Article

Testing a Modified Version of Schwartz's Portrait Values Questionnaire to Measure Organizational Values in a University Context

Journal of Human Values
1–19

DOI: 10.1177/0971685820943398
journals.sagepub.com/home/jhv
SAGE

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Abstract

Schwartz developed his *Theory of Basic Human Values* and corresponding instruments, the portrait values questionnaire (PVQ) and the Schwartz values survey (SVS), in order to measure personal values. He uses these instruments (in a slightly modified form) in conjunction with his *Theory of Cultural Value Orientations* to measure cultural or societal values. His theoretical work is also used in studying organizational values; however, none of these instruments seem suitable to compare personal and perceived organizational values. If the PVQ is widely used to measure personal values, and we need commensurate measures of the person and organization for comparative analysis, then can we not minimally adjust the PVQ to measure organizational values? In this article we discuss the testing of one such adjusted PVQ used for gauging universities' organizational values. We developed the PVQ-uni to measure university values as perceived by students. We collected data from sociology departments at two universities, one in Austria (n = 133) and one Nigeria (n = 156). We then tested the reliability and the validity of the new instrument. Based on the data collected, we found that the PVQ-uni is a reliable and valid instrument; however, further refinements are needed for the instrument to be used successfully in Africa.

Keywords

Organizational values, university values, portrait value questionnaire, PVQ-uni

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Introduction

All organizations, from families and schools at the community level to mega-companies and international NGOs at the global level, have cultures. An organizational culture is a system of assumptions, values and beliefs which the organization's management expects its members to collectively share and which governs how they are meant to behave in the organization (Casey, 2002; Kenny et al., 2011; Sagiv & Schwartz, 2007). Organizations overtly and covertly socialize (or re-socialize) their members to get them to conform to the value priorities of the organizational culture (Casey, 1995; Sagiv & Schwartz, 2007). Members can also shape organizational culture and values through planned organizational development exercises or unplanned spontaneous responses of members to internal or external crises (Kenny et al., 2011, p. 131). Organizational cultures and values tend to change slowly, unless the change is in response to a major crisis that prompts a shift in the organization's value priorities (Kenny et al., 2011, p. 131). For example, an organization could encounter a crisis brought about by worker or student protest action that radically shifts one or more core values of the organization.

Giddens and Sutton (2017), for example, distinguish between 'primary socialization' by the family as a social institution during childhood and 'secondary socialization' that happens later on in educational institutions. We are interested in the socializing function of universities, especially the influencing of students' value priorities. The extent to which universities (or other educational institutions) influence students' values is the subject of debate within literature on what has become known as the 'hidden curriculum' (Nami et al., 2014). Jackson who introduced the notion of the hidden curriculum back in 1968, observed that 'values, dispositions, and social and behavioral expectations of educational institutions brought rewards for students and that learning what was expected along these lines was a feature of the hidden curriculum' (Nami et al., 2014, p. 798). The hidden curriculum is generally defined as the values, beliefs and expectations of an institutional culture that shape the students' learning (Nami et al., 2014, p. 798). The hidden curriculum is associated with the socialization processes of formal schooling at educational institutions (Kentli, 2009, p. 83). These processes are regarded as 'hidden' because they are often unwritten, and unofficial.

Our current research therefore focuses on how university values (both hidden and visible) influence the value priorities of students. In our research we are especially interested in using Schwartz's Theory of Basic Human Values and his 21-item Portrait Values Questionnaire (PVQ-21) to gauge junior students' values in a two-phase panel study at the beginning and the end of their bachelor degree programme and to measure the extent to which their personal values are aligned with the value priorities of their universities.

Personal values are beliefs and desirable goals that guide individual's lives (Schwartz, 2012); whereas organizational values are shared beliefs and goals that guide the decisions of the members (or a powerful sub-group of members) of the organization (Mueller & Straatmann, 2014). While there are obvious commonalties, we cannot use exactly the same instrument to measure both personal and organizational values. Nevertheless, for our purposes, the instruments need to be sufficiently similar to facilitate comparative analysis. Schwartz's PVQ-21 is designed and widely recognized as a suitable instrument to measure personal values; however, we require a minimally adjusted PVQ to measure organizational values. The problem is that Schwartz's PVQ has not been used to measure organizational values, as it is not suitable for this purpose in its original form.

This article is presented in five parts. First, we discuss three main concepts, namely universities as organizations, organizational values and the transmission of values. Second, we make a case for using Schwartz's Theory of Basic Human Values and testing a minimally modified PVQ-21 (PVQ-uni) to measure perceived organizational values of universities for comparative analysis with personal values.

Third, we provide a brief overview of Schwartz's theory and his PVQ-21 instrument. Fourth, we report on how we went about testing the modified instrument. Finally, we discuss our findings.

Universities as Organizations, Organizational Values and Transmission of Values

There is a debate in the literature about whether universities are fully-fledged organizations (Kehm, 2012; Musselin, 2007). This may have been true in the past, however, Kehm (2012) and Wilkesmann and Schmid (2012) argue that in recent times universities have become more like other organizations. For example, as neo-liberal corporate thinking has increasingly influenced universities, they have adopted management styles that resemble other organizations. Therefore, universities are increasing less distinct from other organizations.

There are numerous theory-based definitions of the concept organization. We have adopted the following definition of organization, which draws on rational systems theory: 'collectivities orientated to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures' (Scott & Davis, 2016, p. 29). Goals, which are organizations' raison d'être, represent values as 'conceptions of the desirable', to use Parson's term (Mueller & Straatmann, 2014), and worthwhile to pursue. Organizational values are evaluative standards by which members of organizations discern what is deemed 'right' or appropriate in relation to decision-making and actions within the context of the organizational culture (Dose, 1997; Mueller & Straatmann, 2014). Organization values and personal values are in some respects similar. As Hitlin (2011) says, with reference to Schwartz, 'values refer to variably important goals that transcend situations and that act as guiding principles for people's (or other social entities); decisions and behaviour'. The main difference between organizational and personal values is that organizational values are related to end states and actions of the organization, and not of a single person. Organizational values help organizations meet their goals whereas personal values help individuals build their identity and orientate their lives (Mueller & Straatmann, 2014).

Research about person–organization fit has become popular in organizational studies (Finegan, 2000). One related area that has been studied, especially in the context of the world of work, is the extent to which personal values match the operating values of the organization to which they belong (Finegan, 2000). Where there is a close fit between personal and organizational values, members are likely to be commitment to organization and its goals (Finegan, 2000; Tuulik et al., 2016). Organizations therefore have a vested interest in re-socializing their members according to organization's value priorities, which of course solicit responses from members ranging from resistance to assimilation (Casey, 1995; Dose, 1997; Kenny et al., 2011).

For example, historically one assumed goal of universities has been the transmission of a scientific worldview to their students. During the training of students, time and effort is invested in orientating students according to a scientific worldview. This very process has recently attracted controversy in relation to debates, especially in the Global South, about decolonizing scientific approaches, the academic project and the curricula (Parker et al., 2017; De Sousa Santos & Meneses, 2020).

Research on the transmission of values in personal development assumes that the process cumulative and that cultural context and socializing agents play a central role. Family, peers, educational institutions and the mass media are common sources of socialization (Grusec & Hastings, 2015) which consciously or unconsciously orientate young people's value priorities. Theories about values (e.g., Schwartz, 1992; Svob & Brown, 2012; Vecchione et al., 2020) tend to agree that people's value priorities are shaped in their youth and that changes in their values later on in life may occur due to specific life altering

experiences such as religious conversion or political conscientization. Entering a university context as a student is also an important biographical experience (Berntsen & Rubin, 2004). Students are both consciously and unconsciously subjected to the organizational values of their university. However, in addition to the aforementioned debate about the university culture in the Global South, the assimilation of university values by students further depends on several factors such as desirability, stability of the institutional culture, the endorsement by staff and perceived credibility of the institution.

The Case for Developing a Modified PVQ-21 to Measure Organizational Values of Universities

Schwartz has mainly focused on personal values and societal or cultural values. He is probably best known for his Theory of Basic Human Values and the measurement of personal values, which builds on Rokeach's (1973) work 'Nature of Human Values'. In this theory of individual values, he defines 10 personal values, namely power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity and security (see a more detailed discussion later). Values are universal, but the ways in which individuals prioritize their values can differ. In his *Theory of Cultural Value Orientations*, Schwartz (2011) defines seven societal value orientations or constructs that reflect the nature of societies and which serve as dimensions for comparing cultures. The value priorities of a society are at its heart (Schwartz, 2011). According to Schwartz (2011) these societal values include intellectual autonomy, egalitarianism, harmony, embeddedness, hierarchy, mastery and affective autonomy. He argues that 'these are basic requirements of societal functioning that differ from the basic requirements of individual functioning' (Schwartz, 2011, p. 469) and that consequently 'we need separate theories of values' (Schwartz, 2011, p. 463). To put it another way, 'the dimensions appropriate for comparing the values of societal culture and for comparing the values of individuals … differ' (Schwartz, 2011, p. 469). As with personal values, cultural values are universal, but societies may prioritize these values differently. When Schwartz (2011) refers to societal culture he means the dominant, prevailing culture in a country; subgroups within societies can, and often do, espouse conflicting value priorities. Cultural values are generally stable, but the dominant value priorities can alter over time or after radical social change.

Schwartz (2011) developed the 56-item Schwartz values survey (SVS) and subsequently a 57-item version, as well as 40-item and 21-item versions of the PVQ to measure individual differences in value priorities. He also used these instruments to measure cultural values at the level of society. For measuring cultural value orientations, Schwartz (2011) selected suitable items out of the SVS item pool. Analysis at the cultural level was based on the 'mean importance rating of each value. Thus the unit of analysis at the culture level was the sample (societal group), not the individual person' (Schwartz, 2011, p. 474). Only the SVS items and the PVQ-21 items that matched the aforementioned seven societal values were used. Schwartz's use of an adjusted PVQ-21 to measure cultural values at the societal level suggests that it could be used to measure organizational values.

While Schwartz successfully measured personal and societal values using his instruments, one cannot assume that organizational values can be measured in the same way. Organizational culture is located in between the personal and societal levels.

Consiglio et al. (2017) noted De Clercq et al.'s (2008) suggestion that Schwartz's Theory of Basic Human Values could provide a suitable framework for mapping both individual and organizational values. However, the proposal has not been further developed or tested by these authors using Schwartz's value indicators.

Schwartz himself has measured organizational values in at least two studies. One study, undertaken by Borg et al. (2011), embeds the Organizational Culture Profile (see Marmenout, 2007) into Schwartz's Theory of Basic Human Values using multi-dimensional scaling (MDS) and Schwartz's two-dimensional values model. In this study, Borg et al. (2011) use the organizational culture profile, which includes 54 items (value statements) to test the congruency between personal values and the values that participants ascribed to their organizations (i.e., person–organization fit) and found that two value dimensions (risk vs. rules and results vs. relations) underlie both analysed value concepts. This approach to measuring organizational values combining Schwartz's theory of values and the organizational culture profile is not designed to match Schwartz's theory; using the two together is a clumsy process.

The second study is by Sagiv and Schwartz (2007) and measures the impact of societal culture on organizational culture, drawing on Schwartz's *Theory of Cultural Value Orientations*. More recently Porto and Ferreira (2016) have built on Sagiv and Schwartz (2007), using the *Theory of Cultural Value Orientations* to design and test a new organizational values questionnaire with 55 items that maps autonomy, conservatism, hierarchy, egalitarianism, harmony and mastery. Porto and Ferreira (2016) argue that organizations operate at a collective level and therefore Schwartz's theory of cultural values lends itself to explaining and measuring organizational values. While this argument is convincing, the study focuses on organizational values alone and does not solve our problem of assessing the person–organization values fit using similar instruments that allow for comparative analysis.

There are two further reasons for considering the use of a modified PVQ to measure organizational values.

The first reason is that Rokeach's values survey (RVS) has been used to measure organizational values. Importantly, Schwartz's (1992) Theory of Basic Human Values builds directly on Rokeach's (1973) Nature of Human Values. If RVS has been adjusted to measure organizational values, then it is worth exploring the same possibility using Schwartz's PVQ.

Rokeach (1973, p. 38) developed the values survey and argued that his instrument could be used to measure the values not only of individuals and groups, but also of organizations and even societies. In its original form, the RVS, like Schwartz's PVQ, has rarely been used to measure organizational values (Finegan, 2000). However, a small number of studies (e.g., Finegan, 2000; McDonald & Gandz, 1991; Seligman & Katz, 1996) have adapted Rokeach's values instrument for use in organizational research. The use of a modified RVS to measure organizational values has further encouraged us to consider using an adjusted PVQ-21 to measure organizational values.

The second reason is that we agree with Finegan (2000), who follows Edwards (1994, cited in Finegan, 2000, p. 154) in using 'commensurate measures of the person and organization to enable meaningful comparisons between person and organizational variables' in his values study. Practically, this meant that Finegan (2000) first used a modified RVS to measure how important each given value was to each respondent as a guiding principle in their life, before asking them about each value's perceived importance to the organization. Finegan's (2000) argument about the need for 'commensurate measures of the person and organization' for comparative purposes supports our approach of using a minimally modified PVQ to measure the organizational values and the PVQ to measure personal values.

The literature discussed above shows that (a) Schwartz's *Theory of Cultural Value Orientations* can be used to study organizational values, but is not suitable for studying personal values, (b) Schwartz's Theory of Basic Human Values can be used to measure both personal and organizational values, (c) the PVQ (originally designed for measuring personal values) can be modified to measure cultural/societal values, but it has not been used to measure organizational values, (d) cultural values are not very different from organizational values, (e) a minimally adjusted version of RVS (which was designed to measure personal values) has been used to measure organizational values and (f) commensurate measures of personal and organizational values are necessary for meaningful comparisons.

Accumulatively, these observations make a case for testing a modified PVQ for gauging organizational values of universities in a comparative study of personal and organizational values.

Schwartz's Theory of Basic Human Values and the PVQ

Schwartz's Theory of Basic Human Values (2012) defines values as beliefs and desirable goals, which serve as guiding principles in people's lives. It consists of 10 distinct motivational value orientations, which relate to each other in a harmonious or divergent way. The 'structure' of these values reflects relations of discrepancy and correspondence among values and not their relative importance (Schwartz, 2009). Figure 1 shows this structure as a two-dimensional model, which embeds the values into four value domains (self-transcendence, conservation, self-enhancement and openness to change). By means of the circular diagram, Schwartz underlines the idea that 'The closer any two values in either direction around the circle, the more similar their underlying motivations; the more distant, the more antagonistic their motivations' (Schwartz, 2009). Thus, when one tries to pursue two values and they come into conflict, these values are represented in the opposing direction in the circular structure below, while symmetrical values are adjacent to one another. The circular structure portrays the total set of relations.

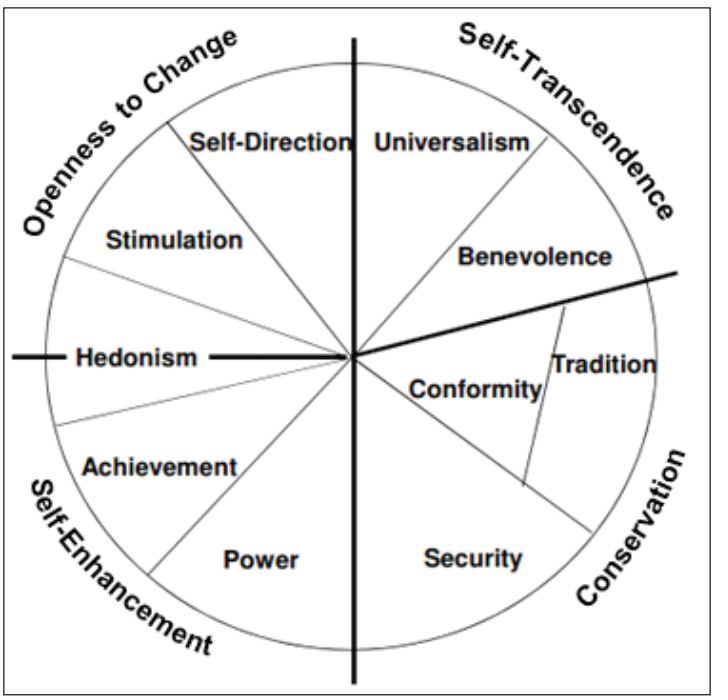


Figure 1. Schwartz's Motivational Value Types and Higher order Value Domains

Source: Schwartz (2012, p. 9).

Figure 2 summarizes the 10 value orientations, their definitions and example values, as presented in a previous paper (see De Wet et al., 2019). For a more detailed discussion, see also Schwartz (2009).

Value Type	Definition	Exemplary values
Power	Social status and prestige, control or dominance over people & resources	Social power, authority, wealth
Achievement	Personal success through demonstrating competence according to social standards	Success, ability, ambition
Hedonism	Pleasure and personal gratification	Pleasure, fun, fulfilment
Stimulation	Excitement, novelty & challenge in life	Excitement, variety
Self-direction	Independent of thought and action, creating, exploring	Creativity, curiosity, freedom
Universalism	Understanding, appreciation, tolerance, & protection for all people and nature	Social justice, equality, awareness
Benevolence	Preservation and enhancement of the welfare of people with whom one has frequent personal contact	Kindness, support, honesty, forgiveness
Tradition	Respect, commitment towards and acceptance of the customs and ideas that culture or religion provide	Deference, devotion, tolerance
Conformity	Restraint of actions, inclinations and impulses likely to upset or harm others & violate social expectations or norms	Courtesy, obedience, honor
Security	Safety, harmony & stability of society, of relationships and of self	Social order, organization

Figure 2. Schwartz's Motivational Values

Source: Schwartz (1992).

Schwartz developed the 21-item PVQ for measuring individual value orientations. The portraits used in the questionnaire are gender-matched with the respondent in order to allow respondents to relate better to the portraits—a female or male version is used. Each item or portrait describes a particular goal, aspiration or wish, which refers to a single underlying value (Schwartz, 2012). For instance, the first item in the female version of the questionnaire contains the following two statements: 'Thinking up new ideas and being creative is important to her. She likes to do things in her own original way'. These two statements describe a person who values self-direction. The first statement describes the importance of a valued goal to the person. The second statement describes the person's feelings about the goal. Each respondent is asked the extent to which she is like the person described in a portrait by ticking the number that best represents her position on a 6-point Likert scale (where 1 is 'very much like me' and 6 is 'not like me at all').

For our comparative study of personal and organizational values, the PVQ is suitable for measuring personal values and we need a minimally adjusted PVQ-21 to measure perceived organizational values. Furthermore, the two versions of the PVQ (PVQ-21 and PVQ-uni) need to be sufficiently similar (i.e., commensurate instruments) to allow for meaningful comparative analysis.

Procedures and Methods Used to Test the PVQ-uni

With the above research objective in mind, we decided to undertake a pilot study to test the reliability and validity of a minimally modified PVQ (PVQ-uni) for measuring students' perceptions of the values of their university.

We proceeded to solicit help from a small group of university students to design a trial version of the PVQ-uni before testing it among students from two different universities in two different countries and cultures.

Procedures in Developing the Modified Version of the PVQ-21

We modified the PVQ-21[1] to measure organizational values by a number of steps. We first amended the wording of the items or statements in PVQ-21 minimally to reflect the shift from measuring personal values to organizational values. In order to test the validity of the modified PVQ-21, or PVQ-uni (e.g., problems of comprehensibility), a pretest was conducted with undergraduate sociology students from Johannes Kepler University (JKU) in Linz, Austria. Data was collected by means of cognitive and standardized pretesting which included individual interviews (n = 3) for a retrospective think-aloud exercise and a group discussion (n = 4) to test for comprehension and information retrieval. Furthermore, a standardized pretest was conducted in a classroom setting. A group of 38 students were invited to complete the PVQ-uni during a lecture.

The two pretest procedures revealed flaws in the PVQ-uni. While some statements were too vague or unclear and others were inappropriate, the major weakness in our first attempt to *minimally* modify the PVQ was that it substituted the person in the 21 statements with the organization/university. For example, one statement reads: 'My university seeks every chance to have fun'. This did not work. Feedback from the respondents helped us revise the statements. We amended the statements so that they focus on what the respondents think their university wants its students to aspire/wish/aim for. For example, a revised statement reads: 'Students thinking up new ideas and being creative is important to Godfrey Okoye/JKU. Students should do things in their own original way' (see Supplemental Material).

Armed with the revised instrument, we proceeded to test its reliability and validity by asking the following research questions:

1. Is the PVQ-uni instrument sufficiently reliable?
2. Does the PVQ-uni instrument show enough construct validity in the sense of divergent validity (Gravetter & Forzano, 2012) that the students report perceived values of the university which are weakly correlated to their personal values?
3. Does the PVQ-uni demonstrate enough content validity in the sense that the empirical data sufficiently fits Schwartz's two-dimensional value model?

Sampling

Data was collected from first- and final-year bachelor students in the social sciences at JKU in Austria and Godfrey Okoye University (GOU) in Nigeria. We tested the PVQ-uni in culturally different contexts and among entrants/novices and advanced students because we wanted to get as close as possible to the features of the sample, we planned to use in the bigger panel study mentioned earlier. The survey was

carried out between October and December 2018. The PVQ-uni was self-administered in a classroom setting using pencil and paper.

Altogether, 180 first-year students (62.3%) and 109 final-year students (37.7%) took part in the survey. The percentage differences between first year at JKU and GOU and final year at the two universities were not significant (see Table 1).

Table 1. Sample Composition

Country, University	Entrants (%)	Advanced (%)	*n*
Austria, JKU	75 (56.4)	58 (43.6)	133
Nigeria, GOU	105 (67.3)	51 (32.7)	156
Total	180 (62.3)	109 (37.7)	289

Source: The authors.
Note: $\chi^2 = 3.642$; $p = 0.056$.

Table 2. Selected Demographic Characteristics

Country, University	Females (*n*)	Mean Age (SD; *n*)	Urban	1st Language (*n*)
Austria, JKU	77.3% (132)	25.5 years (9.262; 132)	46.2% (130)	German: 84.2% Other[(a)]: 15.8% (133)
Nigeria, GOU	54.8% (155)	19.3 years (3.054; 138)	46.2% (143)	Igbo: 73.8% English: 13.4% Other[(b)]: 12.8% (149)

Source: The authors.
Notes: (a) Bosnian/Serbian/Croatian, Turkish, Georgian, Persian, Polish, Romanian, Slovak and Spanish.
(b) Boki, Chichewa, Efik, Esan, Eteche, Fang, Hausa, Idoma, Igala, Ijaki, Ikwere and Jukun.

Table 2 provides information about selective demographic characteristics of the surveyed students. The majority of the Austrian respondents were female (77.3%) and German-speaking (84.2%), while 54.8 per cent of the Nigerian students were female and 73.8 per cent Igbo-speaking. The percentage of respondents from urban areas in both samples was 46.2 per cent. The average age of 19.3 years for all the Nigerian students is somewhat younger than the average age of 25.5 for all the Austrian students.[2]

Techniques of Analysis

We use Cronbach's alpha to measure the reliability of the PVQ-uni and we use linear regressions as well as MDS to test the validity of the instrument, as described in more detail below.

Cronbach's alpha (Cronbach, 1951; Zeller & Camines, 1980, pp. 56–60) measures how closely related a set of items is as a group. In other words, it measures internal consistency. When measuring Cronbach's alpha for the PVQ-uni, we took into account each pair of items in the PVQ-uni (as in Schwartz's PVQ) which measure the same motivational value orientation. Based on this, we calculated the overall average correlation of the paired items (see formula [1]) and included 10 dimensions (see formula [2]), since the model consists of 10 value orientations (see De Wet et al., 2019).

$$\bar{r}_{\mathrm{PVQ\_}U} = \frac{\sum_{i \neq \mathrm{U\_UN}} r_{i,i^*} + \frac{r_{\mathrm{U\_UN1,U\_UN2}} + r_{\mathrm{U\_UN1,U\_UN3}} + r_{\mathrm{U\_UN2,U\_UN3}}}{3}}{10} \quad (1)$$

where r_{i,i^*} is the correlation of the two items i and i^* for each of the 10 value orientations, for example, self-direction item 1 and self-direction item 2, and where $r_{UN1,UN2}$, $r_{UN1,UN3}$ and $r_{UN2,UN3}$ are the correlations for the three items for universalism.

$$\alpha_{PVQ\_U} = \frac{10.\bar{r}_{PVQ\_U}}{1 + (10 - 1).\bar{r}_{PVQ\_U}} \tag{2}$$

Internal consistency is verified when the adapted Cronbach's alpha (α_{PVQ_U}) reaches a value of 0.8.

The suitability of the measurement is indicated by construct validity. Construct validity exists when the perceived values of the respondents' own universities are independent of their personal values. This is tested using **linear regressions**. More precisely, we tested the extent to which each PVQ-uni item is independent of respondents' personal values, as measured by the PVQ-21 (see formula [3]).

$$y_{PVQ\_U} = \beta_0 + \beta_1 UN1 + \beta_2 UN2 + \beta_3 UN3 + \ ... + \beta_{21} ST21 + \varepsilon \tag{3}$$

Construct validity is confirmed when the model, that is, linear regression to test the influence of personal values on the perceived values of the students' universities, is insignificant ($p > 0.05$).

Content validity is tested by computing the two-dimensional representation of the perceived university values using MDS[3] (see e.g., Borg & Groenen, 2005) in SPSS (PROXSCAL), and counting the number of adjustments needed to fit Schwartz's model (see Figure 1). In accordance with Schwartz (1992, 2009) we performed a smallest space analysis (SSA) by applying mean centring ($x_i^{\bar{x}} = x_i - \bar{x}$) and used the starting configuration indicated by Schwartz (2009). Moreover, we calculated goodness-of-fit (GoF) indices. The GoF measured the proportion of items which (based on the two-dimensional solution of the MDS) are placed in the appropriate sector of the respective values. One item is always placed right as the chosen starting point (see formula [4]).

$$\text{GoF} = 100 \times (1 - \text{no. of moves}/20) \tag{4}$$

Content validity is demonstrated when the empirical data sufficiently fits or matches Schwartz's two-dimensional model by reaching a GoF of 70 per cent, as this threshold is above the fit of random data to the two-dimensional value space (see De Wet et al., 2019). The graphical representation and the calculation of GoF were carried out with the help of our S2-D software program (available at https://s2-dsoftware.fh-linz.at).

To sum up, the following threshold values are applied:

A homogenous or reliable measurement is confirmed when:

1. **Cronbach's alpha** (α_{PVQ_U}) **≥ 0.8**

A suitable or valid measurement is confirmed when:

2. **Linear regressions** of PVQ-uni items depending on PVQ-21 items are insignificant ($p > 0.05$)
3. **MDS models** reveal a minimum GoF of 70 per cent.

This involves, on one the hand, testing all 21 PVQ-uni items at once, as measured by Cronbach's alpha and GoF by MDS and, on the other hand, carrying out individual tests per item (for each of the 21 items) for linear regression. Since it is difficult to reach a perfect result (i.e., absolute verification) for all items

at once, we decided that at least two-thirds (67%) of the 21 individual linear regression models should be verifiable.

Based on this, we expect that:

Hypothesis 1: Cronbach's alpha to be higher than 0.80 in all four subsamples.
Hypothesis 2: The personal values have no significant impact on PVQ-uni items in at least for 67 per cent of the 21 regression analyses testing the PVQ-uni items as dependent variables and all PVQ-21 items as independent variables.
Hypothesis 3: The GoF of the empirical data for PVQ-uni of the two-dimensional model of Schwartz is larger than 0.70 in all four subsamples.

To get ideas for improvement, we performed individual tests for each item for the three criteria of reliability, content and construct validity (see 'Results' section). We assumed that there was

- Less reliability for an item if the correlation with the item, that measures the same dimension, is less than 0.30.
- Less construct validity if the linear regression for the item is significant.
- Less content validity if the item must be moved in two-dimensional space in order to fit with Schwartz's two-dimensional value model.

These three indicators for recommended improvement can be computed for each of the four samples, resulting in a number index of recommended improvements per item (no.improve.i). The maximum number of recommended improvements for an item is 12. Using the maximum, the percentage of recommended improvements is calculated by $p.\text{improve}.i = 100 \times \text{no.improve}.i/12$.

Results

Reliability of Measurement

Cronbach's alpha for the PVQ-uni provides satisfactory results of >0.8 and therefore supports the measurement of students' perceived university values based on both the Austrian and Nigerian data for entrants and advanced students (see Table 3).

Consequently, we see that the entrants, who are less familiar with the university's organizational culture/values than the advanced students, show a satisfying Cronbach's alpha for PVQ-uni.

Table 3. Testing Reliability (modified Cronbach's alpha)

Country, University	Students' Status (*n*)	Mod. Cronbach's Alpha
Austria, JKU	Entrants (75)	**0.86**
	Advanced (58)	**0.88**
Nigeria, GOU	Entrants (105)	**0.89**
	Advanced (51)	**0.94**

Source: The authors.
Note: A value of ≥0.8 verifies the reliability of measurement (bold values).

Table 4. Correlation (Pearson's *r*) of Items Measuring the Same Value of the PVQ-U

Country, University	Status (*n*)	SD1, SD2	UN1, UN2	UN1, UN3	UN2, UN3	BE1, BE2	TR1, TR2	CO1, CO2	SE1, SE2	PO1, PO2	AC1, AC2	HE1, HE2	ST1, ST2
Austria, JKU	Entrants (68–71)	0.351**	0.438**	0.476**	**0.129**	0.329**	**0.129**	0.490**	0.510**	**−0.003**	0.477**	0.571**	0.343**
	Advanced (54–56)	0.434**	0.576**	0.383**	0.537**	**0.024**	**0.291***	0.510**	0.488**	**0.219**	0.410**	0.731**	0.547**
Nigeria, GOU	Entrants (90–94)	0.360**	0.334**	0.574**	0.486**	0.419**	**0.241***	0.475**	0.519**	0.377**	0.494**	0.486**	0.334**
	Advanced (47–49)	0.369**	0.537**	0.458**	0.410**	0.587**	0.374**	0.530**	0.613**	0.410**	0.723**	0.661**	0.739**

Source: The authors.

Note: p ≤ *0.05, **0.01, ***0.001. A value of ≥0.3 supports internal consistency (bold values).

In order to gain a deeper understanding, we computed correlation matrices for each pair of items in the PVQ-uni that measure a single value for each country and each student sample. The results reveal that (see Table 4) two pairs of items which measure Tradition (TR1, TR2) and Power (PO1, PO2) correlate weakly or not at all among the Austrian entrants in particular. In addition, a weak correlation is reported for the pair (UN2, UN3) in one case. These pairs of items seem to reveal problems with internal consistency.

Construct Validity

We used multiple linear regression to test whether the perceived values of the respondents' university are independent of their personal values (measured by PVQ-21). We computed 21 regression models for each student sample for each PVQ-uni item. We expected insignificant results for the multiple linear regression models. Table 5 shows that two-thirds or more of the regression models are insignificant except for the sub-sample of entrants in Nigeria.

Table 5. University Values' (lack of) Dependence on Personal Values (linear regressions)

		Proportion of Models*		Number of Linear Regressions
Country	Status	$p < 0.05$	$p > 0.05$	
Austria, JKU	Entrants	24%	**76%**	21
	Advanced	10%	**90%**	21
Nigeria, GOU	Entrants	62%	38%	21
	Advanced	33%	**67%**	21

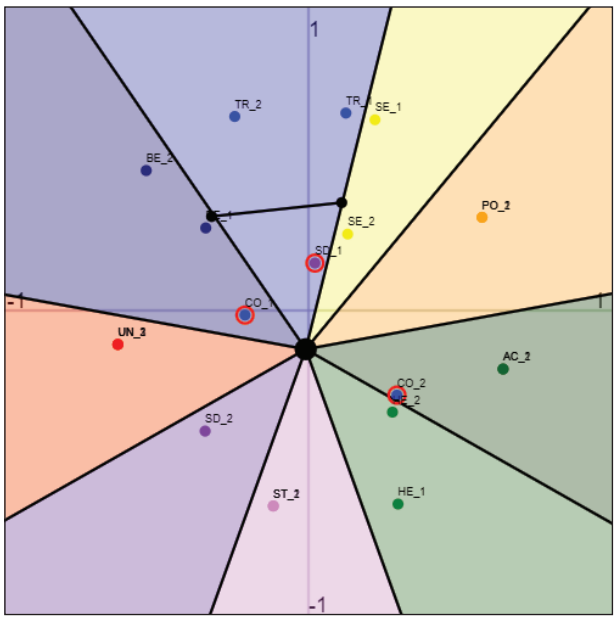
Source: The authors.
Notes: *A proportion of 67% for $p > 0.05$ verifies the validity of measurement (bold values).

Differences occurred, depending on the country and entrants or the advanced status of the students. For Austrian students, the lack of correlation between university values and personal values increases in line with their length of stay at the university from 16 (76%) to 19 (90%) non-significant models. In comparison, the proportion of non-significant models based on the Nigerian data is lower, although it also increases with the length of stay at the university from 8 (38%) to 14 (67%). One explanation for a lower correlation in the data from both countries' entrants could be that students project their own individual value preferences onto the university because they are not familiar with their university's values.

After multiple linear regression was performed, the following items turned out to be problematic for measuring university values because they were heavily influenced by personal values for almost all the samples: Security (SE) 2 for both JKU and GOU, Security (SE) 1, Self-direction (SD) 1, Universalism (UN) 1 and Universalism (UN) 3 for GOU only (for details, see Tables A1 and A2 the Supplemental Material).

Content Validity

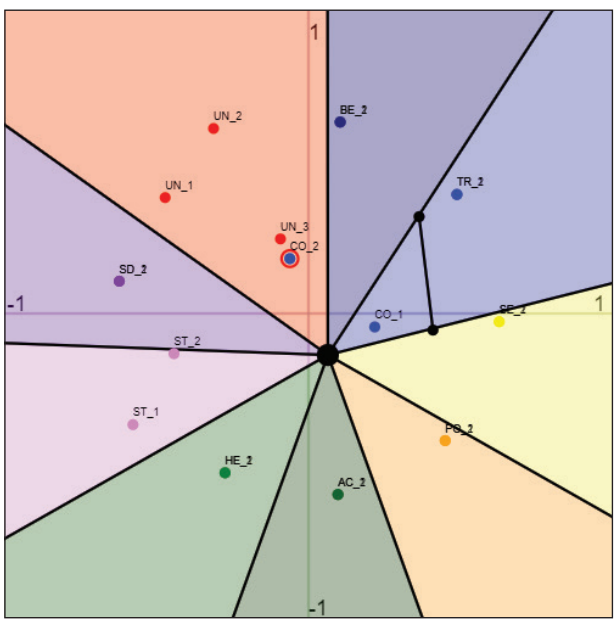
Finally, we tested whether the empirical data fits the theoretical two-dimensional model. We computed graphic representations of the perceived university value structure for each country and each student group (i.e., entrants and advanced) using our computer program S-2D. Figure 3(a–d) shows that the



(a) JKU: Entrants

n = 61 GoF: 85%; moves: 3; borders: 7

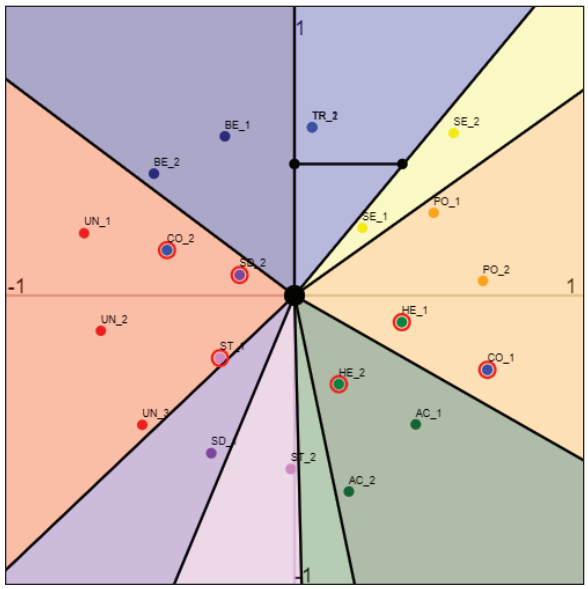
Source: The authors.



(b) JKU: Advanced

n = 48; GoF: 95%; moves: 1; borders: 2

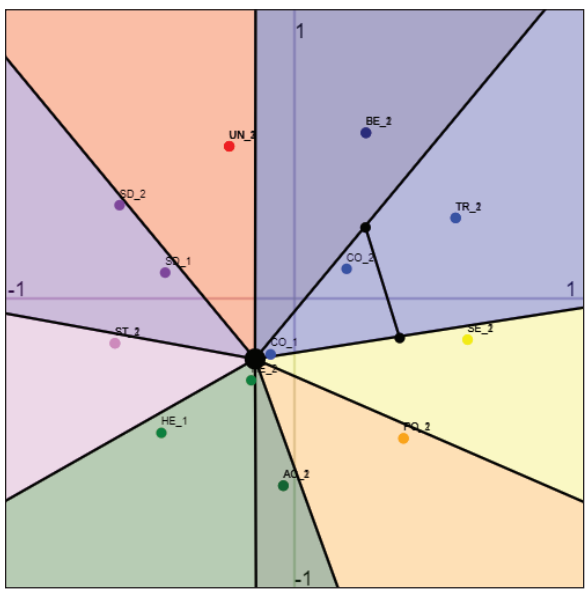
Source: The authors.



(c) GOU: Entrants

n = 81; GoF: 70%; moves: 6; borders: 10

Source: The authors.



(d). GOU: Advanced

n = 43; GoF: 100%; moves: 0; borders: 0

Figure 3(a–d). Two-dimensional structure of the PVQ-uni

Source: The authors.
Note: A minimum GoF of 70% verifies content validity.

number of moves (circled in red) which have to be made to reproduce Schwartz's theoretical model ranges between 0 (GOU, advanced students) and 6 (GOU, entrants). The GoF for all graphical representations is above 70 per cent and confirms the content validity of the PVQ-uni. Once again, advanced students in both countries (GoF 95% & 100%) fit better than entrants at both universities.

Discussion

Figure 4 provides a summative overview of the reliability and validity tests of the PVQ-uni, differentiated by country and students' length of stay at the university. The Austrian results and, with one exception, the Nigerian results support the reliability and validity (construct and content validity) of the PVQ-uni. The Nigerian exception relates to the fact that the university values as perceived by entrants depend on their personal values. We assume that those entrants project their own individual value preferences onto the university. The results suggest that the length of time students have spent at university influences the analysed quality criteria (reliability, content and construct validity): in most cases, advanced students produce more reliable and valid results (though often just slightly so) (see section 'Procedures and Methods Used to Test the PVQ-uni').

Test	Austria, JKU		Nigeria, GOU	
	Entrants	Advanced	Entrants	Advanced
Cronbach's alpha	V	V	V	V
Linear regression	V	V	F	V
GoF of MDS	V	V	V	V

Figure 4. Overview of Verifying and Falsifying Results

Source: The authors.
Note: V = Verified and F = falsified.

Testing	Problems	Consequences
Consistency	**Perception of university** (professors/lecturer vs. student union, vice chancellor vs. administration, etc.) by students are manifold **Formulation** of questions: unclear/vague	Underlying information varies: low correlation / high variance
Independency of values:	**Inside view/experience** is lacking	Tendency to choose personally favoured values: **biased results**
Graphic reproduction of value structure	**Formulation** of questions: ambivalent	Responses to items of one value vary: **different placement**

Figure 5. Problematic Aspects of the PVQ-uni and Their Negative Consequences

Source: The authors.

Nonetheless, we performed an analysis to identify items that could be improved. We used the indicator described in section 'Techniques of Analysis'. The analysis revealed some items in the design of the PVQ-uni measuring organizational values of universities with lower reliability and with lower validity (see Table A3 in the Supplementary Material). It appears that the item 'Conformity 2' (CO2: 'It is important to GOU that students always behave properly. They should want to avoid doing anything people would say is wrong'.) may be refined for further research because 5 (42%) out of 12 tests failed. The items 'Conformity 1' (CO1) 'Universalism 2' (UN2) 'Security 2' (SE2) and 'Tradition 2' (TR2) may be critically reviewed (4 (33%) out of 12 tests failed).

Based on the pretests of the PVQ-uni (see section 'Procedures in Developing the Modified Version of the PVQ-21') we can assume that the following aspects included in Figure 5 are reasons for lower reliability and lower validity.

Concluding Remarks

The primary aim of this article was to measure perceived organizational values of universities based on Schwartz's PVQ. We wanted to minimally modify the PVQ-21 to make it possible to measure personal and organizational values of universities in a very similar way for comparative purposes. We tested the reliability and validity (construct and content) of the 'new' measurement instrument (PVQ-uni). The results show that the modified PVQ (PVQ-uni) exhibits sufficient reliability and validity (content and construct validity). Therefore, it would be possible to measure differences between personal values (measured by the PVQ) and university values (PVQ-uni) in further research projects. However, some of the items in the PVQ-uni could be refined in order to increase their reliability and validity. The applicability of the PVQ-uni to measure organizational values in organizations other than universities was not tested. Therefore, further research and testing is needed if an adjusted PVQ instrument is to be used to measure organizational values beyond the university context. We acknowledge that our sample consisting of only social science students in two universities is small and therefore our findings are preliminary. However, this article raises important methodological questions for social scientists working with Schwartz's Theory of Basic Human Values and the potential use of the PVQ to measure organizational values. We hope this article will stimulate further discussion and research on the topic.

Acknowledgement

We would like to thank the reviewers for their thoughtful comments and questions that have helped to improve our article.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

Notes

1. We decided to use PVQ-21 instead of PVQ-40 mainly for two reasons. First, the PVQ-21 is an established and widely used instrument for measuring values, and, second, we had limited time in lectures to collect the data and therefore for practical reasons we opted for the shorter version of the PVQ.

2. On average, Nigerian students enter tertiary education at a younger age compared to Austrian students.
3. Sometimes, confirmatory factor analysis (CFA) is used to test validity of the PVQ-21 (e.g., Schwartz & Boehnke, 2004). In our study, we did not apply CFA because the sample sizes are too small. Papers about minimum sample size for CFA recommend the number of cases (n) should be $n \geq 200$, the ratio of number of cases to the number of variables in a model (p) should be $n/p \geq 10$; or the ratio of number of cases to the number of model parameters (q) should be $n/q \geq 5$; (e.g., Myers et al., 2011) The three conditions are not fulfilled in all our samples. For example, the sample sizes of the four samples are smaller than 200. Therefore, we decided not to use CFA. The same holds for the ratio n/p or the ration n/q.

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