



Education Well-Being

Development and Validation of a Standard Measure

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Well-being as a concept has been receiving increased attention from academics and practitioners in recent years. Much of the more recent research focused on well-being is driven by Seligman's model of general well-being (Seligman, 2011). Academic researchers and commercial enterprises have developed measures of general well-being, and some have developed measures of workplace well-being. However, the accurate measurement of the well-being of students in higher education has largely been ignored. This paper summarizes the development and initial evaluation of a well-being measure developed for use in academic settings, drawing on a well-researched model of workplace well-being.

PERMA well-being model

Seligman's theory of well-being comprises five factors:

- Positive emotions—the experience of positive feelings and emotions, such as happiness, contentment, and pleasure
- Engagement—deep psychological connection, absorption, and interest in an activity or a cause that is intrinsically motivating
- Relationships—where the positive aspects of the relationship greatly outnumber the negative aspects and involve mutual feelings of caring, support, and satisfaction
- Meaning—having a sense of purpose and direction in life and feeling connected to something bigger than oneself
- Accomplishment—pursuing success, winning, progress, or mastery for its own sake, regardless of whether it results in positive emotions, engagement, relationships, or meaning (Seligman, 2013)

These factors combined are commonly known as the PERMA well-being model. Seligman also proposed that each PERMA factor contributes to an individual's overall well-being. Individuals pursue each factor for its own sake, and each factor is defined and measured independently from the others (Khaw & Kern, 2015; Seligman, 2011, 2013).

Study objectives

The present study has several objectives. The first objective is to examine the Myers-Briggs Company model of workplace well-being to determine if it can be extended to students in higher education. There is no shortage of research on well-being in the educational environment. However, very few of these studies actually measure student well-being, even though there are some measures available (Evans, Connell, Audin, Sinclair, & Barkham, 2005; Kern, Waters, Adler, & White, 2015; Van Petegem, Aelterman, Rosseel, & Creemers, 2007; Van Petegem, Creemers, Aelterman, & Rosseel, 2008; Williams, Pendlebury, Thomas, & Smith, 2017).

Some research has examined the subjective well-being of working adults (Harris & Rottinghaus, 2017). Much of the research on student well-being is qualitative (Schmidt & Hansson, 2018) or relies on a variety of proxy measures for education well-being—for example, a measure of life satisfaction (Rappleye, Komatsu, Uchida, Krys, & Markus, 2020) or a composite of a host of measures of student outcomes (Govorova, Benítez, & Muñiz, 2020; Shek, Yu, Wu, Zhu, & Chan, 2017).

The other common approach to research on education well-being is to infer well-being based on the absence (or low levels) of negative elements such as anxiety (Skead & Rogers, 2014), burnout, depression (Skead & Rogers, 2014), stress (Holt, Lombard, Best, Smiley-Smith, & Quinn, 2019; Skead & Rogers, 2014), or other types of psychological dysfunction (Ebert et al., 2019; Evans et al., 2005). This approach is not limited to educational research but rather is common across all areas of research on the topic of well-being.

As with much of the research within the field of psychology, the focus of well-being research tends to be on negative elements or conditions (Ebert et al., 2019) rather than on the positive psychology approach embraced by Seligman. The current approach is highly aligned with the positive psychology movement rather than with the clinical approach and has been explored by others (Kern et al., 2015; Oades, Robinson, Green, & Spence, 2011).

The second objective of this study is to explore differences in how the RIASEC elements of the *Strong Interest Inventory* assessment relate to education well-being. No research could be found connecting education well-being to vocational interests of students. This study will examine these relationships in a sample of higher-education students.

The final objective is to explore the kinds of activities students undertake to enhance or maintain their well-being. Again, there is a plethora of research on factors that can impact the well-being of students (Holt et al., 2019; Barden & Caleb, 2019), but actual well-being is rarely measured. This phase of the research is more focused on developing measures of activities for use in future studies.

Method

Sample

A convenience sample of higher-education students was obtained from the commercial database of The Myers-Briggs Company. Specifically, these were people who had previously opted into future research when they completed the *Strong Interest Inventory* assessment (SII; Donnay, Morris, Schaubhut, & Thompson, 2005). They had also indicated that they were a full-time student at the time they completed the SII assessment. In addition, they had to have indicated that they were over age 18 and a resident of the United States. This screening process resulted in a sample of approximately 19,000 students who met the requirements.

Invitations were sent in May 2022 to the email address students associated with the assessment. Of those invited, nearly 700 started the online survey; however, complete data was obtained from only 464 full-time students. Due to the facts that fewer students completed the *Strong Interest Inventory* assessment during the COVID pandemic and that many university customers disable the commercial demographics (so that students do not see and cannot opt into future research), people were invited from the years 2019 through April 2022.

Administration of the survey

The Survey Monkey platform was used to administer the survey. Individuals who met the inclusion criteria noted above were invited to participate via email. The first part of the survey included the demographic items. The second part of the survey included the 30-item measure of education well-being. After completing those items, the respondents were invited to continue on to complete the 68 education activity items.

Instrumentation

The study draws on several measures to explore education well-being. The first is the education well-being measure derived from the *Global Workplace Well-Being Inventory* (GWWI; Boulton, Thompson, & Schaubhut, 2018). The second is the *Strong Interest Inventory* assessment (SII). Finally, the third measure is the second exploratory set of 68 education activity items in the survey, items related to activities used at or during school or school-related activities to support well-being.

Education well-being measure

The education well-being survey was derived from a measure of workplace well-being now entitled the *Global Workplace Well-Being Inventory* (GWWI; Boulton, Thompson, & Schaubhut, 2018). The items were modified to be relevant for students. The instrument comprises 30 total items, written to measure six a priori elements or components of well-being. Prior work has shown that the element of emotions in Seligman's model structurally factors into two measures, one for positive emotions and one for negative emotions.

Strong Interest Inventory assessment

The *Strong Interest Inventory* assessment is a popular measure of vocational interests. The most current version (Donnay et al., 2005) of the Strong includes 291 items measuring interest in occupations and activities, personal styles, and the like. The items are measured on a 1- to 5-point Likert-type scale, with response options ranging from Not at All Interested to Very Interested. For this study, two sets of measures from the Strong were examined in relation to workplace well-being. The first set of measures is the General Occupational Themes (GOTs), which are measures of the Holland RIASEC model. The six GOTs, or RIASEC interest areas (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional), provide a high-level indicator of a person's interests. Occupations and academic pursuits can also be classified using this model. The second set of measures is the People–Things / Data–Ideas model commonly referred to as the Prediger (1982) model. In this model the Data–Ideas dimension runs between the Conventional and Enterprising dimensions (data pole) on one side of the RIASEC hexagon and Investigative and Artistic on the opposite side (ideas pole). The People–Things dimension runs perpendicular to Data–Ideas, through Realistic on one side (things pole) and Social on the opposite side (people pole). Prediger scores can be derived from RIASEC scores and are examined in the current study.

Education activities

Again, drawing on work related to the GWWI, items measuring work activities used to support the respondent's well-being were modified to measure activities students may use to enhance their well-being while at school or engaged in school-related activities (e.g., doing homework). A set of 68 items were measured using Likert-type response options ranging from 1 = Never to 6 = Always. The items asked the respondent to focus on activities at school.

Demographic items

In order to describe the sample, a number of demographic items were included in the survey. These included the respondent's age, gender, and MBTI type. We also asked about country of residence and whether or not they were still a full-time student.

Results

Sample description

The gender distribution of the sample is summarized in figure 1. As can be seen, a vast majority of the sample self-identified as female (76.1%). Typically in our research, the distribution is closer to two-thirds female and one-third male. This difference in the current sample may reflect a difference in willingness to participate, an underlying difference in the gender distribution of people willing to complete interest inventories, or the underlying gender distribution of enrollment in higher education.

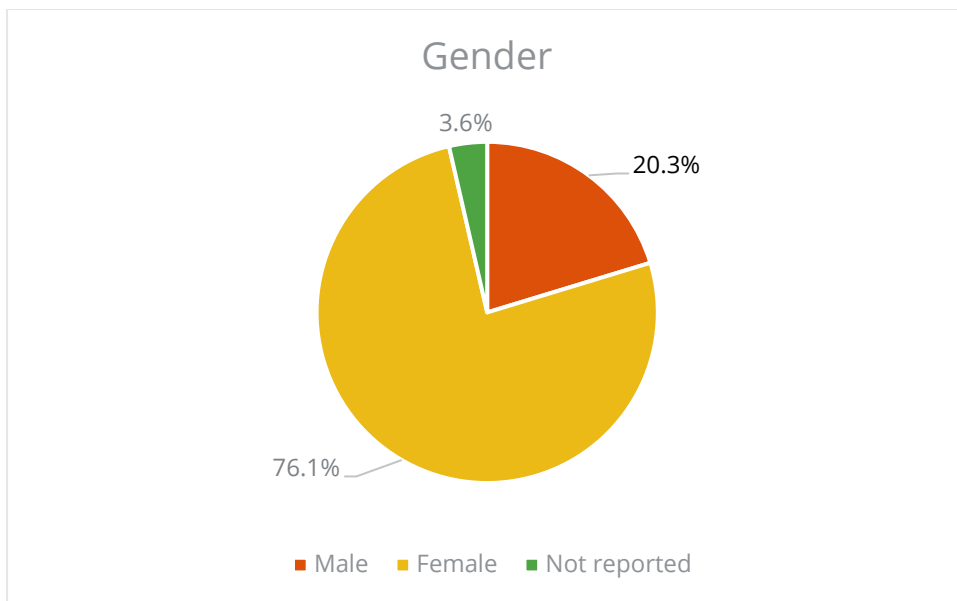


Figure 1

Gender distribution of the education well-being sample

The age distribution of the respondents is summarized in figure 2. The chart shows that a majority of the respondents (62%) were in the age range of 18 to 24, or the age range of traditional undergraduate higher-education students. There were also older students, so-called nontraditional students, with 21 percent of the sample in the 25 to 34 category.

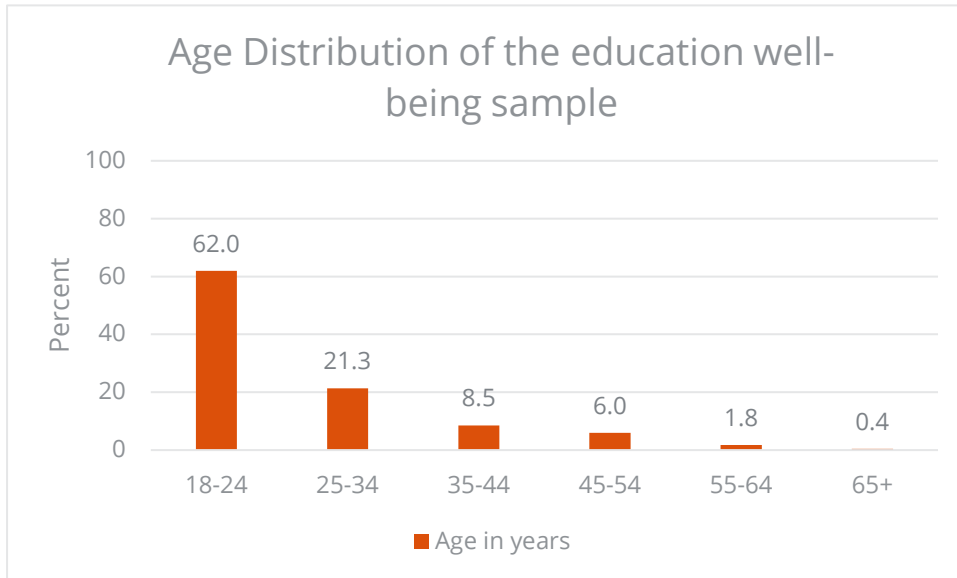


Figure 2

Age distribution of the respondents

Objective 1: Psychometric evaluation of the education well-being measure

To evaluate the structure of the education well-being instrument, an exploratory factor analysis was conducted for the 30 items that compose the measure. Given the a priori measurement assumptions and prior research on the GWWI, the analysis was set to extract six factors. The a priori factors were generally extracted intact in the analysis. Reliability of the measures is provided in table 1. The internal consistency reliability estimates (Cronbach’s Alpha, summarized in the “Alpha” column of table 1) are all .82 or above, which indicates an adequate level of internal consistency reliability.

Given the consistency of the education well-being measure with prior results of the GWWI, the items were scored to be consistent with what The Myers-Briggs Company terms the PREMAN model of well-being. This model is highly similar to Seligman’s model, with the major difference being the separation of positive and negative emotions into independent measures. With the confirmation of the expected factor structure, the items that make up the measures were scored into the six PREMAN elements along with an overall measure of education well-being. These are used for the remaining analyses presented.

In addition to giving the internal consistency estimates for the measures in this sample, table 1 summarizes the mean and standard deviation (SD) of the PREMAN elements and overall education well-being. The table also provides the correlations among the measures. The reported level of well-being in education is lower than that of working adults.

Table 1

Education well-being descriptive statistics, internal consistency reliability, and measure correlations

Measure	Mean	SD	Alpha	EWB	P	R	E	M	A	N
Overall Education Well-Being (EWB)	6.6	1.5	.87	1.00	0.84	0.66	0.85	0.84	0.80	-0.69
Positive Emotion (P)	6.2	1.8	.90		1.00	0.47	0.67	0.62	0.60	-0.60
Relationships (R)	6.6	2.1	.86			1.00	0.47	0.39	0.42	-0.28
Engagement (E)	6.7	1.8	.82				1.00	0.75	0.65	-0.43
Meaning (M)	7.0	2.1	.92					1.00	0.65	-0.48
Accomplishment (A)	7.5	1.8	.87						1.00	-0.46
Negative Emotion (N)	5.1	1.8	.83							1.00

Note: All correlations are significant at $p < .001$.

Gender differences

As was done in prior well-being research, comparisons based on gender were made, for overall education well-being and the elements of the PREMAN model. There were not a sufficient number of respondents who identified as other than male or female to include those respondents in the analysis. There is only one PREMAN element of education well-being that differs by gender and another element that approaches statistical significance. The sense of accomplishment differs for male and female respondents ($F(1, 445) = 10.78, p < .001$), with females reporting a higher level of accomplishment ($M = 7.6, SD = 1.8$) compared to males ($M = 6.9, SD = 1.7$). For the measure Meaning, a similar pattern is found (female $M = 7.1, SD = 2.1$; male $M = 6.6, SD = 2.1$). This approaches statistical significance ($F(1, 445) = 3.78, p = .053$). Overall, while not significant, the pattern holds, with females reporting a higher level of Overall Education Well-Being, Relationships, Engagement, and the experience of negative emotions. The gender differences are summarized in figure 3. These results differ from those of prior research that suggested that the main differences based on gender were found in positive and negative emotions. However, the current sample for males was relatively small.

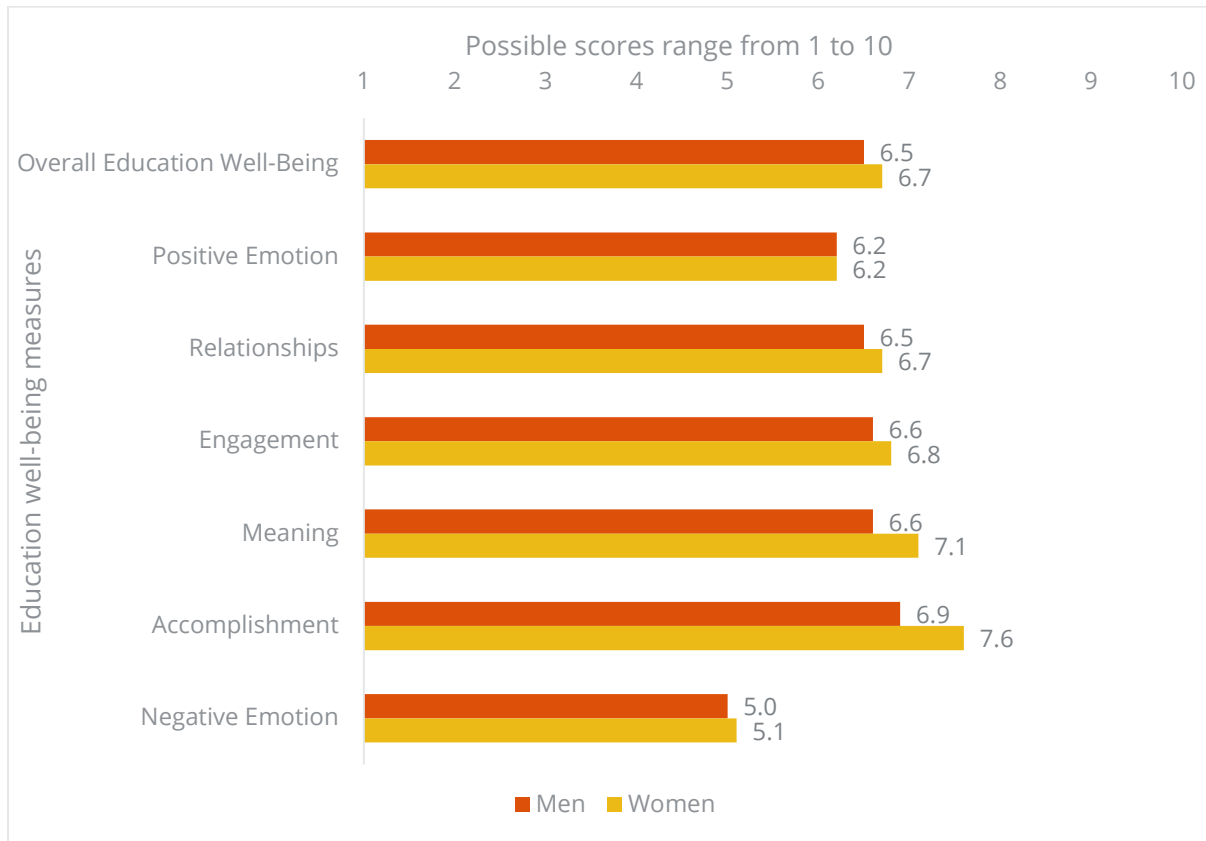


Figure 3

Gender summary of Overall Education Well-Being and PREMAN elements

Age category differences

Prior research on well-being generally finds that well-being, regardless of how it is measured (or implied), tends to be higher for people as they get older. To see if that pattern holds for the current measure of education well-being, analyses were completed for the overall level of education well-being as well as the PREMAN elements. Four age categories had a sufficient number of respondents to include in the analysis. The distribution of education well-being by the PREMAN elements is summarized in figure 4.

As expected, the pattern of results is consistent with prior research, showing that as student age increases, so does their overall education well-being ($F(3, 441) = 14.53; p < .0001$). This provides some support for the validity of the current measure. Examination of the PREMAN elements shows that the same pattern holds for all the measures except Positive and Negative Emotion. Older students experience higher levels of negative emotions and lower levels of positive emotions compared to younger students, with post hoc analysis showing clear differences between the youngest and oldest students.

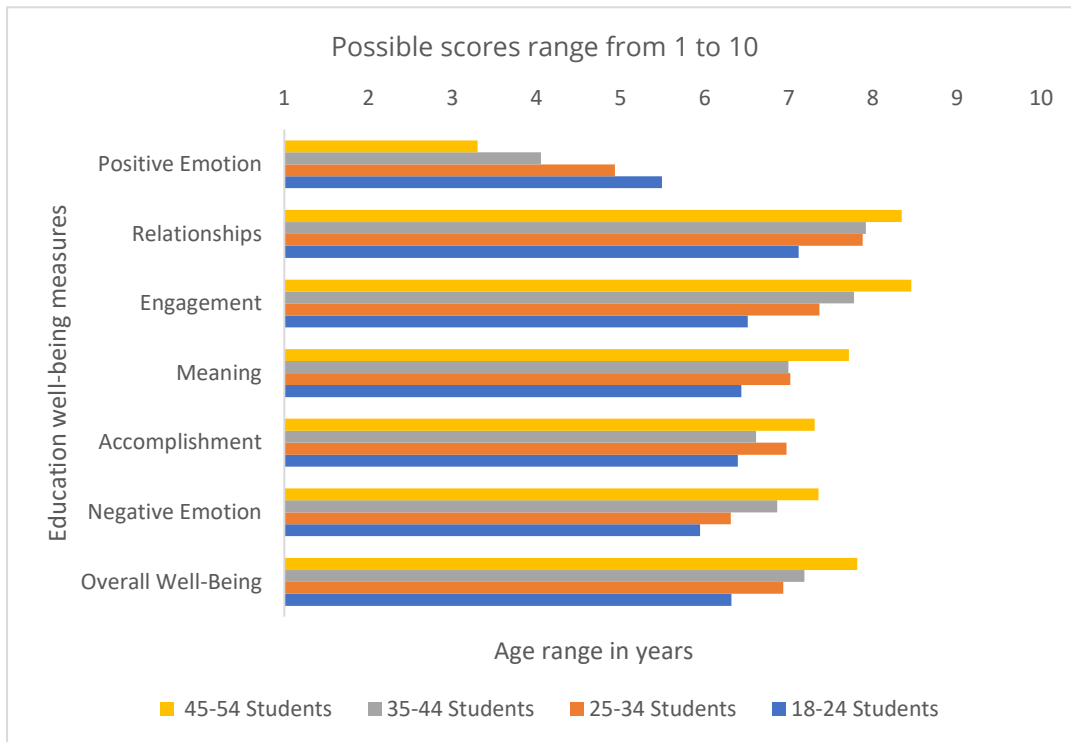


Figure 2

Student education well-being by age category

Objective 2: Examining relationships between education well-being and vocational interests

The present study examined the relationship between education well-being and interests measured by the *Strong Interest Inventory* assessment. Prior research on interests and well-being in college students has not been identified.

Correlations were computed for overall education well-being, the PREMAN elements, and the measures of the general occupational themes (GOTs) from the Strong assessment. The results of these correlations are shown in table 2. There do seem to be differences in education well-being based on the interests of students. Specifically, higher Social interests tend to correlate positively with all the education well-being measures. Similarly, people with higher Enterprising interests report higher Positive Emotion, Meaning, and Accomplishment. Finally, Meaning is positively correlated with the Artistic GOT and the people pole of the Prediger model. The People component of Prediger’s model is also generally associated with higher scores on education well-being. Overall, the results suggest that students with a more people or social orientation in general have higher levels of education well-being.

Table 2

Correlations among education well-being and Strong and Prediger interests

	Overall Education Well-Being	Positive Emotion	Relationships	Engagement	Meaning	Accomplishment	Negative Emotion
Realistic	0.12*	0.13**	0.09*	0.14**	0.06	0.00	-0.13**
Investigative	0.12*	0.06	0.07	0.17**	0.12*	0.10*	-0.02
Artistic	0.20**	0.11*	0.08	0.24**	0.23**	0.17**	-0.11*
Social	0.39**	0.33**	0.24**	0.32**	0.38**	0.33**	-0.24**
Enterprising	0.15**	0.20**	0.07	0.10*	0.11*	0.11*	-0.10*
Conventional	0.00	0.05	-0.02	0.00	-0.02	-0.01	0.02
People-Things	-0.23**	-0.18**	-0.12*	-0.16**	-0.25**	-0.24**	0.13**
Data-Ideas	-0.09*	0.04	-0.05	-0.16**	-0.13**	-0.09	0.03

*Correlation is significant at the .05 level (2-tailed).

**Correlation is significant at the .01 level (2-tailed).

Objective 3: Evaluation of activities used to enhance education well-being

The final objective of this study was to examine activities in which people may engage to influence their education well-being. This is an exploratory analysis of the items that were used. A total of 68 activities, derived from similar items used to evaluate workplace well-being, were included in the study. Respondents had to opt into these additional items. As a result, the sample size for the analysis of these items ranges from $n = 377$ to $n = 443$. In prior research, respondents were asked to rate both the frequency and the effectiveness of similar activities. In that research, we found that the two approaches resulted in similar recommendations. Therefore, items were rated only for their effectiveness in this study.

For the entire sample, the five highest-rated and five lowest-rated activities are presented in table 3. The items were rated on a scale from 1 to 6. The highest-rated activities are related mainly to renewing one’s focus and taking breaks. The lowest-rated activities are related to spirituality and exercise.

Table 3

Highest- and lowest-rated activities to enhance education well-being

Activity	n	Mean	SD
Five highest-rated activities			
I prioritize my work according to importance and urgency	396	4.7	1.1
Align my education goals with my career goals	377	4.6	1.3
I find a quiet place to do schoolwork	443	4.5	1.2
Take breaks when needed	377	4.5	1.2
Take meal breaks	378	4.5	1.3
Five lowest-rated activities			
Attend conferences related to my education goals	377	2.4	1.4
I make time when I am studying to practice my religious beliefs	430	2.2	1.6
I go to the gym during breaks between classes	429	2.2	1.5
I attend exercise classes during long breaks	443	2.1	1.4
I read or listen to spiritual or religious teachings when doing schoolwork	444	1.8	1.4

The items were factor-analyzed to start the process of developing scales or measures of activities for future research. Specifically, a series of exploratory factor analyses with principal components extraction and varimax rotation were conducted. Items that did not load cleanly onto identifiable factors were deleted, and the analysis rerun. In addition, the items composing the first two factors were examined in a separate analysis to determine if correlated subfactors emerged. The result of this analysis was a set of 13 measures of education-related activities. These are summarized in table 4, which shows the average score and the standard deviation for

the measures, along with the internal consistency estimate for the measure, and finally the number of items in the measure. All the measures, with the exception of prioritizing and managing time, had an internal consistency estimate greater than .70. However, all the measures are used in the remaining analysis. Future research will continue to evolve these items and develop measures that may be useful in helping people manage their education well-being.

Table 4

Descriptive statistics for the derived measures of activities used to support education well-being

Activity measures	N	Mean	SD	Alpha	items
Reduce distractions	444	4.4	1.1	.83	3
Engage in leisure activities	417	4.3	0.9	.79	5
Be positive and have purpose	444	4.1	0.9	.83	6
Focus on positives	378	4.1	1.0	.84	2
Listen to music	444	4.0	1.2	.77	3
Challenge self	431	3.9	0.9	.78	5
Baby steps—set and accomplish small goals	444	3.9	1.1	.86	6
Prioritize and manage time	407	3.9	0.9	.58	3
Engage in interpersonal interaction	445	3.5	1.1	.93	12
Seek faculty feedback for improvement	431	3.1	1.3	.86	2
Engage in relaxation techniques	431	2.9	1.2	.76	3
Engage in exercise and movement	444	2.6	1.2	.80	4
Engage in spiritual activity	444	2.0	1.3	.72	2

Discussion

The present study had several objectives. The first objective was to determine if the Myers-Briggs Company model of workplace well-being could be extended to students in higher education. The second objective was to explore relationships between the RIASEC elements of the *Strong Interest Inventory* assessment and education well-being. The third objective was to explore the kinds of activities people undertake to enhance or maintain their well-being as students. The implications of the analyses for these objectives are discussed next.

PREMAN well-being model

The results of this study suggest that well-being in students can be measured accurately. The measure used here is consistent with that used in previous work focused on workplace well-being. The resulting model differs from Seligman's original PERMA model in that six factors were identified, with Negative Emotion being measured separately from Positive Emotion.

- Positive Emotion—the experience of positive feelings and emotions, such as happiness, contentment, and pleasure
- Relationships—where the positive aspects of the relationship greatly outnumber the negative aspects and involve mutual feelings of caring, support, and satisfaction
- Engagement—deep psychological connection, absorption, and interest in an activity or a cause that is intrinsically motivating
- Meaning—having a sense of purpose and direction in life and feeling connected to something bigger than oneself
- Accomplishment—pursuing success, winning, progress, or mastery for its own sake, regardless of whether it results in positive emotions, engagement, relationships, or meaning (Seligman, 2013)
- Negative Emotion—the experience of negative or distressing emotions, such as sadness, anxiety, or annoyance

The reliability estimates for each of the model elements are consistent with those found in prior research. In addition, the factor structure that emerged is consistent with prior research on a similar measure of workplace well-being. From a purely statistical perspective, the measure lacks the level of construct independence desired. However, most prior research on similar models finds a similar pattern. And it makes sense that Meaning, Accomplishment, and Engagement are correlated. Indeed, it is difficult to imagine an activity that is, for example, high in meaning and low in both accomplishment and engagement.

The study also showed that there are some small relationships between interests, as measured by the Strong, and education well-being. Overall, it appears that education well-being is highest for those who have higher levels of Social and people interests. This is also reflected in the People–Things element of the Prediger model. People with Artistic interests have a small advantage for their education well-being, particularly for the Engagement and Meaning elements of the model.

Finally, the study provides some initial insights into what students find helpful in maintaining their education well-being. Overall, planning and prioritizing schoolwork seems to be a key to maintaining education well-being, followed by taking breaks from school-related activities. The least effective activities for maintaining education well-being were related to spirituality and exercise. However, it is possible that higher education attracts people who are less spiritual or religious. Further, the exercise-related items focused on exercise during breaks rather than on exercise in the morning or after classes are completed for the day. So caution should be used when interpreting these results. The data do, however, provide insights for future research on improving education well-being.

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