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TRANSLATION AND LINGUISTIC VALIDATION OF PERMA PROFILER IN MUSIC ENGAGERS CONTEXT

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ABSTRACT

The construct of flourish using PERMA profiler (Butler& Kern, 2015) has been studied across various cultures through the flourish. The PERMA profiler has been validated across several populations and languages. There are no published psychometric properties of its Urdu version. So, the present study aimed to translate and linguistically validate the PERMA profiler into the Urdu language for music and non-music Pakistani students. In Phase, I Urdu translation of the PERMA profiler was carried out by using Mapi guidelines for standard forward and backward translation method. However, in phase II, validation of the PERMA profiler was determining d yielding confirmatory factor analysis. For the empirical evaluation a sample of 600 students including both 300 music and 300 non-music students of undergraduate level with the age range of 18-26 years 18-26 years (M =23.18, SD= 2.14) were recruited. The psychometric evolution of the PERMA profiler turned in to excellent validity and reliability estimates for first and second-order constructs. Moreover, strict measurement invariance was established for PERMA profiler across music and non-music students. The findings showed that the Urdu version of the PERMA profiler has strong psychometric properties, is linguistically and culturally acceptable, and paves the way for music psychology to make researches available of measuring the construct indigenously.

INTRODUCTION

Seligman's (2010) PERMA theory: showed that prospering and psychological well-being would to a great extent show most or the entirety of the five components of positive emotion, engagement, connections, meaning, and achievement. Positive emotion can be delegated a circumplex comprising of valence (negative to positive) and initiation (low to high). Individuals can encounter both negative and positive emotions all the while (Watson & Tellegen, 1985). Engagement in positive brain research, measures have zeroed

in on stream, or an extraordinary degree of psychological engagement that includes extreme fixation, assimilation, and core interest (Csikszentmihalyi, 1990).

Relationships social relationships are the basic core of life. Social support has been highly correlated to less psychopathology and low depression, good physical wellbeing, less transience hazard, better practices as well as other positive results (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). A feeling of Meaning has been characterized as far as having a course throughout everyday life, associating with an option that could be bigger than oneself, feeling such one's reality is important and beneficial, and that there is a reason for what one does (Steger, 2012). These means give a feeling such one's reality matters. Achievement includes a feeling of pursuing and arriving at objectives, authority, and adequacy to finish assignments. Indeed, self-determination theory recommends that accomplishment is one of the basics need for human-being (Ryan & Deci, 2000).

Positive Emotions

Positive emotions can be assorted as a diacritic comprising of multivalent factors from negative to positive and actuation low to high measurements (Nemanick, & Munz, 1998). Individuals can encounter both negative and positive emotions all the while (Watson & Tellegen, 1985). Various surveys support the estimation of positive emotion across a scope of life outcomes (Sheldon & Lyubomirsky, 2006).

As a basic core of the well-being model, encountering positive emotions, for example, trust, sympathy, satisfaction, compassion, appreciation, happiness, or love is viewed as the most fundamental component adding to the prosperity situations (Seligman, 2011; Webster, 2014). In academic settings, Noble and McGrath (2008) examined how schools encourage students to experience positive emotions, for example, (a) having a place with their school; (b) safety from harassing as well as bullying; (c) fulfillment and pride through encountering and praising achievement; (d) energy and pleasure by partaking for the sake of entertainment exercises or exceptional games; and (e) confidence about their prosperity or potentially school. Encountering positive emotions consistently in school, settings are viewed as significant for well-being and music and music-related activities may give different occasions to students to feel joy (McFerran, 2010).

Engagement

Research on the engagement has happened across a few generally dissimilar domains. In positive brain research, measures have focused on stream, or an outrageous degree of psychological engagement that includes serious fixation, retention, and center (Csikszentmihalyi, 1990). In the hierarchical space, work engagement has been characterized regarding life, devotion, and ingestion (Schaufeli, Bakker, & Salanova, 2006).

Student's commitments incorporate mental, conduct, intellectual, and instructional areas (Appleton, Christenson, & Furlong, 2008). Engagement is for example a significant part of effective aging yet little work has done to check engagement in more established age past action. Across these fields, engagement evidently incorporates emotional, scholarly, and direct estimations; anyway it isn't clear how to minimalistic ally get these estimations in a brief measure (Rowe & Kahn, 1987).

The experience of stream or being completely up to speed in an activity. Also concerning stream, Custodero (2002) examined the benefits of partaking in melodic activities, insinuating unequivocally to the positive, self-compensating cycle that the student can knowledge through preparing and the improvement of aptitude. As learning progresses, the student achieves more euphoria and satisfaction, and at its zenith, the student's engagement can be able as a stream, and this enchanted focus invigorates its own motivation. To the extent students' engagement with learning, it has been fought that when students attract with their characteristics, they will undoubtedly experience wellbeing (Noble & McGrath, 2008). Appropriately, furnishing an assortment of melodic exercises with the thought of students' inclinations and qualities could be a valuable method to draw in students with their school exercises and enhance their well-being (Diener & Seligman, 2002).

Relationship

Social relationships are basic to life. It deals with whether an individual can build and keep up positive relationships with others (Seligman, 2018). A survey found more than 18,000 articles distributed on social relationships and wellbeing in the previous decade. Social support has been connected to less depression and psychopathology, better actual wellbeing, lower mortality hazard, better practices, and other positive results (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The relationship dimension has a well-settled spot in a large portion of the major existing wellbeing surveys held globally.

In school settings, positive relationships with companions and instructors help students with experiencing support and affirmation, and feel related with school. Relationships can comparably convince students to achieve and go about as demonstrated by a school's support of social culture, adding to a positive school culture (Noble and McGrath, 2008). As melodic support consistently incorporates close to nothing or tremendous get-together activities that require melodic and social connections between people, it makes checking out music a social showing. Along these lines, empowering melodic activities could regularly incite a perspective on being fused and regarded through correspondence, participation, and create cooperation in school settings (McFerran, 2010; McFerran & Rickson, 2014).

Meaning

A sense of meaning has been characterized regarding having direction throughout everyday life, interfacing with an option that could be bigger than

one self, feeling such one's reality is significant and beneficial, and that there is a reason for what one does (Steger, 2012). Meaning gives a feeling such one's reality matters. It has been connected to better actual wellbeing, decreased mortality hazard, and higher life fulfillment (Steger, 2012).

Meaning alludes to one's deliberate presence on the planet, while the object is related to feeling or a sensation of accomplishment and achievement. In school settings, Noble and McGrath (2008) guarantee that students have a sensation of 'meaning when what they do have an influence on others past themselves.

Accomplishment

Superior performance is regularly perceived and recognized in Western societies and cultures. For example, every year Forbes magazine chooses the 500 best organizations in the US, and at regular intervals, Olympic occasions unite the best competitors from around the globe. Nonetheless, target achievement is similarly affected by conditions, openings, and individual desire. A mother who raises an associated, caring family may be viewed as a triumph, despite never accepting honors for her efforts. Abstractly, achievement includes a feeling of running after and arriving at objectives, dominance, and adequacy to finish errands. Indeed, Self-Determination Theory recommends that competence is a core essential human need (Ryan & Deci, 2000). A few of the current wellbeing studies incorporate things identified with capability, dominance, or viability, whereas national surveys tend to focus on objective indicators of accomplishment.

While the individual components of the model can be believed to work alone to create wellbeing impacts, they regularly cooperate, associating with conveying an extent of results, which in blend offers well-being sway. Hence, as a model, PERMA offers an extent of parts and levels of engagement that may make well-being.

METHOD

The study comprised of two steps, in step I translation of the PERMA profiler into target language (Urdu) to source language (English) was carried out . While linguistic validation of PERMA profiler was conducted in step II.

Translation of the PERMA profiler

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Translation of the PERMA profiler

Translation of PERMA profiler (Butler & Kern (2015) into the Urdu language by using standardized forward-backward translation procedure (Mapi, 2008) was carried out for the academic purpose. Permission from the author for the translation of the profiler was sought. After the permission was granted, the translation process was carried out by following the below-mentioned steps.

Forward translation

The first step in scale translation was forward translation which included a translation of the scale from its source language (English) to the target language (Urdu). The scale was given to two bilingual experts for forwarding translation of the scale. The first bilingual expert was an assistant professor of psychology and the second one was the Ph.D. scholar of psychology. Both translators were instructed to translate the scale in a conceptual and connotation manner rather than literal translations of the items. They tried to keep translations simple, concise, and easily comprehendible so that the general population of Pakistan can understand the language. The use of heavy and complex Urdu words and jargon was avoided and everyday usages of Urdu words were incorporated.

After the translations were done, both of the forward translations were compared. Translations were compared in terms of conceptual and connotation equality, celerity of speech, comprehensibility, and cultural linguistics. Inconsistencies between both translations were noted down and observations were made. Then both forward translations with observations were reviewed by a supervisor. There were few discrepancies related to sentence formation so the best-formatted sentences were selected. Some improvements were made with the help of the supervisor after discussion. After that final Urdu translation and English versions were matched for any missing words, mistakes, ambiguities, or discrepancies in both (English and Urdu) versions.

Backward translation

The aim of backward translation was to compare the source English version and translated English version in order to see discrepancies that were due to contextual differences.

After having the consensus on the final forwarded translation was given to two other bilingual experts for translating it into the original language (English). These translators were not the same who have done the forward translation and they were blind to the original scale. The first translator was an assistant professor of English literature and the second translator was a lecturer of psychology. The translations obtained were then reviewed by the researcher and the supervisor in order to achieve similarity of expression between original and backward translation. Both translations were compared. Discrepancies between these two back-translated versions were checked for all items and those items were selected which successfully convey the precise meaning of items. After deciding on one backward translated version, it was compared with the original scale. No major discrepancies were found between the final backward translation and the original scale. Both were conveying the same meaning and expression. It was ensured that the translated or target language version of scale should present the same concepts as in the original or source language version.

Review and scrutiny

After final changes in scales, proof reading and grammatical analysis were done. An expert with having master's degree in Urdu language and literature was consulted for the grammatical and language structure of items. No major discrepancies were identified in reviewed and scrutinized scale.

Try Out. The purpose of the try out was to establish the understanding and comprehensibility of the translated versions of the profiler. A continent sample of 30 participants was recruited with the age ranged between 18 to 26 years for the tryout. These individuals were both men and women. Gender was equally distributed.

Participants were approached and briefed about the purpose and nature of the study. The original (English) version of the scale was distributed among them after taking their written consent. Participants were instructed to underline any ambiguity if they found it during the response. After the interval of one week, the translated (Urdu) versions of the scales were again given to the same participants who responded to the original version of the scales. The participants did not report any major problem regarding translations. All translated items were fine to them. They understood the conceptual meaning of each item. No ambiguities were found.

However for the statistical evaluation of the scale, Pearson product-moment correlation analysis was employed to see the correlation between the items of both original and translated versions of the scales. The correlation coefficients of each statement were between the range of .75 to .94 while Cronbach's alphas of English and Urdu versions for PERMA profiler were .78 and .81 respectively.

Validation of the PERMA Profiler

This step involved the validation of the measure including determining the stringent psychometric properties i.e., reliability and validity (convergent and discriminant). Moreover, the PERMA profiler was also validated across the groups of music and non-music students.

Sample

It is for the most part acknowledged that the larger the example size is better to validate the measure. However, the sample was determined according to the criteria of 10:1 (10 cases per item) (Tabachnick & Fiddell, 2017). For the empirical evaluation 600 students including both 300 music and 300 non-music students of graduate or postgraduate level. These 600 students were 312 men and 288 women with age range of 18-26 years (M = 23.18, SD = 2.14). The sample was purposely drawn from different institutes of Punjab, Pakistan.

RESULTS

Confirmatory factor analysis was carried out on 15 items with 11 point scale to determine the factor structure of the indigenous scale. Structural equation model (SEM) was employed to validate the factor structure of the PERMA profiler using AMOS (Analysis of moment structure) version 24.0.PERMA profiler consisted of five sub-factors, labeled as positive emotions, engagement, relationship, meaning, and accomplishment. The model fit indices of the tested model is presented in table 1.

Table 1 Fit Indices of Confirmatory Factor Analysis for PERMA profiler.

Model	χ^2	*df*	χ^2/df	*GFI*	*CFI*	*NNFI*	*RMSEA*	*SRMR*
Initial Model	598.74	157	3.81	.88	.84	.80	.10	.09
Model Fit (First Order)	315.35	154	2.04	.96	94	.92.	.05	.05
Model Fit (Second Order)	332.22	164	2.03	.96	.94	.92	.05	.05

Note. *N*=600, All change in chi square values are computed relative to model, χ^2 >.05, GFI= Goodness of fit index, CFI=comparative fit index, NNFI = non-normed fit index; RMSEA=root mean square error of approximation, SRMR=Standardized root mean square, $\Delta\chi^2$ = chi square change.

The table 1 showed the fit indices for the PERMA profiler. The absolute fit for first and second-order confirmatory factor analysis for PERMA profiler were χ^2 (154) = 315.35, $p < .05$ and χ^2 (164) = 332.22, $p < .05$ respectively. The fit index of the absolute model fit indicated the evidence of poor fit of the initial model. However, theorists (Hair et al. 2010) argued that the chi-square test is sensitive to the size of the sample and the number of parameters to be estimated in a model. So, the investigators recommend catering the other several indices including (GFI, CFI, NNFI, RMSEA, SRMR) for the evaluation of the model fit. Hu and Bentler (1999) recommend the criteria of relative indices, where χ^2/df should be in between 0 and 3, RMSEA and SRMR values should be .08 or lesser and CFI, NNFI, and GFI values of .9 or higher are considered as good. The estimates of the model fit were not good enough as per the standard criteria of the descriptive measures of the fit.

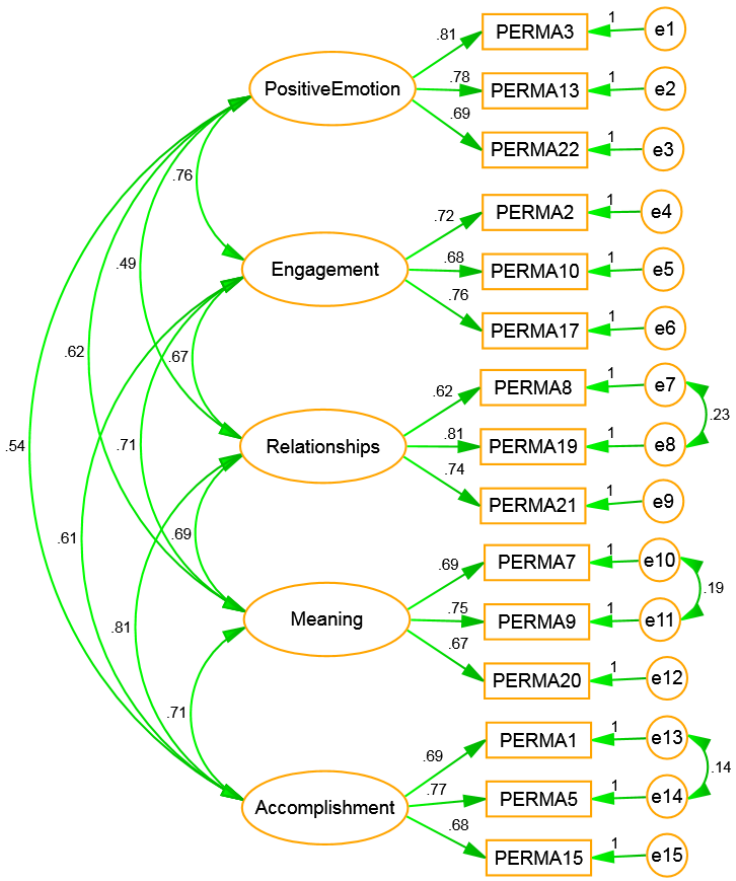
So, the model modification method was started and covariance was drawn between the error terms of indicators of the latent factors of the PERMA profiler. The items were similar in term of the context of the overall construct (Kenny 2012). Tomás and Oliver (1999) argued that that the covariance between errors terms can be legitimately drawn across the error terms of the indicators within the latent factors in survey-based research. So, only that covariance was drawn which chi-square value change was 4.0 or greater (Arbuckle, 2012). So, after this exercise the indices of absolute and relative fit (GFI, CFI, NFI, and RMSEA) were compared. The RMSEA and SRMR for the model fit after drawing covariance was .05 and .05 respectively. Whereas

the GFI, CFI and NNFI values were .96 .94, .92 respectively for first and second-order models. Hence, these indices were fit enough to generalize the model on the tested data.

Figure 1

First Order Confirmatory Factor Analysis PERMA Profiler.

Music Students



Non-Music Students

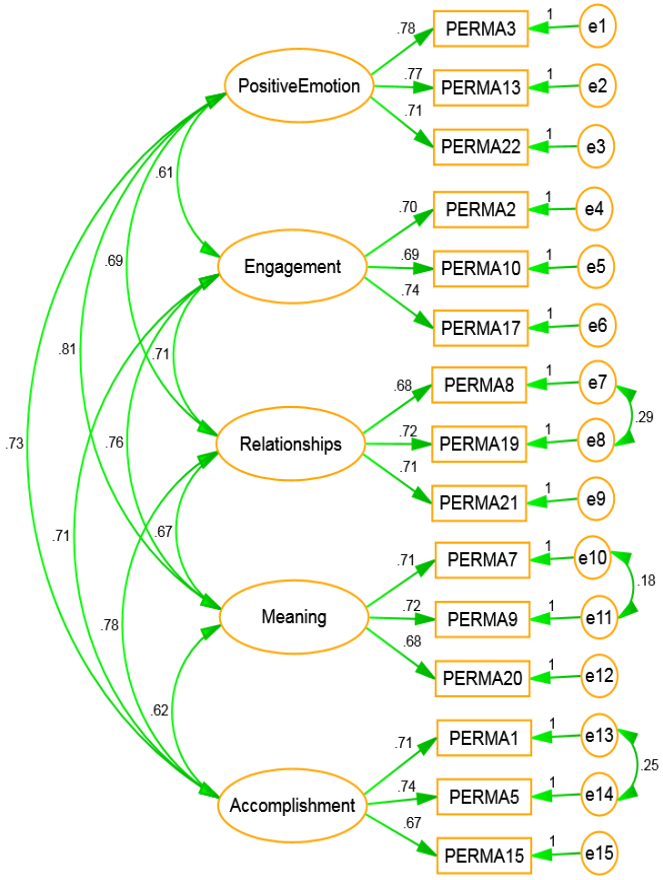


Table 2 First order CFA for PERMA Profiler.

Factors		Music					Non-Music			
		ω	*AVE*	MSV	λ		ω	*AVE*	*MSV*	λ
Positive Emotions		.81	.58	.57			.80	.57	.58	
PERMA3					.811					.782
PERMA13					.782					.771
PERMA22					.693					.712
Engagement		.76	.52	.58			.75	.51	.58	
PERMA2					.721					.701
PERMA10					.683					.691
PERMA17					.762					.742
Relationships		.77	.53	.66			.76	.50	.66	
PERMA8					.623					.694
PERMA19					.813					.721
PERMA21					.741					.712
Meaning		.75	.50	.50			.75	.49	.50	
PERMA7					.691					.711
PERMA9					.752					.723
PERMA20					.673					.682
Accomplishment		.76	.51	.66			.74	.50	.66	
PERMA1					.691					.711
PERMA5					.773					.742
PERMA15					.682					.673

Note. ω = McDonald's reliability, AVE = Average variance extracted, MSV = maximum shared variance λ (lambda) = standardized factor loading ≥ .7,

To determine the psychometric properties of PERMA profiler, confirmatory factor analysis (CFA) was employed to assess reliability, convergent validity, and discriminant the validity of the profiler. As shown in table 1, McDonald's reliability coefficient and average variance extracted (AVE) values were greater than the criteria of 0.7 and 0.50 respectively (Hair et al. 2015; Henseler, Hubona, & Ray 2016).

To assess convergent validity, factor loadings of scales items on their respective constructs were examined. All item's loadings were above the minimum threshold value of 0.7 (Hair et. al., 2010). The percentage of variance explained of factors positive emotions, engagement, relationship, meaning, and accomplishment were 58, 52, 53, 50, and 51 respectively for music students. However, the percentage of the variance for non-music students explained by each factor was 57, 51, 50, 50, and 50 respectively. Whereas the McDonald's reliability coefficients were ranging from .75 to .81 for music students while the reliability range for the no- music students was ranging from .74 to .80.

Table 3 Descriptive Statistic and Fornell-Larcker Criterion for the Factors of PERMA profiler.

Factors	*K*	*M(SD)*	*M(SD)*	Positive Emotions	Engagement	Relationships	Meani
Positive Emotions	3	19.90(5.35)	20.13(5.57)	**0.762**			
				0.754			
Engagement	3	20.71(5.07)	21.00(4.95)	**0.760**	**0.721**		
				0.760	0.710		
Relationships	3	18.79(5.53)	19.35(5.79)	**0.490**	**0.670**	**0.728**	
				0.490	0.670	0.704	
Meaning	3	18.59(5.87)	18.85(5.96)	**0.620**	**0.710**	**0.690**	**0.704**
				0.620	0.710	0.690	0.704
Accomplishment	3	19.51(5.72)	19.95(5.66)	**0.540**	**0.610**	**0.810**	**0.710**
				0.540	0.610	0.810	0.710

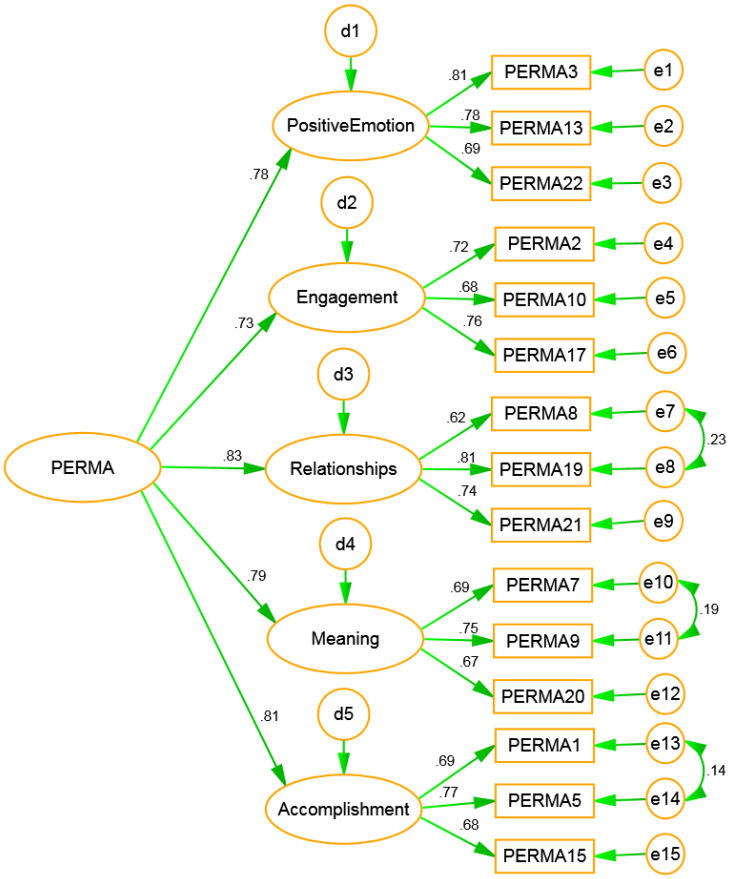
Note. k = number of items, M = mean, SD = standard deviation bold = music, unbold = non-music.

Discriminant validity was tested in two different ways (Henseler, Hubona, and Ray 2016; Voorhees et al. 2016). First, the square root of average variance extracted AVE values for each scale should be greater than the construct's a respective correlation with all other factors (Fornell and Larcker 1981) (see Table 3). Secondly, the average variance of a factor should be greater than the variance which is shared with all other factors means the average variance (AVE) extracted should be greater than maximum shared variance (MSV) (Hair et. al., 2010).

But the evidence of discriminant validity resulted in poor discriminant validity. Investigators often suggested going for second-order evaluation of the constructs (Gaskin, 2015; Hair, Anderson, Tatham, & Black, 2010). So, second-order confirmatory factor analysis was carried out on all constructs of PERMA. (see figure 2)

Figure 2 Second Order Confirmatory Factor Analysis PERMA Profiler.

Music Students



Non-Music Students

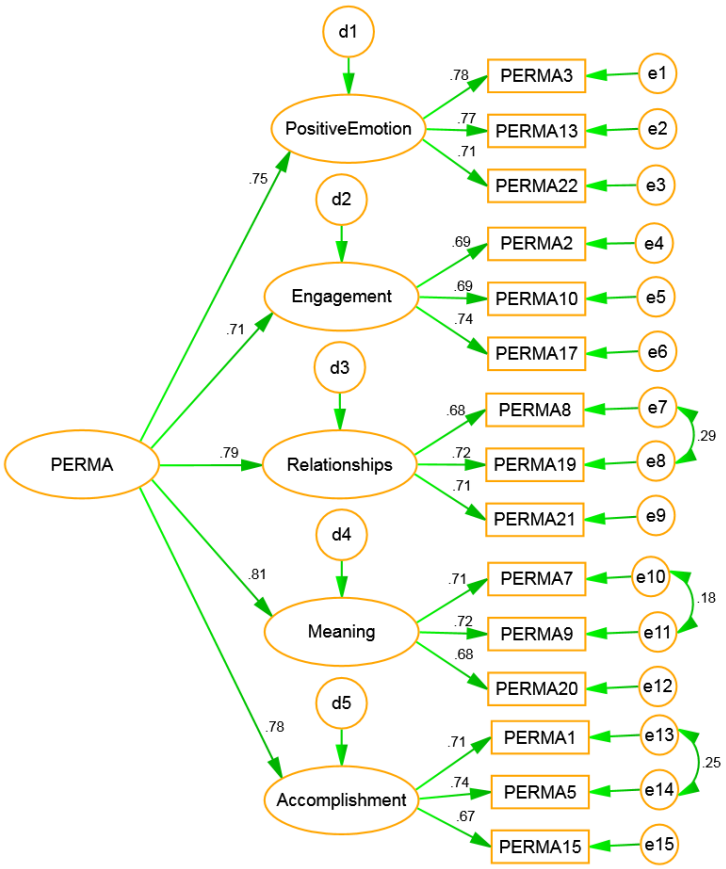


Table 4 Second order CFA for PERMA Profiler.

Factors		Music				Non-Music		
		Ω	*AVE*	λ		ω	*AVE*	λ
Flourish		.89	.62			.88	.59	
Positive Emotions				.781				.752
Engagement				.728				.713
Relationships				.832				.787
Meaning				.786				.814
Accomplishment				.809				.778

Note. ω = McDonald's reliability, AVE = Average variance extracted, MSV = maximum shared variance λ (lambda) = standardized factor loading ≥ .7,

Psychometric evaluation of the second-order constructs turned in to good reliability, and convergent validity estimates of the factors. As shown in table 2, ω = McDonald's reliability coefficient and average variance extracted (AVE) values were above the cutoff values of 0.7 and 0.5 respectively (Henseler, Hubona, & Ray 2016; Hair et al. 2010).

To determine convergent validity, factor loadings of scale items on their respective constructs were also examined. All factor loadings of the items were above the threshold value of 0.7 (Hair et. al., 2010). The percentage of variance explained by all factors of the PERMA profiler was 62 percent of the variance for the music students. While for non-music students, the factors were accounted for 59 percent of the variance. Whereas the reliability coefficients i.e., composite reliabilities were .89 and .88 for music and non-music students.

Measurement invariance for PERMA profiler

Measurement invariance test was also applied to assess the generalizability of the measure across two different populations i.e., music and non-music. The purpose of measurement invariance was to assess that whether an instrument measure is interpreted conceptually or contextually in a similar fashion by participants across different groups (Byrne & van de Vijver, 2010).

Measurement invariance of a measure is all about the degree to which parameters encompassing the measurement are homogeneous across different groups (Byrne, 2008) and it is determined at three stages, at the first stage weak (invariance of factor loadings also called matric invariance including configural invariance) is established. While at the second stage, strong invariance (factor loadings of the items and intercepts invariance i.e., matric and scalar invariance) is determined while at the last stage, strict invariance (invariance of factor loadings, mean intercepts, factor covariance, and error variance invariance) is established. Invariance of the measures can also be categorized in full and partial measurement invariance where full-included (configural, matric, scalar, factor variance-covariance, and error variance invariance). Whereas partial invariance accounted for configural, metric, and

scalar invariance across groups (Hair et al. 2010). Evaluation of the measurement invariance involves a series of a sequential set of steps of nested models that typically begun with the establishment of a well-fitting baseline model (unconstrained configural model) (see table 5).

Table 5 Testing for the Strict/Full Measurement Invariance of PERMA Profiler

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*CFI*	ΔCFI	*RMSEA*	*SRMR*
Unconstrained (*First Order*)	230.12	77	-		.94	-	.063	.054
Configural Invariance	315.35	154	85.23	77	.942	.002	.051	.059
Matric Invariance	327.23	169	11.8	15	.939	-.003	.062	.057
Scalar Invariance	348.18	184	20.95	15	.941	.002	.071	.064
Factor Covariance Invariance	367.41	197	19.23	13	.936	.005	.069	.061
Error Variance Invariance	389.08	212	21.67	15	.940	.004	.064	.059.
Unconstrained (*Second Order*)	235.89	82	-		.94	-	.063	.054
Configural Invariance	332.22	164	96.33	82	.941	.001	.052	.058
Matric Invariance	354.31	179	22.09	15	.940	-.001	.059	.052
Scalar Invariance	375.91	194	21.60	15	.941	.001	.061	.059
Factor Covariance Invariance	-	-	-	-	-	-	-	-
Error Variance Invariance	404.25	214	28.34	20	.943	.002	.054	.051

Note. CFI=comparative fit index,; RMSEA=root mean square error of approximation, SRMR=Standardized root mean square, $\Delta\chi^2$ = chi square change, Δdf= degree of freedom change, ΔCFI= CFI=comparative fit index..

In the evaluation of measurement invariance of a measure, homogeneity of the parameters of the constrained models across different groups is compared. This procedure of measurement invariance comprises evaluation of the fit series of progressively constrained models against a preceding constrained model. The constraints on the nested model (depending on the type of invariance) are successively added and then models are progressively analyzed. For the evaluation of the comparison of the nested models which are

constrained, theorists suggested conducting the likelihood ratio test (also known as the chi-square test of difference). This chi-square difference value (delta chi-square) is distributed as chi-square, with degrees of freedom equal to the difference in degrees of freedom (delta degree of freedom). If the chi-square difference test is statistically non-significant (p>.05), in the contrast of two nested models, it suggests that the two models are invariant across different groups (Hair et al. 2010).

However, the chi-square test is sensitive to the sample size, number of parameters to be estimated, and non-normality of the distribution (Hair, Anderson, Tatham, & Black, 1999). Cheung and Rensvold (2002) suggested a robust criterion for the evaluation of invariance investigation, the change in cumulative fit index (CFI) (delta CFI), to determine whether the models compared are invariant or not. If the change in CFI is 0.01 or less, it is considered that all equal constrained specified for the nested models are acceptable. In the same vein, when there is a change in CFI greater than 0.01 across two nested models, the most restrictive model does not invariant.

In the first stage unconstrained model was compared with the well-fitted multi-group (constrained model). Which depicted that the structure of factor was invariant across the music and non-music students. Test of invariance of the configural model where $\Delta\chi^2 = 85.23$ with $\Delta df = 77$ at $p>.05$, ΔCFI was .002 and $\Delta\chi^2 = 96.33$ with $\Delta df = 82$ at $p>.05$, ΔCFI was .001 for first and second-order constructs respectively. So, it is concluded that the number of latent factors and the structure of factor loadings of the items of PERMA profiler was similar across the different groups i.e., music and non-music students. Consequently, the findings were validating the configural invariance of the measurement model and allowed the determination for further stringent invariant models i.e., matric, scalar, factor variance, and error variance invariances.

After the establishment of the configural invariance, the most important test of invariance was the analysis of metric invariance, i.e. an equal factor loadings. As it can be seen when the factor loadings of PERMA profiler are equally constrained across both groups i.e., music and non-music, the differences in the ΔCFI between the configural model and the constrained model (matric) was not exceeded 0.01. Moreover the $\Delta\chi^2 = 11.80$ with $\Delta df = 15$ at $p>.05$ and $\Delta\chi^2 = 22.09$ with $\Delta df = 15$ at $p>.05$ for first and second-order constructs respectively were also indicating the establishment of matric invariance.

At the third stage invariance of mean and intercept (scalar invariance) were investigated. Equality of mean and intercept (scalar invariance) is considered as the most stringent test for measurement invariance, in which means and intercepts for the latent factors are compared to be equal across groups. The findings indicated that scalar invariance was established; the ΔCFI of both constrained models i.e., (matric and scalar) also confirmed a considerable improvement with the change of .002 and .001 for first and second-order constructs. While the estimates of scalar invariances for both level constructs (first and second) were $\Delta\chi^2 = 20.95$ with $\Delta df = 15$ at $p>.05$ and $\Delta\chi^2 = 21.60$

with Δdf =15 at p>.05 respectively, were also indicating the homogeneity of means and intercept across music and non-music students.

Factor variance across both groups was also tested, which indicated that both constrained models i.e., scalar and factor covariance were invariant across both groups (music and non-music) for first-order construct, as ΔCFI was .005 and the $\Delta\chi^2 = 19.23$ with Δdf =13 at p>.05. While factor covariance invariance was not investigated for the second order construct due to the absence of covariance among factors.

Moreover, the evidence of error variance invariance was also indicated the equivalence of error variance across both groups. Whereas the variance of constrained models of i.e., factor covariance and error the variance was also invariant for both first and second-order constructs, as ΔCFI was .004, $\Delta\chi^2 = 21.67$ with Δdf =*15* at p>.05 and ΔCFI was .002, $\Delta\chi^2 = 28.34$ with Δdf =20 at p>.05. Hence, the results showed the strict measurement invariance of the PERMA profiler for both i.e., first and second order constructs.

DISCUSSION

PERMA profiler is comprised of five distinctive factors First factor is labeled as *a positive effect* which included three items. The second factor labeled as *engagement* included three items. The third factor labeled as *relationships* included three items. The fourth factor was labeled as *meaning* included three items. While the last factor labeled as *accomplishment* also included three items (Butler & Kern, 2015).

PERMA the profiler was linguistically validated across music and non-music students. Further, the psychometric evolution of the PERMA profiler was carried out which turned into excellent reliability and validity estimates for the first and second-order constructs. McDonald's reliability (omega coefficient) was used to determine the internal consistency of PERMA profiler. Hayes and Coutts (2020) argued that methodologists have warned that Cronbach's alpha (α) is not an optimal coefficient of internal reliability. While the use of McDonald's omega (ω) as a measure of reliability is more optimal for confirmatory factor analysis.

While the evidence of validity, i.e., average variance extracted (AVE) for convergent validity ended up with excellent estimates. But maximum shared variance (MSV) for discriminant validity, were not fall within the acceptable ranges as suggested by (Hire et al., 2010). Moreover, the Fornell and Larcker criteria were also taken into account while determining the discriminant validity of the scale (Fornell & Larcker 1981).). The evidence of discriminant validity resulted in poor discriminant validity. So, investigators often suggested going for second-order evolution of the constructs (Gaskin, 2015; Hair, Anderson, Tatham, & Black, 2010). Then, second-order evolution of the constructs were carried out and the findings were supported, as the estimates of McDonald's reliability and average variance extracted (AVE) were good enough for the second-order construct of the PERMA profiler.

Further, measurement invariance with strict invariance including (configural, factor loadings, mean intercepts, factor covariance, and error variance invariances) was also established for first and second-order constructs (Hair et al. 2010). The findings of measurement invariance of strict invariance were also supported with excellent estimates. Hence, it was concluded that PERMA profiler is invariant at all standards of measurement invariance across music and non-music students.

CONCLUSION

The linguistic validation of the PERMA profiler for the first and second order-constructs ended up with excellent psychometric estimates for both music and non-music students. While measurement invariance test also revealed that the measure was invariant at all aspects of measurement invariance i.e., (configural, metric, scalar, factor covariance and error variance) across both groups for first, second and third-order constructs. Hence, the evidence shows that the Urdu version of PERMA profiler- can be used in future studies in Pakistan and also in other Urdu speaking populations.

LIMITATIONS

The PERMA profiler has also been verified only for music and non-music students only. Further studies including musicians and professionals from different backgrounds as well as vocalists or composers are highly recommended. Finally, the small sample size prevented establishing norms for the scale to make it psychometrically stronger i.e., the establishment of norms. Future research using the Urdu version of the PERMA profiler should be carried out with a di-verse age range and a larger sample. Moreover, psychometric properties of PERMA profiler can be established across different demographic variables such as age education, gender, and so on.

REFERENCES

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student Engagement With School: Critical Conceptual And Methodological Issues Of The Construct. Psychology In The Schools, 45(5), 369-386.

Arbuckle, J. L. (2012). IBM. SPSS. AMOS. User's Guide. IBM Corp

Butler, J., & Kern, M. L. (2016). The PERMA-Profiler: A Brief Multidimensional Measure Of Flourishing. International Journal Of Wellbeing, 6(3), 1–48.

Byrne, B. (2008). Testing For Multigroup Equivalence Of A Measuring Instrument: A Walk Through The Process. Psicothema, 20(4), 872–882.

Byrne, B. M., & Van De Vijver, F. (2010). Testing For Measurement And Structural Equivalence In Large-Scale Cross-Cultural Studies: Addressing The Issue Of Nonequivalence. International Journal Of Testing, 10(2), 107–132.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating Goodness-Of-Fit Indexes For Testing Measurement Invariance. Structural Equation Modeling, 9(2), 233–255.

Csikszentmihalyi, M., & Csikzentmihaly, M. (1990). Flow: The Psychology Of Optimal Experience (Vol. 1990). New York: Harper & Row.

Csikszentmihalyi, Mihaly. (1990). Flow: The Psychology Of Optimal Experience. Journal Of Leisure Research, 24(1), Pp. 93–94

Custodero, L. A. (2002). Seeking Challenge, Finding Skill: Flow Experience And Music Education. Arts Education Policy Review, 103(3), 3-9.

Deci, E. L., & Ryan, R. M. (2000). The" What" And" Why" Of Goal Pursuits: Human Needs And The Self-Determination Of Behavior. Psychological Inquiry, 11(4), 227-268.

Diener, E., & Seligman, M. E. (2002). Very Happy People. Psychological Science, 13(1), 81-84.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact Of Enhancing Students' Social And Emotional Learning: A Meta-Analysis Of School- Based Universal Interventions. Child Development, 82(1), 405-432.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models With Unobservable Variables And Measurement Error. Journal Of Marketing Research, 18 (1), 39–50.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models With Unobservable Variables And Measurement Error. Journal Of Marketing Research, 18 (1), 39–50.

Gaskin, J. (2015), SEM Boot Camp 2015 Day 2-CFA-Afternoon, Gaskination's Statistics. Retrieved From Http://Youtube.Com/Gaskination

Hair, J. D., Anderson, R. E., Tatham, R. L., & Black, W. C. (2010). Multivariate Date Analysis (7^{th}. Ed.). New Jersey: Prentice Hall.

Hayes, A. F., & Coutts, J. J. (2020). Use Omega Rather Than Cronbach's Alpha For Estimating Reliability. But…. Communication Methods And Measures, 14(1), 1-24. Doi:10.1080/19312458.2020.1718629

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS Path Modeling In New Technology Research: Updated Guidelines. Industrial Management And Data Systems116 (1), 2–20.

Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria For Fit Indexes In Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1-55.

Huelsman, T. J., Nemanick Jr, R. C., & Munz, D. C. (1998). Scales To Measure Four Dimensions Of Dispositional Mood: Positive Energy, Tiredness, Negative Activation, And Relaxation. Educational And Psychological Measurement, 58(5), 804-819.

Kenny, D. A. (2011). Correlated Errors. Respecification Of Latent Variable Model Retrieved From Http://Davidakenny.Net/Cm/Respec.Htm

Mapi Research Institute (2008). Mapi Guidelines For Translation. Retrieved From Www.Mapigroup.Com/

Mcferran, K. (2010). Adolescents, Music And Music Therapy: Methods And Techniques For Clinicians, Educators And Students. Jessica Kingsley Publishers.

Nemanick Jr, R. C., & Munz, D. C. (1994). Measuring The Poles Of Negative And Positive Mood Using The Positive Affect Negative Affect Schedule And Activation Deactivation Adjective Check List. Psychological Reports, 74(1), 195-199.

Noble, T., & Mcgrath, H. (2008). The Positive Educational Practices Framework: A Tool For Facilitating The Work Of Educational Psychologists In Promoting Pupil Wellbeing. Educational And Child Psychology, 25(2), 119–134.

Rickson, D., & Mcferran, K. S. (2014). Creating Music Cultures In The Schools. Barcelona Publishers.

Rowe, J. W., & Kahn, R. L. (1987). Human Aging: Usual And Successful. Science, 237(4811), 143-149.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement Of Work Engagement With A Short Questionnaire: A Cross-National Study. Educational And Psychological Measurement, 66(4), 701-716.

Seligman, M. (2010). Flourish: Positive Psychology And Positive Interventions. The Tanner Lectures On Human Values (Pp. 1–243). Ann Arbor: University Of Michigan Press.

Seligman, M. (2018). PERMA And The Building Blocks Of Well-Being. The Journal Of Positive Psychology, 13(4), 333-335.

Seligman, M. E. P. (2011). Flourish: A Visionary New Understanding Of Happiness And Well- Being. New York, NY: Free Press

Seligman, M. E. P. (2011). Flourish: A Visionary New Understanding Of Happiness And Well- Being. New York, NY: Free Press

Sheldon, K. M., & Lyubomirsky, S. (2006). Achieving Sustainable Gains In Happiness: Change Your Actions, Not Your Circumstances. Journal Of Happiness Studies, 7(1), 55-86.

Steger, M. F. (2012). Making Meaning In Life. Psychological Inquiry, 23(4), 381-385.

Tabachnick, B. G., & Fiddell, L. S. (2013). Using Multivariate Statistics (6th Ed.). New York: Pearson Education, Inc.

Tomás, J. M., & Oliver, A. (1999). Rosenberg's Self-Esteem Scale: Two Factors Or Method Effects. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 84-98..

Voorhees, C. M., Michael K. B., Roger C., & Edward Ramirez. (2016). Discriminant Validity Testing In Marketing: An Analysis, Causes For Concern, And Proposed Remedies. Journal Of The Academy Of Marketing Science 44(1), 119–34

Watson, D., & Tellegen, A. (1985). Toward A Consensual Structure Of Mood. Psychological Bulletin, 98(2), 219–235.

Webster, F. (2014). Theories Of The Information Society. Routledge.