Article

Measuring College Campus Well-Being with Multidimensional Indices: Sustainability of Higher Education in Taiwan

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Abstract: Understanding students’ subjective perceptions of universities is one of the main issues that needs to be addressed in order to improve aspects such as student retention and achieve sustainable development. Considering subjective well-being as an alternative term for happiness and satisfaction in higher education for sustainability, this study is to develop a measure conceptually and operationally for college campus well-being (CWB) with multiple dimensions, including a psychological, physical, financial, and social dimension of well-being. Subjected to factorial validity and composite reliability, the CWB scale validated by 2793 undergraduate students in central Taiwan was administered. The research demonstrates the appropriate construct validity and suitable-fit indices of the CWB multidimensional scale when used for measuring university-oriented happiness and sustainability in this research context. Differential effects were found among the colleges and between genders. The implications and future research lines are discussed.

Keywords: sustainable development; campus well-being; higher education; psychological well-being; subjective well-being; sustainability

1. Introduction

Growth in the research realm of well-being is associated with socioeconomic status [1], personality [2–4], and behavioral intention [5–7] in various realms. The antecedents and consequences of well-being reflect existing or future societal trends in individual value including subjective perception with daily life and well-being recognition that transcends economic prosperity [8]. The way to measure well-being is the primary target and important issue of coaching and interventions in schools and business organizations as indices of the quality to supplement economic indicators for nations [9]. In recent years, the empirical research on well-being is mostly longitudinal research [1,2,10,11].

The definition and measurement of student well-being have constituted an important and often-mentioned topic in educational contexts for many years; yet, little research has been conducted in this area [12,13]. The issue of well-being has been a central part for sustainable development of young people, including children [14]. As education, per se, positions a person’s place and position in society, educational setting is particularly correlated with student well-being [14]. However, like most other psychological constructs, the fact that well-being is hard to visually observe leads to reflection upon whether well-being can actually be measured [15]. Kahneman [16] brought up direct questions on the concept of
well-being as individuals might be rather biased by their present state and what they remember at a particular moment. To empirically examine positive aspects of human functioning, it was necessary to establish an operational definition of psychological well-being [17]. This was a major undertaking because, like most psychological constructs, psychological well-being is multifaceted and encompasses multiple dimensions [18]. Moreover, Nieboer, Lindenberg [19] tried to identify the major dimensions of subjective well-being (SWB) and inquire certain activities and experiences related to these SWB dimensions. Sheng, Liu [2] refer to understanding adolescents’ subjective well-being from an interpersonal and intrapersonal perspective, and propose that mindfulness contributes to well-being. In this way, instead of asking direct questions on well-being, it is more feasible to adopt the instruments to approach well-being individuals have at their disposal for reaching it [19].

Well-being plays a critical role in various areas, particularly in higher education. It now seems natural that political discussions urge universities to promote the well-being of students [20]. In the context of universities or colleges, promoting student well-being refers to effective learning, academic, and activities [21,22]. Given these findings, it becomes important to better understand the measurement of students’ well-being toward colleges or universities. Moreover, there seems inconsistent approaches to measure student well-being as a whole; even supporting mechanisms and procedures are observed and appraised [23]. Upon the research rationale, we tend to draw upon the contemporary psychological literature and develop a specific conceptualization to measure the dimensions of college campus well-being from the perspectives of institutional research. Specifically, two research questions are outlined:

Research question 1: What factors constitute subjective well-being in the setting of a college campus?

Research question 2: How feasible is the college campus well-being from the perspective of institutional research for sustainability?

2. Subjective Well-Being (SWB)

The concept of well-being has been defined as the ways to experience and perceive daily lives [24]. Well-being is an individual’s subjective consciousness and experience, it is a manifestation of emotion, and it also refers to people’s satisfaction with the material and psychological levels [25]. Well-being is the combination of feeling good and functioning effectively [26]. In the psychology literature, however, there is no common understanding of what well-being is [27]. Uysal, Sirgy [28] consider life satisfaction, happiness, quality of life, and life fulfillment as synonyms of well-being, and these terms may even be used interchangeably. The technical term for happiness is subjective well-being (SWB) [29]. SWB is an individual’s cognitive and emotional assessment of life, mainly based on three components: life satisfaction, positive impact and negative impact [30]. The primary life of many individuals aims to experience high levels of well-being on a consistent basis [9]. Individuals tend to perceive a higher level of well-being if they are pleased with their living conditions; that is, they experience frequent positive emotions and infrequent negative emotions [31]. Specifically, well-being refers to the state of being comfortable, not necessarily requiring individuals to feel good all along, experiencing painful emotions (e.g., disappointment, failure, grief), and managing the negative or painful emotions in a normal part of life [26]. The research series of well-being also act as a reference point from which researchers serve as a guide for clinical work by helping counselors determine the direction clients might move in to relieve distress and find fulfillment, inform goals and objectives for counseling-related interventions, and enhance not only students’ mental health and resilience, but also encourage students to become more engaged with learning so as to enhance academic outcomes [18,32]. Indeed, people react differently when encountering similar circumstances based on their unique expectations, values, and prior experiences accordingly [8]. For example, the emotional impact of certain occurrences or events will depend largely on individuals’ appraisals, specifically individual differences in attention, perception, and interpretation [33]. To necessitate a specific understanding
and evaluation of student well-being in the educational setting, Hascher [12] adopted the longitudinal design taking into account quantitative and qualitative approaches to come up with a student well-being questionnaire. In addition, each individual also makes broader awareness, perception, and judgments about one’s life as a whole [34] and student life in colleges or universities. University offers a mainly or partially guided form of learning and training to facilitate self-directed learning and social interactions among stakeholders including students, peers, and instructors. The empirical studies of well-being play an essential role in academic theories in domains of personality and development in either theoretical or practical forms.

3. Student Well-Being and College Campus Well-Being

Similar to general well-being in the workplace and daily life, the issue of well-being in educational settings is also a perplexing and integrated construct by subjective evaluation and past experience from each individual, group, and society herein. Colleges and universities have been attempting to resolve the challenges that go with the increasing mental health issues of students [35]. College students experience different levels of stress and pressure at predictable times each semester due to academic commitments, financial constraints, and incompetent time management [36]. As a result, competition is becoming tighter, learning time is increasing, and student psychological burdens are growing [37]. When faced with challenges, students experiencing mental health difficulties are thus less likely to persist and are more likely to drop out of the courses [38]. In contrast, students’ positive feelings, such as psychological well-being, can help them function more effectively and influence their academic achievement [39]. Recognizing and advocating student well-being is essential for the fulfillment of universities’ core mission of providing high-quality educational experiences and positive graduate outcomes [38]. Therefore, the majority of college students worldwide have recognized life satisfaction and happiness to be extremely important as their well-being at university motivates their academic engagement and performance in achievement contexts [8,40].

That is, well-being for college students consists of several dimensions and cannot be reduced to the existence or absence of a single psychological phenomenon [12]. Well-being related to the college campus can be defined as consecutive emotional experiences characterized by the dominance of positive feelings and cognitions toward the varieties of campus activities rather than negative feelings and cognitions [12]. An alternative definition of well-being in college refers to the degree to which a student is functioning effectively in the school community [41]. That is, college campus well-being represents subjective, emotional, and cognitive evaluations of university reality and can be reflected and perceived as a misbalance of positive and negative aspects in favor of positive aspects [42]. Additionally, well-being in college is an indicator of a learning environment that enables students to move toward their academic and social goals for a qualitatively good college life [12]. However, much of the research on student well-being in colleges and universities lends support to the issues of psychological distress and supporting services as students experiencing mental health difficulties [38]. Nonetheless, more research work is needed to figure out how to measure students’ state of being satisfied so that universities could take actions to reduce campus-related stressors and further promote protective factors in the university setting [38]. Therefore, in the realm of college campus and student well-being, this research defines college campus well-being (CWB) conceptually and operationally to contribute to filling the research gap by developing a multidimensional, comprehensive measurement scale to determine students’ college campus well-being.

4. The Measurement of College Campus Well-Being (CWB)

The growing mental health issues of students have been the substantial issue and challenge around the world for colleges and universities [35]. With intense pressure from academic, relationship, and financial difficulties, an increasing number of students suffer from physical and mental health problems [43,44]. In addition, students deal with
issues around financial constraints and financial support, psychological support, and social interaction with classroom teachers [45]. Hence, the psychosocial, physical, financial, and social well-being of students are important determinants of college campus well-being. In this study, we used a self-report subjective method to measure student physical well-being. Subjective physical assessments related to individual health tend to be critical while others might not observe certain symptoms even by asking questions [46]. Another key component of college campus well-being is financial well-being, which could be understood as a function of individual characteristics, financial behaviors, and financial constraints [47]. Alternatively, the source of support and guidance relevant to student well-being and success is from course instructors [48]. Social support from faculties is a central component of the university climate [49]. Positive relationships between student and teacher have been defined as the degree to which students feel respected, supported, and valued by their course instructors/professors [50]. Such positive outcomes help students face a number of socio-emotional and academic challenges [51]. Therefore, the well-being of students in the classroom is associated with the presence of teachers who students respect and who can regulate the behavior of students who misbehave in the classroom [20]; establishing and maintaining quality student–teacher relationships is essential for guiding students through this transition period [51]. That is, social well-being in the classroom is associated with being able to build close relationships with teachers, in addition to carrying out more lighthearted activities in the classroom, which could result in greater interest on behalf of all students. In the same way, well-being is constructed when all students are acknowledged by teachers, regardless of their academic performance [20]. In addition, the attributes of psychological well-being are the fulfillment of an individual’s full potential and discovering his or her true self by living in accordance with personal values and virtues, resulting in an expansion of potential and growth [52]. Indeed, psychological well-being is said to be more stable than subjective well-being, which may fluctuate with life experiences, leading to adaptive human functioning and positive life experiences [53].

The Ryff scale of psychological well-being [54] is a theoretically grounded instrument that specifically focuses on measuring multiple facets of psychological well-being. It articulates six dimensions that are proposed to be more directly tied to the psychological theories from humanistic, existential, and developmental traditions [9]. We adopted the psychological well-being scales with 12 items in six dimensions, i.e., (1) autonomy, (2) positive relations with others, (3) environmental mastery, (4) self-acceptance, (5) purpose in life, and (6) personal growth.

1. **Autonomy** refers to the experience of behavior as volitional and reflectively self-endorsed [55]. Student autonomy refers to a student’s belief that he or she has some sense of meaningful control [56]. Students tend to be autonomous when they willingly devote time and energy to their studies [55].

2. **Positive relations with others** refers to optimistic relations with others as warm, trusting interpersonal relations and strong feelings of empathy and affection [18]. When in pleasant moods, people are more likely to enjoy their activities and social interactions, generating more satisfaction [57]. The happiest college students have been shown to have better social relationships [57,58].

3. **Environmental mastery** refers to one’s capability to choose or create environments suitable to his or her psychic conditions representing a characteristic of mental health [54]. Happy people may experience positive emotions more easily because they are relatively more sensitive to possible motivators in their environment [57].

4. **Self-acceptance** refers to a central feature of mental health involving self-actualization, optimal functioning, and maturity [54,59], and has been considered the most important criterion of well-being.

5. **Purpose in life** refers to the beliefs when people perceive there is goal setting and meaning accordingly to describe a clear comprehension of life purpose, a sense of directedness, and intentionality [54]. Intrinsically linking to directed goal setting, it gives one a foundation to achieve these goals [60].
6. Personal growth refers to the optimal psychological functioning, which not only includes actualizing oneself and recognizing one’s potential, but also continuing to extend oneself for underlining the imperative of new challenges or tasks in different periods of life [59,61].

5. The Operational Definition of College Campus Well-Being

College campus well-being can be defined as an emotional experience characterized by the dominance of positive feelings and cognitions toward the campus, students on campus, and the campus context in comparison to negative feelings and cognitions toward college life [12]. We use psychological well-being, physical well-being, financial well-being, and social well-being to understand student subjective, emotional, and cognitive evaluations of university reality. Psychological well-being is to measure the aspects of self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth related to different aspects of positive functioning. Physical well-being is to measure the students’ physical functioning and state of health, which can be influenced by student health status and lifestyle. Financial well-being is to understand students’ assessment of their current financial independence. Social well-being is to understand the quality of student–teacher relationships that are vital for students’ academic development for their well-being. This study includes psychological well-being, physical well-being, financial well-being, and social well-being to develop a conceptualization and measurement of college campus well-being.

6. Method

6.1. Sample

As this study is to develop a measure conceptually and operationally for college campus well-being with multiple dimensions, including psychological, physical, financial, and social dimension of well-being, a total of 2793 undergraduate students from the first to fourth year of one university participated in the data collection, including from the colleges of education, humanities, science, and management. Students completed an online questionnaire as they attended their class as intact groups. The overall response rate was 86% of the population. Table 1 presents the demographic profile of the research participants.

<table>
<thead>
<tr>
<th>Demographic Profile</th>
<th>Levels</th>
<th>Frequency (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>963</td>
<td>34.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1830</td>
<td>65.5</td>
</tr>
<tr>
<td>University class standing</td>
<td>Freshman</td>
<td>718</td>
<td>25.7</td>
</tr>
<tr>
<td></td>
<td>Sophomore</td>
<td>704</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>Junior</td>
<td>721</td>
<td>25.8</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
<td>650</td>
<td>23.3</td>
</tr>
<tr>
<td>College</td>
<td>Education</td>
<td>713</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Humanities</td>
<td>1096</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>612</td>
<td>21.9</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>372</td>
<td>13.3</td>
</tr>
<tr>
<td>Work–study</td>
<td>Yes</td>
<td>1473</td>
<td>52.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1304</td>
<td>46.7</td>
</tr>
<tr>
<td>Campus activities</td>
<td>Yes</td>
<td>959</td>
<td>34.3</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1798</td>
<td>64.4</td>
</tr>
<tr>
<td>Financial support</td>
<td>Family</td>
<td>2257</td>
<td>80.8</td>
</tr>
<tr>
<td></td>
<td>Work</td>
<td>373</td>
<td>13.4</td>
</tr>
<tr>
<td></td>
<td>Loan</td>
<td>43</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Scholarship</td>
<td>40</td>
<td>1.4</td>
</tr>
</tbody>
</table>
6.2. Measures

College students were invited to complete a self-report CWB questionnaire developed from the existing literature and modified to suit the context of higher education. The CWB scale contains demographic items and measurement items. Each item was measured on an eight-point Likert-type scale ranging from 1 (strongly disagree) to 8 (strongly agree).

**Psychological well-being.** Psychological well-being by Ryff [54] is composed of six dimensions: autonomy, positive relations with others, environmental mastery, self-acceptance, purpose in life, and personal growth. For autonomy, “I am satisfied with the way I divide my time between university and my personal life”. For positive relations, “My social relationships are supportive and rewarding”. For environmental mastery, “I have opportunities to fully show my abilities and potential”. For self-acceptance, “In general, I feel confident and positive about myself”. For purpose in life, “I lead a purposeful and meaningful life”. Lastly, for personal growth, “I seek out situations that challenge my skills and abilities”.

**Physical well-being.** We measure students’ physical well-being using a two-item scale developed by Grant, Christianson [62], i.e., “I take exercise regularly”.

**Financial well-being.** We measure student financial well-being using a two-item scale (α = 0.75) developed by Sabri and Falahati [63], i.e., “I have enough money to afford my tuition”.

**Social well-being.** We measure students’ social well-being using a three-item scale based on the work of Keyes [64] and Suldo, Friedrich [48] to measure social well-being of students in the classroom (α = 0.86), such as, “I maintain good relationships with my teachers”.

6.3. Statistical Analysis

Before validating the structural model, each variable or construct must pass confirmatory factor analysis (CFA) or principal component analysis (PCA) to examine the reliability and construct validity of the underlying structural measurement model. That is, the purpose is to understand the relationship between potential variables and observed variables, and to verify the combined reliability and construct validity of the scale. This study plans to use the covariance-based SEM (CB-SEM) AMOS software for verification. In terms of statistical analysis, this study uses structural equation modeling (SEM) to verify the research model and uses AMOS statistical analysis software to analyze the measurement model and the structural model. In addition, to obtain evidence of factorial validity based on the internal structure of the scale, two-factor analysis procedures were conducted [65].

The Kaiser–Meyer–Olkin (KMO) and Bartlett tests were performed to verify the suitability of the data for an exploratory factor analysis (EFA). To gauge the model fit, chi-square (χ²) values are reported as the index of absolute fit. In addition, the comparative fixed index (CFI) and incremental fit index (IFI) are greater than 0.80 indicating acceptable fit. The standardized root mean square residual (SRMR) with values less than 0.10 and the root mean square error of approximation (RMSEA) with values less than or equal to 0.08 are considered good fit [66].

7. Results

7.1. Preliminary Analysis

Preliminary analyses were carried out to test the differential effect among the demographic variables in Table 2, i.e., gender, class standing, college, status of work–study, campus activities, and financial support, on college campus well-being. By the series of independent-sample t-tests, we found that compared with females, males reported higher levels of college campus well-being (mean = 5.57, 5.81, t = −5.39, p < 0.01). However, status of work–study (mean = 5.61, 5.69, t = −1.84, p = 0.07) and campus activities (mean = 5.69, 5.63, t = 1.40, p = 0.16) did not lead to any group difference in college campus well-being. In addition, a series of ANOVA investigated class standing, college, and financial support differences. The results showed no significant differences in college campus well-being according to different university class standing and financial support. However, the main effect of campus well-being was found among the different colleges, F (3, 2770) = 16.98.
By using post hoc tests, we found that the College of Education and College of Science scored higher than the College of Humanities and College of Management (Table 2). Thus, the College of Education and the College of Science reported higher levels of campus well-being than the College of Humanities and the College of Management.

Table 2. ANOVA results in terms of college.

<table>
<thead>
<tr>
<th>College</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
<th>Post Hoc (Scheffe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>61.65</td>
<td>3</td>
<td>20.55</td>
<td>16.98</td>
<td>0.00</td>
<td>Education, Science &gt; Humanities, Management</td>
</tr>
<tr>
<td>Within groups</td>
<td>3351.72</td>
<td>2770</td>
<td>1.21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.2. Exploratory Factor Analysis

The descriptive report including means, standard deviations, and item correlations is displayed in Table 3. Correlations between the two subscales are significantly positive. The sampling adequacy was appropriate (KMO = 0.93; Bartlett test: $\chi^2 = 30,845.42, df = 171, p < 0.001). In addition, a factor loading of 0.50 was considered a measure of substance permanence during EFA [67]. The EFA results showed that all the items have high factor loadings, and the college campus well-being scale was composed of four factors that accounted for 66.49% of the total variance. The factor loads related to subfactors are presented in Table 4.

Table 3. Descriptive statistics and construct validity.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dimensions</th>
<th>Mean</th>
<th>S.D.</th>
<th>AVE</th>
<th>AU</th>
<th>PR</th>
<th>EM</th>
<th>SA</th>
<th>PL</th>
<th>PG</th>
<th>PW</th>
<th>FW</th>
<th>SW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological well-being</td>
<td></td>
<td>5.85</td>
<td>1.14</td>
<td>0.55</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive relations (PR)</td>
<td></td>
<td>6.19</td>
<td>1.29</td>
<td>0.78</td>
<td>0.55**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental mastery (EM)</td>
<td></td>
<td>5.90</td>
<td>1.26</td>
<td>0.63</td>
<td>0.69</td>
<td>0.62**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-acceptance (SA)</td>
<td></td>
<td>5.89</td>
<td>1.47</td>
<td>0.84</td>
<td>0.60</td>
<td>0.57</td>
<td>0.74</td>
<td>0.74**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose in life (PL)</td>
<td></td>
<td>5.58</td>
<td>1.51</td>
<td>0.92</td>
<td>0.66</td>
<td>0.55</td>
<td>0.79</td>
<td>0.79**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal growth (PG)</td>
<td></td>
<td>5.85</td>
<td>1.25</td>
<td>0.87</td>
<td>0.64</td>
<td>0.57</td>
<td>0.73</td>
<td>0.62</td>
<td>0.62**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical well-being (PW)</td>
<td></td>
<td>5.28</td>
<td>1.70</td>
<td>0.88</td>
<td>0.51</td>
<td>0.38</td>
<td>0.47</td>
<td>0.41</td>
<td>0.46</td>
<td>0.46</td>
<td>0.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial well-being (FW)</td>
<td></td>
<td>5.92</td>
<td>1.60</td>
<td>0.60</td>
<td>0.31</td>
<td>0.37</td>
<td>0.30</td>
<td>0.30</td>
<td>0.31</td>
<td>0.34</td>
<td>0.76</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>Social well-being (SW)</td>
<td></td>
<td>4.59</td>
<td>1.68</td>
<td>0.67</td>
<td>0.43</td>
<td>0.42</td>
<td>0.48</td>
<td>0.41</td>
<td>0.48</td>
<td>0.53</td>
<td>0.38</td>
<td>0.23</td>
<td>0.82</td>
</tr>
</tbody>
</table>

** Correlation is significant at $p < 0.01$. Bold and underlined diagonal values are the square root of AVE.

Table 4. Exploratory factor analysis.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dimensions</th>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological well-being</td>
<td></td>
<td>AU1 Time management</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU2 Balance behavior</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR1 Active communication</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR2 Friends support</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EM1 Life adjustment</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EM2 A sense of mastery</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA1 Positive attitude toward self</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA2 High self-esteem</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL1 A sense of direction</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL2 Optimistic about future</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PG1 Self-growth</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PG2 Academic achievement</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PW1 Exercise regularly</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PW2 Normal diet</td>
<td>0.61</td>
</tr>
<tr>
<td>Financial well-being (FW)</td>
<td></td>
<td>FW1 Affordable tuition</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FW2 Affordable daily expenses</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW1 Interaction with teachers</td>
<td>0.66</td>
</tr>
<tr>
<td>Social well-being (SW)</td>
<td></td>
<td>SW2 Teacher–student relationship</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW3 Willing to chat with teachers</td>
<td>0.65</td>
</tr>
</tbody>
</table>
7.3. Confirmatory Factor Analyses

The CFA showed that the data fit the model ($\chi^2 = 2023, \text{df} = 140, p < 0.001; \text{CFI} = 0.94; \text{IFI} = 0.94; \text{SRMR} = 0.05; \text{RMSEA} = 0.069$), except for the significance of $\chi^2$, which may have been significant due to the large sample size [65]. Therefore, we conclude that all the indices except $\chi^2$ confirmed that the model shows a good fit to the data. Figure 1 presents the overall model with path coefficient.

Figure 1. Confirmatory factor analyses.

7.4. Composite Reliability

Reliability was assured by composite reliability (CR) indices. The scales exhibit a high level of reliability with above the recommended 0.7 benchmark [68], and all scales obtained ideal internal consistency (psychological well-being, CR = 0.97; physical well-being, CR = 0.68; financial well-being, CR = 0.75; social well-being, CR = 0.86). The scale variables demonstrated ideal internal consistency.

7.5. Convergent and Discriminant Validity

To validate the scale instrument, we conducted construct validity tests including convergent and discriminant validity. Convergent validity was assessed by the standardized path loading, Cronbach’s $\alpha$, composite reliability (CR), and the average variance extracted (AVE). Henseler, Ringle [69] suggest that discriminant validity evaluation is a critical prerequisite to evaluating relationships between latent variables. Fornell and Larcker [70] recommend that the AVE between constructs and their measures should be higher than the shared variances between each variable and the other variables in a model. For the AVEs, both factors obtained satisfactory scores (psychological factor, AVE = 0.88; physical factor, AVE = 0.52; financial factor, AVE = 0.60; social factor, AVE = 0.67). Discriminant validity was established because the square root of the AVE between the factors was higher than the estimated correlations (psychological well-being, $\sqrt{\text{AVE}} = 0.94$; physical well-being, $\sqrt{\text{AVE}} = 0.72$; financial well-being, $\sqrt{\text{AVE}} = 0.77$; social well-being, $\sqrt{\text{AVE}} = 0.82$). Specifi-
cally, the values of standardized path loadings, Cronbach’s \( \alpha \), composite reliability (CR) greater than 0.7, and values of the average variance extracted (AVE) greater than 0.5 are considered adequate for convergent validity [70,71]. Discriminant validity achieved as the square root of the AVE between each pair of factors is higher than the estimated correlation between these factors [65]. Therefore, both convergent validity and discriminant validity of the measurement model were verified.

After analyzing the data, the results showed that the measure of sampling adequacy was appropriate and that all the items had high factor loadings in EFA. The CFA also provided a good fit for the data. In addition, we established convergence or discrimination, and all scales obtained satisfactory scores. The results revealed that the physical, financial, and social well-being of students are important determinants of college campus well-being (CWB).

8. Discussion and Conclusions

In recent decades, the substantial increase in well-being research has gained the attention, specifically concerned with subjective well-being, as we learned from The OECD Learning Compass 2030 [72] and the OECD well-being framework [73]. The OECD Learning Compass 2030 [72] calls for fulfillment of learners’ potentials take up knowledge, skills, attitudes and values to achieve their well-being for the communities herein. We aimed to develop a conceptualization and measurement of college campus well-being (CWB). The results highlight the importance of college campus well-being as a mechanism to achieve a sustainable environment and improve school performance, as well as institutional considerations. The present study shows how higher education research and institutional research can work together to produce new insights that promote societal and institutional objectives. Through the perspectives of institutional research, the purpose of this study was to validate the college campus well-being scale. We also took demographic variables into consideration, finding that males are happier on campus than females, and students in the College of Education reported higher levels of college campus well-being than those in the College of Humanities. The findings align with research by Alimoradi, Aubi [74], in that there is a difference in happiness rates between female and male students, and average happiness scores of male students are higher than those of female students because behavioral system activity in male students is greater than in female students.

For the college campus well-being (CWB) scale development and empirical validation, we based it on the psychological well-being instrument by Ryff [54], focusing on autonomy, positive relations, environmental mastery, self-acceptance, purpose in life, and personal growth. That is, our research supports the model of CWB in multidimensional perspectives. The results also support the reliability and construct validity of all subscales. The overall findings from the present study support the validation of the college campus well-being scale. Likewise, Lin and Borden [75]’s study on institutional research to assist higher education in Taiwan to support the institution to achieve the intended core mission objectives in the sustainable view does as well. Our research findings contribute to the way in which CWB sheds light on the sustainability in development and management of higher education, by means of a consensus investigating the four university classes across the four colleges, and proposed the CWB scale. As in the finding highlighting students’ perception towards their financial, physical, and social well-being to be critical determinants of college CWB, we reach several conclusions. First of all, the availability of assistantship, scholarship, and more financial support should be informative and the applications including review appraisal if necessary should be provided clearly. Second, the campus environment should be reviewed for adequate activities, sports, spaces and areas for social interaction of teacher–student or student–student. In addition to the campus infrastructure, improving physical well-being needs to be incorporated into formal and informal courses. Last, professors in colleges and universities tend to be the critical motivating factor to facilitate and activate students’ perception of social well-being in higher education. In the four years of university
class standing, the professors interacting with students are not merely limited to the course or classroom, but are more extended to capstone courses in project-based forms.

However, the practical conclusions and limitations of the present study should be acknowledged, and directions for future research are noted. First of all, the college campus well-being scale was developed for higher education, and validated by one university student sample in Taiwan. The research sample is representative of the middle-size university and featured on both teacher education degree programs and domain profession degree programs. As reported, further research issues could be set to examine the psychometric properties of the college campus well-being scale with diverse sample pools to extend further application. Second, the factors of the college campus well-being scale were determined in combination with an expert review process and exploratory factor analyses. A less structured and more empirically driven approach might be needed in future studies. Third, this research finding takes consideration of self-reported data to illustrate the student perception toward the overall college campus in light of subjective well-being. Last, this study has a cross-sectional design; however, a longitudinal study may be advantageous to monitor and substantiate more observable phenomena as to the cross-sectional findings. The research shows that college campus well-being (CWB) indicators are important paths to diverse kinds of well-being, so it is important to have validated instruments to understand the concept of well-being and measure them. It is the research intent that this CWB scale may be applied in different settings and contexts to operationalize students’ happiness and well-being in colleges and universities. The CWB scale makes possible the measurement of student perception related to university living and learning, and ultimately the enhancement in student retention and satisfactory feedback. For the institutional viewpoint in higher education, a sustainable campus derived from sustainable development goals (SDGs) in general has been discussed, and further emphasized on environment, social, and governance (ESG) indices.

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