<center>**Supplementary Materials**</center>

<center>**ENHANCE: Evidence for the Efficacy of a Comprehensive Intervention Program To Promote Subjective Well-Being**</center>

<center>**Method**</center>

Scale reliabilities for all measures at the baseline, posttest, and follow-up assessments are provided in Table S1.

While ENHANCE was designed as an intervention for increasing SWB, we sought to evaluate whether it also affected global psychological health and well-being. First, participants completed the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) assessing presence of meaning (e.g., I have a good sense of what makes my life meaningful) and search for meaning (e.g., I am searching for meaning in my life) rated from 1 (*absolutely untrue*) to 7 (*absolutely true*). Second, participants completed the 9-item Need Satisfaction Scale (La Guardia, Ryan, Couchman, & Deci, 2000), measuring autonomy (e.g., I feel free to be who I am), competence (e.g., I feel like a competent person), and relatedness (e.g., I feel loved and cared for) on a (*not at all*) to 5 (*very much*) response format. Third, the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) was administered; 1 (*strongly disagree*) to 4 (*strongly agree*).

<center>**Results**</center>

Meaning in Life

ENHANCE (vs. control) participants demonstrated greater increases in presence of meaning in life over the course of the study, reflected by a linear effect, b(se) = .21(.09), β = .07, $t(258)$ = 2.29, p = .023, and no quadratic effect, b(se) = -1.81(1.27), $t(256)$ = -1.42, p = .156. There were no condition effects on the search for meaning subscale: linear, b(se) = -.13(.11), β = -.03, $t(258)$ = -1.18, p = .241; quadratic, b(se) = 1.19(1.45), $t(256)$ = .82, p > .250. Tests probing the effects, examining condition × time

(baseline vs. posttest/baseline vs. follow-up) interactions and means within condition and time for meaning in life and the subsequent measures are reported in Table S2.

Psychological Needs Satisfaction

Effects of the ENHANCE program on satisfaction of three basic psychological needs: autonomy, competence, and relatedness, were assessed next. We found linear increases for the ENHANCE (vs. control) participants for autonomy, b(se) = .13(.06), β = .07, t(258) = 2.07, p = .039, but not for competence, b(se) = .16(.15), β = .08, t(258) = 1.06, p > .250, or relatedness, b(se) = .18(.14), β = .08, t(258) = 1.31, p = .191. Further, there were no quadratic effects for autonomy, b(se) = -.39(.83), t(256) = -0.46, p > .250, competence, b(se) = -1.04(.80), t(256) = -1.29, p = .198, or relatedness, b(se) = .24(.93), t(256) = 0.26, p > .250. Probing these effects, however, revealed delayed effects for autonomy and relatedness such that while condition differences did not emerge at posttest, there were condition by time interactions from baseline to follow-up suggesting a slower accrual of these gains over time.

Self-esteem

The ENHANCE program produced greater increases in self-esteem compared to controls, linear, b(se) = .06(.03), β = .04, t(258) = 1.91, p = .058, quadratic, b(se) = -.83(.39), t(256) = -2.13, p = .034. This pattern suggests that ENHANCE produced self-esteem improvement at posttest, but these self-esteem gains were not maintained at follow-up.

Supplementary Figures

We provide supplementary figures depicting results for the memory task, negative psychological health variables, and the skills measures by condition across the three assessments in Figures S1, S2, and S3.

Table S1. Scale reliabilities across assessments.

	Baseline	Posttest	Follow-Up
Positive Affect	.92	.92	.91
Negative Affect	.84	.90	.88
Life Satisfaction	.87	.89	.91
Meaning in Life-Presence	.90	.91	.90
Meaning in Life-Search	.93	.92	.93
Autonomy	.73	.78	.79
Competence	.82	.85	.81
Relatedness	.74	.85	.79
Self-Esteem	.89	.90	.90
Depression	.76	.79	.81
Perceived Stress	.88	.88	.89
Self-Integrity	.88	.91	.95
Goals (r)	.62	.69	.64
Strengths Use	.96	.96	.97
Mindfulness	.82	.83	.80
Self-Compassion	.84	.83	.79
Savoring	.92	.91	.91
Capitalization	.75	.73	.80
Gratitude	.87	.88	.71
Sense of Community	.92	.95	.94
Prosocial Impact	.84	.89	.83

Note. All values represent alpha reliabilities unless otherwise indicated in the case of the two-item scale of Goals

Table S2. Subjective well-being correlates within conditions and assessments.

	Baseline M(SD)	Baseline to Posttest × Condition Posttest M(SD)	Baseline to Follow-Up × Condition Follow-Up M(SD)
Meaning in Life		$F(1,131) = 5.82**, \eta_p^2 = .04$	$F(1,125) = 3.54\dagger, \eta_p^2 = .03$
Control	4.50 (1.36)	4.88 (1.37)	4.84 (1.22)
ENHANCE	4.46 (1.29)	5.25 (1.10)	5.25 (1.06)
Cohen's d	-0.03	0.30	0.36
Search for Meaning		$F(1,131) = 1.51, \eta_p^2 = .01$	$F(1,125) = 1.41, \eta_p^2 = .01$
Control	4.68 (1.37)	4.65 (1.38)	4.40 (1.45)
ENHANCE	4.44 (1.72)	4.20 (1.86)	3.96 (1.77)
Cohen's d	-0.15	-0.27	-0.27
Autonomy		$F(1,131) = 1.99, \eta_p^2 = .02$	$F(1,125) = 4.42*, \eta_p^2 = .03$
Control	3.77 (0.86)	3.90 (0.83)	3.90 (0.81)
ENHANCE	3.95 (0.78)	4.26 (0.75)	4.32 (0.68)
Cohen's d	0.22	0.46	0.56
Competence		$F(1,131) = 5.20*, \eta_p^2 = .04$	$F(1,125) = 5.49*, \eta_p^2 = .04$
Control	3.65 (0.86)	3.86 (0.82)	3.90 (0.76)
ENHANCE	3.72 (0.88)	4.19 (0.72)	4.23 (0.67)
Cohen's d	0.08	0.43	0.46
Relatedness		$F(1,131) = 1.06, \eta_p^2 = .008$	$F(1,125) = 4.66*, \eta_p^2 = .04$
Control	3.43 (0.86)	3.62 (0.97)	3.55 (0.93)
ENHANCE	3.32 (0.92)	3.64 (0.93)	3.74 (0.82)
Cohen's d	-0.12	0.02	0.22
Self-Esteem		$F(1,131) = 7.13**, \eta_p^2 = .05$	$F(1,125) = 2.01, \eta_p^2 = .02$
Control	3.04 (0.53)	3.14 (0.55)	3.18 (0.54)
ENHANCE	3.16 (0.56)	3.36 (0.51)	3.38 (0.50)
Cohen's d	0.22	0.41	0.38

Note. ***$p < .001$, **$p < .01$, *$p < .05$, $\dagger p < .10$.

Table S3. Indirect effects of condition on change in subjective well-being from baseline to posttest and baseline to follow-up through change in targeted skills.

Skill Measure	Change from Baseline to Posttest			Change from Baseline to Follow-Up		
	Positive Affect	Negative Affect	Life Satisfaction	Positive Affect	Negative Affect	Life Satisfaction
Self-Integrity	**.06 (.04)** **[.004, .15]**	-.01 (.03) [-.08, .05]	.04 (.03) [-.002, .11]	.05 (.07) [-.01, .22]	-.04 (.05) [-.16, .008]	.01 (.03) [-.01, .11]
Goals	.02 (.03) [-.02, .08]	-.02 (.02) [-.07, .03]	.008 (.02) [-.03, .05]	.04 (.04) [-.02, .13]	-.03 (.03) [-.11, .02]	**.06 (.04)** **[.001, .14]**
Strengths Use	**.07 (.04)** **[.01, .17]**	-.02 (.03) [-.09, .04]	**.06 (.03)** **[.005, .13]**	**.11 (.07)** **[.01, .27]**	-.05 (.04) [-.15, .005]	**.09 (.05)** **[.01, .20]**
Mindfulness	**.10 (.05)** **[.02, .20]**	**-.07 (.04)** **[-.16, -.01]**	**.07 (.04)** **[.01, .15]**	.05 (.06) [-.05, .20]	-.05 (.05) [-.15, .04]	.03 (.03) [-.03, .11]
Self-Compassion	**.10 (.05)** **[.02, .22]**	**-.12 (.05)** **[-.24, -.03]**	.06 (.05) [-.003, .17]	**.07 (.05)** **[.001, .20]**	**-.07 (.04)** **[-.18, -.01]**	.02 (.03) [-.03, .10]
Savoring	**.20 (.07)** **[.09, .34]**	**-.09 (.05)** **[-.19, -.01]**	**.10 (.04)** **[.03, .19]**	.05 (.04) [-.02, .13]	-.02 (.03) [-.08, .03]	.01 (.02) [-.02, .05]
Capitalization	**.06 (.04)** **[.002, .14]**	-.01 (.03) [-.07, .04]	.06 (.04) [-.005, .15]	**.15 (.07)** **[.05, .30]**	**-.11 (.06)** **[-.25, -.01]**	**.08 (.05)** **[.01, .19]**
Gratitude	**.14 (.05)** **[.05, .26]**	**-.12 (.06)** **[-.25, -.03]**	**.07 (.04)** **[.01, .17]**	.04 (.04) [-.03, .15]	-.03 (.03) [-.10, .02]	.02 (.02) [-.02, .08]
Community	.03 (.03) [-.02, .10]	.002 (.02) [-.03, .04]	.03 (.02) [-.02, .08]	-.003 (.06) [-.12, .11]	.002 (.03) [-.06, .06]	-.002 (.03) [-.07, .06]
Prosocial Impact	.01 (.02) [-.02, .05]	.01 (.02) [-.02, .06]	.006 (.02) [-.03, .05]	.03 (.04) [-.04, .12]	-.01 (.03) [-.08, .03]	.03 (.03) [-.03, .09]

Notes. Coefficients represent the indirect effect and standard error utilizing 5000 bootstrapped resamplings. 95% confidence intervals are reported in brackets and those not containing zero are denoted with bold font.

Figure S1. Ratio of positive to negative memories recalled across waves and conditions with standard error bars.
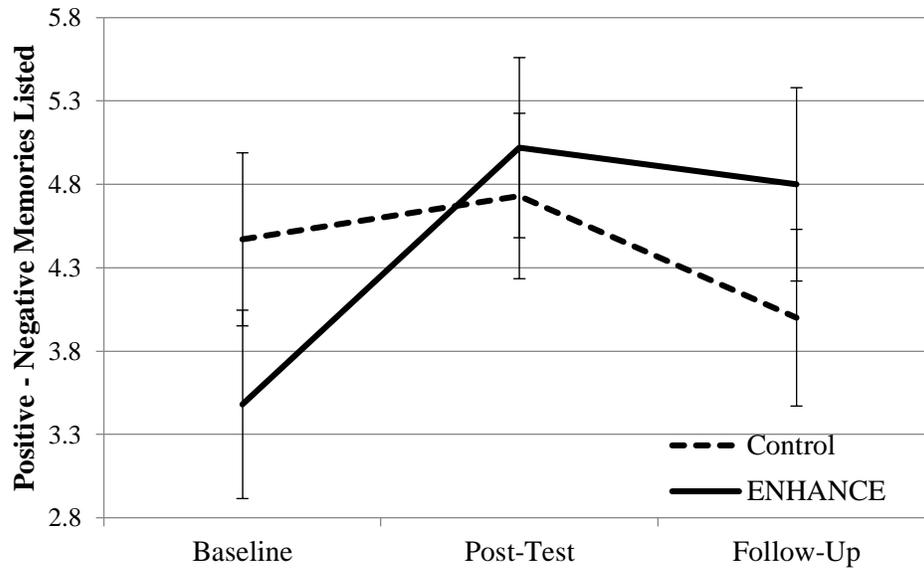

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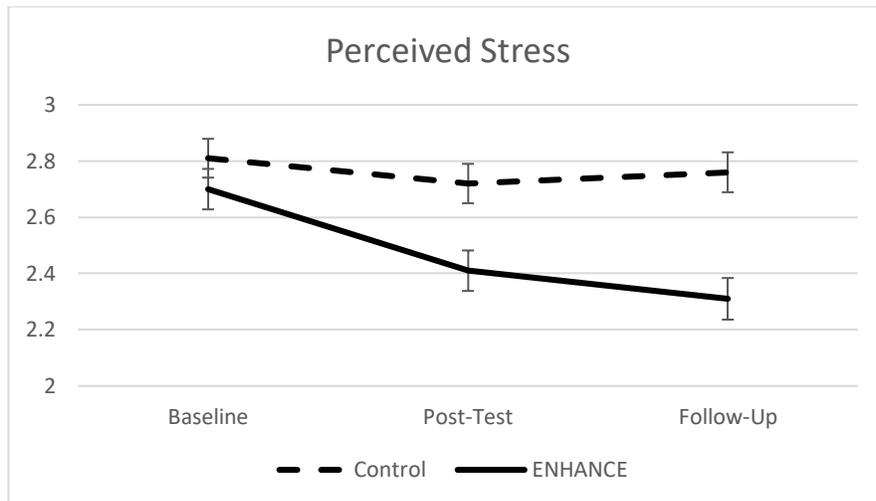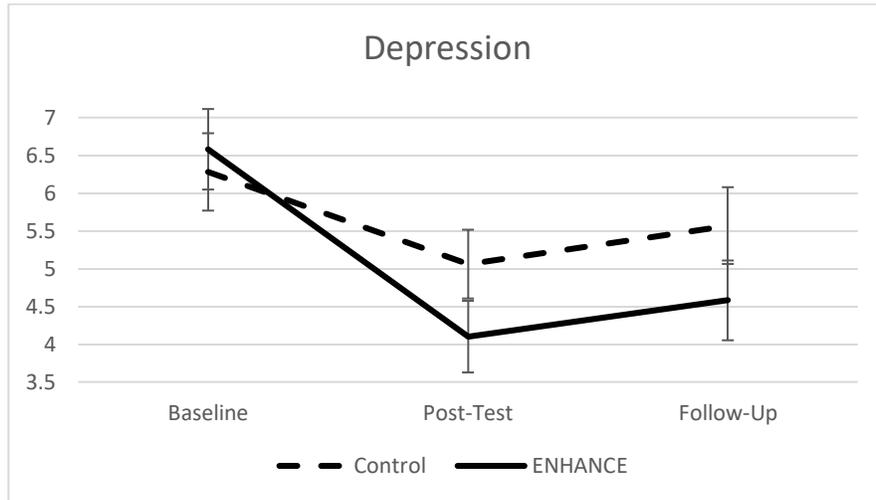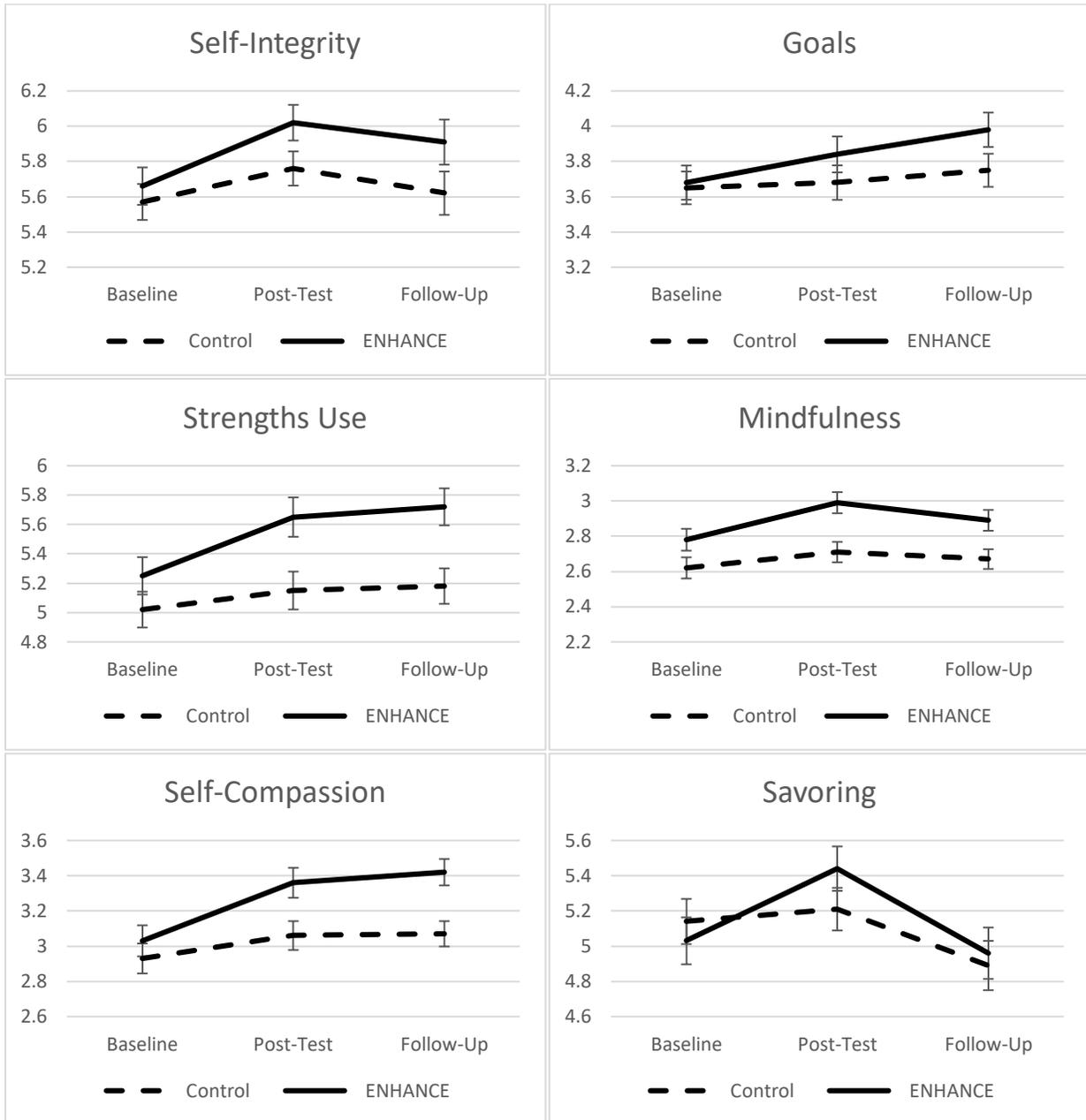**Figure S2. Negative Psychological Health by Condition and Time**
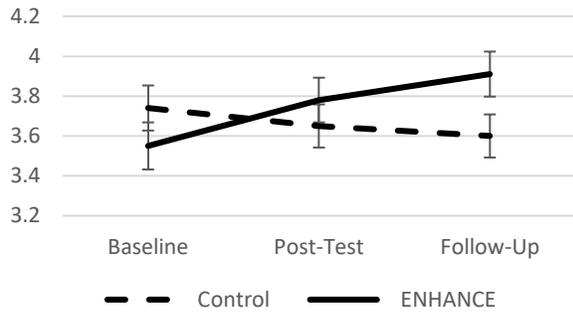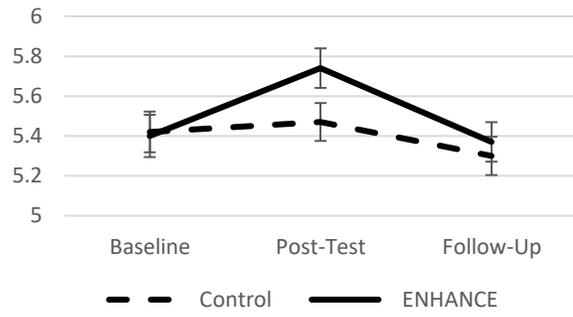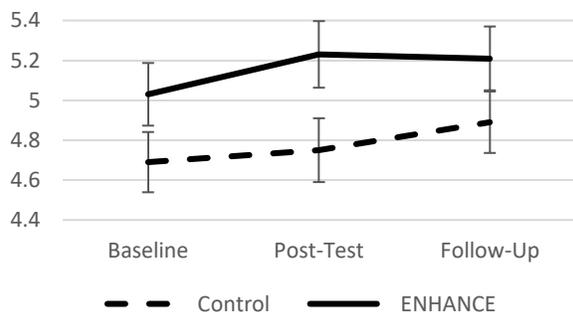
Figure S3. Skills by Condition and Time
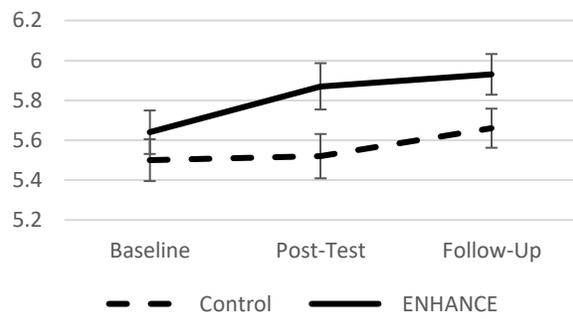
Capitalization

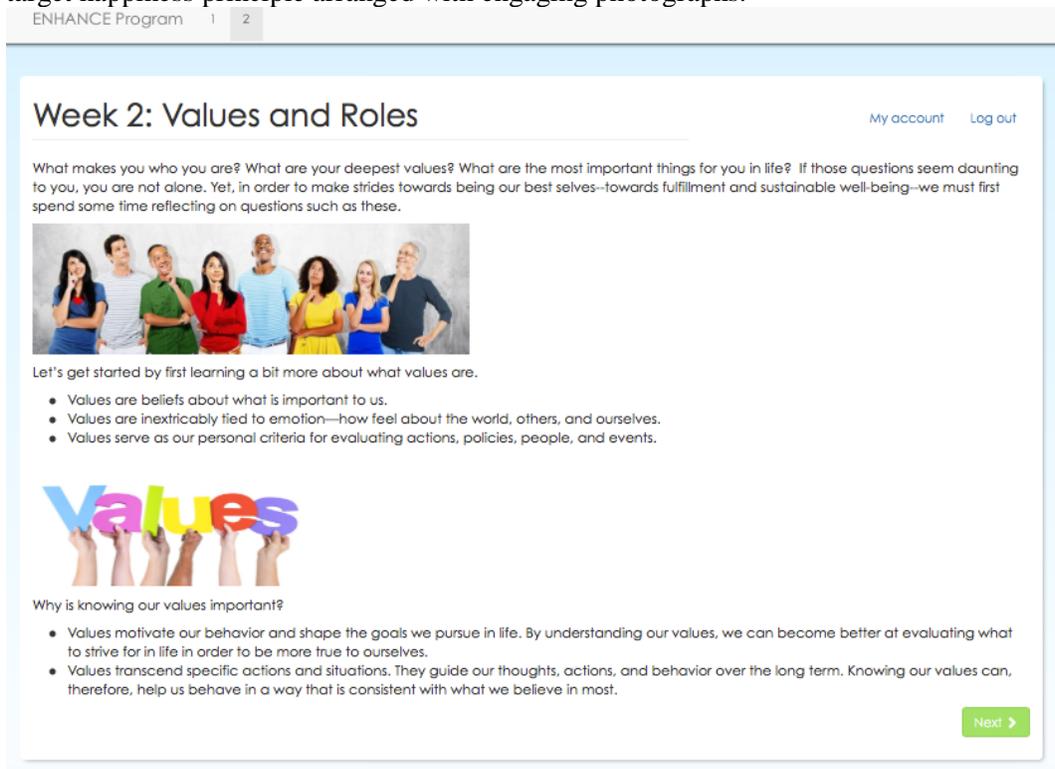Gratitude

Sense of Community

Prosocial Impact

Supplementary Appendix A.

Example of Materials Used in the Online Administration of ENHANCE

The ENHANCE Dashboard is displayed to participants upon log-in. As the modules are released week-by-week, they are displayed with the numbers on the top of the page. Participants can select the number corresponding to their next module to reach the materials. Upon completion of a given module, participants are given a badge to mark their progress.
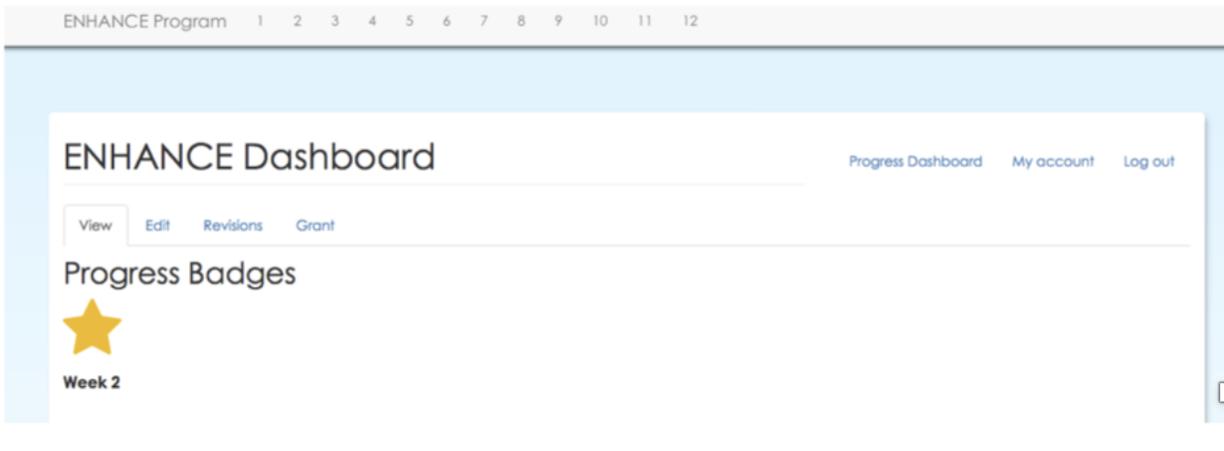
Each module begins with an educational component in which participants learn information about the target happiness principle arranged with engaging photographs.

Each module contains several interactive components that encourage participants to engage in active learning and to relate each principle to their own lives.

Exercise

Each week in this intervention, you will apply the things you learn to your life through various exercises. Now that you have had the opportunity to reflect on some of the most important values in your life, we will get a more specific by thinking about some of the most important roles you play in your life. It may be that you really value being a good parent or being good at your job. Now, please read this list of common life roles.

- Being a good friend
- Being a good parent
- Being a good son/daughter
- Being a good family member
- Being good at my job
- Being a good member of my community
- Being a contributing member of society
- Being spiritual/religious
- Being active/knowledgeable in politics
- Being a good athlete
- Being a good artist
- Being a good musician
- Being a good entrepreneur/innovator

From the above list, please select the three most important roles for you. Please try to rank order them by their personal importance to you even if they feel pretty equally important.

My most important role is:

My second most important roles is:

My third most important roles is:

Each module contains an activity assignment for the participant to engage in throughout the week ahead.

Week 2-5

My account   Log out

Putting It Into Practice

Activity of the Week

Although identifying some of the most important things in your life can be beneficial in and of itself, it is important that you find ways to support these roles through action. We would now like you to make a plan for one activity that you can do in the course of the next week that is consistent with one of the most important roles you identified. If you already spend a lot of time in your most important role, you may consider doing something in line with some of your other important roles. If you identified being good at your job as your most important role, but you already spend 60 hours a week working, then you may want to focus on another important role in which you would like to spend more time. By thinking about how we can spend more time in the important roles we neglect in life, we can ensure that we lead our lives in accordance to what matters most to us.

Please spend a few minutes thinking about something meaningful you can do this week that is line with this important role in your life.

Jeremy, for example, most values his role as a good parent. His son really likes amusement parks, so Jeremy decides to take his son to the local amusement park this weekend.

Participants are encouraged to create implementation intentions for how they will execute the assigned activity each week.

What will I do:

Where will I do it:

References

La Guardia, J.G., Ryan, R.M., Couchman, C.E., & Deci, E.L. (2000). Within-person variation in security of attachment: a self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, *79*, 367–384.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Steger, M.F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*, 80–93.