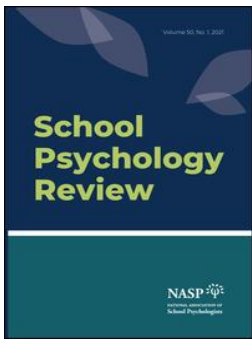


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The Effect of Solution-Focused Scaling and Solution-Focused Questions on Expectancy and Commitment

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ABSTRACT

Solution-focused (SF) approaches are widely used in schools. The present study examined the effects of a central SF technique—“scaling”—on female secondary students’ improvement expectancy (IE) and commitment to improvement (CTI). Popular follow-up questions were also tested. In Experiment 1, 120 students were randomly assigned to a “success scaling”, “success scaling” plus follow-up SF question, or control condition. IE and CTI were higher in the scaling conditions than in the control group, but differences were small and not statistically significant. In Experiment 2, 115 students were randomly assigned to a “success scaling” plus one SF question, “success scaling” plus two SF questions, or problem-focused condition. Students in the doubly augmented scaling condition reported higher IE and CTI than students in the other conditions. However, differences were small and not statistically significant. The results of this study suggest that (success) scaling techniques may not be as effective as is widely supposed.

IMPACT STATEMENT

Solution-focused (SF) approaches are common in schools and used by both teachers and school psychologists. However, SF approaches are generally multicomponent interventions, making it impossible to identify effective techniques. The present study provides the most thorough experimental evidence to date for the effectiveness of the central SF technique: (success) scaling.

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SOLUTION-FOCUSED INTERVENTIONS IN SCHOOLS

Solution-focused (SF) approaches have been used in schools in Europe and the United States since the 1990s (Franklin et al., 2012). Social workers have increasingly used SF approaches in school settings (e.g., Kelly et al., 2008; Lovarco & Csiernik, 2015; Newsome, 2005; Springer et al., 2000). More and more teachers have been applying SF techniques in the classroom, sometimes with the support of school psychologists (Niu & Niemi, 2020; Simm & Ingram, 2008; Simmonds, 2019). Numerous popular books document the prevalence of SF approaches in schools (e.g., Kim et al., 2017; Metcalf, 2003; Murphy, 2015b). One particular SF intervention known as “Working on What Works” (Berg & Shilts, 2005) has now been implemented in many schools in both the United States and United Kingdom (Berzin et al., 2012; Brown et al., 2012; Fernie & Cubeddu, 2016; Kelly & Bluestone-Miller, 2009; Lloyd et al., 2012; Wallace et al., 2020).

SF approaches may be contrasted with *problem-focused* (PF) approaches, which encourage individuals to address

“problems” or “weaknesses” (e.g., Parsons, 2009). Unlike problem-focused approaches, SF approaches invite students to build on their strengths (Ratner & Yusuf, 2015). For example, rather than asking students about “obstacles,” a simple SF approach might invite them to identify *resources* (Abdulla & Woods, 2020). SF practice has much in common with positive psychology (Bannink & Jackson, 2011). A positive psychology intervention (PPI) “may be understood as any intentional activity or method (training, coaching, etc.) based on (a) the cultivation of valued subjective experiences, (b) the building of positive individual traits, or (c) the building of civic virtue and positive institutions” (Meyers et al., 2013, p. 620). SF interventions certainly involve (a) and (b) and may therefore be considered PPIs.

SF interventions have been used with children in elementary school (Springer et al., 2000), middle school (Franklin et al., 2008), and high school (Green et al., 2007). They have targeted a wide range of issues, including social skills, emotional difficulties, academic problems, and dropout prevention (Kim & Franklin, 2009). They have been administered by educational psychologists (Stobie

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et al., 2005), teachers (Simmonds, 2019) or external practitioners (e.g., Franklin et al., 2008). Case studies and qualitative interviews suggest that school-based professionals consider SF techniques to be some of the most powerful tools in their arsenal (Atkinson & Ames, 2007; Doveston & Keenaghan, 2010; Franklin et al., 2012). Self-report data suggest that children too consider SF approaches to be helpful (e.g., Grandison, 2007). And yet, there are major limitations in SF research, which makes the application of SF techniques problematic.

Major Limitations in SF Research

According to Murphy (2015a, p. 306), “the implementation of solution-focused interventions in schools far exceeds the amount of empirical research that has been conducted in school settings.” In addition, almost all SF interventions include *multiple components*, which makes it difficult to identify “active ingredients.” A review by Gingerich and Peterson (2013) illustrates the problem. Their definition of solution-focused brief therapy (SFBT) included no fewer than 10 techniques (e.g., goal setting, scaling, the “Miracle Question”, compliments, focusing on “what’s better” and so on). The authors identified eleven studies that were carried out in schools. Every one of those studies comprised multiple SF techniques. It seems reasonable to suppose that some techniques were more useful than others. Moreover, some may not be useful at all. Multicomponent interventions including a plethora of ineffective techniques are wasteful in terms of a school’s resources (time, money, staff, etc.).

Shankland and Rosset (2016, p. 364) note that multicomponent PPIs “often require a high degree of commitment from school administrators and teachers to put into place.” *Streamlined* interventions are more likely to be embraced. It is no longer appropriate (if it ever was) to bundle together multiple SF techniques and hope that something will “work.” Instead, researchers must isolate the effects of specific approaches in order to determine what is actually worthwhile (Stobie et al., 2005; Woods et al., 2011). At present, almost nothing is known about the efficacy of specific SF techniques. The primary purpose of the present study was to remedy this deficiency by focusing on probably the most common SF technique: scaling.

SOLUTION-FOCUSED SUCCESS SCALING

Solution-focused scaling is widely recommended for school students (e.g., Kim et al., 2017; Mahlberg & Sjoblom, 2004; Murphy, 2015b). One popular variant is “success scaling” (e.g., Blundo & Simon, 2016). A student

might be asked: “On a scale from 0–10, what is the most success that you have had in this area?” Like many PPIs such as “Best possible self” (Carrillo et al., 2019), success scaling entails focusing on the positive aspects of one’s experience. SF commentators assert that (success) scaling raises expectations, motivation and commitment (e.g., Hepworth et al., 2017; O’Connell, 2001; Thomas, 2013). Success scaling has one notable advantage over other PPIs: it is extremely brief. “Best possible self” interventions, for example, typically involve extended writing (and visualisation) and may take up to 20 minutes (Peters et al., 2010). On the other hand, individuals should be able to scale their highest level of success in a matter of seconds. This ease-of-implementation makes scaling an attractive option.

However, when (success) scaling is used in an SF intervention, it is packaged with other techniques (e.g., Daki & Savage, 2010; Kvarme et al., 2010). This makes it impossible to determine the effectiveness of scaling. The primary aim of the present study was to examine the impact of success scaling in secondary school students. Solution-focused approaches have often been used with students at this level (Franklin et al., 2008; Green et al., 2007; Young & Holdorf, 2003). In addition, the only previous experimental study of SF scaling also involved secondary school students (Abdulla & Woods, 2021). Focusing on this age range enabled us to build on previous research.

What Is Known About Solution-Focused (Success) Scaling

Qualitative research suggests that adults appreciate scaling. For example, in a study involving three individuals suffering from depression, participants apparently responded well to scaling (Estrada & Beyebach, 2007). Another qualitative study explored the views of seven mothers who had experienced a course of SFBT (Lloyd & Dallos, 2008). All mothers felt that success scaling was one of the two most helpful aspects of SFBT. Qualitative research also suggests that school teachers consider scaling to be effective with students (Doveston & Keenaghan, 2010). However, experimental studies with school children have invariably combined scaling with many other techniques (e.g., Daki & Savage, 2010; Kvarme et al., 2010). This means that the impact of scaling cannot be assessed. Given the centrality of scaling in SF interventions, it seems extraordinary that only one experimental study focusing on scaling appears to have been published (Abdulla & Woods, 2021). In that study, school students aged 13–14 were asked to identify an unsatisfactory (or satisfactory) area of performance. Some were then asked to indicate whether they were “succeeding” in the area they

identified (a “Yes” or “No” question). Others were asked to identify their “highest level of success” on a 0–10 scale. The negative indirect effect of unsatisfactory performance on commitment-to-improvement was estimated to be *less* negative amongst children who engaged in scaling. However, the “advantage” of scaling was extremely small and not statistically different from zero.

Abdulla and Woods (2021) therefore suggested that scaling may not be as effective as SF theorists suppose. However, they tested only a single success-scaling question. In SF practice, scaling is normally followed by other scale-related questions, e.g., “How did you reach that point on the scale?” “How could you go up one point?” (e.g., O’Connell et al., 2012). Scaling might require these follow-ups to be effective.

Potential Mechanisms of Success Scaling

Berg and de Shazer (1993, p. 9) say that one of the primary uses of scaling is “to motivate and encourage.” Lutz (2014, p. 71) credits scaling questions with “increasing [people’s] motivation and confidence to change.” Although different authors use different terms, two key variables are often invoked: (a) expectancy and (b) commitment. Scaling is thought to raise people’s hopes of success (i.e., expectancy) whilst also increasing people’s determination to achieve it (i.e., commitment). It may be wondered how scaling could bring about these effects.

Mongrain et al. (2012, p. 387) argue that the common factor explaining the effectiveness of PPIs may be “the access of positive, self-relevant information.” Thinking positively about one’s past or strengths may engender a sense of optimism. Success scaling certainly involves access to “positive, self-relevant information,” which may enhance hope or optimism. The study by Lloyd and Dallos (2008) is instructive. Individuals in that study were asked to rate how they felt about their situation on a scale. The lowest point on that scale represented “the *worst* things have ever been” and the highest point represented the best (p. 7). One mother described the benefits of scaling thus (p. 16): “It [scaling] was immediately useful in making me realize that although I was feeling at 1, there had been times when I had been as high as 4 or 5... it made me remember that times would be better again.”

By inviting individuals to reflect on past success, scaling might then strengthen expectations of improvement. Research supports this supposition. For example, Nelson and Knight (2010) found that asking students to write about a successful experience led to higher expectations for a test. When individuals are struggling, therefore, success scaling might raise improvement expectancy. That

might in turn raise *commitment* to improvement, given that expectancy is positively related to commitment (e.g., Wong, 2005). Abdulla and Woods (2021) report evidence that perceived satisfactory performance has a positive indirect effect on commitment-to-improvement (CTI) by raising improvement expectancy (IE). A study by Abdulla and Woods (2020) suggests that (relative to problem-focused questions) SF questions may enhance IE, which may in turn enhance CTI.

SF Questions Following Scaling

As explained, success scaling is often followed by additional questions, such as “What could you do to go up one point on the scale?” (O’Connell et al., 2012). Generating means to achieve one’s goals strengthens one’s goal commitment (Kruglanski et al., 2011). Moreover, research suggests that this effect is indeed mediated by greater expectancy, as well as perceived goal importance (Kruglanski et al., 2011). Following scaling with a question about means for further improvement might therefore lead to even greater improvement expectancy (IE). That, in turn, may lead to even greater commitment to improvement (CTI). In the previous section it was suggested that scaling alone might strengthen CTI by raising IE. It is therefore important to investigate whether scaling is sufficient to enhance IE and CTI or the follow-up questions are needed.

THE PRESENT STUDY

The present study investigated the effects of solution-focused “success scaling” and follow-up questions on students’ IE and CTI. These variables were operationalised in a manner consistent with the only previous (experimental) study of scaling (Abdulla & Woods, 2021). IE was operationalised as students’ perceived likelihood of improving performance and CTI was operationalised as self-reported commitment to improve performance. Following the approach taken by Abdulla and Woods (2021), the present study asked students to consider an area in which they were not performing as well as they would have liked. In SF practice, scaling is typically accompanied by additional scaling-related questions (e.g., “What could you do to go up one point?”). Two experiments were therefore planned in order to examine different permutations. The second experiment also allowed us to compare SF success scaling with a *problem-focused* (PF) approach. This is important given that SF approaches are often contrasted with PF alternatives (e.g., Grant & Gerrard, 2019). The study was approved by the Ethics Committee at [Robert Gordon University]. Estimating the required

sample size is extremely difficult in the context of mediation analysis, particularly when there are multiple unknowns (Hayes, 2018). Given the void in the SF research, we sought to obtain the largest samples possible from the school in question.

Conducting the study online made it possible to isolate the effects of the technique (i.e., scaling questions) from the effects of human interaction. In addition, evidence that solution-focused interventions can be delivered remotely would presumably be welcomed by schools. Digital interventions are (often) affordable and scalable and allow schools to circumvent the logistical and financial obstacles associated with face-to-face interventions (Mrazek et al., 2020).

EXPERIMENT 1

In Experiment 1, success scaling and success scaling plus a follow-up SF question were compared against a binary assessment of performance. The hypotheses were as follows:

H1: Asking students to rate their “highest level of success” on a scale from 0 to 10 results in (a) greater improvement expectancy (IE) and (b) greater commitment to improvement (CTI) than simply asking whether they are succeeding.

H2: IE is positively associated with CTI.

H3: The scaling interventions have a positive effect on CTI by enhancing IE.

H4: Asking students to rate their “highest level of success” on a scale from 0 to 10 *and then to identify ways to move up one point* results in (a) greater IE and (b) greater CTI than (i) asking whether they are succeeding, or (ii) merely asking them to engage in scaling.

Method

Participants

One hundred and twenty female students aged 11–12 (Mean = 12.3) participated in Experiment 1. Students were in their first year at an independent all-female secondary school in London. They were studying a range of subjects including maths, English, and sciences. Their first language was English. No students in the year group suffered from any (known) impairments that would have made it difficult to participate in the study. All students were therefore deemed eligible to participate.

All students agreed to participate in the study and no student opted out. There were no missing data. Permission to carry out the research was given by the Head Teacher. The study was deemed to fall within the

range of normal school activities. Parental consent was therefore not required (British Psychological Society, 2014).

Procedure

Students were randomly assigned to one of three conditions: (a) Binary assessment of current performance (control group), (b) Success scaling, (c) Success scaling + SF follow-up question. The intervention was delivered via Google Forms. Participants were sent an email with a link to the relevant form. All participants were initially asked to identify an area that was “not going as well as [they] would like.” The questions then differed for each condition.

Binary assessment of current performance (control group). Students in this condition were asked to consider the area that they had identified and to choose one of two statements: “I am succeeding in this area” or “I am NOT succeeding in this area.”

Success scaling. Students in this condition were asked to imagine a “success scale from 0 to 10”. It has been suggested that children find it helpful to *see* the scale (Wilkes et al., 1994). A visual representation was therefore included, just as in Abdulla and Woods (2021). The numbers (0 to 10) were arranged from left to right. In addition, the phrase “ZERO success” was written above 0 and “TOTAL success” above 10. Students were invited to consider their performance at its best and asked: “What is the highest level of success that you have achieved in this area?” They were asked to provide a number between 0 to 10.

Success scaling + Solution-Focused Follow-Up question. Students in this condition were presented with the same prompts as students in the preceding condition. However, after being asked to provide a number on the scale they were invited to consider how they could “go up one point.” They were prompted to list 1–2 things that they could do. Solution-focused practice is based on the principle of minimal intervention (e.g., O’Connell, 2005). Consequently, only a single SF follow-up question was included in this condition.

Measures

Improvement Expectancy (IE)

This was assessed with a 3-item measure used in previous research with secondary school students. In studies involving students aged 13–14 (Abdulla & Woods, 2021) and 15–16 (Abdulla & Woods, 2020), Cronbach’s alphas of 0.80 and 0.83 (respectively) have been reported. The aforementioned studies also reported a strong positive association

between scores on this measure and scores on Klein's commitment measure (Klein et al., 2013), providing evidence of construct validity. A 0–10 response scale was used with higher scores indicating higher improvement expectancy ($\alpha = 0.78$).

Commitment to Improvement (CTI)

Klein's 4-item commitment measure was used to measure commitment to improvement (see Klein et al., 2013). Klein et al. (2011) reported evidence of validity (including factorial and criterion validity). A 1–7 response scale was used. Higher scores indicated higher CTI ($\alpha = 0.88$)

Results

Examples of students' responses are given in Table 1. In the control group, 28 out of 39 (72%) students ticked the 'I am NOT succeeding in this area' box.

Descriptive statistics are presented in Table 2. Within the scaling condition, the mean score on the "highest level of success" scale was 7.3 (SD = 1.1). Within the scaling + SF question condition, the mean score on this scale was, coincidentally, also 7.3 (SD = 1.15).

All assumptions for ANOVA and multiple regression (i.e., normality, homogeneity of variance, linearity, independence) appeared to have been met. Plots of standardised residuals against predicted values provided support for the assumptions of linearity and homoscedasticity/homogeneity of variance. Q-Q plots provided support for the assumption of normality of residuals. 95% confidence intervals are given in square brackets.

The Effect of Condition on Improvement Expectancy (IE)

A one-way ANOVA indicated that the effect of condition on IE was not statistically significant: $F(2,117) = 0.73$, $p = .48$, $\eta^2 = .01$. However, students in the scaling condition

reported higher IE than students in the control group—H1(a)—as did students in the scaling + SFQ condition—H4(a)(i). On the other hand, observed mean differences were not consistent with H4(a)(ii); students in the scaling + SFQ condition did *not* report higher IE than students in the scaling-only condition. Moreover, in terms of Cohen's d , the difference between the scaling condition and control group was small: $d = 0.25$ [-0.19, 0.69]. The difference between the scaling + SFQ condition and the control group was negligible: $d = 0.03$ [-0.41, 0.47].

The Effect of Condition on Commitment-to-Improvement (CTI)

A one-way ANOVA indicated that the effect of condition on CTI was not statistically significant: $F(2,117) = 0.97$, $p = .38$, $\eta^2 = .02$. However, students in the scaling condition reported higher CTI than students in the control group—H1(b)—as did students in the scaling + SFQ condition—H4(b)(i). On the other hand, mean differences were not consistent with H4(b)(ii): students in the scaling + SFQ condition did *not* report higher CTI than students in the scaling (only) condition. The difference between the scaling condition and control group was small: $d = 0.31$ [-0.13, 0.75]. The difference between the scaling + SFQ condition and control group was even smaller: $d = 0.18$ [-0.26, 0.62].

The Relationship Between Improvement Expectancy and Commitment to Improvement

Two dummy variables were created to code experimental conditions. Commitment to improvement (CTI) was then regressed on improvement expectancy (IE) and the two dummy variables. The association between IE and CTI, controlling for condition, was positive and statistically significant: $b = .28$ [.14, .43], $t = 3.90$, $p < .001$. The standardised beta coefficient was .34, indicating an appreciable effect. H2 was therefore supported.

Mediation Analysis

Mediation analysis was conducted to investigate whether the scaling conditions raise CTI by raising IE. 95% bootstrap confidence intervals based on 5,000 bootstrap samples were used for inferential purposes. An omnibus test of the direct effect was conducted by means of hierarchical regression. Two models were compared: a model in which the only predictor was improvement expectancy (the putative mediator) and a model that included improvement expectancy and the two dummy variables coding conditions. The change in R^2 was tested for statistical significance. Two relative direct effects were also estimated: (a) the direct effect of the scaling-only condition on CTI relative to the control group, and (b) the direct effect of the scaling + SFQ condition on CTI relative to the control

Table 1. Examples of Responses Across the Conditions

| Condition | Example of Response |
|-----------------------|--|
| Control group | "I am NOT succeeding in this area." |
| Success scaling | "7" (out of 10) |
| Success scaling + SFQ | "7" (out of 10) "I could study harder and focus more" |

Note. SFQ = Solution-focused question.

Table 2. Group Means and Standard Deviations for Improvement Expectancy (IE) and Commitment to Improvement (CTI)

| | Control Group | | Scaling | | Scaling + SFQ | |
|-----|---------------|-----------|----------|-----------|---------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| IE | 6.06 | 1.22 | 6.33 | 0.98 | 6.09 | 1.11 |
| CTI | 5.28 | 0.92 | 5.56 | 0.92 | 5.44 | 0.95 |

Note. IE = Improvement Expectancy. CTI = Commitment-To-Improvement. SFQ = Solution-focused question.

group. Similarly, two relative indirect effects were estimated: (a) the indirect effect of scaling-only on CTI relative to the control group, and (b) the indirect effect of the scaling + SFQ condition on CTI relative to the control group. In the omnibus test of the direct effect the change in $R^2 (= .009)$ was not statistically significant: $F(2,116) = .62$, $p = .54$. The coefficients for the two relative direct effects were also not statistically significant ($ps > .29$). There was therefore no good evidence of a direct effect of the scaling conditions on commitment to improvement. The indirect effect of scaling-only on CTI relative to the control group was estimated to be 0.08. The bootstrap confidence interval included zero: [-0.06, 0.24]. The indirect effect of the scaling + SFQ condition relative to the control group was estimated to be smaller still: 0.01. Once again, the bootstrap confidence interval included zero: [-0.17, 0.15]. There was therefore little to suggest that the scaling conditions have a positive effect on CTI by raising IE. H3 was therefore not supported.

Brief Discussion

Students in the scaling conditions reported higher IE and CTI than students in the control group. However, the effect of condition was not statistically significant and the estimated effect sizes were (very) small. There was therefore little to suggest that scaling has a meaningful impact on IE and CTI. Moreover, students in the condition including the additional SF question reported *lower* IE and CTI than students in the scaling-only condition. As predicted by H2, there was a positive relationship between improvement IE and CTI. However, there was little to suggest that the scaling interventions enhanced CTI via IE.

It has been suggested that “the conceptual framework of SFBT may be better suited for individuals with a higher level of cognitive development” (Schmit et al., 2016, p. 34). On the one hand, it might seem that a simple technique such as scaling should be suitable for younger children (Berg, 2004). On the other hand, scaling might be more effective with older students who have had more time to accumulate success. In addition, success scaling might be more effective if students are asked *how* they have achieved their “highest level of success.” Postscaling questions like “What did you do to reach that high level?” are sometimes recommended by SF commentators (e.g., Bannink, 2010; Jackson & McKergow, 2007). Some research does suggest that interventions based on recalling success may be more effective when they invite students to consider how they achieved it (Zunick et al., 2015). In addition, writing about previous efforts might lead to enhanced CTI via cognitive dissonance or self-perception. That is, students might find

it difficult to describe their commitment as low after emphasising their previous efforts—cognitive dissonance (Festinger, 1957). Alternatively, students might come to “realise” that they were committed to improvement by reflecting on the efforts they had already invested—self-perception (Bem, 1972). Finally, positive effects of SF success scaling (and follow-ups) might be larger if the comparison condition is *problem-focused*. Research has found that relative to PF questions SF questions have positive effects on affect, perceived self-efficacy and perceived goal progress (e.g., Braunstein & Grant, 2016; Grant & Gerrard, 2019).

Experiment 2 allowed us to address the above considerations. First, older students were recruited. Second, one of the conditions included an additional SF question inviting students to consider *how* they had achieved their highest level of success. Finally, a *problem-focused* approach was used as the comparison condition

EXPERIMENT 2

The problem-focused (PF) comparison condition in Experiment 2 involved asking participants what was “holding [them] back.” The intervention of greatest interest was a *doubly augmented* scaling condition: success scaling + “What did you do to get to that level?” + “How could you go up one point?” This doubly augmented scaling condition was compared against the PF condition and a scaling condition including just one follow-up question (“How could you go up one point?”). The main hypotheses were as follows:

H5: The doubly augmented scaling condition results in (a) greater improvement expectancy and (b) greater commitment to improvement than (i) merely asking students to rate their highest level of success and to indicate how they could go up one point, and (ii) asking them about what is holding them back.

The doubly augmented scaling condition (i.e., “highest level of success” scaling + “what did you do to get to that level?” + “How could you go up one point?”) was expected to affect CTI via enhanced IE. Specifically:

H6: (Compared to the PF condition) The doubly augmented scaling condition has a positive effect on CTI by increasing IE.

As H5 and H6 indicate, the primary interest in Experiment 2 lay in assessing the impact of the doubly augmented scaling condition. However, we also investigated whether the scaling condition including just one follow-up question had a positive effect relative to the PF condition.

Method

Participants

One hundred and fifteen female students aged 14–15 (Mean = 15.4) participated in Experiment 2. Students attended the same school as participants in Experiment 1. Their first language was English. Students were in their fourth year of secondary school. As before, no students suffered from known cognitive impairments that might have made it difficult to participate in the study. All students in the year were therefore deemed eligible to participate. All students read a “Participant Information” sheet and gave informed consent. No student opted out of the study.

Procedure

The procedure was the same as in Experiment 1 except for the experimental conditions. Students in Experiment 2 were randomly assigned to one of three conditions: (a) Success scaling plus one follow-up question (“What could you do to go up one point?”); (b) Success scaling plus two follow-up questions (“What did you do to get to that level?” + “What could you do to go up one point?”); (c) a problem-focused condition.

Success scaling + 1 SF question. Students in this condition were presented with the 0–10 “success scale” and asked to write down their highest level of success (in the area that they had identified). After this, they were asked to list 1–2 things that they could do to go up one point on the scale.

Success scaling + 2 SF questions (Doubly augmented scaling condition). Students in this condition were presented with the 0–10 “success scale” and asked to write down their highest level of success. They were then invited to think about *how* they had achieved that level of success (“What did you do to get to that level?”). They were asked to write down 1–2 things that they did. Finally, they were asked to list 1–2 things that they could do to go up one point on the scale.

Problem-focused condition. Students in this condition were asked to consider what was “holding [them] back.” They were asked to write down 1–2 things that were *preventing* them from having the success that they wanted. Then they were asked to list 1–2 things that they could do to make progress.

Measures

The improvement expectancy (IE) and commitment to improvement (CTI) measures were the same as those used in Experiment 1 ($\alpha = 0.73$ and $\alpha = 0.88$, respectively).

Table 3. Examples of Student Responses in the Three Conditions

| Condition | Example of response |
|-----------------------------------|--|
| <i>Problem-focused</i> | “I procrastinate and I’m not sure about the layout of exams.” “I could ask teachers to explain the layout of the exam and make a timetable so I don’t procrastinate.” |
| <i>Success scaling + one SFQ</i> | “7” (out of 10) “I could read more example answers and understand in more depth the way to approach them.” |
| <i>Success scaling + two SFQs</i> | “7” (out of 10) “I revised a lot and made a lot more notes than usual” “I could do more past papers, flashcards and rewrite notes.” |

Note. SFQ = Solution-focused question.

Table 4. Group Means and Standard Deviations for Improvement Expectancy (IE) and Commitment to Improvement (CTI)

| | Problem-Focused | | Scaling + 1 SFQ | | Scaling + 2 SFQs | |
|-----|-----------------|-----------|-----------------|-----------|------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| IE | 5.28 | 1.19 | 5.21 | 0.91 | 5.64 | 1.28 |
| CTI | 4.81 | 1.12 | 4.87 | 1.02 | 5.11 | 1.08 |

Note. IE = Improvement Expectancy. CTI = Commitment-To-Improvement. SFQ = Solution-focused question.

Results

Examples of students’ responses are given in Table 3.

Descriptive statistics are presented in Table 4. Within the scaling-plus-one-SF-question condition, the mean score on the “success scale” was 6.4 (SD = 1.7). Within the scaling-plus-two-SF-questions condition, the mean score was 6.8 (SD = 1.7).

The assumptions for ANOVA and multiple regression (e.g., homogeneity of variance) were examined as in Experiment 1. Once again, all assumptions appeared to have been met. 95% confidence intervals are given square brackets.

The Effect of Condition on Improvement Expectancy (IE)

A one-way ANOVA indicated that the effect of condition on IE was not statistically significant: $F(2,112) = 1.54$, $p = .22$, $\eta^2 = .03$. However, as predicted by H5(a)(i) and H5(a)(ii), mean IE was higher in the condition involving scaling and two follow-up questions than in the other two conditions. Compared to the problem-focused condition, the apparent superiority of the doubly augmented scaling condition was small: $d = 0.29$ [-0.16, 0.74]. Compared to the condition involving scaling and one SF question, the apparent superiority was larger but still small: $d = 0.39$ [-0.07, 0.84].

The Effect of Condition on Commitment to Improvement (CTI)

A one-way ANOVA indicated that the effect of condition on CTI was not statistically significant: $F(2,112) = 0.80$, $p = .45$, $\eta^2 = .01$. However, as predicted by H5(b)(i) and

H5(b)(ii), mean CTI was higher in the doubly augmented scaling condition than in the other two conditions. Compared to the problem-focused condition, the apparent superiority was small: $d = 0.27$ [-0.19, 0.71]. Compared to the condition involving scaling and one SF question, the apparent superiority was also small: $d = 0.23$ [-0.22, 0.68].

The Relationship Between IE and CTI

The association between IE and CTI, controlling for condition, was positive and statistically significant: $b = .21$ [.03, 0.38], $t = 2.37$, $p < .05$. The standardised beta coefficient was .22. H2 was therefore further supported.

Mediation Analysis

Mediation analysis was conducted in order to investigate whether the doubly augmented scaling condition enhances CTI by increasing IE. The tests for direct and indirect effects were conducted in the same way as in Experiment 1. The problem-focused group was coded as the reference group. The omnibus test of the direct effect indicated that the change in R^2 (.007) was not statistically significant: $F(2, 111) = .42$, $p = .66$. The coefficients for relative direct effects were also not statistically significant ($ps > .37$). There was therefore little to suggest that the doubly augmented scaling condition has a positive effect on commitment to improvement (relative to the problem-focused condition). The indirect effect of the doubly augmented scaling condition relative to the problem-focused condition was positive (.07). However, the bootstrap confidence interval included zero: [-0.04, .24]. Thus it could not be concluded that the doubly augmented scaling condition enhances CTI by increasing IE. There was therefore no strong evidence to support H6.

Brief Discussion

As predicted, mean IE and CTI were higher in the doubly augmented scaling condition (“What is the highest level of success you’ve achieved from 0 to 10?” + “What did you do to get to that level?” + “What could you do to go up one point?”) than in the problem-focused and scaling condition including just one follow-up question. However, the differences were small and not statistically significant. There was also no good evidence to suggest that the doubly augmented scaling condition enhances CTI by increasing IE. The scaling-plus-one-SF-question condition had the lowest IE. In addition, its mean CTI was barely higher than that of the problem-focused condition. It appears that asking students to identify their highest level of success on a 0–10 scale and then to list 1–2 things they could do to go

up one point is not a particularly effective approach. Further support for this assumption is provided by the results of Experiment 1, in which the same condition was associated with lower IE and CTI than the scaling-only group.

Research with adults suggests that asking individuals to list means of goal attainment enhances expectancy and commitment (Kruglanski et al., 2011). However, research on the “ease-of-retrieval” heuristic indicates that if students *struggle* to generate many such means they may come to have *lower* expectancy (e.g., Vaughn, 1999). Students in the scaling condition with only one follow-up may have struggled to think of ideas. On the other hand, students in the doubly augmented condition may have benefitted from the intermediate question (“What did you do to get to that level?”). By recalling what they did to achieve previous success, students may have found it easier to identify strategies for improvement. Thus, ease-of-retrieval may have been higher for students in the doubly augmented scaling condition, which may explain their slightly higher IE. Of course, this suggestion is speculative and a simpler explanation (e.g., chance) should also be considered.

CONCLUSION

As far as we are aware, the present study is the most thorough examination of solution-focused scaling to have been conducted in a school (or elsewhere). It is also only the second study to examine scaling in a randomised controlled experiment. Abdulla and Woods (2021) found that success scaling had little or no positive impact on school students’ expectancy and commitment. The present study extended the work of Abdulla and Woods (2021) by supplementing scaling with commonly used follow-up questions. Results suggest that these additional questions may not do much to enhance scaling’s effects.

These findings have important implications for several groups. Solution-focused approaches are increasingly popular in schools (e.g., Ajmal & Ratner, 2019; Kim et al., 2017; Simmonds, 2019). School leaders will therefore want to know which SF techniques are actually effective. Solution-focused (SF) theorists and practitioners should also take note. Scaling is universally championed in the SF literature (e.g., Berg & Szabó, 2005; De Jong & Berg, 1998; Jackson & McKergow, 2007; Lutz, 2014; Ratner & Yusuf, 2015; Sklare, 2005). Almost every SF intervention involves some form of scaling (Gingerich & Peterson, 2013). Scaling is said to enhance confidence, expectations, motivation and commitment (e.g., Berg & de Shazer, 1993; Hepworth et al., 2017; Lutz, 2014; Thomas, 2013). The results of the present study suggest that SF practitioners may be

unwise to set much store by (success) scaling. Of course, there are many other ways in which scaling could be used. For example, instead of scaling their “highest level of success,” students could be invited to scale their *current* performance. If current performance is unsatisfactory, such scaling may do little to enhance IE. However, it might be easier for students to think of ways to “go up one point” if current performance is low. In addition, even if scaling questions are not the “silver bullet” that popular texts imply, they may help students to measure their progress (Parsons, 2009).

The results of this study also have broader implications for any PPIs used in schools. One of the primary motivations of SF approaches is to provide brief and easy-to-implement interventions. Even single-session PPIs such as “Best possible self” require up to 20 minutes to be carried out. It is for this reason that commentators have called for shorter, simpler interventions (e.g., Shankland & Rosset, 2016). However, the results of the present study suggest that brevity and simplicity, if taken too far, may not have the desired effect. It should be noted that unlike a typical “Best possible self” exercise, solution-focused success scaling does not involve extended writing. Nor does it involve visualisation. Indeed, relatively little is required of participants. Although this may seem desirable, it may also limit the benefits of the intervention. Some evidence suggests that the more effort people make when engaging in PPIs, the larger the expected gains (Lyubomirsky et al., 2011). The number of times an exercise is carried out also correlates positively with experienced benefits (Odou & Vella-Brodrick, 2013). Finally, at least one study suggests that the more words people use when engaging in a PPI the more likely they are to benefit (Gander et al., 2020). In order to be more effective, therefore, success scaling may need to be augmented. After identifying their highest level of success and rating it on a scale, participants could be asked to spend a couple of minutes writing about or *visualising* that level. Of course, the more that is added to the intervention the less it can claim to be “brief.” Future studies should therefore add a little (rather than a lot) before re-estimating effects.

This study does have limitations. First, participants were all female. Researchers may wish to examine the effects of the present interventions on samples including males. In addition, an even larger sample size would help researchers to obtain narrower confidence intervals. Finally, the techniques investigated in the present study might be more effective in a face-to-face coaching context. It has been suggested that the apparent simplicity of SF techniques could lead people to overlook important interpersonal dynamics (Hepworth et al., 2017). Students might benefit more from scaling if they are assisted by an encouraging adult.

Nevertheless, the present study should give schools using SF approaches pause for thought. It has been suggested that whereas positive psychology may be “more science than art” SF approaches may be more “art than science” (Bannink & Jackson, 2011, p. 20). If SF approaches are to be considered evidence-based, then more research should be conducted on central techniques (e.g., scaling). The present study should be considered an important step in this direction.

DISCLOSURE STATEMENT

The authors have no conflicts of interest to report.

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