

Construct Dimensionality of Engagement and its Relation With Satisfaction

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ABSTRACT. *Engagement*—a persistent and positive affective-motivational state of fulfillment characterized by vigor, dedication, and absorption (W. B. Schaufeli, M. Salanova, V. González-Roma, & A. B. Bakker, 2002)—has become a popular subject among academic and industry researchers. Following suggestions in the recent literature calling for further examination of the underlying factors comprising the construct of engagement, the authors investigated the factor structure of W. B. Schaufeli et al.’s measure of engagement and academic engagement’s relation to academic satisfaction. Previous researchers found a 3-factor structure of engagement that comprises vigor, dedication, and absorption. The authors administered to a sample of university students a questionnaire on their level of engagement in academic work and various other measures. The results did not confirm the 3-factor structure. The present authors found engagement and satisfaction to be highly related constructs.

Keywords: construct dimensionality, construct overlap, engagement, satisfaction

IN ONE OF THE FIRST DISCUSSIONS OF JOB ENGAGEMENT, Kahn (1990) defined personal engagement as the “harnessing of organization members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” (p. 694). Kahn further defined personal disengagement as the “uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively, or emotionally during role performances” (p. 694).

In the present study, we focused on the engagement construct, its dimensionality (i.e., degree to which satisfaction is a separate construct from engagement), and consequences of engagement for college students. In the literature review, we examined the history of the engagement construct, how it relates to similar constructs (e.g., flow, satisfaction), why researchers have not extensively studied intervention strategies to improve engagement in corporate settings,

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what some of the predictors of engagement are, and last, some critiques of the engagement construct.

Often, researchers discuss engagement as a psychological construct in work settings; however, they also use it in research on university students. The underlying psychological construct is the same for students and workers. The only difference is the setting in which the work is performed. Researchers have conducted some of the research on engagement on employees, and most of the research on other job attitudes also on employees. Because of the nature of previous research on job engagement and other job attitudes, we used those results, in addition to the research using students, to support our hypotheses on student engagement.

Recent History of Engagement

The recent history of studying job engagement begins with the construct of job burnout. Maslach and Leiter (1997) initially defined the engagement construct as the opposite of burnout (i.e., someone who is not experiencing job burnout must be engaged in their job). Maslach and Leiter applied the construct of engagement to the results and renamed the three burnout factors; they changed *emotional exhaustion* to *high energy*, *depersonalization* to *strong involvement*, and *reduced sense of efficacy* to *sense of efficacy*. They renamed the factors of burnout and used the opposite pattern of scores on the burnout measure to put burnout research in a more positive light. Then, Maslach and Leiter developed engagement from this starting point. Thus, engagement focuses on the positive aspects of a person's job. At present, there is a debate (Britt, Castro, & Adler, 2005; Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Salanova, González-Roma, & Bakker, 2002; Shirom, 2003) regarding the construct definition of engagement between those who believe engagement is the opposite of burnout and those who believe engagement is more complicated in that it is obliquely related to burnout but not its opposite.

Breaking with the idea that engagement is merely the opposite of burnout, Schaufeli, Salanova, et al. (2002) defined *engagement* as a persistent and positive affective-motivational state of fulfillment in employees, characterized by vigor, dedication, and absorption. They wrote, "Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior" (p. 74). This definition is helpful in differentiating engagement from flow, a similar construct (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002). Job engagement differs from flow in that "flow is a more complex concept that includes many aspects and refers to rather particular, short-term 'peak' experiences instead of a more pervasive and persistent state of mind, as is the case with engagement" (Schaufeli, Salanova, et al., 2002, p. 75). In that sense, job engagement can be considered a chronic and persistent positive affective-cognitive state

toward one's job, whereas flow is a more acute state lasting for a much shorter period and potentially of a more intense nature.

Researchers should more fully explore the three factors of job engagement that Schaufeli, Salanova, et al. (2002) defined. According to Schaufeli, Salanova, et al., (a) *vigor* is high energy, resilience, a willingness to invest effort on the job, the ability to not be easily fatigued, and persistence when confronted with difficulties; (b) *dedication* is a strong involvement in work, enthusiasm, and sense of pride and inspiration; and (c) *absorption* is a pleasant state of being immersed in one's work, experiencing time passing quickly, and being unable to detach from the job. They studied students and employees in Spain, and a three-factor model of vigor, dedication, and absorption fit the data in both samples. In addition, they measured engagement for students and employees using similar scales and changed the items by switching job or work with school or academic activities. They performed this with all of the scales of engagement so that the scales measured the same underlying psychological construct in different settings. There was a weak negative correlation only between emotional exhaustion and vigor, indicating that they are not opposite and, thus, are different constructs. That is, if they were opposites, then we would expect a stronger negative correlation. Shin (2003) found similar results among a sample of South Korean workers.

Another approach to student engagement is the National Survey of Student Engagement (NSSE; Kuh, 2001). This approach is different from the other approaches previously discussed. The NSSE seeks to measure student studying habits, what students gain from their college experiences, and other aspects of student life. Therefore, the NSSE does not directly measure the psychological construct of student engagement. The NSSE aims to focus on good educational practices, improve student–faculty interactions, and effect overall institutional improvement.

Dimensions of Engagement

Schaufeli, Salanova, et al. (2002) suggested two dimensions of work-related well-being: (a) activation, which ranges from low (exhaustion) to high (vigor), and (b) identification, which ranges from low (cynicism) to high (dedication). In addition to these two dimensions, burnout includes reduced personal accomplishment, and engagement includes absorption (Schaufeli, Salanova, et al.). Using confirmatory factor analysis and three samples of university students, Schaufeli, Salanova, et al. found that the three-factor model of vigor, dedication, and absorption fit best, but absorption and vigor may have been measuring something similar (Schaufeli, Martinez, et al., 2002). However, there are some problems with Schaufeli, Salanova, et al.'s and Schaufeli, Martinez, et al.'s conclusions. The factor structure for the three-factor model was tenuous and correlations among the three factors were moderate to high (0.56–0.89 for Schaufeli, Salanova, et al.; 0.65–0.94 for Schaufeli, Martinez, et al.).

Many organizations consider job satisfaction to be a measure of how happy their employees are at their jobs. Psychologists and others have extensively studied job satisfaction (Fritzsche & Parrish, 2005). As constructs, job satisfaction and engagement differ. However, when researchers measure them, they are related. Job satisfaction and job engagement are measures of affect regarding one's job. Locke (1976) identified *job satisfaction* as a pleasurable or positive emotional state that results from an appraisal of one's job and job experiences or from the perception that a job fulfills one's needs and important job values. Hulin and Judge (2003) suggested that job attitudes are cognitive evaluations of social objects and that job satisfaction is an emotional reaction to a job resulting from comparisons (i.e., evaluations) of actual outcomes with desired outcomes.

The job engagement construct seems to have been more focused on the cognitive-affective motivation at work for long periods: The main difference is that engagement emphasizes the cognitive aspect of involvement with job tasks, whereas satisfaction focuses on affect. Engagement involves one's energy on the job (vigor), dedication to the work, and level of absorption in the work (Schaufeli, Salanova, et al., 2002).

In theory, engagement and satisfaction are distinct constructs, although there is evidence for overlap in the definitions; namely, affective reactions to the job are present in both definitions. The framing of both concepts under job attitudes puts a burden on the newer concept of engagement to differentiate it from satisfaction. In this framework, it is important to determine whether engagement adds to the understanding of job attitudes and prediction of important outcomes (e.g., performance).

Recently, researchers have suggested that job satisfaction is a mediator between antecedents, such as internal factors (e.g., personality), external variables (e.g., job characteristics), and consequences (e.g., withdrawal, citizenship behaviors; Crede, Chernyshenko, Stark, Dalal, & Bashshur, 2007). The psychological constructs of engagement and satisfaction at work are applicable to students in that students' jobs typically involve their schoolwork. Researchers have shown engagement to be a predictor of student performance (Schaufeli, Martinez, et al., 2002) and morale (Britt, Dickinson, Moore, Castro, & Adler, 2007). Assuming engagement and satisfaction are distinct constructs, researchers may expect engagement to uniquely predict outcomes (e.g., student performance) beyond other similar constructs.

Shirom (2003) recently critiqued Schaufeli, Salanova, et al.'s (2002) model of engagement, expecting engagement to be focused on vigor as the only nonconfounded construct in the engagement model. Shirom defined *vigor* as physical strength, emotional energy, and cognitive liveliness. Although Shirom did not empirically test it, he believed that the antecedents of vigor may include variables such as being more extroverted; having certain task characteristics (e.g., task autonomy, significance, feedback, identity, skill variety); and having multiple roles, group cohesion, and leaders who encourage employees to think creatively. Shirom also criticized Maslach

and Leiter's (1997) definition of engagement because it had not yet been conceptually validated in empirical research. Shirom claimed that Schaufeli, Salanova, et al.'s alternate definitions of vigor, dedication, and absorption were not deduced theoretically and combined all three in one concept (i.e., engagement) that researchers have not investigated in detail. Shirom argued that because vigor is the only nonconfounded construct in the engagement model, researchers should study it on its own.

Also, following Shirom's (2003) logic, researchers should consider engagement to be a one-factor construct defined by vigor. Other internal states (e.g., feeling joy, being content, being optimistic, having courage) can produce engagement. Judge, Erez, and Bono (1998) believed that positive self-concept is related to job performance, and, given Shirom's arguments (i.e., engagement and vigor may be related to internal states such as joy and optimism), it seems likely that being engaged at work is related to having a positive self-concept and performing at a higher level. Shirom argued that vigor is not confounded, as dedication and absorption are, because they overlap with other elements such as psychological presence at work and importance of work to a person's self image. Shirom claimed that vigor and job burnout are obliquely related (i.e., they are not opposites). Demanding work, when those demanding tasks are completed, may make a person feel emotionally exhausted and vigorous at the same time (Shirom). Shirom's critique highlights the need for more empirical evidence on engagement and points to a possible explanation of the seemingly high, positive correlations among the three factors of engagement in Schaufeli, Salanova, et al.'s (2002) model of engagement. Shirom argued that vigor is the only nonconfounded construct of engagement, and because of the high correlations among Schaufeli, Salanova, et al.'s three factors of engagement, they may actually be a one-factor construct. Britt, Dickinson, Greene, and McKibben (2007) also viewed engagement as a single (-factor) construct. Britt, Dickinson, Green, et al. believed that measuring engagement along two or more factors leads to confusion about which factors are related to the various outcomes of engagement.

Engagement and Eustress

Researchers have hypothesized engagement to be a subconstruct under the more general construct of eustress (i.e., good stress). Eustress occurs when a person has a positive evaluation of a stressor in that the event is construed as positive or the outcomes of an event are perceived as positive (Simmons, 2002). Also, eustress and distress are considered distinct constructs similar to engagement and burnout (as Schaufeli and colleagues defined). Engagement is typically perceived as a cognitive and affective involvement in one's work, and it makes sense that when tasks are assigned and complications arise in one's work, those events are viewed either positively, which fosters engagement and improves performance, or negatively, which fosters distress and discontent and may hinder performance.

Therefore, engagement may be perceived as a part of an overall tendency (or partially, a trait) to perceive one's work and the natural and common complications in any job positively. Simmons (2002) positively associated eustress with physical and mental health, work performance, spouse's health, marital quality, quality of friendships, and community involvement. Further, researchers have shown that happiness precedes and follows many successful outcomes, such as work performance, marriage, friendship, income, and health (Lyubomirsky, King, & Diener, 2005). Simmons viewed engagement as a person being enthusiastically involved with his or her work and pleurably occupied by the tasks of the job. Simmons suggested that being engaged at work is an indicator of and fosters eustress as a result of encountering stressors.

Britt et al. (2005) found that soldiers who were more engaged in their jobs were able to ward off the effects of stress and reported lower levels of negative consequences when they were working long hours and doing difficult work. However, the same soldiers who were more engaged reported more negative consequences from work overload when they encountered stressors that interfered with their ability to perform jobs well. This finding suggests a more complex view of engagement.

Being highly engaged at work may have negative and positive consequences. Highly engaged employees have higher performance, more commitment, and lower turnover when they have the resources and aptitudes to do their jobs, but they may have the opposite when there are roadblocks to doing their jobs and performing well (Britt, Dickinson, Greene, et al., 2007). Britt, Dickinson, Greene, et al. defined engagement differently than other academic researchers did. They referred to *self-engagement* as "feeling a sense of responsibility for and commitment to a performance domain so that performance 'matters' to the individual" (p. 1476). The main difference in how they viewed engagement is that their view is more complex, in that being highly engaged can have negative and positive consequences. Britt (2003) suggested that when workers are self-engaged (i.e., highly motivated to do well), they can quickly lose enthusiasm and motivation if they begin to perceive their work to be less meaningful or that they cannot succeed in their job (e.g., because of a lack of resources or support).

Summary

Because of the inconsistencies in research findings regarding the factor structure and dimensionality of engagement (Britt, Dickinson, Greene, et al., 2007; Hallberg & Schaufeli, 2006), other researchers' view of engagement as a single factor (Britt, Dickinson, Moore, et al., 2007; Hallberg & Schaufeli) and the overlap with job satisfaction, more research is needed. In the present article, we first look at the factor structure of engagement and degree to which satisfaction is a separate construct from engagement, and how engagement and satisfaction predict student performance. We analyze attitudes, performance, and

students' relation to engagement, and we hope to provide direction for future researchers in this important area.

Hypotheses

In the literature, there are inconsistencies regarding the engagement construct. However, much of the research has supported the three-factor conceptualization of engagement that Schaufeli, Salanova, et al. (2002) proposed. For that reason, our first hypothesis is that a three-factor structure of engagement exists. However, because of the lack of a theoretical basis for a three-factor structure and inconsistent empirical evidence on the factor structure, our first analysis explored the factor structure of 14 engagement items. Because we assessed the positive construct on one scale and negative constructs on the two other scales, some of the factor structure may be because of how we asked the questions (i.e., positive and negative items; Fullagar, 1986; Schriesheim, Eisenbach, & Hill, 1991; Schriesheim & Hill, 1981). Also, Schaufeli and Salanova (2007) acknowledged the high correlations of the three factors of engagement and given those correlations, the total engagement score (i.e., one factor) can be used just as well as the three-factor scale scores can. Hallberg and Schaufeli (2006) found correlations among the three-factor scale scores to be as high as .99 and acknowledged a one-factor interpretation as plausible. Also, they attempted to show the uniqueness of engagement from job involvement and job commitment. However, they did not include job satisfaction, nor did they perform a regression analysis to determine whether engagement provides any incremental validity over the other concepts. Schaufeli and Salanova reported that other researchers have sometimes found a one-factor solution to fit the data better than a three-factor solution. Shirom (2003) reported that vigor is the only nonconfounded construct in the engagement model. Also, following Shirom's logic, researchers may consider engagement to be a one-factor construct defined by vigor. Given the contradictory findings regarding the factor structure of engagement in the present study, we first focus on determining engagement's factor structure. The contradictory findings are also why we performed an exploratory principle components analysis. Despite the contradictory theoretical and empirical evidence regarding engagement's factor structure, Schaufeli, Salanova, et al.'s three-factor structure is the most widely cited and published model. Therefore, Hypothesis 1 (H_1) is that a three-factor solution exists.

Definitions of engagement and satisfaction reveal differences and similarities between the two constructs. The ambiguity of the difference between engagement and satisfaction led to the question regarding whether they were separate constructs. There is limited research on this issue. However, it is logical to expect the two to be separate constructs because engagement purports to tap into a cognitive aspect of work and satisfaction does not. Therefore, H_2 is that engagement and satisfaction are separate and distinct (i.e., uncorrelated) constructs.

The literature has shown that students' engagement scores are correlated with GPA (Schaufeli, Martinez, et al., 2002). Schaufeli, Martinez, et al. reported a positive relation between efficacy and vigor (two of engagement's factors) and academic performance. Because we hypothesized engagement and satisfaction to be related, we used both to predict performance. H_3 is that engagement and performance (as measured by GPA) are positively related and that engagement makes a significant contribution above satisfaction in predicting student performance.

Method

Procedure

We developed and administered an anonymous questionnaire, which contained questions regarding engagement items, demographic information, GPA, and satisfaction with major. We assessed school engagement using the Utrecht Work Engagement Scale for Students (UWES-S) from Salanova, Schaufeli, Llorens, Pieró, and Grau (2001). This measure consisted of 14 Likert-type items ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Sample items included "When I study, I feel that I am bursting with energy"; "Time flies when I'm studying"; and "I am proud of my studies." We measured GPA on participants' self-reported GPAs (open-ended and continuous). We measured satisfaction with major using five statements such as "I am satisfied with my major" and used a Likert-type scale of agreement ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Also, we measured students' satisfaction with their school using a 6-item scale called the Perceived Quality of Academic Life (PQAL) Scale (Staats & Partlo, 1990). Sample items included "How do you feel about your education at Kansas State University?" "How do you feel about the classes you are taking at Kansas State University?" and "How do you feel about what you are learning at Kansas State University?" We measured students' satisfaction with their courses and extracurricular activities using two sections of the College Descriptive Index (CDI) that Reed, Lahey, and Downey (1984) developed. We found the items in Reed, Lahey, and Downey's (1980) study. The two sections consisted of 32 items with responses of "yes," "no," or "?," for words such as *creative*, *irrelevant*, and *routine*. These items asked how the words describe classes (Section 1) and extracurricular activities (Sections 2). Each sections had 16 items.

Consistent with the policies at Kansas State University, we obtained approval from the Institutional Review Board (IRB). As the IRB's procedures required, we provided subjects with an informed consent form and excused those students who did not wish to participate in the research.

Participants

Participants were intact classes of primarily junior- and senior-level undergraduate students at Kansas State University. The 453 (56.3% men, 43.7%

women) participants were enrolled in classes in the College of Business. Ages ranged from 19 to 53 years; however, 95.8% of the participants were between the ages of 19 and 24 years ($M = 21.33$ years, $SD = 2.38$ years). Regarding race, 93% reported White, non-Hispanic. The participants were sophomores (10.0%), juniors (60.3%), and seniors (29.7%). Approximately half (50.7%) of the participants were business majors with varying specializations (e.g., marketing, management, management information system, accounting, finance). Of the sample, 60% had a job, and of these, slightly more than 75% reported that they worked at their job for 20 hr or fewer per week.

Analyses

We measured student engagement using summated scale scores of the 14 student engagement items (with appropriate adjustments for positive items) and the three-factor subscales of engagement. We measured student satisfaction also using summated value on three scales: PQAL, *CDI*, and Satisfaction With Major.

The first phase of the analysis involved splitting the sample into roughly equal subsamples ($n = 229$; $n = 222$). Except where noted, we used the first subsample ($n = 229$) in the analyses. First, we performed an exploratory principle components analysis of the 14 engagement items on the first subsample to determine the underlying structure using an oblique rotation. Then, on the basis of the results from the exploratory factor analysis, we performed confirmatory factor analyses using the second subsample. Also, we performed confirmatory factor analyses on the basis of previous research (e.g., three factors that Schaufeli, Salanova, et al., 2002, identified) and a one-factor model of engagement that Britt, Dickinson, Greene, et al. (2007) and Shirom (2003) suggested. Next, we performed a second-order factor analysis on the three student-engagement (vigor, dedication, absorption) and three PQAL scale scores to determine whether student engagement and academic satisfaction were separate constructs. We used regression analysis to examine how student satisfaction and overall engagement predicted student performance. We cross-validated the results from the regression analysis on the second subsample by applying the beta weights from the first subsample to the second subsample and correlating the predicted GPA with actual GPA.

Results

Table 1 shows the means and standard deviations for the main scales for both samples. Table 2 shows the means and standard deviations for the 14 engagement items. Table 1 also provides intercorrelations and coefficient alphas for the two summated engagement scales found in the exploratory factor analysis, three satisfaction scales, gender, and GPA. Coefficient alphas for all summated scales were .80 or higher, which we considered acceptable (see Table 1). In tests of the differences

TABLE 1. Means, Standard Deviations, Coefficient Alphas, and Intercorrelations for All Variables

Variable	Sample 1			
	<i>M</i>	<i>SD</i>	α	<i>n</i>
1. Gender	1.42	0.50		229
2. Cumulative GPA	3.59	1.05		229
3. Perceived Quality of Academic Life	31.60	4.96	.85	229
4. Satisfaction With Major	71.50	12.70	.85	228
5. Children's Depression Inventory	74.96	8.62	.80	218
6. Vigor/strength	18.25	4.16	.86	228
7. Emotional attachment	41.06	10.20	.88	227

Note. Correlations above the diagonal are from Sample 1; correlations below the diagonal are from Sample 2 of the split file. For gender, 1 = male and 2 = female.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

between the two samples for either demographic factors or scales scores, we found no significant differences.

Gender had significant correlations with GPA and Satisfaction With Major in both samples (point-biserial). GPA had significant correlations with the PQAL and satisfaction with major scales and the two engagement scales in both samples. We found the three satisfaction scales to be moderately correlated across the two samples (0.39–0.55). Also, we found the three engagement scales that Schaufeli, Salanova, et al. (2002) developed to be correlated at much higher values. We found vigor (Cronbach's $\alpha = .77$) to be correlated with dedication (Cronbach's $\alpha = .77$) at .74 and with absorption (Cronbach's $\alpha = .76$) at .70. Last, we found dedication to be correlated with absorption at .67. When corrected for attenuation, the three engagement scales correlated from .88 to .96, suggesting substantial overlap among the three engagement constructs as Schaufeli, Salanova, et al. suggested. We found the satisfaction and engagement scales to be moderately correlated across both samples (0.25–0.56).

Following the analysis plan, we conducted an exploratory principle components analysis to determine the factor structure of the 14 engagement items. We conducted a principles factor oblique rotated solution, which produced two factors with eigenvalues greater than 1. We used an oblique rotation because of the high correlations between the engagement factors. This solution accounted for a total of 56.3% of the variance. Using a cutoff value of .40 for the factor loadings, all 14 items loaded on one of the two factors (see Table 2). We labeled the first factor *Emotional attachment*, which comprised Items 5–14. We labeled the second factor *Vigor/strength*, which comprised Items 1–4. The two factors had a negative correlation of $-.56$.

Sample 2				1	2	3	4	5	6	7
<i>M</i>	<i>SD</i>	α	<i>n</i>							
1.46	0.50		222	—	.16*	.12	.24**	.13	.08	.15*
3.65	1.05		222	.18**	—	.35**	.31**	.21**	.29**	.29**
30.89	4.71	.82	222	.21**	.36**	—	.55**	.49**	.56**	.51**
70.68	12.26	.84	217	.18**	.28**	.49**	—	.50**	.42**	.53**
74.79	8.61	.80	212	.17*	.07	.42**	.39**	—	.45**	.47**
18.08	3.98	.80	222	.08	.35**	.49**	.40**	.25**	—	.67**
40.18	9.42	.85	222	.04	.28**	.47**	.45**	.32**	.58**	—

We then forced a one-factor solution and found all items to load at a level of .40 or greater. This factor accounted for 47.2% of the total variance (see Table 3).

A three-factor principles factor oblique (oblimin) solution was also defined and accounted for 63.2% of the explained variance (see Table 3). Of the 14 items, we cross-loaded one (Item 11) using a criterion of .40. The first factor from the three-factor solution was similar to the first factor from the two-factor solution, except we did not load Items 8 and 10 on the factor. The second factor from the three-factor solution was the same as the second factor from the two-factor solution. The third factor from the three-factor solution comprised Items 8 and 10, plus the cross-loaded Item 11. H_1 was not supported using exploratory factor analysis. Further, the loadings of the three factors did not match the loadings from previous research.

Using the second subsample, we performed confirmatory factor analyses using Lisrel (version 8.8). On the basis of the findings from the exploratory factor analyses, we tested a two-factor model of engagement. Following the literature and theoretical background, we also tested both a one- (Britt, Dickinson, Greene, et al., 2007; & Shirom, 2003) and three-factor (Schaufeli, Salanova, et al., 2002) model.

Table 4 shows the results of the confirmatory factor analyses. Models 1, 2, and 3 were one-, two-, and three-factor solutions, respectively. The two-factor solution (Model 2) had the best fit but failed to reach the standard .90 adjusted goodness-of-fit level. Neither the one- nor three-factor model was a good fit with the data. Because of these inconclusive findings, it is clear that a one-factor explanation is the most parsimonious. As a result, H_1 was not supported. The

TABLE 2. Means, Standard Deviations and Factor Loadings for Engagement Items (Two-Factor Solution; $N = 229$)

Engagement item	<i>M</i>	<i>SD</i>	Emotional attachment	Vigor/strength
1. I am proud of my studies.	5.46	1.25	.11	-.67
2. When I am studying, I feel mentally strong.	4.95	1.17	.04	-.84
3. When studying I feel strong and vigorous.	4.38	1.25	-.04	-.93
4. When I study, I feel like I am bursting with energy.	3.38	1.34	.04	-.79
5. When I am studying, I forget everything else around me.	3.35	1.48	.53	-.15
6. I feel happy when I am studying intensively.	3.64	1.52	.49	-.31
7. I am enthusiastic about my studies.	4.17	1.39	.52	-.32
8. I find my studies challenging.	5.29	1.14	.50	.07
9. Time flies when I am studying.	4.52	1.61	.91	.25
10. When I get up in the morning, I feel like going to class.	3.63	1.61	.61	-.08
11. I find my studies to be full of meaning and purpose.	4.60	1.36	.76	-.05
12. I can continue for a very long time when I am studying.	3.85	1.59	.70	-.06
13. My studies inspire me.	4.22	1.37	.60	-.26
14. I can get carried away by my studies.	3.36	1.36	.73	-.12

Note. Items with factor loadings of .40 or greater were considered loaded on a factor. For Emotional attachment, percentage of variance was 47.16%. For Vigor/strength, percentage of variance was 9.12%. Valid $N = 448$.

original three-factor structure did not emerge from the exploratory analysis and was not confirmed in the confirmatory analysis.

To test H_2 , we performed a second-order factor analysis on the three-factor scale scores of academic engagement that Schaufeli, Salanova, et al. (2002) suggested and three satisfaction scores (PQAL, CDI, Satisfaction With Major; see Table 5). Only one eigenvalue was greater than one, and all six scales loaded on one factor with loadings of .63 or greater. This suggested a large overlap between student engagement and academic satisfaction. When we forced a two-factor solution, the two factors of engagement and satisfaction emerged (see Table 5).

We used a hierarchical regression analysis to examine whether engagement and satisfaction uniquely predicted student performance. Because the two-factor model of student engagement had the best fit with the data in the present sample, we used the two-factor model. Using the split sample, we entered gender in the

TABLE 3. One- and Three-Factor Solutions for Engagement Items ($N = 229$)

Engagement item	One-factor solution	Three-factor solution		
	Factor 1 ^a	Factor 1 ^b	Factor 2 ^b	Factor 3 ^c
1. I am proud of my studies.	.66	-.10	-.71	.31
2. When I am studying, I feel mentally strong.	.74	.01	-.84	.05
3. When studying I feel strong and vigorous.	.74	.02	-.91	-.08
4. When I study, I feel like I am bursting with energy.	.70	.14	-.77	-.13
5. When I am studying, I forget everything else around me.	.61	.77	-.10	-.30
6. I feel happy when I am studying intensively.	.71	.64	-.27	-.17
7. I am enthusiastic about my studies.	.74	.40	-.34	.21
8. I find my studies challenging.	.41	.01	-.04	.74
9. Time flies when I am studying.	.63	.85	.23	.16
10. When I get up in the mornings, I feel like going to class.	.63	.30	-.15	.50
11. I find my studies to be full of meaning and purpose.	.74	.51	-.10	.42
12. I can continue for a very long time when I am studying.	.70	.66	-.07	.12
13. My studies inspire me.	.77	.46	-.29	.25
14. I can get carried away by my studies.	.77	.69	-.13	.12

Note. Items with factor loadings of .40 or greater were considered loaded on a factor. Factor names are not given because the three factors did not match the three factors that W. B. Schauffeli, M. Salanova, V. González-Roma, and A. B. Bakker (2002) found. ^aVariance = 47.16%. ^bVariance = 9.12%. ^cVariance = 6.92%.

TABLE 4. Overall Fit Indexes: Confirmatory Factor Analysis ($N = 222$)

Model	χ^2	<i>df</i>	<i>NFI</i>	<i>CFI</i>	<i>IFI</i>	<i>GFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Null	2857.16	91						
One factor	432.84	77	0.86	0.88	0.88	0.78	0.70	.14
Two factor	177.06	53	0.90	0.93	0.93	0.88	0.82	.10
Three factor	350.81	74	0.88	0.91	0.91	0.82	0.74	.13

Note. *NFI* = normed fit index; *CFI* = comparative fit index; *IF* = incremental fit index; *GFI* = goodness of fit; *AGFI* = adjusted goodness-of-fit index; *RMSEA* = root mean square error of approximation; the chi square and degrees of freedom reported for the null model are from the Model 3 output. The one-factor model stemmed from the results of the exploratory factor analysis and literature review (see T. W. Britt, J. M. Dickinson, D. Moore, C. A. Castro, & A. B. Adler, 2007; A. Shirom, 2003). The two-factor model stemmed from the results of the exploratory factor analysis. W. B. Schaufeli, M. Salanova, V. González-Roma, and A. B. Bakker (2002) found the three-factor model.

hierarchical regression in the first step, the PQAL measure of satisfaction in the second step, and the two factors of engagement in the third step. Gender predicted a small amount of variance in the first step ($R = .16$, $R^2 = .03$, $p < .05$). In the full model, with all the predictors included, only satisfaction contributed to the prediction of GPA ($R = .39$, $R^2 = .15$; PQAL: $\beta = .24$, $p < .01$; gender: $\beta = .11$, $p > .05$; vigor/strength: $\beta = .07$, $p > .05$; emotional attachment: $\beta = .10$, $p > .05$). We created a regression equation using the unstandardized beta weights from the preceding regression output and used that equation to predict GPA in the second subsample to cross-validate these findings. The correlation between the actual and predicted GPAs was $.398$, $p < .001$, $R^2 = .16$, and was consistent with the original finding of $R^2 = .15$. Because engagement did not make a unique contribution beyond satisfaction in predicting GPA, H_3 was not supported.

Discussion

Because the engagement construct is prevalent in the workplace, sound research should be conducted to investigate the underlying nature of the construct and whether it is significantly distinct from similar constructs. Clarifying the nature of engagement is important for science and practice. Many concepts may be generally classified as positive affect in the workplace—distinguishing and clarifying these concepts (including engagement) will further the understanding of engagement and similar constructs. The present research calls into question the prevailing dimensionality of engagement and provides empirical and theoretical evidence for a one-factor structure. Further, the relation between engagement and satisfaction points to a great deal of overlap and calls into question the usefulness of the engagement construct beyond that of satisfaction. Job

TABLE 5. Student Engagement and Academic Satisfaction: One- and Two-Factor Solutions for Principal Components Analysis

Engagement item	One-factor solution component matrix		Two-factor solution promax pattern matrix		
	Factor 1 ^b	h^2	Factor 1 ^a	Factor 2 ^a	h^2
1. Perceived Quality of Academic Life (sum)	.76	.57	.17	.69	.65
2. Satisfaction With Major (sum)	.73	.53	.08	.76	.65
3. College Descriptive Index (sum)	.63	.39	-.18	.91	.68
4. Vigor (sum)	.85	.73	.85	.09	.82
5. Dedication (sum)	.88	.77	.76	.20	.81
6. Absorption (sum)	.75	.56	1.00	-.20	.82

^aBecause an oblique solution was used, only total percentage of variance can be reported; 73.6%. ^bVariance = 59.1%.

satisfaction is a general job attitude with a long history of research and practice in academics and industry. New job attitudes appear often, but few offer incremental validity beyond that of satisfaction. The present research provides empirical and statistical evidence that engagement may not offer anything new that is not already offered by satisfaction.

Previous researchers on engagement have found support for a three-factor structure of engagement (student and job engagement). Schaufeli, Salanova, et al. (2002) defined *engagement* as the persistent and positive affective-motivational state of fulfillment in employees, characterized by vigor, dedication, and absorption. Schaufeli, Martinez, et al. (2002) wrote, "Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior" (p. 465). In the present study, one focus was on confirming the three-factor structure of engagement (H_1).

Although the one- and three-factor solutions appeared equally reasonable, Occam's Razor and the principle of parsimony suggest that the one-factor model is the best model to explain engagement. Even though a two-factor structure emerged from the exploratory factor analysis and was the best fitting model in the confirmatory factor analysis, this appears to be largely a data-driven result. There is no theoretical basis for a two-factor structure of engagement, and the two-factor model from the confirmatory factor analysis was not a good fit, even though it was a better fit than the one- and three-factor models were. Given the previous research, the items in each of the two factors also did not make sense together. Current researchers have suggested either a one- or three-factor model of engagement. Our exploratory finding of two factors did not match the existing research nor did it fit with any theoretical evidence in the literature.

More research is needed to further sort the structure of engagement. However, because of the nature of the previous findings on engagement (see Schaufeli, Martinez, et al., 2002; Schaufeli, Salanova, et al., 2002; Schaufeli & Salanova, 2007) and the high correlations between the three factors of engagement in those studies, it seems likely that a one-factor model is the most reasonable one. This means that current and future researchers on engagement should not automatically accept the three-factor structure. Also, because of the high correlations of the three factors of engagement (and corrected correlations approaching 1), the simplest explanation of engagement seems to be a single factor. Thus, H_1 was not supported. This line of thought and logic follows what some other researchers have suggested. Shirom (2003) argued that engagement should be categorized as *vigor*, and Britt, Dickinson, Greene, et al. (2007) argued that engagement is a single construct focusing on caring about individual work performance.

We performed a second-order factor analysis to determine the nature of the structure of the data for the original three scale scores of engagement and three

scale scores of academic satisfaction. The results yielded a one-factor solution with all six scales having loadings greater than .40. Thus, H_2 was not supported. At the level of the scale scores, engagement and satisfaction were highly related constructs. This suggests that there is a general factor of affective attachment in a college context.

The regression analysis also suggested that the two constructs are highly related. Although satisfaction and overall engagement uniquely predicted performance at the zero-order level, when we entered the two engagement subscales (as found in the exploratory factor analysis) as predictors separately, neither engagement scale uniquely predicted performance beyond satisfaction. These results mirror the findings from the factor analysis and highlight the need for a much closer examination of engagement as a construct that is distinct from satisfaction. This leads us to believe that student engagement is strongly tied to academic satisfaction and that there is a great deal of overlap between the engagement and satisfaction constructs.

Both engagement and satisfaction are defined in terms of affect (see Locke, 1976; Schaufeli, Salanova, et al., 2002). The similarity of the definitions of engagement and satisfaction provide some theoretical evidence for the overlap of the constructs and Schaufeli, Salanova, et al.'s engagement items are a measure of affective states, as are the satisfaction items we used in the present study. Our results are consistent with Shirom (2003)'s criticisms. Also, it is probable that the overlap between the constructs holds true for engagement and satisfaction in the workplace. Although this was not tested, it seems reasonable to expect the same factors to apply to both populations. Recent researchers have suggested that satisfaction is a mediator between various environmental factors (e.g., job opportunities), job characteristics, personal dispositions, job withdrawal cognitions, organizational citizenship behaviors, and counterproductive work behaviors (Crede et al., 2007). This place in the nomological network is precisely where engagement is thought to be located, further adding to the theoretical overlap with satisfaction.

Because of the substantial overlap found between student engagement and academic satisfaction, we believe, as did Shirom (2003), that it is time to take a closer look at the nature of engagement as a construct and determine whether researchers are measuring it appropriately. Also, these results suggest that researchers should more accurately determine whether it is a separate construct or merely a component of satisfaction. It is also possible that engagement may be tapping into job involvement (Newton & Keenan, 1983) or simply affect on the job (Fredrickson & Losada, 2005).

The literature on engagement suggests that the field is having difficulty differentiating engagement from similar concepts such as satisfaction, commitment, and possibly personality traits such as conscientiousness. A close look at the engagement items (Britt, Dickinson, Greene, et al., 2007; Salanova et al., 2001) revealed that many are similar to satisfaction, commitment, and

conscientiousness items. For example, Harter, Schmidt, and Hayes (2002) explicitly used satisfaction and commitment concepts in their engagement measures. The confusion regarding engagement seems to be happening first at the conceptual and then at the item level.

To explain why these results differ from research that primarily Schaufeli, Salanova, et al. (2002) conducted, it is possible that cultural differences may exist between the United States and the countries where Schaufeli and colleagues conducted research (Spain for Schaufeli, Salanova, et al.; Spain, Portugal, and the Netherlands for Schaufeli, Martinez, et al., 2002). It is likely that this led to the differences in the results between the present study and Schaufeli's previous studies. However, even Schaufeli, Salanova, et al. suggested a one-factor solution. The three-factor structure of vigor, dedication, and absorption that Schaufeli, Martinez, et al. reported is a potential problem. The correlations that they reported of three samples from different countries were high and ranged from .71 to .94. These levels of intercorrelation and the small differences found in Schaufeli, Martinez, et al.'s fit indexes for the one-, two-, and three-factor solutions suggest that the one-factor solution that we found is not completely inconsistent with their results. Because of the limited nature of the sample we used, researchers should conduct further work to settle the factor structure of the engagement scale. There are limitations of the student sample, and our findings may not generalize to the workplace. Further, there are limitations because all of the students were in the College of Business. These limitations may include sample-specific results from students taking business classes.

Future Research

Our recommendations for future research on the structure of engagement are that, no matter what approach researchers use, they should not assume a multi-factor structure for engagement. Also, we suggest researchers use a hierarchical regression to determine whether engagement has incremental validity beyond other constructs that they measure. Researchers should focus on whether student (or job) engagement and academic (or job) satisfaction are separate constructs. It is possible that the engagement items are tapping into some component of satisfaction or other construct such as job involvement or even positive affect.

The prediction of a relation between engagement and satisfaction was supported and suggests a sizable relation. These results are consistent with those that Harter et al. (2002) found in the workplace: At the unit level, engagement and employee satisfaction were related, and engagement and performance were also related. The pattern of the findings for students appears to closely support those found in a large sample of workers. Researchers should be careful not to imply any causal link (including direction) between academic satisfaction and engagement. The findings and amount of research on this issue is limited.

Another interesting finding was that students' performance was significantly related to satisfaction. These results run counter to established research findings (Iaffaldano & Muchinsky, 1985) that performance and satisfaction are unrelated; however, they support Judge, Bono, Thoresen, and Patton's (2001) review of that relation.

An increasing number of organizations are developing engagement programs (Corporate Leadership Council [CLC], 2004a, 2004b). Engagement offers a much more positive perspective with the potential to help organizations. Because of the increasing number of organizations studying employee engagement (see CLC, 2004a, 2000b; Harter et al., 2002), academics should provide solid research to understand its correlates, antecedents, and consequences.

We developed the final model identified in our research on the basis of results from the present sample and modification indexes from previous models. It is possible that these changes were capitalizing on chance factors in the data; however, the use of a cross-validation approach argues against this explanation. Also, all data points were self-reported information and, thus, may produce inflated relations between the various measures and constructs. It is clear that additional research needs to be conducted to replicate these findings and conclusions. Future researchers should investigate the relation between personality and engagement. Our speculation is that the correlation between engagement and personality factors will be significantly different from zero; however, this is an empirical hypothesis.

In the present study, we hypothesized that engagement has three dimensions and that it is a separate and distinct construct from satisfaction. However, these hypotheses were not supported. Individuals who measure engagement using Schaufeli, Salanova, et al.'s (2002) approach and are engaged in their work are likely to feel more satisfied. If they are satisfied, they are likely to feel more engaged. Schaufeli, Salanova, et al. defined engagement as a persistent and positive affective-motivational state of fulfillment. Our results strongly support this view of engagement and demonstrate the connectivity between engagement and positive feeling about what one is doing and how well one does it. Also, our results strongly support the view that, if engagement is a different construct, researchers should measure it in ways that downplay the affective component. Such an approach may be the vigor measure that Shirom (2003) developed.

AUTHOR NOTES

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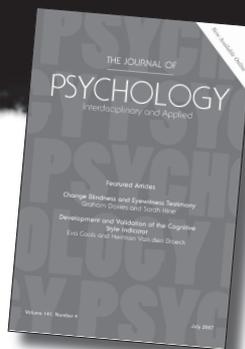
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