Solution-focused scaling questions: time taken, words written, expectancy and commitment.

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Solution-Focused Scaling Questions: Time Taken, Words Written, Expectancy and Commitment

Abstract

Background/Aims/Objectives

Scaling questions are arguably the most commonly asked questions in solution-focused coaching. However, hardly any experimental research has isolated these questions. Moreover, most studies of solution-focused questions involve students only and no studies have examined whether gender is a moderator. The present study addressed these deficiencies.

Methods/Methodology

In two survey experiments English-speaking adults around the world (Total *N* = 628) were randomly assigned either to a scaling/solution-focused condition or to a binary/problem-focused condition. Participants were asked to identify a 'problem' area in their lives. Dependent variables included expectancy (the extent to which individuals expect to have more success), commitment (the extent to which individuals are committed to having more success), time taken and number of words written.

Results

Participants responding to written scaling/solution-focused questions spent more time and wrote more words than participants responding to binary/problem-focused questions. Experiment 1 suggested that scaling questions have a positive effect on expectancy in males (but not females). However, Experiment 2 yielded little evidence of

any such effect. Age was negatively associated with expectancy. Expectancy was positively associated with commitment.

Discussion

Solution-focused scaling questions may elicit more engagement than problem-focused/binary questions. However, they apparently have little immediate effect on expectancy and commitment, although responses do *predict* expectations of future success. Older individuals apparently have lower expectations of success than younger individuals**.**

Conclusion

Scaling questions may be useful in encouraging individuals to think, eliciting more detailed responses and predicting expectancy of success. However, coaching psychologists should not rely on scaling questions to *enhance* expectancy (or commitment) in the short term. Older coachees may need to develop expectancy in order to experience (goal) commitment.

Solution-Focused (vs. Problem-Focused) Questions

For over a decade researchers have examined the effects of solution-focused (vs. problem-focused) coaching questions (e.g. Abdulla & Woods, 2021a; Grant & O'Connor, 2018; Theeboom et al., 2016). Solution-focused (SF) questions are arguably the most important tools in the solution-focused toolkit. Unlike *problem*-focused (PF) questions (which concern obstacles, weaknesses and failure), solution-focused questions focus on resources, strengths and success. Solution-focused questions include the 'Miracle Question' (e.g. de Shazer, 1988), questions about 'exceptions' (e.g. Berg & Szabó, 2005) and scaling questions (e.g. O'Connell et al., 2013). Most experimental studies conducted since 2010 have compared a *battery* of SF questions against a battery of PF alternatives (e.g. Braunstein & Grant, 2016; Grant, 2012; Neipp et al., 2016). The expression 'battery of SF questions' is used here to refer to experimental conditions in which several different types of SF question are combined. For example, the battery of questions used in Grant (2012) begins with a condensed version of the 'Miracle Question,' then includes a question designed to elicit 'small steps,' and then ends with three different questions focusing on the participant's thoughts about the proposed 'solution.' Several published studies suggest that such SF batteries have positive effects (relative to PF batteries) on variables such as perceived self-efficacy (e.g. Grant, 2012).

Specific Types of Solution-Focused Questions

As explained, most studies of SF questions have combined several types of questions in the same condition. However, some studies have *isolated* specific types of SF questions. For example, Wehr (2010) investigated the effects of questions about

‘exceptions’ (i.e. times when individuals do not experience a problem). More recently, Neipp et al. (2021) compared three different types of SF questions (the ‘Miracle Question,’ questions about ‘exceptions,’ and scaling questions) against a battery of PF questions. Even more recently, Abdulla (2023a) compared the ‘Miracle Question(s)’ against PF coaching questions and neutral coaching questions. Abdulla and Woods (2021a) compared SF questions about resources with PF questions about obstacles. Abdulla and Woods (2021b) compared scaling questions against binary and PF alternatives.

Results from the aforementioned studies have been mixed. For example, Wehr (2010) found some evidence to suggest that questions about ‘exceptions’ have a positive effect on confidence (relative to PF questions). On the other hand, in examining effects on perceived self-efficacy, Neipp et al. (2021) found no meaningful differences between the three types of SF questions included in their study and the battery of PF alternatives. Results of experiments reported by Abdulla (2023a) suggested that (compared to PF or neutral coaching questions) the ‘Miracle Question(s)’ might be relatively effective in terms of enhancing expectancy but only in individuals high in openness-to-experience. Abdulla and Woods (2021a) found evidence to suggest that SF questions about resources may have a positive effect on expectancy and commitment relative to PF questions about obstacles. On the other hand, Abdulla and Woods (2021b) found little or no effect of scaling questions (relative to binary and PF alternatives) on the same two variables.

In summary, research on SF questions has produced mixed results. On the one hand, when batteries of (different types of) SF questions have been compared against batteries of PF alternatives, results have tended to favour the former. On the other

hand, when researchers have isolated specific *types* of questions (e.g. the 'Miracle Question') the benefits of SF questions have been less clear. The present study sought to add to the evidence by focusing on the most frequently used type of SF question: scaling.

Scaling Questions

Scaling questions lie at the heart of solution-focused practice (e.g. Berg & Szabó, 2005; de Shazer & Dolan, 2021; Shennan, 2019). Perhaps the most commonly used of all SF techniques, scaling questions feature heavily in solution-focused coaching texts (e.g. Iveson et al., 2012; Jackson & McKergow, 2011; Sanderfur, 2014) and are presented in coaching psychology handbooks (e.g. O'Riordan & Palmer, 2021; Palmer & Whybrow, 2018).Typical examples of SF scaling questions are presented in Table 1.

Table 1

Examples of Solution-Focused Scaling Questions

Context	Example(s) of Scaling Questions
Evaluating the current state of affairs	"On a scale from 0 to 10, where 10 is that your preferred future is already happening, where are things now?" (Tee & Passmore, 2022, p.286)

Appreciating the success that has already been achieved	"What makes it a 3 rather than a 0?" (Payne, 2020, p.309)
Identifying "small steps" towards goals	"How could you move up one point on the scale?" (O'Connell et al., 2013, p.176)

The Putative Benefits of Scaling Questions

Berg and Szabó (2005, p.124) contend that 'scaling questions have a way of slowing down the conversation because as people think about how they might evaluate themselves on the scale, it takes time.' If individuals do indeed take time to answer scaling questions, it is natural to ask whether that time is well spent. The value of SF scaling questions is in fact widely assumed. For example, McKergow and Clarke (2007, p. 179) refer to scaling as 'an unreasonably effective tool.' Many other books on coaching similarly extol the virtues of scaling questions (e.g. Sanderfur, 2014; Szabó et al., 2009; Wildflower, 2013).

The Effect of Scaling Questions on Expectancy and Commitment

Two crucial variables for coaching psychology are (goal attainment) expectancy and (goal) commitment (Klein et al., 2013). Expectancy - the degree to which individuals expect to attain their goals - is more or less synonymous with goal-specific *hope* (Feldman et al., 2009), goal-related *confidence* (e.g. Wehr, 2010) and *perceived goal*

attainability (Abdulla & Woods, 2021). In describing the (putative) benefits of scaling questions, authors often use the aforementioned terms, e.g. expectancy, hope, confidence etc. For example, Beumer-Peeters (2021, p.120) states that an important reason for asking scaling questions is "to boost self-*confidence* and trust in the ability to achieve the goal" (italics added). Blundo and Simon (2016, p.147) assert that "scaling is a useful means of…enhancing *hope* and *expectation*" (italics added). Reiter (2010, p. 140) argues that "[s]caling questions are inherently *hopeful*, leading to *expectancy* of change" (italics added).

Advocates do not generally explain *why* scaling questions should enhance expectancy. However, analysis of typical scaling questions and comparisons with binary alternatives may be instructive. If struggling individuals are asked a binary question (e.g. 'Are you succeeding? Or not?'), they may be inclined to answer 'No' and to assume a total lack of success. On the other hand, if these individuals are asked a *scaling* question (e.g. 'On a scale from 0 to 10, *how much* success are you having?'), they may come to see that they are having at least partial success. Research suggests that individuals rely on a 'performance heuristic' when assessing their chances of further improvement (Abdulla & Woods, 2021c; Critcher & Rosenzweig, 2015). That is, individuals are more likely to expect further success if they perceive *current* performance as successful. Scaling questions may therefore enhance expectancy by leading individuals to perceive current performance as (at least partially) successful.

However, even if scaling questions do *not* enhance expectancy, answers to scaling questions may *predict* it. Support for this hypothesis again comes from the research on the 'performance heuristic.' As explained, studies have shown that the more successful students consider current performance, the more they expect to

improve (Critcher & Rosenzweig, 2014; Abdulla & Woods, 2021c). Consider two individuals who are asked to rate their current level of success in a 'problem' area on a scale from 0 to 10. If one individual gives a relatively *high* score of 5, whereas the other gives a relatively low score of 1, the former may have higher expectations of improvement than the latter. If so, then scaling questions about current success may shed light on people's expectations about further success in the future. A recent study found evidence to support this hypothesis (Abdulla, 2023b). However, it has yet to be replicated.

The Effect of Scaling Questions on Commitment

Some authors argue that scaling questions also enhance goal commitment, which may be defined as 'the extent to which individuals are committed to attaining their goals' (Abdulla, 2023b, p.24). Reiss (2007, p.95) states that '[a]nother effective technique for gaining *commitment* to goals…is to ask scaling questions' (italics added). Goal commitment (hereafter simply 'commitment') is crucial for goal attainment, particularly when goals are challenging (Klein et al., 2013). One of the primary determinants of commitment is in fact expectancy: the more individuals expect to attain their goals the more committed they are to attaining them. Research involving secondary school students suggests that some solution-focused questions may enhance commitment by increasing expectancy (Abdulla & Woods, 2021a). It therefore seems possible that scaling questions have a positive indirect effect on commitment *via* expectancy.

Previous Experimental Research on Scaling Questions

Given the prevalence of scaling questions in coaching, it is surprising that hardly any focused studies have been conducted. Abdulla and Woods (2021b) examined the effects of scaling questions on expectancy and commitment in female secondary school students. The estimated effects of scaling questions (relative to binary and PF questions) were (very) small and not statistically significant. In another study involving female secondary school students, Abdulla and Woods (2021c) once again found that scaling questions had little effect on expectancy and commitment. In a study involving psychology undergraduates at Spanish universities, Neipp et al., (2021) compared scaling questions against two other types of SF questions (the 'Miracle Question' and 'Exceptions' questions) and a PF-questions condition. After controlling for pretest scores, the researchers found that students in the 'scaling questions' condition reported marginally higher perceived self-efficacy scores (on average) than students in the other conditions. However, the differences across conditions were extremely small and not statistically significant. On the other hand, students responding to scaling questions generated more action steps than students in the 'Miracle Question' and 'Exceptions' conditions and differences were moderately large and statistically significant. Nevertheless, students responding to scaling questions apparently did not generate (statistically significantly) more action steps than students responding to *PF* questions. Finally, Abdulla (2023b) investigated the effects of a single scaling question in a non-student adult population. Compared to a binary condition (in which participants were simply asked to indicate whether they were succeeding), the scaling question condition was estimated to have a small positive effect on expectancy and an even smaller positive effect on commitment but in both cases the 'effects' were not statistically

different from zero. Abdulla (2023b) also found little evidence to suggest that gender moderates effects.

In summary, the few experimental studies that have been conducted suggest that scaling questions have a smaller impact on key variables for coaching psychology than popular texts imply. However, there are limitations in all of the aforementioned studies. The first two studies (Abdulla & Woods, 2021b; 2021c) involved females only. The study conducted by Neipp et al. (2021) involved a predominantly female sample and did not examine whether gender is a moderator. Some commentators argue that action-oriented solution-focused approaches may be more effective with males than females (e.g. Liddon et al., 2019; Robertson et al., 2015; Westwood & Black, 2012). In research on gender and coping strategies, the 'socialisation hypothesis' posits that 'men are socialized to a greater extent to deal *instrumentally* with stress, whereas women tend to be socialized to *express emotion* (Ptacke et al., 1992, p.748, italics added). If so, then males may respond more favourably to action-oriented, solution-focused questions (e.g. 'What could you do to go up one point on the scale?') whereas females may prefer problem-focused questions that allow them to express their emotions (e.g. 'What is holding you back in this area of your life?'). Abdulla (2023b) did examine gender as a potential moderator and is (to date) the only experimental study of SF scaling questions to have been conducted with non-student participants. However, the intervention in that study involved only a single scaling question. Meaningful effects of scaling are perhaps unlikely if only a single question is asked. The previous studies on solution-focused questions that have reported meaningful positive effects have indeed involved more than one question (e.g. Braunstein & Grant, 2016; Grant, 2012).

The Importance of Participant Engagement

Another limitation in the study reported by Abdulla (2023b) is the fact that it did not investigate the effects of scaling questions on measures of *engagement*.

Many studies of digital self-administered interventions measure the amount of time that participants spend in the intervention and/or the number of words that participants write (e.g. Lepore et al., 2019; Lippke et al., 2016; Ray et al., 2020). In the behavioural sciences these are widely used as measures of participant engagement (Bijerk et al., 2022). As Bijerk et al. (2022, p.155) explain, 'engagement' is a 'complex, multi-dimensional, and dynamic interaction process between a client and an intervention.' In most cases, 'engagement' is understood in terms of behaviour, cognition and affect (e.g. Kelders et al., 2020). However, in research on digital self-adminstered interventions, 'engagement' is most often operationalised in *behavioural* terms, e.g. the amount of time spent by participants in an intervention. The more time participants spend and/or the more words they write, the more 'engaged' they are assumed to be (e.g. Lepore et al., 2019; Ray et al., 2020).

In coaching psychology, the coachee's engagement in the coaching process is taken to be a prerequisite for success (e.g. Henderson & Palmer, 2021). Research on positive psychology interventions (PPIs) suggests that the more individuals are engaged in an intervention the more they are likely to benefit. For example, some studies of written PPIs have found that the number of words that participants write predicts improvements in emotions, affect and well-being (e.g. Carrillo et al., 2019; Gander et al., 2020). Research on coaching-style interventions in educational contexts has found that the number of words written by participants correlates positively with subsequent performance (e.g. Schippers et al. 2020). It would therefore be useful to know whether

scaling/SF questions lead to a greater number of words in participants' responses than binary/PF questions. If so, this might have positive downstream effects on desired outcomes (e.g. goal attainment). In addition, it should be remembered that many coaches and coaching psychologists want the coachee to do 'most of the talking' (e.g. Adams, 2015; Dunbar, 2017; Rogers, 2012). Evidence that scaling/SF questions lead to longer responses than binary/PF questions might then be a reason to prefer the former type of questions to the latter.

The Present Study

The primary aim of the present study was to examine the impact of solution-focused scaling questions in heterogeneous samples of adults. The questions were presented online in the self-coaching format used in most studies of solution-focused/problem-focused questions (e.g. Grant, 2012; Neipp et al., 2021; Abdulla, 2023). This format of course differs from face-to-face coaching interventions in which 'coachees' are coached by another individual (the 'coach'). However, it is important to realise that digital self-coaching interventions have existed for some time, are increasingly common and have many advantages such as lower costs and greater ease-of-access (Hultgren et al. 2016). Furthermore, for many coaches and coaching psychologists the ultimate aim of coaching is to enable the coachee to self-coach (e.g. O'Broin & Palmer, 2012). As Green and Spence (2014, p. 282) therefore observe, 'an opportunity exists to develop self-coaching interventions that assist people to engage in purposeful, positive change through the iterative, reflective process that sits at the heart of coaching and involves setting authentic goals and the monitoring and evaluation of one's attempts to attain such goals.' This is not to say that self-coaching interventions

should *replace* ‘traditional’ coaching. But coaching psychologists can (i) help to ensure that such interventions are effective, (ii) recommend that clients use them when face-to-face coaching has ended or even (iii) incorporate them in ‘blended care coaching’ that combines face-to-face sessions ‘with digital activities to introduce and reinforce key coaching concepts and skills’ (Wu et al., 2021, p.2).

Several hypotheses (some more tentative than others) were formulated for the present study. Berg and Szabó (2005, p.124) contend that ‘it takes time’ for individuals to evaluate themselves on a scale. It was therefore hypothesised that individuals take longer to respond to SF scaling questions than to binary/PF questions. Support for this hypothesis may be found in the number of seconds or minutes spent by participants in a scaling condition. However, given that prompts in a scaling condition may consist of more words than prompts in a binary/PF condition (and therefore take longer for participants to read) it should be determined whether the difference in time taken is greater than one would expect on the basis of the number of words used in the prompts. An additional way to test the hypothesis that individuals ‘take time’ to respond to scaling questions is to count the *number of words written* in response. Previous research suggests that participants responding to SF questions generate more action-steps than participants reponding to PF questions (e.g. Grant, 2012; Grant & O’Connor, 2018). In the present study it was therefore hypothesised that participants write more words in response to SF scaling questions than to binary/PF questions.

It was also hypothesised that SF scaling questions have a positive effect on expectancy (compared to binary/PF questions). That scaling questions enhance expectancy is assumed or explicitly stated in many solution-focused texts (e.g. Beumer-Peeters, 2021; Blundo & Simon, 2016; Reiter, 2010). Some commentators have

suggested that action-oriented solution-focused approaches are more likely to succeed with males than females (e.g. Liddon et al., 2019). The present study therefore also examined the (tentative) hypothesis that SF scaling questions have a *more* positive effect on expectancy in males than in females.

It was also hypothesised that expectancy is negatively related to age. Many studies suggest that expectancy and expectancy-like variables decline with age. For example, Giltay et al. (2006) found that dispositional optimism scores become lower over time. Similarly, Durbin et al. (2019) found that younger adults were more optimistic about their futures in 15 years than older adults. Abdulla (2023b) found a negative relationship between age and expectancy, which was stronger amongst males than females.

It was also hypothesised that expectancy is positively related to commitment. Several studies of SF questions have found that expectancy is positively related to commitment (e.g. Abdulla, 2023b; Abdulla & Woods, 2021a; 2021b; 2021c). If SF scaling questions do have a positive effect on expectancy and expectancy is in turn positively related to commitment, then SF scaling questions may have a positive indirect effect on commitment *via* expectancy. If the positive effect of SF scaling questions on expectancy is *more* positive in males than in females, then any positive indirect effect on commitment (via expectancy) may also be more positive in males than in females. Abdulla (2023b) found little evidence to support this hypothesis but tested only a single scaling question. (Moderated) effects of scaling questions may be more likely to emerge if multiple (scaling) questions are used.

Finally, it was hypothesised that people's scores on a scale rating *current* success are positively associated with people's expectancy of (more) success in the

future. Abdulla (2023b) recently reported evidence to support this hypothesis, which is based on the 'performance heuristic' (Critcher & Rosenzweig, 2014; Abdulla & Woods, 2021c). The present study sought to replicate the finding reported by Abdulla (2023b) whilst also broadening our understanding of scaling questions.

Analytical Strategy

In the present study there were two categorical predictor variables – condition (scaling/solution-focused questions vs binary/problem-focused questions) and gender (male vs female) – and one continuous predictor variable – age. Moderated multiple regression was used to examine the effects of the predictor variables on expectancy and commitment. This is equivalent to a two-way ANCOVA with two factors (condition and gender) and one covariate (age). Two dummy-variables were created – one for condition (Scaling/SF = 0.5; Binary/PF = -0.5) – and one for gender (female = -0.5; male = 0.5). The 0.5 and -0.5 codes were chosen so as to generate a 'main effect' of condition (Hayes, 2022). In the first regression, expectancy was regressed on the two dummy variables, the product of the two dummy-variables (estimating the interaction between condition and gender) and age. In the second regression, commitment was regressed on the two dummy variables, the product of the two dummy-variables, age and expectancy. Hayes' PROCESS macro (model 8) was used to estimate the indirect effect of condition (Scaling/SF vs. Binary/PF) on commitment via expectancy (Hayes, 2022). 95% confidence intervals based on 5,000 bootstrapped samples were used for inferential purposes.

In the present study all participants were asked to identify an area or aspect of their life that was 'not going as well as [they] would like.' Participants in the

binary/problem-focused condition were then asked to select one of the following statements: 'I am succeeding in this area of my life,' 'I am *not* succeding in this area of my life.' It might be thought that data from participants selecting the former ('I am succeeding…') should be excluded from the analysis given that participants were asked to identify an area that was '*not* going as well as [they] would like.' However, it should be noted that participants selecting 'I am succeeding…' may nonethess be dissatisfied with their *level* of success. Thus, they may still be describing an area of their life 'not going as well as [they] would like.'

Participants in the scaling/solution-focused condition were asked to indicate how much success they were having in the area they had identified on a scale from 0 to 10. On the one hand, if participants select '0' then there is little or nothing they can say in response to the second scaling question ('Assuming your current level of success is above zero - what makes it above zero?'). It may therefore be assumed that data from participants selecting '0' on the scale should also be excluded from analyses. Once again, however, there are reasons for including such data. The fact that some participants choose '0' on a scale simply reflects reality. Although SF coaching questions encourage individuals to focus on 'what's going well,' they do not always draw a positive response. Some individuals may well choose '0' on a scale. Excluding data from such individuals therefore distorts reality and may positively bias results.

In the present study, the analyses were conducted twice in order to deal with the issues outlined above. In the first set of analyses, data from *all* participants were analysed. In the second set, analyses were conducted after excluding PF participants who selected 'I *am* succeeding…' and SF participants who chose '0' on the scale. The results of the two sets of analyses were highly consistent. Most importantly, the sign of

estimated effects was the same across analyses and estimated effect sizes were barely affected. The first set of analyses (including data from all participants) is reported in the paper. Any meaningful discrepancies between the first and second set are noted.

Experiment 1

Methods

Participants

245 individuals were recruited from Prolific - an online platform that allows researchers to recruit participants meeting specific criteria. The inclusion criteria were as follows: i) Participants' first language had to be English; ii) Participants had to be at least 18 years of age; iii) Participants had to be be able to identify an area of their life that was 'not going as well as [they] would like.' Individuals were randomly assigned either to the binary/PF condition (*n* = 123) or to the scaling/SF condition (*n* = 122). 119 of those assigned to the binary/PF condition (97%) and 117 of those assigned to the scaling/SF condition (96%) completed the intervention. The age of participants ranged from 18 to 60 (M = 35.7; SD = 10.6). 149 participants identified themselves as 'female' (63%); 82 participants identified themselves as 'male' (35%); and 5 participants identified themselves as 'other' (2%). 186 participants (79%) described themselves as 'British,' 'English' or 'Scottish.' 10 participants (4%) described themselves as 'South African.' The remaining participants listed various other nationalities including 'New Zealand,' 'Australian' and 'Irish.'

Procedure

After signing up for the study, participants were randomly assigned to one of the two conditions. Two online surveys were created - one for each condition. Participants were sent a link to the relevant survey. The two surveys were identical except for the questions serving as the manipulation. Participants were initially asked to indicate their age, nationality and gender. They were then asked to describe an area or aspect of their lives that was 'not going as well as [they] would like.' At this point the surveys differed according to condition.

Participants in the binary/PF condition were asked to choose one of the two following statements: a) 'I am succeeding in this area of my life'; b) 'I am *not* succeeding in this area of my life' (Abdulla, 2023b). They were then presented with two problem-focused questions: (i) 'How long has this area been a problem?' and (ii) 'What is holding you back in this area of your life?' The prompts in the binary/PF condition consisted of 45 words.

Participants in the scaling/SF condition were asked to imagine a 'success scale' from 0 ('absolutely zero success') to 10 ('total success'). They were then asked: 'On a scale from 0 to 10, how much success are you having in the area you identified?' Participants were then presented with two further SF scaling questions: (i) 'Assuming your current level of success is above zero - what makes it above zero? For example, if you chose 1 on the scale, what makes your current level a 1 rather than 0?'; (ii) 'What could you do to go up 1 point on the scale? For example, if you chose 1 on the 0-10 scale, what could you do to go up to 2?' [After the first of these questions participants were told: 'If you chose 0 on the 'success scale,' please write 'I chose zero']. The prompts in the scaling/SF condition consisted of 119 words.

After answering the questions specific to their condition, participants were presented with the questions measuring expectancy and commitment (see 'Measures'). The entire intervention was expected to take approximately 5-10 minutes.The study was approved by the Ethics Committee at Robert Gordon University.

Measures

Time Taken

Each participant's start time and completion time were recorded by the survey tool. 'Time taken' was measured by calculating the difference between the two times in seconds.

Number of Words Written

The total number of words written in response to the two (PF or SF/scaling) questions was calculated for each participant.

Expectancy

Expectancy was assessed by means of the measure used in several previous studies of SF/PF questions (e.g. Abdulla, 2023a; Abdulla, 2023b; Abdulla & Woods, 2022). The measure consists of four items, the first of which was: 'How likely is it that you will have more success in the area you've identified (if you try)?' Responses were provided on a 0 to 10 scale. Higher scores indicated higher expectancy (α = .90).

Commitment

Commitment was assessed by means of the measure developed by Klein and colleagues (Klein et al., 2014). The measure consists of four items, the first of which was: 'How committed are you to having more success in the area you identified?'

Responses were provided on a 1 to 7 scale. Higher scores indicated higher commitment (α = .92)

Results

Table 2 presents descriptive statistics for all measured variables.

Table 2

Means and Standard Deviations for all Measured Variables in Experiment 1

	Binary + Problem-Focused		Scaling Questions	
	M	SD	M	SD
Time Taken (seconds)	238.91	190.35	275.43	129.43
Number of Words Written	18	14.4	28.4	18.84
Expectancy	5.01	1.64	5.09	1.53
Commitment	4.99	1.35	5.02	1.33

In the binary/PF condition, 4 participants chose the 'I *am* succeeding in this area of my life' option. The remainder (115 participants) chose 'I am *not* succeeding in this area of my life.' In the scaling/SF condition, 17 participants chose '0' in response to the first question ('On a scale from 0 to 10, how much success are you having in the area you identified?'). The remainder (100 participants) chose non-zero options.

Time Taken

On average, the amount of time taken by participants in the scaling/SF condition (M = 275.43 seconds; SD = 129.43 seconds) was greater than the amount of time taken by participants in the binary/PF condition (M = 238.91 seconds; SD = 190.35 seconds). The difference (approximately 37 seconds) was statistically significant (t = 1.70, p = .045). It has been estimated that on average adults read 238 words per minute in English (Brysbaert, 2019). Participants in the SF condition should therefore have taken approximately 30 seconds to read the prompts (119 words) whereas those in the PF condition should have taken approximately 11 seconds (45 words). The difference in reading time should therefore have been approximately 19 seconds. However, the difference in time taken by PF and SF participants was almost *twice* as long (37 seconds). Results therefore appear to support the hypothesis that individuals take longer to respond to scaling/SF questions than to binary/PF questions.

Number of Words Written

On average, the number of words written by participants in the scaling/SF condition (M = 28.4; SD = 18.84) was greater than the number of words written by

participants in the binary/PF condition (M = 18.0; SD = 14.4). The difference (approximately 10 words) was statistically significant (t = 4.75, p < .001). This result may also be taken to support the hypothesis that individuals take longer to respond to scaling/SF questions than to binary/PF questions.

Effects on Expectancy

The main effect of the SF scaling questions on expectancy was positive but not statistically significant (b =.25 [-.16,.66], t = 1.22, p =.23). The interaction between condition and gender was close to statistical significance (b =.779 [-.03,1.60], t = 1.89, p =.06). Amongst females, the effect of scaling/SF questions (relative to binary/PF questions) was estimated to be slightly negative but was not statistically different from zero (b = -.14 [-.63,.35], t =.57, p = .57). Amongst males, the effect of scaling/SF questions was estimated to be positive and moderately large and was on the verge of statistical significance (b = .65 [-.01, 1.30], t = 1.93, p = .05). This effect was estimated to be somewhat larger and was statistically significant in the analysis excluding data from PF participants selecting “I am succeeding” and SF participants selecting “0” on the scale: (b = .83 [.16, 1.50], t = 2.44, p = .02). There was therefore some support for the hypothesis that SF scaling questions have a more positive effect on expectancy in males than in females.

As predicted, age was estimated to have a negative effect on expectancy (b = -.04[-.06, -.02], t = 4.57, p < .0001). An additional analysis was conducted to investigate whether the effect of age on expectancy depends on gender. Expectancy was therefore regressed not only on age and gender but also on the product of those two variables, which estimates the interaction. The coefficient for the interaction term was statistically

significant (*b* = -.05 [-.09, -.01, *t* = 2.51, *p* =.01). The effect of age on expectancy in males (*b* = -.08 [-.11, -.05] *t* = 4.68, *p* < .0001) was estimated to be even more negative than the effect of age on expectancy in females (*b* = -.03 [-.05, -.005] *t* = 2.39, *p* =.02)

The Association Between Scaling Scores and Expectancy

Expectancy was regressed on the scores provided by participants in the scaling condition in response to the first scaling question (viz. 'On a scale from 0 to 10, how much success are you having in the area you identified?'). As predicted, scores on the scale (evaluating success in the present) were positively associated with expectancy of more success in the future (*b* = .30 [.16, .44] *t* = 4.21, *p* < .001).

Effects on Commitment

In the regression in which commitment was the depedent variable, the coefficient for expectancy was positive and statistically significant (*b* = .13 [.02, .25], *t* = 2.25, *p* = .03). The hypothesis that expectancy is positively related to commitment was therefore supported.

Amongst females, the indirect effect of the scaling questions on commitment (via expectancy) was estimated to be very slightly negative but the confidence interval included zero (*b* = -.02 [-.11, .05]). Amongst men, the indirect effect of scaling/SF questions was estimated to be very slightly positive but the confidence interval again included zero (*b* = .09[-.01, .28]). The confidence interval for the index of moderated mediation (which estimates the difference between the indirect effect amongst males

and the indirect effect amongst females) was close to excluding but did include zero (*b* = .10[-.01, .30]). There was therefore limited support for the hypothesis that scaling questions have a positive indirect effect on commitment (via expectancy) that is greater in males than in females.

Finally, the *direct* effect of the scaling/SF questions on commitment was estimated to be very slightly positive amongst females (*b* = .09 [-.35, .52], *t* = .40, *p* =.69) and negative amongst males (*b* = -.22[-.81, .37], *t* = .73, *p* =.46) but wast not statistically significant in either case.

Brief Discussion

In Experiment 1, participants took more time and wrote more words in the scaling/SF condition than in the binary/PF condition. On the one hand, it might be argued that participants took more time in the scaling/SF condition simply because it took longer to read the scaling/SF prompts than the binary/PF counterparts. However, the difference in time taken was almost *twice* as long as one would expect given likely differences in reading times. The results therefore appear to be consistent with the claim made by Berg and Szabó (2005, p.124) that 'scaling questions have a way of slowing down the conversation.' In addition, participants wrote more words in response to scaling/SF questions – a fact not easily attributed to differences in reading times.

Positive effects of scaling questions on expectancy were, however, unclear. On the one hand, the estimated effect on expectancy was slightly *negative* amongst females. On the other hand, scaling questions were estimated to have a moderately large *positive* effect (.65 of a point on a 0-to-10 scale) on expectancy amongst males. However, it is important to note that no previous studies of written SF questions have

examined gender as a moderator. Moreover, the hypothesis that scaling questions have a more positive effect on expectancy in males was based only on speculative comments made about gender and therapy (e.g. Liddon et al., 2019). In addition, the interaction was only barely statistically significant. The results of Experiment 1 (viz. an interaction between condition and gender and a positive effect of scaling questions amongst males) would therefore need to be replicated before conclusions are drawn.

As predicted, expectancy was negatively related to age and this effect was estimated to be stronger in males than females, as was the case in the study reported by Abdulla (2023b). This is an important finding for coaching psychology and is discussed later on. Expectancy was positively associated with commitment (again, as expected) but positive indirect 'effects' of scaling questions on commitment (in males) were estimated to be very small (less than one-tenth of a point).

Experiment 1 suggested that even if scaling questions do not *enhance* expectancy, scores on scaling questions may *predict* it. That is, the higher/lower an individual's score on the first scaling question ('On a scale from 0 to 10, how much success are you having in the area you identified?'), the higher/lower that individual's expectancy of more success in the future. Experiment 1 therefore replicated the finding reported by Abdulla (2023b). This finding also has important implications for coaching psychology and will be discussed at the end of the paper.

Experiment 2

The primary aim of Experiment 2 was to determine whether the 'effects' observed in Experiment 1 are likely to be real. For example, do scaling/SF questions really have a 'slowing down' effect and elicit more words than binary/PF questions? Do they really

have a (more) positive effect on expectancy amongst males? And do scores on scaling questions about the present really predict expectations of success in the future? Experiment 2 was an exact replication of Experiment 1. However, the sample size was increased in order to achieve more precise (and thus more reliable) estimates of effect sizes. Experiment 2 was preregistered using the Open Science Framework (OSF).

Methods

Participants

400 individuals were recruited from Prolific.The inclusion criteria for Experiment 2 were the same as for Experiment 1. Individuals were randomly assigned either to the binary/PF condition (*n* = 200) or to the scaling/SF condition (*n* = 200). In each condition, 196 individuals (98% of those assigned) completed the intervention. The age of participants ranged from 18 to 60 (M = 37.4; SD = 10.3). 187 participants identified themselves as ‘female’ (47%%); 191 participants identified themselves as ‘male’ (48.7%); 2 participants identified themselves as ‘other’ (0.5%); 10 participants did not report their gender. 292 participants (74%) described themselves as ‘British,’ ‘English’ or ‘Scottish.’ 24 participants (6%) described themselves as ‘Australian.’ The remaining participants listed various other nationalities including ‘South African,’ ‘Welsh’ and ‘Irish.’

Procedure

The procedure was identical to the procedure of Experiment 1.

Measures

All variables were assessed by means of the measures used in Experiment 1. Reliability estimates were once again very high for expectancy (α = .88) and commitment (α = *.92).*

Results

Table 3 presents descriptive statistics for all measured variables.

Table 3

Means and Standard Deviations for all Measured Variables in Experiment 2

	Binary + Problem-Focused		Scaling Questions	
	M	SD	M	SD
Time Taken (seconds)	228.48	125.20	284.04	172.12
Number of Words Written	16.02	12.62	28.04	15.24
Expectancy	5.23	1.69	5.23	1.45
Commitment	5.21	1.36	5.13	1.34

In the binary/PF condition, 17 participants chose the 'I *am* succeeding in this area of my life' option. The remainder (179 participants) chose 'I am *not* succeding in this area of my life.' In the scaling/SF condition, 25 participants chose '0' in response to the first question ('On a scale from 0 to 10, how much success are you having in the area you identified?'). The remainder (171 participants) chose non-zero options.

Time Taken

One extreme case was observed in the binary/PF condition (12,673 seconds = 211 minutes) and one extreme case was observed in the scaling/SF condition (6,129 seconds = 102 minutes). These cases were removed before the analysis was conducted. On average, the amount of time taken by participants in the scaling/SF condition (M = 284.04 seconds; SD = 172.12 seconds) was greater than the amount of time taken by participants in the binary/PF condition (M = 228.48 seconds; SD = 125.20 seconds). The difference (approximately 56 seconds) was statistically significant (t = 3.60, $p < .001$). The difference was also almost *three times* as great as one would expect on the basis of likely reading times (given the the number of words used in the prompts for each condition). Results therefore further supported the hypothesis that individuals take longer to respond to scaling questions than to binary/PF questions.

Number of Words Written

On average, the number of words written by participants in the scaling/SF condition (M = 28.04; SD = 15.24) was greater than the number of words written by participants in the binary/PF condition (M = 16.02; SD = 12.62). The difference

(approximately 12 words) was statistically significant (t = 8.48, p < .0001). This result further supports the hypothesis that individuals take longer to respond to scaling/SF questions than to binary/PF questions.

Effects on Expectancy

The 'main effect' of the scaling/SF questions on expectancy was positive but exceptionally small and not statistically significant (b =.01 [-.30,.31], t = .06, p =.96). On this occasion, the coefficient for the interaction between condition and gender was also far from statistical significance (b =.09 [-.52,.70], t = .30, p =.76). Amongst females, the estimated effect of scaling questions on expectancy was negative but was extremely small and far from statistical significance (b = -.04 [-.47,.39], t = .17, p =.86). Amongst males, the estimated effect of scaling/SF questions on expectancy was positive but extremely small and also far from statistical significance (b =.06 [-.37,.49], t = .25, p =.80). There was therefore little support for the hypothesis that scaling questions have a positive impact on expectancy (that is stronger in males than in females).

As in Experiment 1, age was negatively associated with expectancy (b = -.03[-.04, -.01], t = 3.36, p =.0009). Once again, an additional exploratory analysis was conducted in order to investigate whether the (apparently negative) effect of age on expectancy depends on gender. On this occasion, however, the coefficient for the interaction between age and gender was not statistically significant (b = .01 [-.02,.04], t = .67, p =.51).

The Association Between Scaling Scores and Expectancy

Expectancy was regressed on the scores provided by participants in the scaling condition in response to the first scaling question. As in Experiment 1, scaling scores (evaluating success in the present) were positively associated with expectations of more success in the future (b = .20 [.11, .30] t = 4.23, p < .001).

Effects on Commitment

In the regression in which commitment was the dependent variable, the coefficient for expectancy was once again positive and statistically significant (b = .17 [.08, .26], t = 3.87, p = .0001). The hypothesis that expectancy is positively related to commitment was therefore further supported.

The estimated indirect effects of the scaling/SF questions on commitment (via expectancy) mirrored those in Experiment 1 in terms of sign but were even smaller in size. Specifically, the indirect effect of scaling/SF questions on commitment was estimated to be very slightly negative amongst females (b = -.01[-.10, .07]) and very slightly positive amongst males (b = .01[-.07, .09]). The confidence interval for both of these 'effects' included zero as did the index of moderated mediation (b = .02[-.09, .14]). There was therefore little evidence to support the hypothesis that scaling/SF questions have a positive indirect effect on commitment (via expectancy) or that this positive "effect" is greater in males than in females.

Finally, as in Experiment 1, the direct effect of scaling/SF questions on commitment was estimated to be negative amongst females (b = -.27[-.64, .11], t = 1.40, p =.16) and slightly positive amongst males (b = .12 [-.26, .49], t = .62, p =.54) but was not statistically significant in either case.

Brief Discussion

Some important results from Experiment 1 were replicated in Experiment 2. Others, however, were not. Once again, participants wrote more words in the scaling/SF condition than in the binary/PF condition. Participants responding to scaling/SF questions also spent almost a full minute longer than participants responding to binary/PF questions. These results further support the hypothesis that scaling questions 'slow down' the coaching conversation (Berg & Szabó, 2005) and increase a coachee's engagement.

Results from Experiment 2 did not however provide much support for the hypothesis that scaling questions enhance expectancy or that any positive effect of scaling questions on expectancy is larger in males than in females. The 'finding' of Experiment 1 (i.e. the apparent interaction between condition and gender and the positive 'effect' of scaling questions on male expectancy) was therefore not replicated.

As in Experiment 1, expectancy was negatively related to age but on this occasion the size of this effect was apparently unrelated to gender. Once again, however, expectancy was positively related to commitment. These are important findings for coaching psychology and are discussed below. There was little or no evidence to suggest that scaling questions have a positive indirect effect on commitment (via expectancy) in males or in females.

As in Experiment 1, scores on the first scaling question predicted expectancy. That is, the more successful a participant considered *current* performance (on a scale from 0 to 10), the more that participant expected further success in the future.

General Discussion

Scaling questions are perhaps the most commonly used questions in solution-focused practice (e.g. Thomas, 2013). Advocates of solution-focused approaches often argue or assume that scaling questions enhance people's expectancy (e.g. Reiter, 2010) and commitment (e.g. Reiss, 2007). Previous studies of scaling questions have yielded little evidence supporting that hypothesis (Abdulla, 2023b; Abdulla & Woods, 2021a; 2021b). However, previous research suffers from a number of limitations, e.g. female-only samples or the use of only one scaling question.

The present study sought to examine the effects of *multiple* solution-focused scaling questions in large, diverse samples of adults. Two experiments were conducted (Total $N = 628$) with English-speaking adults around the world. As far as the authors are aware, this is the largest experimental study focusing specifically on scaling questions ever to have been conducted. Results have important implications for coaching psychologists who use (or may be thinking of using) scaling questions. The study also sheds further light on (goal attainment) expectancy and (goal) commitment - two key variables for coaching psychology.

In both experiments, age was negatively associated with expectancy. That is, older participants had lower expectations of (further) success in their 'problem' area than younger participants. Experiment 1 suggested that this negative effect of age on expectancy might be stronger in males, replicating the finding reported by Abdulla (2023b). However, Experiment 2 in the present study did not yield evidence of moderation by gender. If gender is ignored, expectancy was estimated to drop by .04 of a point (Experiment 1) or .03 of a point (Experiment 2) for every additional year. The difference in expectancy between a 30-year old and a 60-year old would therefore be approximately a full point on the 0-10 scale. This is an appreciable difference. Lower

levels of (goal attainment) expectancy are associated with lower levels of (goal) commitment (Klein et al., 2013) - a fact also observed in the present study. If older 'coachees' have reduced expectations of attaining their goals (and reduced goal commitment as a result), their progress in coaching may be hindered. Coaching psychologists working with older individuals may therefore need to pay (more) attention to expectancy. Two recent experiments reported by Abdulla (2023a) suggested that the 'Miracle Question(s)' (the most famous technique in solution-focused practice) may enhance expectancy in participants who are high in openness-to-experience. However, a third experiment did not support that hypothesis. It is therefore important for coaching psychology to investigate other methods of enhancing expectancy.

Both experiments in the present study suggested that solution-focused scaling questions do indeed have a 'slowing down' effect and elicit more engagement from participants than binary/problem-focused questions. If scaling questions lead to more thinking on the part of the coachee, this is likely to be considered beneficial. For example, Hawkins (2012) describes a qualitative study of coaching within the BBC in which coachees valued being 'forced to think'. Neipp et al (2021) found that scaling questions led participants to generate more action steps than two other types of solution-focused questions (the 'Miracle Question' and 'Exceptions' questions). In the present study scaling/solution-focused questions drew longer responses than binary/problem-focused questions. It seems, therefore, that solution-focused scaling questions may indeed be useful in 'forcing' individuals to think and in eliciting more detailed responses. Greater engagement on the part of the participant (in terms of number of words used in responses) may lead to positive psychological outcomes (e.g. Gander et al., 2020).

On the other hand, the present study suggests that scaling questions have little or no immediate impact on expectancy. Experiment 1 *appeared* to suggest that scaling questions have a positive effect on expectancy in males. However, results from Experiment 2 (an exact replication involving an even larger sample) discredited that suggestion. The present study therefore highlights the importance of conducting replications before conclusions are drawn. Scaling questions also appeared to have little or no positive effect on commitment - arguably the most important moderator in goal-setting theory (Latham, 2016). In order to achieve challenging goals, individuals must be *committed* to achieving them. If scaling questions do not enhance commitment, then coaching psychologists will have to consider other tools and techniques.

Given the high regard in which scaling questions are held, some readers may be surprised by their (apparent) failure to enhance expectancy or commitment. It should however be remembered that even if scaling questions do little to enhance expectancy and commitment, they may serve other purposes in coaching (e.g. Shennan, 2019). Replicating the finding reported by Abdulla (2023b), the present study in fact indicates that scores on a scale about success in the present *predict* expectancy of (more) success in the future. For example, individuals rating their current level of success as a 4 on the scale are more likely to believe that they will have further success in the future than individuals rating their current level of success as a 3. It appears, in other words, as if individuals are relying on the 'performance heuristic' (Abdulla & Woods, 2021c; Critcher & Rosenzweig, 2015). Coaching psychologists should be (made) aware of this phenomenon. If coachees can be encouraged to view *current* performance as (relatively) successful (e.g. a 4 rather than a 3 on the scale), they may be more likely to expect further success.

Moreover, effects of scaling questions may emerge over time if these questions are used repeatedly. Research in positive psychology suggests that the more often an activity is carried out the more likely individuals are to benefit (e.g. Seear & Vella-Brodrick, 2012). If participants had been asked to respond to scaling questions for a week (or more) some impact on expectancy and commitment might have been observed.

Like all studies, the present study has its limitations. The research was conducted with in English only. It is possible that effects of scaling questions are different in other languages. Cross-cultural replication studies may therefore be worthwhile. In addition, researchers may wish to investigate the effects of scaling questions on other dependent variables. e.g. positive and negative affect. Researchers may also wish to combine scaling questions with other types of SF questions (e.g. the 'Miracle Question'). Future studies could then explore what combinations of SF questions are effective. Finally, it should be recalled that the present study examined a brief single-session self-coaching intervention that was carried out online. It would be useful to investigate the impact of scaling questions in other types of coaching intervention, e.g. longer interventions, multi-session interventions or face-to-face coaching conversations. For example, future research could investigate the impact of scaling questions by comparing a full version of the GROW model in which scaling questions are not used against a version of the GROW model in which scaling questions *are* used.

Conclusion

The present study suggests that solution-focused/scaling questions lead individuals to think more deeply and elicit more detailed responses than problem-focused/binary questions. In addition, scores on a scale concerning perceived success in the present predict expectations of more success in the future. On the other hand, scaling questions apparently do little to *raise* expectancy or commitment - at least when individuals respond to them just once. Coaching psychologists seeking to enhance expectancy in a single session may find other types of SF questions more effective, e.g. questions about ‘exceptions’ (Wehr, 2010). Age should also be taken into account. Coaching psychologists working with older individuals may need to focus on enhancing expectancy. Helping older individuals to develop expectancy is likely to have a positive impact on (goal) commitment, which should in turn facilitate goal pursuit.

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