Received: May 1, 2024; Revised: May 9, 2024; Accepted: August 26, 2024

Translation and Validation of the Filipino Sustainability Consciousness Questionnaire

https://doi.org/10.58870/berj.v9i1.65

Ester T. Rada
College of Arts and Sciences
San Beda University, Manila, Philippines
erada@sanbeda.edu.ph

Alvin M. Nieva
College of Arts and Sciences
San Beda University, Manila, Philippines
anieva@sanbeda.edu.ph

Abstract

Sustainable Development (SD) has undeniably become an important concept worldwide. But sustainability issues are viewed in different contexts and situations. It is believed that cultural context is an important factor that influences human behaviors and values related to society, the economy, and the environment. Language is an essential part of culture. Thus, measurement indicators that are culturally adapted are as important to visualize the efforts toward SD. The present study aims to create a Filipino version of the Sustainability Consciousness Questionnaire (SCQ) reflecting the three psychological constructs of knowingness, attitudes, and behavioral items which are related to SD dimensions of social, economic, and environmental. Also, validation of the Filipino SCQ (F-SCQ) by experts and pilot tests as to the conceptual level of the target users and construct validity were done. This study used a cross-sectional, explanatory nonexperimental design with participants composed of 678 male and female aged 18-19 years old. The translation processes go through preparation, translation proper (forward translation), and evaluation (i.e. back translation, bilingual technique, and pretest/cognitive debriefing with 10 target samples) to ensure that the translated instrument is both culturally acceptable and contextually scale relevant to target population. In terms of its factor structure, the results of the second-order

factor analysis are as follows: for *Sustainability Knowingness*, all of the first-order factors (i.e., *Environmental*, *Social*, and *Economic*) were loaded onto a single second-order factor. For *Sustainability Attitudes*, only the *Social* and *Economic* factors were retained; while, for *Sustainability Behaviour*, only the *Environmental* and *Economic* factors were confirmed. Hence, this Filipino version of the SCQ is found to be psychometrically sound and suitable for Filipino adolescents in measuring their sustainability consciousness. Further evaluation is recommended in comparison to the original English SCQ, other age groups; and translation to other Philippine dialects may also be considered in future studies.

Keywords: sustainability consciousness, sustainable development, Filipino translation, validation, second-order factor analysis

Background of the Study

Sustainable Development (SD) has become an important concept for policy-makers worldwide since the concept was propagated internationally by the World Commission on Environment and Development (WCED) in 1987 (Smyth, 2008). The WCED's Brundtland report defined SD as "… a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 41 cited in Gericke et al., 2019, p. 36).

Protecting our environment while improving social and economic conditions is a major challenge for countries around the world. This is the core issue of sustainable development, which is a top priority for many nations (Berglund, 2020). Many governments around the world emphasize the importance of citizen involvement in tackling climate change and building more sustainable societies. These also acknowledge that education, both in schools and outside of them, plays a crucial role in equipping citizens with the knowledge and skills needed to address these challenges (Ariza, et al., 2021).

Accordingly, "education aims to develop the necessary knowledge and skills among the students to prepare them for the world of work and eventually to have a meaningful lifelong career" (Nieva, 2022, p. 11). Some private colleges may require students to take extra courses beyond the typical curriculum (Ganotice, Lising, Nieva, & Bernardo, 2016). These courses can be tied to the religious beliefs of the institution or its overall mission, vision, and goals (Ganotice, Lising, Nieva, & Bernardo, 2016). For instance, a college focused on sustainability might require courses related to the UN Sustainable Development Goals (UN SDGs) or Laudato Si'." Therefore, one way to instill the value of sustainability consciousness among adolescent students is to include it in the school's curriculum.

Relevantly, the concept of consciousness has many different meanings in psychological research. In the study of Gericke et al (2019) as they developed the Sustainability Consciousness Questionnaire (SCQ) their definition of consciousness referred to as the presence (or awareness) of experienced phenomena. Sustainability Consciousness (SC) refers then to the experience or awareness of sustainability phenomena. These include experiences and perceptions that we commonly associate with ourselves, such as beliefs, feelings, and actions. Their study aims to "develop an operational concept of SC that can be used to measure the impact of interventions of different stakeholders" (p. 37).

The concept of sustainability consciousness, introduced by Gericke et al. (2019), refers to an individual awareness of sustainable development. The SCQ covers the three dimensions of SD: social (SO), environment (EN) and economy (EC). Also, SCQ reflects the three psychological constructs of consciousness: knowingness (K), attitudes (A) and behavioural (B) items which are related to SD dimensions.

> "The cognitive responses can be described as thoughts, opinions or ideas about an object, and are mostly found in the knowingness items, but also, to some extent, in the attitude items. The affective responses are composed of emotions, moods or feelings, and are mostly reflected in the attitude items, since attitudes can be defined as an enduring positive or negative feeling about some object, person, or issue (Chaiken & Baldwin, 2008; Kollmuss & Agyeman, 2002). Finally, the behaviour items evaluate the tendency of a respondent to engage in behaviour in favour of, or opposed to, the attitude object (Eagly & Chaiken, 1993). Hence, by including the three psychological constructs of knowingness, attitudes and behaviour in the SCQ, a holistic approach is taken to the investigation of people's cognitive and affective views of SD." (Gericke et al., 2019, p. 39).

Hence, SCQ covers nine subfactors (KEN, KSO, KEC, AEN, ASO, AEC, BEN, BSO, BEC) subsuming sustainability knowingness, sustainability attitudes, and sustainability behaviour.

We need good ways to measure the effects of educational programs. These programs aim to teach people about the environment, how they feel about it (attitudes), and what they can do to help (behaviors). These are all important for people to become active environmental citizens who can make a positive difference. To develop an effective and efficient school program for student sustainability consciousness, reliable and valid assessment tools are highly needed. One such available tool is the Sustainability Consciousness Questionnaire (SCQ), developed by Gericke et al. (2019). This tool assesses an individual's cognizance of sustainable development concepts and principles. However, such measures need validation before use. For example, in Quilon and Kurniawan's (2023) study, they adapted a survey questionnaire that was initially used by college students in the Universiti Malaysia Kelantan, Malaysia. Psychological measurements like this need to be validated before they are used because cultural differences may skew test results (Nieva, 2023). Tests from one culture might not work in another, leading to inaccurate and misleading conclusions.

SCQ has caught the attention of different countries, such as studies in Japan, Taiwan and Sweden. Ogishima et al. (2023) created a Japanese version of the Sustainability Consciousness Questionnaire (SCQ) and examined its reliability and validity. Three online surveys were conducted with 1,268 Japanese adults. The results of confirmatory factor analysis showed that the Japanese version of the SCQ consists of two single-level factors: sustainability knowingness/attitude and sustainability behavior. These two factors demonstrated internal consistency and reliability. Additionally, results also indicated that the higher the level of sustainability knowledge and attitude, the less positive attitude toward climate change, and the higher the level of sustainability behavior, indicating the construct validity of these factors (p. 1).

SCQ developed by Gericke et al. (2019) was also investigated by Ariza, et al. (2021) to evaluate different educational interventions aimed at increasing environmental citizenship. It presents three sub-studies from Spain, Belgium, and Sweden using the SCQ with varying contexts, duration, and target groups yet sharing common pedagogical features in the interventions. It concluded that SCQ is useful for detecting the effects of learning interventions of varying designs and contexts that address environmental citizenship. The results are discussed in terms of key pedagogical features of the educational interventions, and the appropriateness and sensitivity of the instrument in detecting changes in the intended direction.

Bergland, et al (2019) as well investigate the sustainability consciousness of grade 12 students (age 18–19) in Taiwan and Sweden. The findings indicate that there are significant differences between the two samples attributed to cultural value orientations of the East Asian and Western European regions. Implications pointed toward the perspective of cultural specificity for Education for Sustainable Development.

Further, the Philippines as a non-Western country is a potential case for determining the universality of a construct developed in Western countries (Ganotice & King, 2014). Nicasio (2012) posits that "culture plays an important framework in understanding the context of an individual's perspective" (p. 1). Language is an essential part of culture. It is also important to consider the characteristic of the Philippines as multilingual, thus, being sensitive to the meaning of words in certain dialect/s should be a concern in word choice and tone of the Filipino language, which is described as Metro Manila Tagalog and the *lingua franca* of the Philippines.

Significantly, the furtherance of the country's national language is a major sociolinguistic goal such as manifested in this idea:

> *"...language remains the foremost medium of propagating ideas, just as it is a veritable tool in facilitating human relations across racial barriers; therefore, it does not come as a surprise in any way to make concerted efforts in saving the indigenous language from going into extinction" (Ayakoroma, 2017, p. 183, cited in Owojecho, 2020).*

Halliday (1985, cited in Xia, 2016; House, 2016) has also emphasized the relationship between language and its function. The field of discourse (the general sense of what the text is about, its topic and social actions), tenor of discourse (interpersonal and role relationships), and mode of discourse (spoken or written) control the ideational function, interpersonal function and textual function, respectively. The idea attached to the text depends on the context of the discourse between those involved in the transfer of meaning. It is also important to note that communication is an important prerequisite of development, and this is manifested through language. Language must be seen to be communicating the intended meaning as a vehicle for achieving set goals. The language that provides people with a definite shape to their emotions and thoughts (mother tongue) is necessary to achieve this. Translation brings approaches from Western to non-Western contexts, which is the very function or purpose of translation. The dearth of cultural context-specific tests brings the idea to this study.

According to the Intrac blog, "the Sustainable Development Goals (SDGs) aim to put the most vulnerable populations first and to leave no one behind" (Mweri, 2020 cited in Rada, 2022). This implies communicating with the language of the people. Since translation, as defined by J. C. Catford (1965 cited in House, 2016) is substituting a text in one language (source) to another language (target), it follows that translation cannot be fully understood outside a cultural frame of reference." (Van de Vivjer & Hambleton, 1996, p.8 cited in Rada, 2022).

Hence, translating and establishing initial levels of validity and reliability of a questionnaire, specifically, in connection to the achievement of SDGs, is the contribution of this study.

Statement of Research Objectives:

1. Translate the Sustainability Consciousness Questionnaire (SCQ) in Filipino.
2. Validate the Filipino SCQ (F-SCQ) by experts and pilot test as to the conceptual level of the target samples.
3. Examine the construct validity based on the factor structure of the F-SCQ.

Theoretical and Conceptual Framework

The Sustainability Consciousness Questionnaire

The SCQ aims to encompass the three dimensions of SD in a way that covers the 15 UNESCO subthemes* (UNESCO, 2006, 2015, cited in Gericke et al., 2019; Ogishima et al, 2023). Moreover, based on the holistic inclusiveness of environmental consciousness, the constructs of knowledge, attitudes, and behavior were included in the SCQ. The change in people's knowledge, attitudes, and behavior is also pointed out in the UNESCO framework (UNESCO, 2006, 2009, 2014, 2015) as being essential for accomplishing SD (Gericke et al., 2019, p. 38). This instrument is designed for senior high school students who are 18 to 19 years old (Gericke et al., 2019).

*It consists of the following 15 subthemes: the social subthemes are (i) human rights, (ii) peace and human security, (iii) gender equality, (iv) cultural diversity and intercultural understanding, (v) health, (vi) HIV/AIDS, and (vii) governance; the environmental subthemes are (i) natural resources (water, energy, agriculture and biodiversity), (ii) climate change, (iii) rural development, (iv) sustainable urbanization, and (v) disaster prevention and mitigation; the economic subthemes are (i) poverty reduction, (ii) corporate responsibility and accountability, and (iii) market economy (UNESCO, 2005; Buckler and Creech, 2014).

NCCA *Patnubay sa Pagsasalin*

The National Commission for Culture and the Arts (NCAA) *Gabay sa Pagsasalin* (Guide to Translation) authored by Almario, et al. (2003; also in Batnag & Petras, 2009) specifies the processes for translation into Filipino: *paghahanda* (preparation), *aktuwal na pagsasalin* (translation proper) and *ebalwasyon ng salin* (translation evaluation). In preparation, the author has to do some research on the nature of the text to be translated and the background of the author/s, their objectives and the social milieu surrounding the text; that includes asking

permission as well as consulting and maintaining an open line of communication with the original authors. In addition, knowledge of the target user of both the source language (SL) and target language (TL), level of language, method of translation, and structure of both languages are essential before doing the actual translation.

In translation proper, they believe that there is no certain formula. Utmost in the translator's mind is to find the closest and natural equivalent in the form and meaning of the original text. The guide, specifically, presents reading processes for finding equivalence, such as re-reading several times until the translator can have a full grasp of the idea, theme, and message of the original text; listing down idiomatic phrases; making draft and more drafts as necessary; independent validation of the target user within their conceptual level of language and expert opinion, editing and rewriting until the finalization phase. They are also specific on how to find potential equivalents: in Tagalog, other Philippine languages, use of borrowed and loan words in Spanish, English, and creation, in this order. It reiterates that the meaning and context, cultural and historical, should always guide the translator during the translation process (Almario, et al., 2003; Batnag & Petras, 2009).

Finally, translation evaluation culminates the whole process. Evaluation is an assessment of the appropriateness of the transfer of the message to the new medium or target language (TL). In the process, translation may be revised over and over until it meets the standards of appropriateness *(kaangkupan)*, clarity *(kalinawan)*, and naturalness *(kagaanan ng daloy ng pagpapahayag)* in thought and structure. Evaluation involves consultation with experts, back translation *(baliksalin)*, tryout *(subok-gamit)* which includes a comprehension check *(subok-pang-unawa)*, naturalness *(subok-natural)* vis-a-vis SL and format in translated text, and readability (*subok-madaling basahin)* in style within the level of target users, reviewing the idea, theme, meaning, vocabulary, and choice of words suitable to the target users' level of comprehension (Almario, et al., 2003; Batnag & Petras, 2009).

Linguistic Validation

The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) recommended methodology for translation such as: preparation, translation, reconciliation, harmonization, cognitive debriefing, and finalization phases: (Language Scientific, 2018). The preparation phase includes a translatability review to discover and assess any potential concept or wording issues that may arise during translation

and adaptation for target locales. Permission for translation from the original author(s) must also be obtained. The translation phase covers forward translation of potential equivalents. Then, translation evaluation subsumes reconciliation and harmonization phases: comparison of translations, literal back translation (done by a third translator with no previous knowledge of the original instrument), and assessment of translation accuracy to identify potential discrepancies in content value. Also, cognitive debriefing with 5–8 subjects is done to ensure that the validated instrument is both culturally acceptable and contextually relevant to the target population. Cognitive debriefing/pilot test items are: 1) What does this item mean to you? 2) Paraphrase the item in your own words. 3) What comes to mind when you read the item? 4) Any word that you don't understand, unacceptable or offensive? 5) Please suggest alternative words to the usual language. (Language Scientific, 2018).

Translating a Psychological Test

A test is "an evaluative device or procedure in which a sample of an examinee's behavior in a specified domain is obtained and subsequently evaluated and scored using a standardized process" as defined by the Standards for Educational and Psychological Testing issued by the American Educational Research Association (AERA), the American Psychological Association (APA) and the National Council on Measurement in Education (NCME) (De Vivjer & Tanzer, 2004; Bernardo, 2011).

In multilingual studies, the most common in translation is successive development in different language versions (vis-à-vis simultaneous development or a new instrument is to be developed). "Three options are available to researchers in the successive development method: *application* (literal translation, which assumes that the underlying construct is appropriate in the target cultural group and that a simple, straightforward translation will suffice), *adaptation* (may require the rewording of other items to ensure inclusion of culturally idiosyncratic expressions of the construct) and *assembly* (e.g., aspects of the construct that are salient for some cultures but are not covered in the instrument). An adaptation amounts to the literal translation of a part of the items and/or changes in other items and/or the creation of new items. It may be clear from the description that the three translation options differ in the amount of items that can be retained in the translation process. The choice of the translation option has implications for the expected level of *equivalence"* (De Vivjer & Tanzer, 2004; Bernardo, 2011).

Relevantly, Brislin et al. (1973 cited in Ganotice & Bernardo, 2010) proposed four typical techniques used in translating instruments (back translation, bilingual technique, committee approach, and pretest) and strongly suggested the use of multiple techniques in order to best approximate both linguistic and psychological equivalence (p. 85).

Further, Vivjer and Hambleton (1996) clearly delineate how to evaluate a translation of a psychological instrument.

> *"An evaluation of the appropriateness of the translation should not only be based on judgmental evidence such as in translation - back translation procedure but also on statistical evidence.… Frequently applied is factor analysis, either exploratory (e.g. Barrett, 1996, Cagas & Hassandra, 2014) or confirmatory analysis (e.g. Watkins, 1989)."*

Construct validity asks whether a test truly measures what it is supposed to measure, especially when the concept being measured is abstract and cannot be directly observed (Cook & Campbell, 1979; Cronbach & Meehl, 1955; Sjøberg & Bergersen, 2022). Research shows that it is important to check the quality of tests before using them in new situations. Cultural differences can affect how people understand and answer the questions in a test. For instance, a test designed for one culture might not work the same way in another. Using a test from another culture without checking its validity can be irresponsible. In fact, it can be harmful because the results might not be accurate and could lead to misleading conclusions (Nieva, 2023).

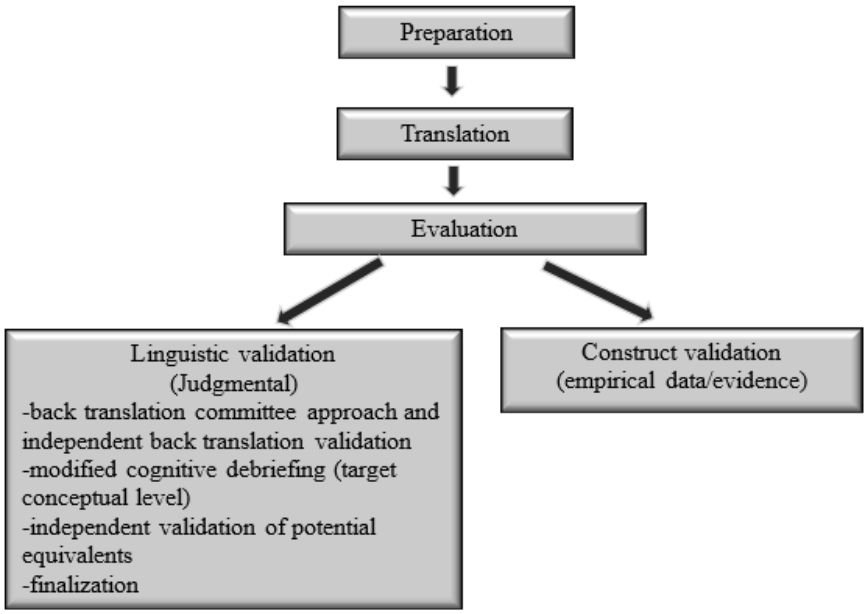
Construct validation research, also called "nomological research," involves checking how well a test measures what it's supposed to measure. This includes looking at the test internal structure and determining how it relates to other relevant external concepts (Byrne, 1984; Byrne, 2005). Construct validity checks whether a test reflects the qualities a good measure of that concept should have, according to the theory behind it.

To check how well the survey questions capture the intended concept, researchers use a method called confirmatory factor analysis (CFA). This has become a crucial tool for researchers. It allows them to compare their initial ideas about how a concept is measured (i.e., the hypothesized model) with the actual data they collect (i.e., the observed one) (Rios & Wells, 2014). This method focuses on the "internal structure" of the survey, which means how well each question reflects the overall idea the survey is trying to measure. According to research, CFA is particularly helpful in two situations. First, if the survey is already well-

established and works for similar groups of people (Rogers, 2023), then there's no need for another kind of analysis (exploratory factor analysis). CFA can be used directly. Second, CFA is a good choice when researchers want to understand how the data is naturally organized, which can help them develop a completely new and effective survey (Matsunaga, 2010).

Figure 1.

Translation and validation processes



In the application of culture-specific translation methods and processes of SCQ *Figure 1* illustrates the conceptual paradigm of the study:

The translation processes go through preparation, translation proper (forward translation), and evaluation which requires both linguistic (back translation consisting of three (3) experts and pre-test/cognitive debriefing by 10 target samples) and statistical validation (confirmatory factor analysis up to second order) to ensure that the translated instrument is both culturally acceptable and contextually scale relevant to target population.

Methodology

Translation and Linguistic Validation

In preparation, we did some research on the nature of SCQ, its objectives, and its social milieu and also asked permission from the main author. Also, we did the forward translation. Then subjected the translated text to linguistic validation using back translation and bilingual technique, with three experts in Filipino and English languages, translation, and social psychology. Afterwards, we conducted pretest/cognitive debriefing with 10 target samples with the following questions: 1) What does this item mean to you? 2) Paraphrase the item in your own words. 3) What comes to mind when you read the item? 4) Any word that you don't understand, unacceptable or offensive? 5) Please suggest alternative words to the usual language. (Language Scientific, 2018).

The translation was then revised until it meets the standards of appropriateness based on the comments of experts and target samples. When the translated questionnaire was finalized, we distributed official communications to target schools, colleges and universities and informed consent forms upon approval by the University Ethics Board and following assurances of anonymity and confidentiality the F-SCQ was administered.

Construct Validation of the F-SCQ

Research Design

This study aimed to validate the construct validity of the Filipino version of the Sustainability Consciousness Questionnaire (F-SCQ). A cross-sectional, explanatory design, which is a nonexperimental design was employed. This choice aligns with the research taxonomy by Johnson (2001), who explains that such a design is suitable "because the data are cross-sectional and the purpose is to test a theoretical model" (p. 11). In this study, data were collected at a single point in time to examine the internal structure of the F-SCQ and the theoretical constructs of Sustainability Knowingness, Attitudes, and Behaviors.

Participants

The participants of the construct validation study were composed of 678 male and female, 18-19 years old who were willing to participate and answer the Filipino-SCQ. They were selected using convenience sampling. According to Urdan, (2017, p. 3), “in convenience sampling,

the researcher generally selects participants on the basis of proximity, ease of access, and willingness to participate." Therefore, those individuals who were willing to participate and who gave their consent were the ones included in this study (Nieva, 2022).

Measure

The Sustainability Consciousness Questionnaire (SCQ), developed by Gericke et al. (2019), is a tool designed to assess a person's understanding and awareness of sustainable development principles. It measures three aspects of Sustainability Consciousness (SC): knowledge (understanding the importance of sustainability), attitudes (feelings towards sustainability), and self-reported behaviors (willingness to take action for a sustainable future). The SCQ encompasses all three dimensions of sustainable development: environment, economy, and society.

Each SCQ item taps into one of these three areas: knowledge of sustainability principles, attitudes toward sustainability practices, and self-reported behaviors related to sustainability. This structure results in nine sub-factors (e.g., KENV, KSOC, KECO), with a total of 50 items. Participants respond to each statement on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Scores are calculated by averaging the responses within each sub-factor.

Procedure

The online survey for the construct validation, conducted using Microsoft Forms, received prior approval from the university's ethics committee to ensure responsible research practices. All participants provided written informed consent and were assured anonymity and confidentiality of their information. Subsequently, they completed the Filipino version of the Sustainability Consciousness Questionnaire (F-SCQ).

Data Analysis

The information collected from the Filipino translation of the Sustainability Consciousness Questionnaire (F-SCQ), for the construct validation, was analyzed using a statistical software program called JASP (version 0.18.1). The analysis began by describing the data through the calculation of descriptive statistics like skewness, kurtosis, mean, and

standard deviation. Next, zero-order correlations were employed to explore the relationships between variables. McDonald's omega and Cronbach's alpha coefficients were utilized to assess the reliability of the scale. Finally, to investigate the underlying structure of the data, a second-order confirmatory factor analysis (CFA) was implemented. This hierarchical CFA model facilitated the examination of both first-order factors and a second-order factor.

Results and Discussions

Translation and Linguistic Validation of the F-SCQ

In the whole translation processes, we used the closest and natural equivalent in form and meaning of the original text, such as:

- in Tagalog (e.g. *patas* instead of *pantay* for translation of *fair distribution*…K16, KEC; *pakete* for packaging, A3, AEC see Appendix A),
- loan words in foreign words (e.g. second-hand goods, internet, B9, BEC; preserving biological diversity, K14, KEN) and
- Taglish (e.g. *okay lang*, A19i, AEN; computer o mobile phone para makapag- chat, text, maglaro ng games, B4, BSO) and
- creation (e.g. "eco-friendly cars" instead of "green cars", A11, ASO; *basurang nakikita sa "daan"* as an equivalent of countryside in the original text, B7, BEN) as part of conversational languages suitable to the target users' level of comprehension.

In the cognitive debriefing, minor comments were raised, such as: *Sa unang basa, ang parirala o konsepto ng 'likhang may buhay' ay nagkaroon ng inisyal na pagkalito. Ngunit dahil sa Ingles (i.e. preserving biological diversity) na nasa parentesis nito sa hulihan ng pahayag, ito ay higit na naunawaan.* (K14, Ken). This term (i.e. preserving biological diversity) is really part of the original text in parenthesis. There was also a comment: *Sa unang basa, ang salitang "makapamuhay" ay hindi gaanong pamilyar*. Thus, it was changed to: "*manatiling mabuti ang buhay"* (A2, ASO).

Part of the F-SCQ are items that determine whether the respondents have already heard about SD: *Narinig mo na ba ang konsepto ng Mapagpanatiling Pag-unlad (Sustainable Development - SD)? Kung oo, saan mo nalaman ang tungkol sa SD?* Most of the respondents answered "Yes" (71.5%) and according to them, SDGs have been

discussed in school (student organizations, subjects/courses), seminars, news, social media, the internet, etc.

In the assessment of translation accuracy and back translation texts done by experts as well as in cognitive debriefing showed that the Filipino instrument is accurate. Also, it is deemed suitable to the level of comprehension of target users thus was subjected to construct validation.

Construct Validation of the F-SCQ

In the preliminary analysis of the data for the construct validation of the Filipino version of Sustainability Consciousness Questionnaire (F-SCQ), descriptive statistics such as mean, standard deviation, and normality (based on skewness and kurtosis) were performed. Zero-order correlations based on Pearson's r were also computed to check for multicollinearity. While the reliability of the scale was determined using both McDonald's omega and Cronbach's alpha.

The normality test based on skewness and kurtosis ranged from -.142 to -2.733 and -0.132 to 9.924 respectively, suggesting acceptability within the limit as per Brown's (2015) criteria (Nieva, 2023). In table 1, the highest mean is *Knowingness-Social* (4.552) while the lowest is *Behaviour-Economic* (3.763). Based on the standard deviation, the least varied scores are in *Behaviour-Social* (0.553) while the most varied scores are in *Behaviour-Economic* (0.778). With regard to zero-order correlations, all are significantly positively correlated except for *Behaviour-Economic* and *Attitudes-Environment*, which have a significant negative relationship. The *r* values ranged from 0.147 to 0.884, looking at these values, there is no correlation greater than 0.9. This suggests that there was no multicollinearity as regards Kline's criteria (2015). Reliability estimates of the factors of the scale based on internal consistencies using McDonald's omega and Cronbach's alpha suggest acceptability based on 0.7 criteria. However, *Attitudes-Environmental*, *Behaviour-Social*, and *Behaviour-Economic* have low reliability values.

Table 1.

Descriptive Statistics, Zero-Order Correlation, and Internal Consistencies

Variable	1	2	3	4	5	6	7	8	9
1. Knowingness Environmental	—								
2. Knowingness Social	0.830 ***	—							
3. Knowingness Economic	0.794 ***	0.884 ***	—						
4. Attitudes Environmental	0.470 ***	0.287 ***	0.235 ***	—					
5. Attitudes Social	0.712 ***	0.780 ***	0.763 ***	0.295 ***	—				
6. Attitudes Economic	0.562 ***	0.676 ***	0.692 ***	0.147 ***	0.800 ***	—			
7. Behaviour Environmental	0.497 ***	0.522 ***	0.518 ***	0.202 ***	0.596 ***	0.555 ***	—		
8. Behaviour Social	0.565 ***	0.608 ***	0.572 ***	0.256 ***	0.664 ***	0.556 ***	0.670 ***	—	
9. Behaviour Economic	0.256 ***	0.379 ***	0.377 ***	-0.099 **	0.448 ***	0.469 ***	0.608 ***	0.542 ***	—
Mean	4.420	4.552	4.510	3.761	4.517	4.303	3.964	4.003	3.763
Standard Deviation	0.639	0.669	0.706	0.738	0.653	0.680	0.598	0.553	0.778
McDonald's ω	0.873	0.918	0.858	0.497	0.858	0.739	0.800	0.630	0.601
Cronbach's α	0.876	0.918	0.862	0.384	0.857	0.758	0.784	0.562	0.614

Note: N=678; * $p < .05$, ** $p < .01$, *** $p < .001$

To assess the construct validity of the scale, particularly its internal structure, confirmatory factor analysis (CFA) was employed. Internal structure refers to how well the individual items on the scale reflect the underlying concept it was designed to measure. Literature suggests CFA is particularly useful in two scenarios. First, if the scale is already established and validated for similar populations (Rogers, 2023), then there's no need for exploratory factor analysis (EFA). CFA can be used directly. Second, CFA is a strong choice when the goal is to understand the underlying structure of the data, potentially leading to the development of a new and valid scale (Matsunaga, 2010).

Initially, all items of the scale were analyzed using second-order confirmatory factor analysis based on Gericke et al.'s model (2019) of *Sustainability Knowingness*, *Sustainability Attitudes*, and *Sustainability Behaviour*. However, the result suggested a poor fit of the a priori model to the data. In order to improve the measurement model's fit indices, we employed a statistical technique called first-order confirmatory factor analysis using the maximum likelihood as a method and then employing the common measures of model fit.

Items with factor loading <.34 and standard residuals >.258 in the first-order confirmatory factor analysis were deleted (Nieva, 2023; Stevens, 2002). Furthermore, the Modification Index (MI) >15, which suggests the presence of a redundant item, was inspected. Items identified as redundant with lower factor loadings were then discarded to address these issues (Awang, 2015; Nieva, 2023).

The removal of poorly fitting items improved model fit. The retained items for each factor are presented in Figure 2. It is important to

note that the item labels retain the same format as the originals presented in Gericke et al. (2019). This continuity allows researchers to readily identify how specific items contribute to the measurement of each factor in both studies.

The researchers then went a step further by applying a more advanced technique called second-order confirmatory factor analysis. This was based on the idea that the underlying factors identified earlier (in the first-order analysis) might represent a different layer of the concept being studied. In other words, they might reflect a broader concept at a higher level (Gatignon, 2003).

Tables 1 and 2 summarize the fit indices for the first-order and second-order confirmatory factor analyses, respectively. When interpreting the first-order CFA results, several criteria are considered for acceptable fit: Root Mean Square Error of Approximation (RMSEA) below .08, and Goodness of Fit Index (GFI), Bentler's Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Bentler-Bonnett Normed Fit Index (NFI) all above .90 (Matsunaga, 2010; Nieva, 2023). As shown in Table 1, all indices meet these criteria except for the chi-square statistic. However, it's important to note that the chi-square test is sensitive to large sample sizes and can often lead to inaccurate fit estimates (West, Taylor & Wu, 2012).

Table 2.

Goodness-of-Fit of the Models: Results of the First-Order Confirmatory Factor Analysis

	X^2/df	RMSEA	GFI	CFI	TLI	NFI
Sustainability Knowingness	2.310	0.044	0.996	0.989	0.986	0.986
Sustainability Attitudes	3.214	0.057	0.998	0.981	0.974	0.974
Sustainability Behaviour	4.539	0.072	0.996	0.949	0.927	0.936

Chi-Square Test (X^2/df), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Bentler's Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Bentler-Bonnett Normed Fit Index (NFI)

After verifying the F-SCQ questionnaire's initial structure based on its model fit, we used a more sophisticated technique called second-order confirmatory factor analysis to build a more precise model. This approach assumes the measured concept has layers, with related factors underlying a broader one (Gatignon, 2003). The questionnaire's subscales (environment, social, and economic) likely influence each other, suggesting a more general concept at a higher level. Structural equation modeling (SEM) was chosen because it can account for these underlying factors (Hair et al., 2013). As some experts recommend, researchers first

confirmed the basic structure using a simpler method, which is the first-order confirmatory factor analysis, before using second-order confirmatory factor analysis to validate the overall model's suitability of its conceptual construct (Anderson & Gerbing, 1988).

Table 3.

Goodness-of-Fit of the Models: Results of Second-Order Confirmatory Factor Analysis

	X^2/df	RMSEA	SRMR	CFI	TLI	GFI
Sustainability Knowingness	2.149	0.041	0.015	0.991	0.988	0.997
Sustainability Attitudes	3.214	0.059	0.024	0.981	0.972	0.998
Sustainability Behaviour	4.728	0.074	0.036	0.949	0.923	0.996

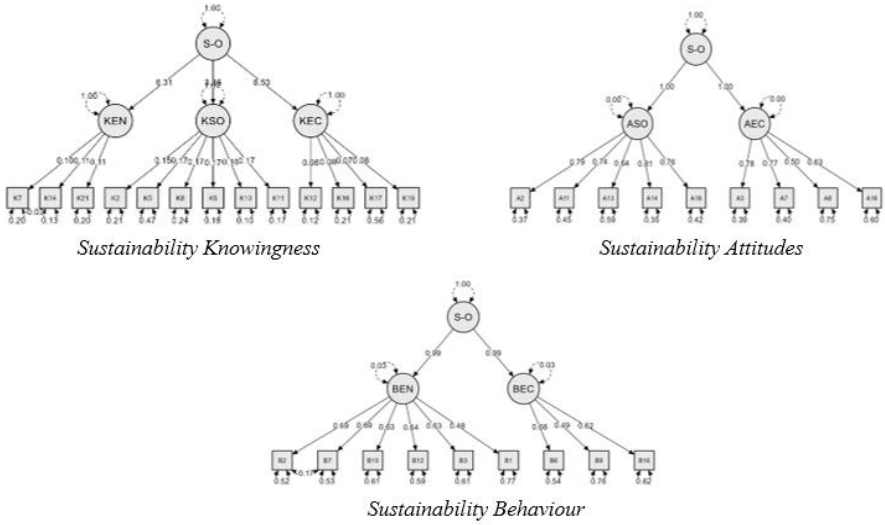
Chi-Square Test (X^2/df), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Bentler's Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Goodness of Fit Index (GFI)

The interpretation criteria for the second-order confirmatory factor analysis follow the same guidelines as the first-order analysis, including RMSEA, CFI, TLI, and chi-square. However, an additional fit index, the Standardized Root Mean Square Residual (SRMR), is considered. For acceptable fit, the SRMR value should be below .10 (Matsunaga, 2010). As shown in Table 3, all fit indices, except the chi-square statistic, suggest an acceptable model fit, reinforcing the conclusion that chi-square may not be a reliable indicator in this case.

Figure 2 depicts the final second-order models for Sustainability-Knowingness, Sustainability-Attitudes, and Sustainability-Behaviour. The Sustainability-Knowingness model retains all three of its original first-order factors (Environmental, Social, and Economic). In contrast, the Sustainability-Attitudes model only retains the Social and Economic first-order factors, while the Sustainability-Behaviour model retains just the Environmental and Economic factors. For a detailed description of the item questions of the F-SCQ per dimension as well as per sub-scale, please refer to Appendix A: Filipino Sustainability Consciousness Questionnaire (F-SCQ).

Figure 2.

Final Model of the Factor Structures of the Filipino version of the Sustainability Consciousness Questionnaire (F-SCQ)



Conclusion and Recommendation

Following statistical validation, some items were retained and poor fitting items were removed to get good fit indices. We can therefore conclude that:

1. From Sustainability Knowingness some poor fitting items belong to environmental (EN) and social (SO) domains since most items were loaded into the second-order construct. Concept-wise, these items deal with water consumption reduction, nature preservation and renewable natural resources use (EN) as well as respect for other cultures and infectious diseases such as HIV/AIDS and malaria (SO). Considering our target samples are 18-19 years old, carefree as they are, we can surmise that these issues are least of their concerns, at least generally-speaking. In a study that aimed to determine environmental awareness and practice of senior high students in a private educational institution in the Philippines showed that they have "good" level of awareness while "poor" extent of environmental practice. It recommended the development of environmental education programs to increase the

understanding and capacities of students with regard to environmental problems and sustainability practices (Punzalan, 2020).

2. In Sustainability Attitude items, conceptually, most poor-fitting items impart environmental concerns which are also related to Sustainability Knowingness factor such as natural resources and well-being, environmental regulations, climate change, water consumption which may be issues not yet the priority concerns of the target samples since attitudes as previously defined is an enduring positive or negative feeling toward an object/s or issues. A study by Caisip and Espinosa (2022) revealed that the Filipino youth were only moderately aware on the effects of climate change on health and water resources among others. Thus, it considered that there is a basis for program development to create a comprehensive, inclusive and community-centered environmental literacy program to enhance Filipino youth's awareness of combating climate change. With regard to translation, the use of Taglish and adaptation of foreign words in some items, i.e. *okay lang*, climate change, were used yielding to the comments raised in the evaluation of the instrument. Other than that, the translation was deemed fit to the target users.

3. As regards poor fit items in the Sustainability Behaviour which had been previously delineated as engagement or observable action in favour of, or opposed to, the attitude object, seems that the concept of natural environment raised both in Sustainability Knowingness and Sustainability Attitude factors is also a concern in the Sustainability Behaviour factor. However, most of the poor-fitting items here pertain to social dimension such as technology use (i.e. computer, internet, mobile phones), lifestyle choices and health, committee involvement, advocacy to environmental groups and respect for all ages and purchase of goods from companies not adhering to environmental and social responsibilities, esp. to their employees. It seems that similar to other factors, some programs may be introduced to the target samples to encourage them to actively participate in addressing social issues.

4. By and large, the three factors, specifically, poor-fitting factors shared similar points to consider, maybe in communication and education intervention as well as in translation. While these results are preliminary, evidence suggests that based on their responses (knowingness) among Filipino youths they have knowledge

(thoughts, opinions or ideas) about sustainable development. However, it seemed that based on their attitudes they have limited emotions, moods or enduring feelings, about environmental dimension of SD. This is also true with their behavioural responses that evaluated their observable actions were inclined least toward social dimension of SD. It may be inferred that mere knowledge about sustainable development goals may not suffice to inculcate enduring attitude/traits and more so, observable action or behavior among Filipino youth to ensure active participation in the implementation of sustainability programs. Communication, education and other program interventions maybe in place to strengthen the attitude and behavior of Filipino adolescents more so, toward environmental and social dimensions of SD.

The translation evaluation of SCQ into Filipino, using linguistic validation using back translation by experts, and cognitive debriefing/pilot test to determine that the wording in Filipino and other languages are within the conceptual level of understanding of the target samples, showed that F-SCQ is accurate and valid.

The construct validation of the Filipino version of the Sustainability Consciousness Questionnaire (F-SCQ) using first-order and second-order confirmatory factor analysis (CFA) provided evidence of its acceptable factor structure, which is indicative that the Filipino SCQ is a suitable tool for measuring sustainability consciousness in a Philippine context. Therefore, the Filipino version of the SCQ demonstrates psychometric soundness and can be effectively used to assess Sustainability Consciousness among Filipino adolescents.

However, some item questions with weak connections to the broader themes or items with low item factor loadings were removed. This resulted in the discarding two subcategories: Sustainability Attitude-Environment (AEN) and Sustainability Behavior-Social (BSO).

These deleted items from the F-SCQ questionnaire highlight the importance of cultural adaptation in survey design. Culture can significantly influence how people respond to survey questions, and a questionnaire developed for one culture might not translate well to another. Using an untested questionnaire from a different culture could lead to inaccurate results and misleading conclusions (Nieva, 2023). This highlights the importance of adapting surveys to consider the cultural background of the target audience. There's often a trade-off between comprehensiveness in terms of the number of items and model fit. Adding

more elements can capture more nuances but might make the model less accurate overall (Matsunaga, 2010).

Future research could conduct focus group discussions, consultations with experts in the field of sustainability development, and a literature review of studies conducted in the Philippines. This would be done to identify item questions that can replace the deleted ones in the sub-categories of Sustainability Attitude-Environment (AEN) and Sustainability Behavior-Social (BSO).

To further assess the effectiveness of the Filipino SCQ, researchers could conduct several studies. First, comparing it to the original English version would provide valuable insights. Analyzing how Filipino adolescents respond to the Filipino SCQ compared to the English version could reveal areas of strength and weakness in capturing sustainability consciousness. Additionally, examining how the scale performs across genders and age groups within the Filipino population could be crucial. This would help determine if the SCQ effectively measures sustainability consciousness across diverse demographics. Finally, translating the SCQ into other major Filipino dialects would enhance its usefulness for a wider population. Many Filipinos speak dialects other than Tagalog, and including these translations would ensure the SCQ reaches a broader audience.

References

Almario, V.S., et al. (2003). *Patnubay sa Pagsasalin* (Pambansang Samahan para sa Kultura at mga Sining [National Commission for Culture and the Arts – NCCA]). Anvil Publishing, Inc.

Anderson, J. C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Ariza, MR., Boeve-de Pauw, J., Olsson, D., Petegem, PV., Parra, G. & Gericke, N. (2021). Promoting environmental citizenship in education: The potential of the sustainability consciousness questionnaire to Measure Impact of Interventions. *Sustainability 13,* 11420. https://doi.org/10.3390/su132011420

Awang, Z. (2015). *SEM Made Simple: A Gentle Approach to Learning Structural Equation Modelling*. MPWS Rich Resources.

Batnag, A. E., & Petras, J. D. (2009). *Teksbuk sa pagsasalin*. C & E Publishing, Inc.

Bernardo, AB., I. (2011). Lost in translation? Challenges in Using psychological tests in the Philippines, *Silliman Journal*, *52*(1), 21-45.

Berglund, T., Gericke, N., Boeve-de Pauw, J., Olsson, D., & Chang, T. C. (2020). A cross-cultural comparative study of sustainability consciousness between students in Taiwan and Sweden. *Environment, Development and Sustainability*, *22*, 6287-6313. https://doi.org/10.1007/s10668-019-00478-2

Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford publications.

Byrne, B. (1984). The general/academic self-concept nomological network : A review of construct validation research. *Review of Educational Research*, *54*(3), 427–456. https://doi.org/10.3102/00346543054003427

Byrne, B. M. (2005). Factor analytic models: Viewing the structure of an assessment instrument from three perspectives. *Journal of personality assessment, 85*(1), 17-32. https://www.doi.org/10.1207/s15327752 jpa8501_02

Bolanos-Medina, A., & Gonzalez-Ruiz, V. (2012). Deconstructing the translation of psychological tests, *Meta 57*(3), 715-739. https://www.doi.org/10.7202/1017088ar.

Caisip, A. & Espinosa, KP. M. (2022). Filipino youth's awareness of climate change impacts: Basis for program development in vulnerable urban communities. *Psychology and Education 59*(2), 382-395

Cagas, J. & Hassandra, M. (2014). The basic psychological needs in Physical Education Scale in Filipino: An exploratory factor analysis. *Philippine Journal of Psychology, 47*(1), 19-40.

Constantino, P. C., & Rada, E. T. (2013). *Talas-Isip: Pagbasa at pagsulat tungo sa pananaliksik*. Manila: Mindshapers, Co. Inc.

Cook T. D.; Campbell D. T. (1979). *Quasi-experimentation*. Houghton Mifflin.

Cronbach, L. J.; Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*. *52* (4): 281–302. https://www.doi.org/10.1037/h0040957

De Vijver, FV., & Tanzer, N. K. (2004). Bias and equivalence in cross-cultural assessment: An overview. (54) 19–135 www.elsevier.com/locate/

De Vijver, FV., & Hambleton, R. K. (June, 1996). Translating tests: Some practical guidelines. *European Psychologist.* https://www.doi.org/ 10.1027/1016-9040.1.2.89

Ganotice, F. A., & King, R. B. (2014). Blessed are those who wait: Validating the Filipino version of the Academic Delay of Gratification Scale (ADOGS). *The Asia-Pacific Education Researcher, 23*(1), 19-27.

Ganotice, F. A., Lising, R. L. S., Nieva, A. M., & Bernardo, A. B. I. (2016). Variations in Filipino college students' achievement goals in different types of college subjects. *Counseling, psychology, and education: A Festschrift in honor of Rose Marie Salazar-Clemena*.

Gatignon, H. (2003). *Statistical analysis of management data*. Kluwer Academic Publishers.

Gericke, N., Boeve-de Pauw, J.,Berglund, T., & Olsson, D. (2019). The sustainability consciousness questionnaire: The theoretical development and empirical validation of an evaluation instrument for stakeholders working with sustainable development. *Wiley: Sustainable Development.* https:///www.doi.org/10.1002/sd.1859

Gunes G. & Bati, K. (2018). Development of a scale on scientific epistemological views and investigation of epistemological views of prospective teachers. *International Journal of Research in Education and Science (IJRES), 4*(2), 391-408. https://www.doi.org/ 10.21890/ijres.409299

Hair, J. F., Black, W., Babin, B., & Anderson, R. (2013). *Multivariate data analysis. Always learning*: Pearson Education Limited.

House, J. (2016). *Translation as communication across languages and cultures*. Routledge.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Johnson, B. (2001). Toward a New Classification of Nonexperimental Quantitative Research. *Educational Researcher*, *30*(2), 3–13. https://doi.org/10.3102/0013189X030002003

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford Publications.

Language Scientific (2018) http://www.languagescientific.com/what-is-linguistic-validation/

Matsunaga, M. (2010). How to Factor-Analyze Your Data Right: Do's, Don'ts, and How-To's. *International journal of psychological research*, *3*(1), 97-110. https://doi.org/10.21500/20112084.854.

Nicasio, M. S. (2012). Adopting a cultural lens in the understanding of Cognitive Behavior Therapy. *Psychological Associations of the Philippines, 45*(1).

Nieva, A. (2022). The Relationship between Career Interests and Academic Achievements in English, Mathematics, and Science of Grade 10 Students. *International Journal of Arts, Sciences and Education*, *3*(2 June Issue). Retrieved from https://www.mail.ijase.org/index.php/ijase/article/view/122

Nieva, A. (2023). Construct validation of the teacher attitude to inclusion scale for Filipino pre-service teachers. *Bedan Research Journal*, *8*(1), 305–329. https://doi.org/10.58870/berj.v8i1.56.

Nieva, A., & Prudente, J. (2022). Online self-regulated learning, academic performance, and well-being of Senior High School Students in the NCR: A mediation analysis. *Bedan Research Journal*, *7*(1), 48–62. https://doi.org/10.58870/berj.v7i1.32

Ogishima, H., Ito, A., Kajimura, S., & Himichi, T. (2023). Validity and reliability of the Japanese version of the sustainability consciousness questionnaire. *Frontiers in Psychology*, *14*, 1130550. https://doi.org/10.3389/fpsyg.2023.1130550

Owojecho, F. A. (2020). Implementation Challenges of National Language Policy in Nigeria: The Roles of the Indigenous Language. *International Journal of Language and Literary Studies, 2* (1), 270-279 https://doi.org/10.36892/ijlls.v2i1.183

Punzalan, C.H. (2020). Evaluating the environmental awareness and practices of senior high school students: Basis for environmental education program. *Aquademia*, *(4),* 1 https://www.doi.org/10.29333/aquademia/8219

Rada, E. T. (2013). Estilo ng pagsasalin sa Wikang Filipino ng mga teksbuk sa Araling Makabayan. *Scientia*, 85-97.

Rada, E. T. (2022). Language-based approach in achieving Sustainable Development Goals: A qualitative meta-analysis. *Bedan Research Journal, (7),* 183-211

Quilon, A., & Kurniawan, Y. (2023). Online learning environment and mental health among university students. *Bedan Research Journal*, *8*(1), 259–284. https://doi.org/10.58870/berj.v8i1.54

Rios, J., & Wells, C. (2014). Validity evidence based on internal structure. *Psichothema*, *26*(1), 108–116. https://doi.org/10.7334/psicothema2013.260

Rogers, P. (2023, November 10). Best practices for your confirmatory factor analysis: A JASP and lavaan tutorial. https://doi.org/10.31219/osf.io/57efj.

Sjøberg, D. I. K.; Bergersen, G. R. (2022). Construct validity in software engineering. *IEEE Transactions on Software Engineering*. *49* (3): 1374–1396. https://www.doi.org/10.1109/TSE.2022.3176725

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum. Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, *48*(6), 1273–1296. https://www.doi.org/10.1007/s11165-016-9602-2

Urdan, T. C. (2017). *Statistics in plain English* (4th ed.). Routledge Taylor & Francis Group.

West, S. G., Taylor, A. B., & Wu, W. (2012). Model fit and model selection in structural equation modeling. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 209– 231). The Guilford Press.

Xia, X. (2016). Appraisal Theory in Functionalism and Translation Evaluation. *Theory and Practice in Language Studies*, *6*(8), 1682-1686.

Appendix A

Filipino Sustainability Consciousness Questionnaire (F-SCQ)

A. Sustainability Knowingness

Knowingness-Environmental (KEN)

K7 - Kailangan sa pagpapanatili ng pag-unlad na matuto ang mga tao na mabawasan ang lahat ng uri ng basura.

K14 - Ang pangangalaga sa iba't ibang uri ng mga likhang may buhay ay kailangan sa pagpapanatili ng pag-unlad (preserving biological diversity).

K21 - Sa pagpapanatili ng pag-unlad, kailangang maturuan ang mga tao kung paano protektahan ang kanilang sarili laban sa mga likas na kapahamakan.

Knowingness-Social (KSO)

K2 - Nakakatulong sa pagpanatili ng pag-unlad kung mapabuti ang kalagayan ng mga tao tungo sa mahabang buhay at magandang kalusugan.

K5 - Sa isang kultura na naaayos ang pagtatalo sa mapayapang pamamaraan sa pamamagitan ng talakayan ay kailangan sa pagpapanatili ng pag-unlad.

K8 - Mahalaga sa pagpapanatili ng pag-unlad na matamasa ng mga tao ang kanilang mga demokratikong karapatan (halimbawa, nakakaboto sa eleksyon, nakakalahok sa mga isyung panlipunan, naihahayag nila ang kanilang mga opinyon)

K9 - Ang pagpapalakas ng karapatan ng babae, bata at matanda, at lalo pang pagtataguyod sa pagkakapantay sa buong mundo ay kailangan sa pagpapanatili ng pag-unlad.

K10 - Ang paggalang sa karapatang pantao ay kailangan sa pagpapanatili ng pag-unlad.

K11 - Sa pagpapanatili ng pag-unlad, kailangang matamasa ang mabuting edukasyon ng lahat ng mamamayan sa buong mundo.

Knowingness-Economic (KEC)

K12 - Sa pagpapanatili ng pag-unlad, kailangang maging responsable ang mga kompanya sa kanilang mga empleyado, kustomer, at pinagkukunan ng mga produkto (suppliers).

K16 - Ang pagpapanatili ng pag-unlad ay nangangailangan ng pantay na distribusyon ng mga produkto at paglilingkod sa mga tao sa buong mundo.

K17 - Ang pagtanggal ng kahirapan sa buong mundo ay kailangan sa pagpapanatili ng pag-unlad.

K19 - Kailangan sa pagpapanatili ng pag-unlad na nauunawaan ng mga tao kung paano gumagalaw ang ekonomiya.

B. Sustainability Attitude

Attitude-Social (ASO)

A2 - Sa palagay ko, tayong mga tao na nabubuhay sa kasalukuyan ay dapat tiyakin na mananatiling mabuti ang buhay ng mga tao sa hinaharap katulad ng kalidad ng pamumuhay sa ngayon.

A11 - Sa palagay ko, dapat maglaan ng tulong pinansyal ang pamahalaan upang mahikayat ang mga tao na gumamit ng eco-friendly na mga sasakyan na makakatulong sa pangangalaga sa kapaligiran.

A13 - Sa palagay ko, dapat naaayon ang lahat ng mga desisyon ng pamahalaan sa pagpapanatili ng pag-unlad.

A14 - Sa palagay ko, mahalagang magampanan ng mga tao sa lipunan ang kanilang demokratikong karapatan at maging sangkot sa mga mahahalagang isyu.

A18 - Sa palagay ko na dapat magbigyan ng parehong oportunidad ang mga babae at lalaki sa buong mundo sa edukasyon at hanapbuhay.

Attitude-Economic (AEC)

A3 - Sa palagay ko, may pananagutan ang mga kompanya na bawasan ang paggamit ng mga pakete at mga materyales na tinatapon lamang.

A7 - Sa palagay ko, mahalagang mabawasan ang kahirapan.

A8 - Sa palagay ko, ang mga kompanya na nasa mayayamang bansa ay dapat magbigay sa mga empleyado sa mga mahihirap na bansa ng kaparehong kondisyon sa mayayamang bansa.

A16 - Sa palagay ko na ang mga taong nagiging sanhi ng pagdumi ng lupa, hangin o tubig ay dapat pagbayarin sa pinsala na idinulot nila sa kapaligiran.

C. Sustainability Behavior

Behavior-Environmental (BEN)

B2 - Hindi ako nag-aaksaya ng tubig.

B1 - Hangga't maaari, nagbibisikleta o naglalakad na lamang ako kaysa gumamit ng kotse o katulad na mga sasakyan.

B3 - Ginagamit kong muli ang mga bagay na pakikinabangan pa hangga’t kaya.

B7 - Pinupulot ko ang mga basurang nakikita ko sa daan o sa mga pampublikong lugar.

B10 - Inihihiwalay ko ang mga basurang pagkain bago ko inilalabas ang basura kung may pagkakataon.

B12 - Binago ko ang paraan ng pamumuhay ko para makabawas ng basura (e.g. pagtatapon ng mga pagkain o pag-aaksaya ng mga gamit)

Behavior-Economic (BEC)

B6 - Tumutulong ako sa mga mahihirap na tao.

B9 - Madalas akong bumibili ng nagamit nang mga bagay o second-hand sa internet o shop.

B16 - Nanonood ako ng balita o nagbabasa ng dyaryo ukol sa ekonomiya