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Embedding the Three Circles (3C) digital measure in Qualtrics surveys

The Three Circles (3C) digital measure can be embedded within Qualtrics surveys to capture respondents' self-identified representation of each of the three regulatory systems. This works by embedding a HTML object (an *iframe*) within a text question in Qualtrics – this object is the interactive three circles measure whereby respondents can resize each circle. Using Javascript, the size of each circle is captured by Qualtrics through *embedded fields*, saving the data outside of traditional questions in the survey. The radius of each circle is stored in these embedded fields, which is included in the data output alongside traditional survey question responses.

This brief guide will take you through the steps to embed the 3C measure in your Qualtrics survey, including instructions for capturing 3C metrics multiple times within the same survey.

If using the 3C measure in your research, please cite the following paper:

Moloney-Gibb D, Sherwell CS, Lynn S, Day J, Kirby JN. Testing a digital and interactive scale (the three circles) to assess emotion regulation. Sci Rep. 2025 May 10;15(1):16351. doi: 10.1038/s41598-025-94706-7. PMID: 40348900; PMCID: PMC12065835.

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Working from the template

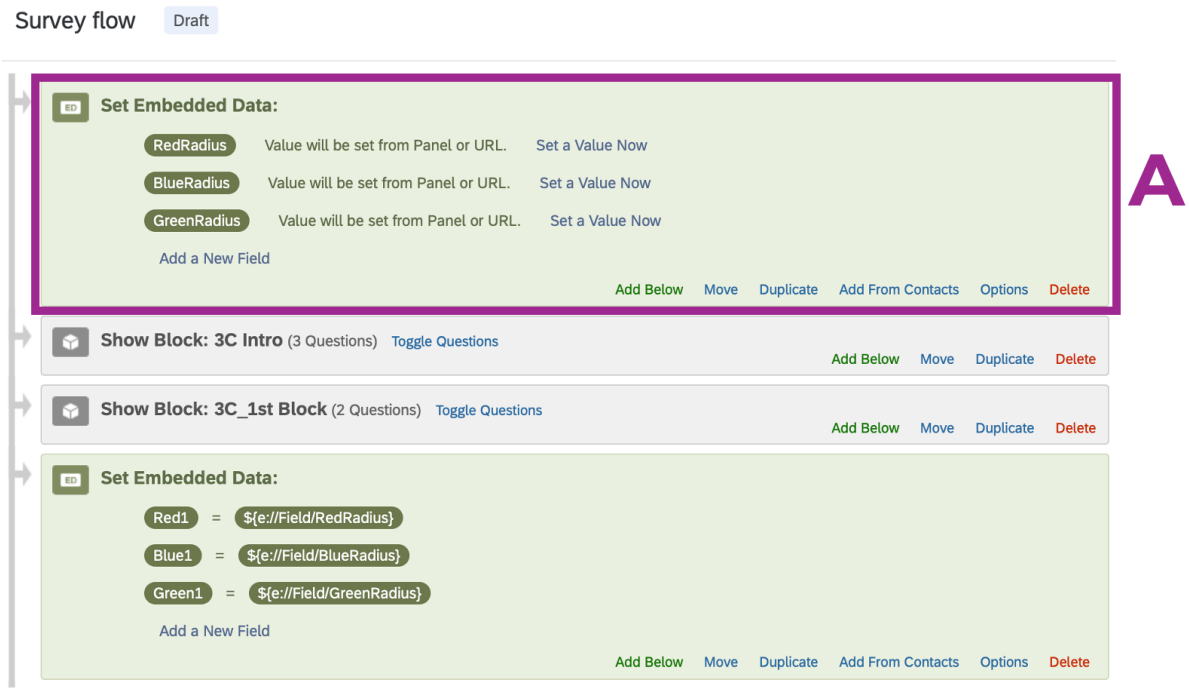
We have provided a template Qualtrics file to illustrate how the three circles measure can be embedded in surveys. Working from the template is not *necessary* but can provide a basic understanding of how the measure operates in Qualtrics. Please feel free to adapt as you see fit. Skip to the next section if you wish for a more technical guide for embedding the 3C measure.

Elements of the Qualtrics Template

Survey Flow

Prior to any Question blocks presented to participants, Embedded Data Fields need to be specified to allow saving of 3C data. By navigating to the 'Survey Flow' option of the Qualtrics Survey page, one can define embedded fields. This is present in the template as the first workflow block specifying three fields (**Figure 1A**): 'RedRadius', 'BlueRadius', & 'GreenRadius'.

Figure 1.
Survey Flow of Template



Setting up these embedded fields is critical for saving data from the 3C measure. It is important to note that these field labels are **case sensitive** (i.e., need to specify 'RedRadius' rather than 'redradius').
Each time a participant completes a 3C measure, their responses are stored in the format of the radius of each circle (in pixels) within these fields.

3C Intro Block

Prior to completing the 3C measure, participants require a brief introduction to the three circles model.

Timer Elements

We recommend including 'Timer' elements at the beginning of pages or blocks, as this will allow assessment of the extent to which participants engaged with each section of the survey. In particular, it helps assess whether participants watched the full introductory video or other important information. But this is entirely optional.

Figure 2.

Example of Timer Question in Qualtrics

Preamble & Video

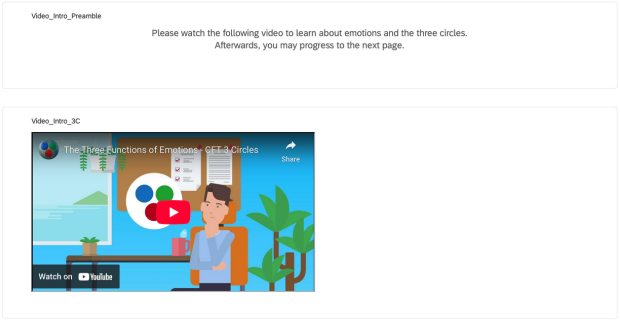
Prior to completing the three circles measure, participants should be familiarised with the model. The Compassionate Mind Research Group has a growing library of introductory videos for different populations which can be accessed via our homepage.

Our broad-audience, English-language introductory videos are available via YouTube and easily embedded in survey software:
The Three Circles – Introduced by Associate Professor Stan Steindl
https://youtu.be/CUBloap2ixI?si=rhj1CJV-Ejq2O2Yq
The Three Functions of Emotions – Introduced by Ibrahim Al-Rashed
https://youtu.be/7slmGnOiGFs?si=MIuFel49m7Yv7OhZ

In our template, we use a text 'question' to introduce this psychoeducation

Figure 3.

Screenshot of template introduction to the three circles



Three Circle Instructions

Prior to completing the 3C digital measure, we provide participants with some preliminary instructions for how to respond on the measure.

Here is an example of our typical instructions:

Using the three circles below, resize each circle to reflect **what they feel like right now**, with larger circles representing more dominance of that system.

RED = THREAT SYSTEM

The Red Circle: This system is focused on threats and protection. It is focused on your safety, making sure you avoid harm or fight to protect yourself. Threats can be physical (e.g. risk of injury) and social (e.g., being judged, rejected). Emotions experienced in this circle typically include anger, anxiety, fear, and disgust

BLUE = DRIVE SYSTEM

The Blue Circle: This system is focused on wanting and achieving things, such as wanting status (e.g., promotion), praise, and to win or be the best at something. It can also be about wanting food, drink, sex, as well as material things such as car, house, bigger TV. Emotions experienced in this circle typically include excitement, joy, happiness, or a sense of achievement.

GREEN = SOOTHING SYSTEM

The Green Circle: This system is focused on being content and at ease. It is focused on non-wanting and having a sense of contentment and connectedness. Emotions that are experienced in this circle typically include feelings of calmness, contentment, and safeness.

Please resize each circle by dragging the edge of the circle using your mouse. If you are on a mobile device, use one finger to resize by dragging the edge of each circle.

Please be mindful of how you intend to measure the three regulatory systems.

In this example, we ask participants to reflect on *how they feel right now*. You may wish to change this phrasing if you wish to capture three circle activation over different time periods (e.g., **over the last week**; Moloney-Gibb et al., 2025).

The Three Circles

Embedding the 3C measure from the template is fairly straightforward, and facilitated by copying or saving this question block to library, then embedding it in the desired survey.

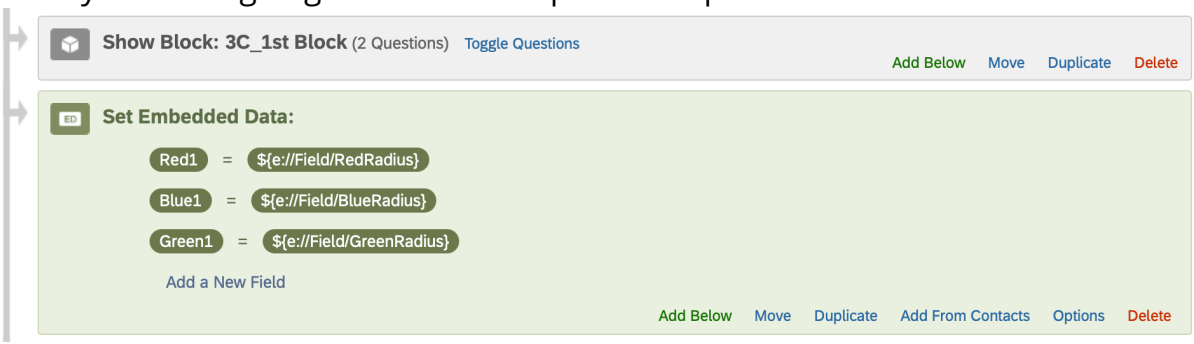
The three circles measure is embedded as a HTML object which will save the results to the embedded fields of RedRadius, BlueRadius, and GreenRadius.

Saving 3C Results

If you intend to embed the 3C measure multiple times within a single survey, it is critical that you specify different responses. This is facilitated by assigning the 'temporary' results from RedRadius, GreenRadius, and BlueRadius into specified embedded fields.

To do so, we can edit the survey workflow to copy existing embedded fields into new fields.
In the example below (**Figure 4**), the 3C measure is presented in the block named '3C_1st Block'.
Following this survey block, the set embedded data field is entered and allocates the existing fields of 'RedRadius', 'BlueRadius', and 'GreenRadius' to fields that will designate the timepoint of the measurement. In this example, we use Red1, Blue1, and Green1 to denote the first instance of the 3C measure.

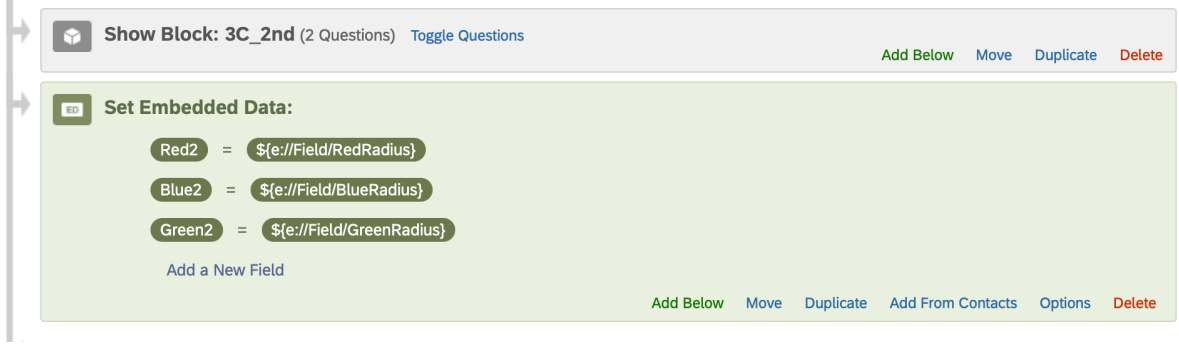
Figure 4.
Survey Flow assigning 3C metrics to specific outputs



This step is only critical if you intend to capture multiple instances of the 3C measure within the same survey. The default fields of RedRadius, BlueRadius, and GreenRadius will suffice if you only capture the 3C once.

Otherwise, you will need to repeat blocks presenting the 3C measure, followed by a survey flow block that specifies the metrics to new fields. As shown in **Figure 5**, this simply involves embedding the same 3C question, followed by a 'set embedded data' block that assigns the temporary fields to new fields: Red2, Blue2, and Green2. The same process can be repeated for any further instances of the 3C measure within the same survey.

Figure 5.
Survey Flow assigning 3C metrics to secondary outputs



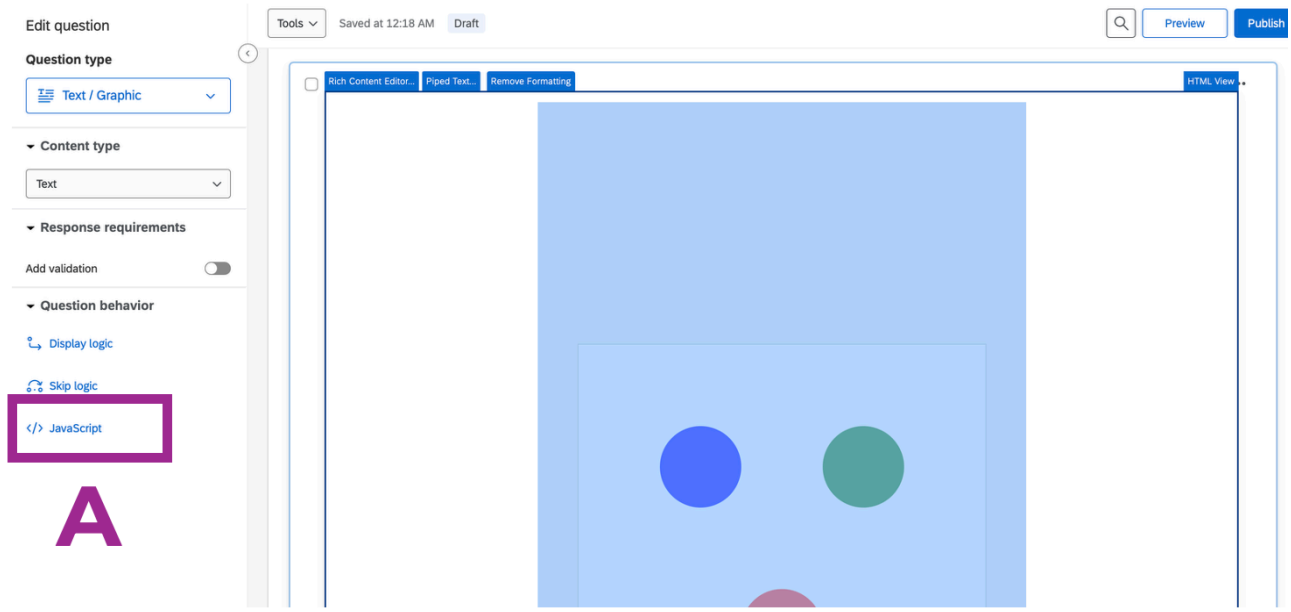
Working from base Qualtrics

The 3C measure is hosted externally as a HTML object on GitHub. This can be embedded easily in Qualtrics. By creating a 'Text/Graphic' question in a survey, then choosing to edit via HTML, you can include the base code that will link with the external HTML object:

```
<div style="position:relative; width:100%; max-width:600px; height:0; padding-bottom:100%; margin: 0 auto;" id="responsive-iframe-container"><iframe style="position:absolute; top:0; left:0; width:100%; height:100%; border:0;" src="https://csherwell.github.io/" id="circle-iframe"></iframe></div>
```

Critically, you will need to add Javascript behaviour to ensure proper functioning. You can access the Javascript behaviour of a question in the lefthand menu (See Figure 6A)

Figure 6.
Editing behaviour of the 3C measure



This is the code that needs to be included in the Javascript option:

```
Qualtrics.SurveyEngine.addOnload(function () {
  var allowedOrigins = ["https://csherwell.github.io"]; // adjust if your console showed different
function toNum(v){ var n = (typeof v === "number") ? v : parseFloat(v); return Number.isFinite(n) ? n :
null; }
 window.addEventListener("message", function (event) {
   if (allowedOrigins.indexOf(event.origin) === -1) return;
var d = event.data || {};
   var r = toNum(d.redRadius), b = toNum(d.blueRadius), g = toNum(d.greenRadius);
 if (r != null) Qualtrics.SurveyEngine.setEmbeddedData("RedRadius",  r.toFixed(2));
   if (b != null) Qualtrics.SurveyEngine.setEmbeddedData("BlueRadius", b.toFixed(2));
   if (g != null) Qualtrics.SurveyEngine.setEmbeddedData("GreenRadius",g.toFixed(2));
 try { console.log("[circle] stored:", {r,b,g}); } catch(e){}
  }, false);
});
Qualtrics.SurveyEngine.addOnReady(function()
{
});

Qualtrics.SurveyEngine.addOnUnload(function()
{
});
```

Please see earlier sections on template instructions for where and how to include embedded data to store 3C data.