involved participants recalling a specific time when they felt empowered/disempowered and writing a short (100-150 word) recollection of the situation.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
Exploratory Factor Analysis will be conducted on the entire sample. Extreme multicollinearity and singularity will be screened for using the determinant of the R-matrix, which should be greater than 0.00001. The Kaiser-Meyer-Olkin measure of sampling adequacy should exceed 0.7, and Bartlett's test of sphericity should be significant. Factor loadings less than 0.3 will be suppressed.

When deciding the number of factors to retain, an iterative approach will be adopted. Eigenvalues greater than 1 will be considered along with the outcomes of Scree plot and parallel analysis. Items will be removed individually and the analysis re-run at each iteration.

Zero-order correlations will be estimated to test the expected associations.

Coefficient alpha and McDonald's omega will be estimated for the new EES scale as measures of internal consistency reliability. Values > 0.70 will be considered adequate.

Two comparisons between the two conditions will conducted using t-tests. To control for family-wise error rate, a Bonferroni correction will be used.

Finally, difference in the magnitude of the correlations between the ESS and the other variables between conditions will be compared using Fisher's z transformation (Fisher, 1915). Ten comparisons will be made, and a Bonferroni correction will be used to control for family-wise error rate.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We will exclude participants who do not complete the entire survey. Cases will be excluded listwise in the event of missing data in at least one of the variables. The expected completion time of the study is approximately 10 minutes. Once data has been collected, mean completion times (and standard deviations) for each condition will be calculated. Participants with completion times greater or less than 2 SDs from the mean of their condition will be excluded. Finally, participants who fail both instructed attention check items will be excluded.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
We will aim to sample 240 participants. While a formal a priori power analysis is not possible for EFA, this decision is based simulation studies suggesting that for factors with five to eight indicators and wide to high communality, samples should range between 100 to 140 participants (Mundfrom et al., 2005). Therefore, to conduct EFA in each condition the total sample should range from 200 to 240 participants. We will aim for a sample size closer to the upper bound of these estimates.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
In the development process, the EES scale will be submitted for evaluation by a panel of experts to identify questions that appropriately and accurately reflect the domain of interest. Items will be accepted, rejected, or modified based on majority opinion.

Appendix B.

Online Survey

THE UNIVERSITY of ADELAIDE

Default Question Block

Hello!

You've been invited to participate in a study about empowerment. Specifically, we're interested in your experiences of empowerment. We're also interested in how you feel about the amount of power or control you have over events; how you feel about your everyday life; beliefs about your interactions with others; and, beliefs about power in general.

Your identity and responses to all questions will be anonymous. This survey should take you around **15 minutes** to complete. It has been approved by the University of Adelaide's School of Psychology Human Research Ethics Committee (Ethics Approval number 22/24). Participation in this study is completely voluntary and you may withdraw at any point with no negative consequences.

PLEASE MAKE SURE YOU DO THIS STUDY IN A QUIET PLACE WHERE YOU CAN CONCENTRATE.

If you have any queries or complaints about this survey, please contact: [redacted] Alternatively, you may contact Professor Paul Delfabbro, Convenor, Human Research Ethics Subcommittee on 8313 4936 or email at paul.delfabbro@adelaide.edu.au to discuss your complaint.

Thank you for taking the time to complete the survey and for your involvement in this project.

[redacted]

In agreeing to participate in this project, I state that:

- I am at least 18 years of age.
- I understand that participation in the project is entirely voluntary and I may withdraw from the research project at any stage, and that this will not impact negatively on me now or in the future.

- I understand that while information gained during the study may be published, I will not be identified and my personal information will remain confidential.
- I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to.
- I give consent for my anonymous data collected in this study to be deposited in a public repository (the Open Science Framework) so it can be used for future research and learning.

consent

Do you give consent to participate in this study?

- ○ Yes
- ○ No

student_check

Are you a student at the University of Adelaide?

- ○ No
- ○ Yes

Uni_data

If you are a student at the University of Adelaide, enter your 5-digit RPS ID here:

If you are a student at the University of Adelaide, enter your student ID here:

emp_high_org

Thank you for agreeing to participant in this study. In this section, I would like to know about a time when you felt **empowered**.

Specifically, please recall a situation from your life in which you **gained power**. For example, think of a time when you took control of a situation; or a time in which you gained authority over others; or gained the freedom to do as you wished. Take a moment to really re-live this event as vividly as possible. Please describe this situation in as much detail as you can—what happened and how did it make you feel?

Please write between 100 to 150 words (word count is indicated in the bottom right).

Describe the situation here.

emp_low_org

Thank you for agreeing to participant in this study. In this section, I would like to know about a time when you felt **disempowered**.

Specifically, please recall a situation from your life in which you **lost power**. For example, think of a time when you lost control of a situation; or a time in which someone else gained authority over you; or you lost the freedom to do as you wished. Take a moment to really re-live this event as vividly as possible. Please describe this situation in as much detail as you can—what happened and how did it make you feel.

Please write between 100 to 150 words (word count is indicated in the bottom right).

Describe the situation here.

EES_scale

Firstly, take a moment to reflect on your previous response, and then please answer the following questions about how you feel **right now.**

Right now, I feel...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
...ignored	○	○	○	○	○	○	○
...that I have power	○	○	○	○	○	○	○
...influential	○	○	○	○	○	○	○
...weak	○	○	○	○	○	○	○
...exploited	○	○	○	○	○	○	○
...strong	○	○	○	○	○	○	○
...confident	○	○	○	○	○	○	○
...that I have the freedom to make my own choices	○	○	○	○	○	○	○
...that my decisions have weight	○	○	○	○	○	○	○
...that I can take charge of situations	○	○	○	○	○	○	○
...that my opinions matter	○	○	○	○	○	○	○
...that I have autonomy	○	○	○	○	○	○	○
...inferior	○	○	○	○	○	○	○
...listened to	○	○	○	○	○	○	○
...self-assured	○	○	○	○	○	○	○
...like I am in charge	○	○	○	○	○	○	○
...that I stand up for myself	○	○	○	○	○	○	○
...capable	○	○	○	○	○	○	○
...empowered	○	○	○	○	○	○	○
...that I have an impact on what happens	○	○	○	○	○	○	○

SPANE_scale

For this next question, I'm interested in your current mood. Please select your responses for each item below.

Right now, I feel:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Negative	○	○	○	○	○
Good	○	○	○	○	○
Bad	○	○	○	○	○
Pleasant	○	○	○	○	○
Unpleasant	○	○	○	○	○
Happy	○	○	○	○	○
Sad	○	○	○	○	○
Afraid	○	○	○	○	○
Joyful	○	○	○	○	○
Angry	○	○	○	○	○
Contented	○	○	○	○	○

BIS_BAS1

In this section, there are several statements about behaviour. For each statement, please indicate how true or false it is for you.

	Very false for me	Somewhat false for me	Somewhat true for me	Very true for me
Even if something bad is about to happen to me, I rarely experience fear or nervousness.	○	○	○	○
I go out of my way to get things I want.	○	○	○	○
When I am doing well at something I love to keep at it.	○	○	○	○
I am always willing to try something new if I think it will be fun.	○	○	○	○
When I get something I want, I feel excited and energised.	○	○	○	○
Criticism or scolding hurts me quite a bit.	○	○	○	○
When I want something I usually go all-out to get it.	○	○	○	○
I will often do things for no other reason than that they might be fun.	○	○	○	○
If I see a chance to get something I want I move on it right away.	○	○	○	○
I feel pretty worried or upset when I think or know somebody is angry at me.	○	○	○	○

Here is a second set of statements about behaviour. For each statement, please indicate how true or false it is for you.

	Very false for me	Somewhat false for me	Somewhat true for me	Very true for me
When I see an opportunity for something I like I get excited right away.	○	○	○	○
I often act on the spur of the moment.	○	○	○	○
If I think something unpleasant is going to happen I usually get pretty 'worked up.	○	○	○	○
When good things happen to me, it affects me strongly.	○	○	○	○
I feel worried when I think I have done poorly at something important.	○	○	○	○
I crave excitement and new sensations.	○	○	○	○
When I go after something I use a 'no holds barred' approach.	○	○	○	○
I have very few fears compared to my friends.	○	○	○	○
It would excite me to win a contest.	○	○	○	○
I worry about making mistakes.	○	○	○	○

Block 19

You're halfway through the survey! This question is an attentiveness check. Please select "strongly agree"

- ○ Strongly disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Strongly agree

Self_esteem

These next questions are designed to measure what you are thinking **at this moment**. There is, of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment.

	Not at all	A little bit	Somewhat	Very much	Extremely
I am worried about whether I am regarded as a success or failure.	○	○	○	○	○
I feel self-conscious.	○	○	○	○	○
I feel displeased with myself.	○	○	○	○	○
I am worried about what other people think of me.	○	○	○	○	○
I feel inferior to others at this moment.	○	○	○	○	○
I feel concerned about the impression I am making.	○	○	○	○	○
I am worried about looking foolish.	○	○	○	○	○

Control_scale1

For this next question, I am interested in how you feel about the amount of control you think you have in your life. Please indicate your agreement or disagreement with each statement.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I can do just about anything I really set my mind to.	○	○	○	○	○
When I really want to do something, I usually find a way to succeed at it.	○	○	○	○	○
Whether or not I am able to get what I want is in my own hands.	○	○	○	○	○
What happens to me in the future mostly depends on me.	○	○	○	○	○
There is little I can do to change many of the important things in my life.	○	○	○	○	○
I often feel helpless in dealing with the problems of life	○	○	○	○	○

These next 6 statements are also about control. Please indicate your agreement or disagreement with each statement.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Other people determine most of what I can and cannot do.	○	○	○	○	○

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
What happens in my life is often beyond my control.	○	○	○	○	○
There are many things that interfere with what I want to do	○	○	○	○	○
I have little control over the things that happen to me.	○	○	○	○	○
There is really no way I can solve the problems I have.	○	○	○	○	○
I sometimes feel I am being pushed around in my life.	○	○	○	○	○

PSPS_scale

Next up, I'm interested in your **general** beliefs about yourself and your relationship with other people. Please indicate how much you agree with the following statements.

Generally, in my relationships with others…

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I can get people to listen to what I say.	○	○	○	○	○	○	○
My wishes do not carry much weight.	○	○	○	○	○	○	○
I can get people to do what I want.	○	○	○	○	○	○	○
Even if I voice them, my views have little sway	○	○	○	○	○	○	○
I think I have a great deal of power.	○	○	○	○	○	○	○
My ideas and opinions are often ignored.	○	○	○	○	○	○	○
Even when I try, I am not able to get my way.	○	○	○	○	○	○	○
If I want to, I get to make the decisions.	○	○	○	○	○	○	○

Great - you've answered around 75% of the questions, so you're almost finished! This question is an attentiveness check. Please select "Strongly disagree"

- ○ Strongly disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Strongly agree

TOPS_coerc

In this section, I'd like to ask some questions regarding your beliefs about power. By power, I mean the influence a person has on others. In the more general sense, you might think of an individual's power in terms of the impact that person has on the world.

Please rate the extent to which you agree with each of the following items

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Maintaining power requires ruthlessness.	○	○	○	○	○	○	○
People keep power by being feared by others.	○	○	○	○	○	○	○
People gain power through the use of manipulation and deception.	○	○	○	○	○	○	○
People mainly gain power by force.	○	○	○	○	○	○	○
To maintain power, a person must be willing to do whatever is necessary, including breaking the rules, using force, and coercion	○	○	○	○	○	○	○
People most typically gain power by reducing the status of other people.	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Often it requires aggression to gain power.	○	○	○	○	○	○	○
An influential individual is typically intimidating.	○	○	○	○	○	○	○
Having power means always having the "final say".	○	○	○	○	○	○	○
Power is usually vertically arranged, with a few people at the top having most of the influence and many at the bottom having little to none	○	○	○	○	○	○	○

Please also rate the extent to which you agree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Maintaining power requires the ability to collaborate and compromise with others.	○	○	○	○	○	○	○
Maintaining power requires compassion for others.	○	○	○	○	○	○	○
People rise in power through virtue and respect.	○	○	○	○	○	○	○
Having high ethical and moral standards is necessary to keep power.	○	○	○	○	○	○	○
Powerful individuals focus on the needs of group members.	○	○	○	○	○	○	○
Influential individuals need to be approachable and empathetic.	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Gaining power requires collaboration with other individuals.	○	○	○	○	○	○	○
People most typically gain power by being given responsibilities and opportunities by others.	○	○	○	○	○	○	○
In a group, there can be many influential people.	○	○	○	○	○	○	○
Power is often shared by many individuals in a group.	○	○	○	○	○	○	○

agreeable_scale

This is the last set of statements that you have to answer! In this question, I'd like you to reflect on your own character, and then indicate the extent to which you agree with the statements.

I'm someone who...

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
...is compassionate, has a soft heart.	○	○	○	○	○
...is sometimes rude to others.	○	○	○	○	○
...assumes the best about people.	○	○	○	○	○
...can be cold and uncaring.	○	○	○	○	○
...is respectful, treats others with respect.	○	○	○	○	○
...tends to find fault with others.	○	○	○	○	○

Thank you for answering all the questions so far! Finally, please answer these demographics questions

dems

Please select your gender.

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

How old are you? (eg. 21)

What nationality do you identify with?

Block 12

IMPORTANT! PLEASE READ THIS DEBRIEFING.

Thank you for taking part in this survey

The purpose of this study was to validate a scale measuring episodic empowerment, and to test its properties against existing scales of related concepts.

You (the participant) were randomly assigned to recall a time you either felt empowered or disempowered.

If completing this study has caused you distress in any way, please discuss any matters with a trusted friend, family member, or medical practitioner. If you require immediate support, the following services are also available to you:

The University of Adelaide Student Crisis Line: 1300 167 654
Lifeline: 13 11 14
BeyondBlue: 1300 22 4636

In the event of an emergency please call 000.

If you have any queries or complaints about this survey please contact [redacted]. Alternatively, you may contact Prof Paul Delfabbro, Deputy Convenor, Human Research Ethics Subcommittee on 8313 4936 or email at [redacted] to discuss your complaint.

If you would like to be notified of the publication of our findings, please contac[redacted]

Thank you again for taking part in this survey,

[redacted]

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