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Validation of the Philippine Version of the Relationship and Motivation Scales (REMO-P)

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The current study concerns the validation of a Philippine version of the Relationships and Motivation Scales (REMO) (Raufelder, Drury, Jagenow, Hoferichter, & Bukowski, 2013) – the REMO-P. The REMO scales measure perceptions of peers (P-REMO) and teachers (T-REMO) as source of scholastic motivation. A total of 1014 students aged 13-16 years (M_{age}=13.85, *SD*= 0.77; 52.8% girls) from secondary schools in the Philippines participated in this study. To explore the underlying factor structure of the REMO items a two-stage approach was used with structural equation modeling: (1) exploratory factor analyses (EFA) and (2) confirmatory factor analyses (CFA). In accordance with the original REMO scales, factor analyses supported a three-factor solution for the Peer-REMO-P scale and a two-factor solution for the Teacher-REMO-P scale with acceptable internal consistency for the 31 items: (1a) Peers as Positive Motivators (PPM), (2a) Peers as Negative Motivators (PNM), (3a) Individual Learning Behavior (ILB), and (1b) Teachers as Positive Motivators (TPM), (2b) Teachers as Negative Motivators (TNM). Overall, factorial, construct and criterion validity of the Philippine version were sufficient. Students' scores on the REMO-P were significantly associated with different school-related constructs.

Results indicate that REMO-P is a robust measure for use in research on achievement and motivation in Philippine schools.

Keywords: motivation, social relationships, teacher-student relationship, student-student relationship, adolescence, Philippines

Human behavior can be understood as a function of the interaction of person and environment (Lewin, 1963). Hence, motivation emerges from the constant interaction of the individual with his/her social environment, while the environmental context determines values, beliefs, and attitudes (cf. Bronfenbrenner, 1979). In the school context, social interactions are powerful factors affecting different academic aspects including students' motivation (Wentzel, Battle, Russel & Looney 2010). To investigate motivational processes in educational research, the focus has mainly been emphasized on individual factors as measured by performance and mastery goals of students. Although social factors essentially contribute to motivation, social goals that include the motivational role of the social environment have been scarce in motivational research. Social goals are essentially important when conducting research among collectivistic societies where social relationships are a driving force for motivation (King & McInerny, 2012)

To address this gap, Raufelder and colleagues (2013) developed the Relationship and Motivation (REMO) Scales to be able to disentangle the role of peers and teachers in motivational processes of students. To our knowledge there has been no such scale explicitly measuring the perception of students' socio-motivational relationships in schools. The scale consists of three subscales portraying the role of peers as source of motivation, namely peers as positive motivators (PPM), peers as negative motivators (PNM), and individual learning behavior (ILB) as well as of two subscales aiming at the role of teachers as source of motivation, namely teachers as positive motivators (TPM), and teachers as negative motivators (TNM). This scale was originally validated for secondary school students with a large sample from Germany (Raufelder, Drury, Jagenow, Hoferichter, & Bukowski, 2013) and has furthermore shown good reliabilities in students' samples from Canada, Russia, as well as Turkey.

As the quality of human behavior and psychological functioning may vary across countries and cultures (Hofstede, 2001; Lerner, 2001; Pekrun, 2006), it is important to provide reliable measures that help illuminate the role of socio-motivational relationships and serve as tool to compare cross-national differences. The current study aims at validating the REMO Scales in Filipino with a large sample of Filipino secondary school students from Manila, Philippines.

Being able to measure socio-motivational relationships in Philippine schools is particularly interesting as it provides insight into motivational processes of students from a collectivistic society. According to Hofstede, in collectivistic societies "people from birth onwards are integrated into strong, cohesive ingroups which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, 1991, p. 51). Hence, the self-image and consciousness of individuals socialized within collectivistic oriented societies is defined by "we" (Hofstede, 2011). Research in the Philippines is reflecting collectivistic characteristics such as cooperativeness, which constitutes a common feature of Filipinos (Bernardo, Zhang, & Callueng, 2002). In a comparative study of Australian and Philippine students, Liem and colleagues (2009) found that Filipinos showed higher preferences for collaboration and conformity in the classroom compared to Australians. In fact, the concept of "togetherness in common effort" (Elequin, 1974) as well as "shared identity and humanity" (Enriquez, 1992) accompanies daily life in the Philippines. Among Philippine students, besides parents, peers and teachers were identified as important motivational sources (Bernardo, Salanga, & Aguas, 2008). Positive relationships with peers and teachers have been mentioned as major facilitators of learning for students on their way to obtain a degree (Reyes & Galang, 2009). In this sense, students are motivated by their peers to become high achievers as well as by teachers who are viewed as authority figures (Bernardo et al., 2008).

The current study tackles the role of peers and teachers as motivational source for Filipino students by providing a reliable measure of socio-motivational relationships in school. The self-report measure consists of five dimensions namely, peers as positive motivators, peers as negative motivators, individual learning behavior, teachers as positive motivators,

and teachers as negative motivators. To validate REMO-P, all subscales were correlated with relevant school variables such as grade point average, school absence, hours spent at home for schoolwork, as well as contact with adviser.

METHOD

Participants

The sample consisted of 8th and 9th grade students between the age of 13 and 16 ($N = 1014$; $M_{age} = 13.85$; $SD = 0.77$) from public and private secondary schools in Metro Manila, Philippines. Of all students, 52.8% were girls ($n = 535$) and 47.2% boys ($n = 479$). In order to validate the scale and to conduct exploratory and confirmatory factor analyses with two separate samples, the sample was split randomly. Subsample 1 consisted of 527 students ($M_{age} = 13.85$; $SD = 0.77$; 53.5% girls ($n = 282$); 46.5% boys ($n = 245$)) and subsample 2 consisted of 487 students ($M_{age} = 13.87$; $SD = 0.78$; 52.0% girls ($n = 253$); 48.0% boys ($n = 234$)). This particular age group has been examined, because research has shown that students' motivation declines rapidly following the transition to secondary school, throughout the first three years of high school (Harter, 1996) and reaching its absolute minimum in grade nine (Eccles, Wigfield, & Schiefele, 1998; Watt, 2004; Zusho & Pintrich, 2001). Using convenience sampling, two private ($n = 611$) and two public ($n = 403$) secondary schools in Metro Manila voluntarily participated in the study.

Procedure

After receiving permission from school heads or principals to conduct the study, parents' consent was sought. The questionnaire was group administered in school. The researchers gave instructions to the participating students on how to complete the measures. The students were specifically informed that participation in the study was voluntary, that all their answers would be confidential, and that they were not obliged to answer all questions if they felt uncomfortable doing so. Students were asked to complete questionnaires assessing their perceived relationship with peers and teachers as source of motivation, as well as school-related constructs, such as

GPA, school absence, hours spent for school at home, and contact with adviser. The data was collected from July to September 2013.

Measures

Initially, all original 37 items of the REMO scales (Raufelder et al., 2013) were translated, back translated and adapted by professional translators.

Peer-REMO-P. Based on a set of exploratory analyses (see results) and in accordance with the original P-REMO scales three subscales were identified: (1) Peers as Positive Motivators (PPM) (8 items; e.g., "I make an effort at school when my friends motivate me.") (a = .82), (2) Peers as Negative Motivators (PNM) (5 items; e.g., "My friends encourage me to spend as little time as possible on schoolwork.") (a = .84), and (3) Individual Learning Behavior (ILB) (4 items; e.g., "When an exam is approaching, I prefer to study on my own.") (a = .67). Responses were scored on a 4-point Likert-scale ranging from "strongly disagree" to "strongly agree." The items were introduced as follows: "Please think about your peers in school. How much do you agree with the following statements?"

Teacher-REMO-P. Based on a set of exploratory analyses (see results) and in accordance with the original T-REMO scales, two subscales were identified: (1) Teachers as Positive Motivators (TPM) (6 items; e.g., "When a teacher notices that I have tried my best, I will try to give my best again in the future." (a = .81), (2) Teachers as Negative Motivators (TNM) (8 items; e.g., "When I think the teacher does not believe in me, I don't make an effort to do well.") (= .88). Responses were scored on a 4-point Likert-scale ranging from "strongly disagree" to "strongly agree." The items were introduced to the students with the following words: "Please think about your teachers in general. How much do you agree with the following statements?"

School-related variables. (1) Grade point average (GPA). We asked students for their grade point average (GPA) from their quarterly grades. GPA ranged from 5.00 (= *insufficient*) to 1.00 (*very good*). (2) School absence. To assess students' school absence during the preceding school

year, the participants were asked in accordance with the class record in which the absence is reported, how many days they missed school. Research indicates that students with high school truancy show less motivation, achievement and engagement at school (Bimler & Kirkland, 2001). (3) Hours spent for schoolwork at home. Students were asked how much time they spent for schoolwork at home to measure their school-related engagement at home. Studies have shown that the frequency of homework assignments has a positive effect on achievement as it raises the "time on task" (Trautwein, 2007; Trautwein, Köller, Bernhard, & Baumert, 2002). (4) Contact with adviser. Finally, students were asked the number of times they contacted their supervisor during the school year. Teachers deliver some guidance lessons on physical, emotional, and psychological needs of students at least once a week. The adviser is a class teacher likened to a coach or adviser. The adviser has the opportunity to approach students that the adviser feels need support academically or personally.

Statistical Analyses

A two-stage approach was used to explore the underlying factor structure of the REMO-P items via structural equation modeling (SEM) in Mplus version 7.0 (Muthén & Muthén, 1998-2013) and maximum likelihood robust (MLR) estimation: (1) exploratory factor analyses (EFA) of subsample 1, and (2) confirmatory factor analyses (CFA) of subsample 2. Missing data patterns were considered with full information maximum likelihood (FIML) using Mplus version 7.0. Finally, to test the construct validity of REMO-P scores, the pattern of correlations of the socio-motivational concept with school-related measures with similar and/or related constructs was investigated.

RESULTS

Factorial validity

Exploratory Factor Analysis (EFA). In an initial methodological step, exploratory factor analyses with oblique promax rotation were conducted separately for the 21 peer items (P-REMO) and the 16 teacher items (T-

REMO) to extract the factors subsumed in the items using Mplus 7.0. To determine the number of factors to retain, the following criteria were used: (a) eigenvalues of the unrotated factors e" 2 (see Table 1), (b) scree plot (see Figure 1 and 2), (c) variance accounted for by unrotated factors e" 5% to reduce the risk of extracting too many minor factors (see below), (d) internally reliable factors (see Table 3), and (e) factors that indicate meaningful psychological constructs. In addition, internal consistency and reliability (Cronbach's Alpha and the split half reliability) of the scores, the re-test reliability, as well as skewness and kurtosis were examined (see Table 2). According to West, Finch and Curran (1995) skewness values below 2 and kurtosis values below 7 signify a normal distribution, implying that the REMO-P variables in the current sample show a normal distribution.

Table 1. Eigenvalues of the Unrotated factors

Peer-REMO Factors	Eigenvalue
1	3.931
2	2,789
3	2.040
Teacher-REMO Factors	**Eigenvalue**
1	4.853
2	3.297

Note: Eigenvalue > 2 are in boldface

Peer-REMO-P. A three-factor structure for the peer items best met the criteria for an adequate factor analytic solution and items with factor loadings e" .50. However, four items of the original 21 peer items had to be excluded due to low and/or cross factor-loadings (one item of PPM, one item of PNM and two items of ILB). The latent three-factor model for the remaining 17 P-REMO-P items showed a good fit ($\div 2_{(88)} = 242.58$, $p < .001$, *RMSEA* = .06 (.05-.07), *RMR* = .04). The final rotated component matrix for P-REMO-P (promax) with the 17 items is presented in Table 3. Eight items with factor loadings between 0.50 and 0.68 loaded on factor I (23.12% explained variance; PPM). Five items with factor loadings between 0.50 and 0.82 loaded on factor II (16.41% explained

Figure 1. Scree plot of the Peer-REMO-P. X-axis shows the amount of factors. Y-axis shows the eigenvaues.

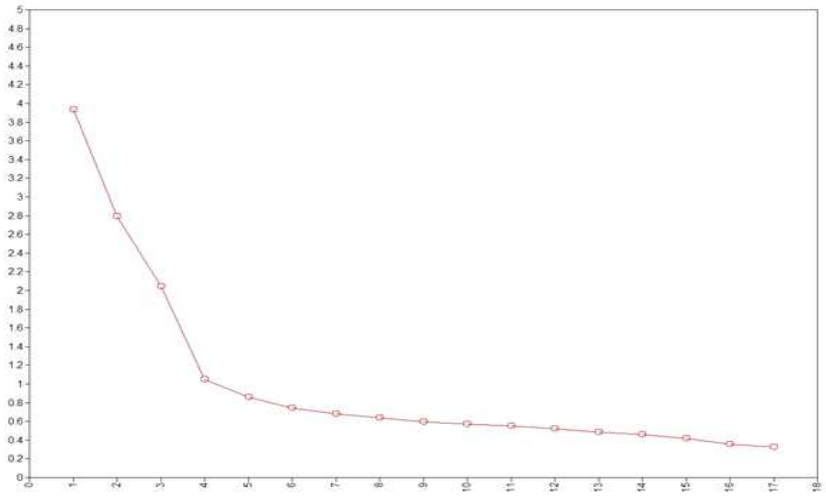

Figure 2. Scree plot of the Teacher-REMO-P. X-axis shows the amount of factors. Y-axis shows the eigenvaues.

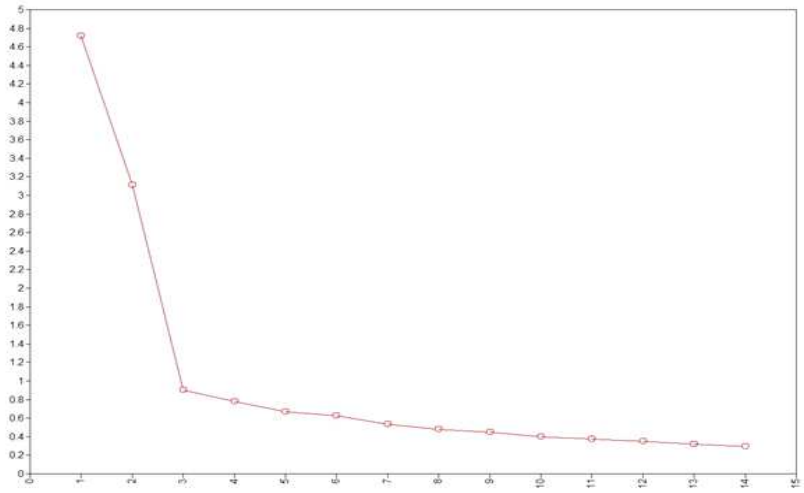

Table 2. Test Criteria of REMO-P

Subscale	No. of items	Example	á	Split-half Reliability	Re-test Reliability	Skewness (SE)	Kurto (SE)
PPM	08	When my friends learn I am also motivated to learn more.	.82	.72	.86	.55 (.08)	.42
PNM	05	My friends encourage me to spend as little time as possible on schoolwork.	.84	.73	.75	-1.15(.08)	1.03
ILB	.04	I never do my homework with friends, I always do it on my own.	.67	.64	.85	.10 (.08)	-.22
TPM	.06	When a teacher notice that I have tried my best I will try to give my best again in the future.	.81	.72 .78	1.15 (.08)	2.49	
TNM	.08	When I think the teacher does not believe in me, I don't make effor to do well.	.88	.79 .78	-.33 (.08)	-.33	

Note: N=1014; PPM = Peers as Positive Motivators PNM = Peersas Negative Motivators; ILB = Individual Learning Behavior; TPM = Teachers as Positive Motivators; TNM = Teachers as Negative Motivators.

variance; PNM). The final four items with factor loadings between 0.55 and 0.80 loaded on factor III (12.0% explained variance; ILB).

Teacher-REMO-P. A two-factor structure for the teacher items best met the criteria for an adequate factor analytic solution and items with factor loadings e" .50. However, two of the original 16 teacher items had to be excluded due to low and/or cross factor-loadings (two items of TNM). The latent two-factor model for the remaining 14 REMO-P items showed a good fit ($\div 2_{(88)} = 242.58$, $p < .001$, $RMSEA = .06$ (.05-.07), $RMR = .04$). The final rotated component matrix for the 14 items of the T-REMO-P (promax) is presented in Table 1. Six items with factor loadings between 0.52 and 0.88 loaded on factor I (33.71% explained variance; TPM). Eight items with factor loadings between 0.52 and 0.77 loaded on factor II (22.24% explained variance; TNM).

Confirmatory Factor Analysis (CFA). In the second methodological step, confirmatory factor analyses were conducted for subsample 2 following a hypothesis testing approach to assess the validity of (1) the three-factor model of P-REMO-P and (2) the two-factor model of T-REMO-P. In order to confirm the factor structure accordingly, structural equation modeling (SEM) was used with Mplus. Preparing the SEM, parcels were built from the factor items randomly, due to three reasons: (1) the estimation of large numbers of items is likely to result in spurious correlations, (2) subsets of items from a large item pool tend to share specific sources of variance that may not be of primary interest, and (3) solutions from parcels of items provide a more stable solution than solutions from item-level data (Little, Cunningham, Shahar, & Widaman, 2002). Accordingly, PPM consists of three parcels, PNM and ILB of two parcels. Thereby, each factor was set as a covariate of every other factor in SEM (Figure 3). Similarly, TPM consist of two parcels and TNP of three parcels. Again, each factor was set as a covariate of every other factor (Figure 4). Model fit was estimated in Mplus using four primary fit indices as recommended by Hu and Bentler (1999): Chi-Square Test of Model Fit ($\div^2$), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI) and Standardized Root Mean Square Residuals (SRMR).

Figure 3. Confirmatory Structural Equation Model for the Peer-REMO-P items. Significant covariance are shown as unstandardized coefficients (first position) and standardized coefficients (second position), factor loadings shown as standardized coefficients, bold pathways are significant at $p<.05$*, $p<.01$** $p < .001$**; dotted pathways are not significant.

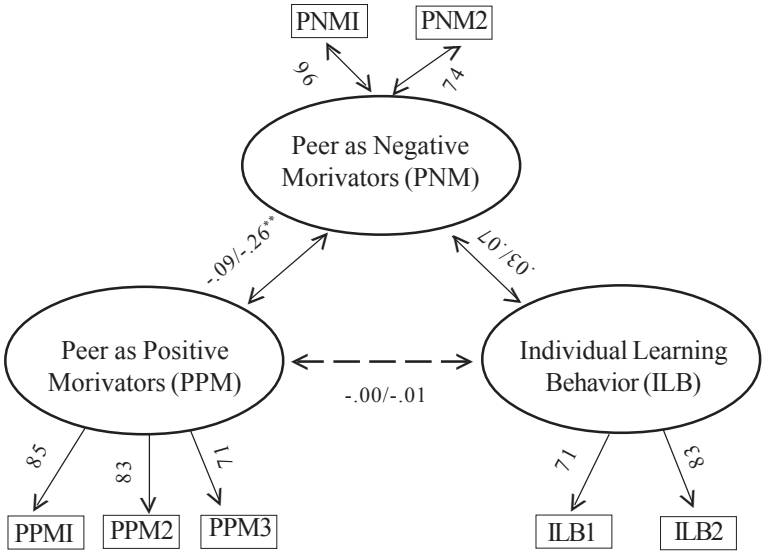

Figure 4. Confirmatory Structural Equation Model for the Teacher-REMO-P items. Significant covariance are shown as unstandardized coefficients (first position) and standardized coefficients (second position), factor loadings shown as standardized coefficients, bold pathways are significant at $p<.05$*, $p<.01$** $p < .001$**; dotted pathways are not significant.

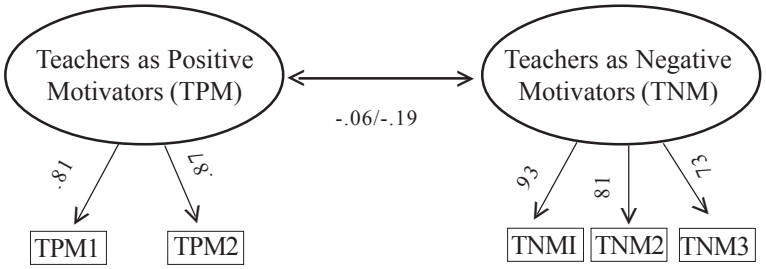

Table 3. *Rotated Component Matrix for REMO-P (Promax)*

Items Peer-REMO	F1	F2	F3
Peers as Positive Motivators (PPM)			
1. It is easier to do well in school when friends motivate me.	**.62**	-.08	.14
2. When my friends learn, I am also motivated to learn more.	**.66**	.04	.05
3. When my friends want to improve at school, I also want to do better.	**.68**	.15	-.08
4. I make an effort at school when my friends motivate me.	**.66**	-.04	.07
5. At school I try to make a similar effort to that of my friends.	**.57**	-.01	-.08
6. My friends and I motivate each other to make an effort at school.	**.60**	.13	-.05
7. Because of my friends, I try to make more of an effort at school	**.53**	-.04	.05
8. I will study harder for an exam when my friends tell methat they are also working hard.	**.50**	-.10	-.10
Peers as Negative Motivator (PNM)			
1. If my friends were not interested in school, I also would not make an effort.	.02	**-.73**	.05
2. My friends encourage me to spend as little time as possible on schoolwork.	.09	**-.63**	-.06
3. At times, I do not make an effort at school because my friends say that it is uncool to try.	-.05	**-.69**	-.07
4. If my friends were to say that good grades do not matter, I would study less.	-.09	**-.82**	.04
5. When my friends find school boring, I also tend to find school tiresome.	-.05	**-.70**	.03

Items Peer-REMO	F1	F2	F3
Individual Learning Behavior (ILB)			
1. I can learn better on my own as compared to when I work with others.	.05	-.11	**-.51**
2. When an exam is approaching, I prefer to study on my own.	.04	-.11	**-.61**
3. I never do my homework with friends, I always do it on my own.	-.02	.02	**-.58**
4. It is easier to succeed at school when you work on your own rather than with others.	-.08	-.02	**-.61**

Items Teacher-REMO	F1	F2
Teachers as Positive Motivators (TPM)		
1. When a teacher helps me, I try to do well in the subject	**.52**	.06
2. When a teacher takes her/his time to explain something to me, I will make more effort the next time.	**.73**	.09
3. When a teacher notices that I have tried my best, I will try to give my best again in the future.	**.71**	.06
4. I will make more of an effort in a subject when I think the teacher believes in me.	**.78**	-.04
5. A teacher's enthusiasm in a subject matter motivates me to learn more.	**.75**	.04
6. When a teacher likes me, I make more effort in the subject.	**.52**	-.12
Teachers as Negative Motivators (TNM)		
1. When I do not like a teacher, I am not interested in the subject.	-.01	**-.76**
2. When I think the teacher does not believe in me, I don't make an effort to do well.	-.08	**-.72**

Items Teacher-REMO	F1	F2
3. When I don't like a teacher, I get tired of the subject.	-.06	**-.75**
4. When a teacher doesn't notice that I am making an effort, I stop trying.	.00	**-.77**
5. If a teacher never gives me a good grade in a subject, I stop caring about how I do in that subject.	-.11	**-.70**
6. When a teacher does not try to help me, I usually give up.	-.11	**-.67**
7. When I think a teacher does not like me, I have trouble being inspired by the subject.	.17	**-.69**
8. When a teacher bores me, I do not learn anything at all.	.20	**-.52**

Note. Factor loadings e" .50 are in boldface.

Peer-REMO-P. The latent factor model for the P-REMO-P items demonstrated a good fit ($\div 2_{(11)} = 30.10$, $p < .001$, $CFI = .98$, $RMSEA = .06$ (.04-.09), $SRMR = .02$). Cronbach Alpha and the split half reliability of the scores, as well as skewness and kurtosis were subsequently examined (see Table 2).

In a next step, discriminant validity was tested by examining the confidence intervals (CI's) of the paired correlations among the latent variables (Torkzadeh, Koufteros, & Pflughoeft, 2003). If the confidence interval of the paired correlation does not include the value of 1, it provides evidence for discriminant validity (Torkzadeh et al., 2003). Accordingly, a 95 % confidence interval for the correlations between the latent P-REMO-P variables was conducted: PPM and PNM (*CI* -.14, -.05), PPM and ILB (*CI* .-05, .03), PNM and ILB (*CI* -.04, .07). The values of the correlations were low, providing further support for discriminant validity (Torkzadeh et al., 2003).

Teacher-REMO-P. The latent factor model for the T-REMO-P items demonstrated a good fit ($\div 2_{(4)} = 35.64$, $p < .001$, $CFI = .96$, $RMSEA = .06$ (.04-.08), $SRMR = .05$). Cronbach's Alpha and the split half reliability

of the scores, as well as skewness and kurtosis were subsequently examined (Table 2).

In a next step, discriminant validity was tested by examining the confidence intervals (CI's) of the paired correlations among the latent variables (Torkzadeh et al., 2003). If the confidence interval of the paired correlation does not include the value of 1, evidence for discriminant validity is given (Torkzadeh et al., 2003). Accordingly, we computed a 95 % confidence interval for the correlations between the latent T-REMO-P variables: TPM and TNM (*CI* -.10, -.02). The values of the correlations were low, providing further support for discriminant validity (Torkzadeh et al., 2003).

Construct and criterion validity

Correlations between student's responses on REMO-P and other school-related measures. To test the construct and criterion validity of REMO-P scores, the pattern of correlations of the focal concept with measures of similar and/or related constructs was investigated (Campbell et al., 1996). In detail, students' scores on the REMO-P subscales were correlated with school-related measures, such as GPA, school absence, hours spent for schoolwork at home and contact with adviser (Table 4). In general, scores on the subscales of REMO-P (except for ILB) showed a significant correlation with essential school-related variables, indicating a conceptual overlap between the scales and therefore providing evidence for convergent and criterion validity. Particularly, PPM and TPM were positively associated with GPA (PPM: $r = .12$, $p < .01$; TPM: $r = .07$, $p < .05$), whereas PNM (but not TNM) was in turn negatively associated with GPA ($r = –.09$, $p < .01$). Interestingly, both PPM and PNM were negatively associated with hours spent for schoolwork at home (PPM: $r = –.07$, $p < .05$; PNM: $r = –.07$, $p < .05$). This means that the more students (positively or negatively) rely on their peers as motivators, the less time they invest at home for schoolwork (an vice versa). Solely TNM was negatively associated with contact with adviser ($r = –.07$, $p < .05$). In contrast, there was no significant association between ILB and any school-related variable used in this study.

Table 4. Means, Standard Deviations, and Intercorrelations Between REMO-P Subscales and other School-related Measures

Measures	2	3	4	5	6	7	8	9	M
1. PM	-.18**	.02	.63**	-.03	.12**	.12**	-.078	-.01	1.84
2. PNM		-.03	-.32**	.58**	-.09**	-.04	-.07*	-.03	3.29
3. ILB		-	.17**	-.02	.01	-.01	.04	.03	2.22
4. TPM			-	-.16**	.07*	.11**	.00	.05	1.63
5. TNM					.00	-.04	-.12**	-.07*	2.91
6. GPA						.19**	-.24**	-.11**	3.36
7. SA							-21**	.01	1.10
8. HSS								.1288	1.65
9. CWA									.82

Note: All measures are standardized. PPM = Peers as Positive Motivators,; PNM = Peers as Negative Motivators; ILB = Individual Learning Behavior; TPM = Teachers as Positive Motivators; TNM =Teachers as Negative Motivators; TNM = Teachers as Negative Motivators; GPA = Grade point Average; SA = School Absence; HAS = Hours spend for school at home; CWA = Contact with Advisor

*$p < .05$, **$p < .01$, N - 104.

Interestingly, and in contrast to the correlation analyses of the original REMO scales (Raufelder et al, 2013), there was a significant association between PPM and PNM ($r = -.18$, $p < .01$) and no significant relation between both PPM and PNM with ILB.

DISCUSSION

The purpose of this study was to develop and validate a Philippine version of the Relationship and Motivation Scales (REMO), a self-report measure that can be employed to assess students' perceived relationships with their peers and teachers as source of scholastic motivation along five dimensions, including peers as positive motivators, peers as negative motivators, individual learning behavior, teachers as positive motivators, and teachers as negative motivators. Consistent with the factor structure of the original REMO scales, exploratory and confirmatory analyses revealed the hypothesized three factor structure of the Peer-REMO-P and the two factor structure of the Teacher-REMO-P scales. These findings were bolstered by correlation analyses with related/unrelated variables such as GPA, hours spent for schoolwork at home, school absence and contact with adviser, confirming construct validity of the REMO-P instrument.

REMO-P dimensionality

Overall, results suggest that REMO-P can elicit reliable and meaningful information from adolescent students about their perception of peers and teachers as source of scholastic motivation. Factor analyses supported a three-factor solution for the 17 peer items and the 14 teacher items with very good internal consistency. The three peer factors make a distinction between peers as positive motivators (PPM), peers as negative motivators (PNM), and individual learning behavior (ILB), whereas the two teacher factors distinguish between teachers as positive motivators (TPM), and teachers as negative motivators (TNM).

An interesting finding of the current study is the significance of negative correlations between the peer variables (PPM & PNM) as well as between teacher variables (TPM & TNM). Hence, the more students perceive

peers as positive motivators, the less they will perceive peers as negative motivators (and vice versa). Students clearly distinguish between the positive and negative motivational role of their peers, while students who depend on peers as positive motivators distance themselves from students who do not engage in school activities, homework, preparation for tests, and so on. Similarly, the more students perceive their teachers as positive motivators, the less they tend to depend on teachers as negative motivators. Again, students who perceive teachers as positive motivators do not depend on teachers who act as negative motivators (and vice versa). Our results also show that students who perceive peers as positive motivators also tend to perceive their teachers as positive motivators, while students who depend on peers as negative motivators also depend on teachers as negative motivators.

Research indicates that Filipino students give much importance to educational attainment and tend to show mastery goals with the aim to become a prudent and knowledgeable person, serving the community by making parents, teachers and friends proud (Bernardo & Ismail, 2010; Bernardo et al., 2008; Reyes & Galang, 2009). Against this background, it seems reasonable for students who focus on mastery goals, including the development of new skills, gaining understanding or insight, to profit from peers as well as teachers who motivate them and support their mission to pursue long-term goals. However, further research in Philippine schools is advised to relate students' motivational relationship with peers and teachers in mastery and performance goals.

Comparing the results from the current study with insights gained from past studies on the motivational role of peers and teachers in Germany and Canada, essential differences can be noted (Raufelder et al., 2013). While in the Philippines, PPM and PNM as well as TPM and TNM were negatively associated, in Canada these relationships were positively related; in a German sample, TPM and TNM were positively related. These findings indicate that students from Germany and Canada who report a dependent motivational relationship with their teachers depend on teachers in general when it comes to motivation. In contrast, students from the Philippines who depend on teachers as positive motivators do not depend on teachers as negative motivators. These findings suggest that in Germany

and Canada, students show a rather general teacher-dependency. In fact, teachers in German and Canadian classrooms are very much involved in the learning process of students, which has led to the term of "spoon-feeding" when describing the teaching style. Teachers tend to give detailed instructions about what students are expected to do which in turn has led to certain expectations from students. Students from Canada and Germany expect their teachers to provide them with clear, easy and understandable material and to give them encouraging feedback on their work, while students have become comfortable in a role similar to a customer (cf. Althen, 1993; Bargel, 2013). Hence, in such classroom settings it is natural for students to build dependent relationships with teachers.

In contrast, in Philippine classrooms traditional teaching styles are prevalent. Hence, the teacher lectures students on basic skills using work or text books (de Mesa & de Guzman, 2006), while class activities consist mainly of ex-cathedra teaching. Traditional teaching styles are part of a collectivistic society in which students learn "how to do," whereas in individualistic societies students learn "how to learn" (Hofstede, 2011). In collectivistic societies, attaining education is one way to receive social recognition and prestige (Chang & Wong, 2008; Hofstede, 1980; Yu & Yang 1994) which might be the reason why education is considered to be one of the most cherished treasures among Filipinos (Bernardo, 2013; Villena & de Mesa, 2015). Those students who obtain this treasure and receive high grade point average tend to be oriented towards peers and teachers as a source of positive motivation while distancing themselves from peers who do not embody such positive motivational sources.

REMO-P and other school-related variables

As the correlation analysis revealed, PPM and TPM were positively associated with GPA, whereas PNM (but not TNM) was in turn negatively associated with GPA, meaning that students who rely on their peers and teachers as positive motivators, show higher GPA values (and vice versa). Furthermore, PNM, but not TNM, was negatively associated with GPA. Hence, students who depend on peers who discourage them in their learning processes have low grades accordingly. The finding that both PPM as well as PNM relate to grades indicates that peers in general play an

important role for Philippine adolescent students when it comes to academic performance. In fact, in collectivistic societies students orient themselves to others and prefer to cooperate with others and receive group-based feedback within the classroom rather than sticking out of the crowd (Yamauchi, 2004). Bernardo and colleagues (2008) confirm the essential motivational role of peers for Filipino students. However, in their qualitative study the role of peers was only mentioned in relation to positive motivation. For example, a 15-year old male student noted: "My friends are intelligent. I strive to study so I get high grades so I will not be embarrassed with my friends" and an 18-year old female said: "My friends are also diligent in their studies […] they really inspire [me] to achieve" (Bernardo et al., 2008, p. 186). The results of our study extend the knowledge on the motivational role of peers, as peers in general have a substantial role for motivation, acting as negative motivators.

Additionally, both PPM and PNM were negatively associated with hours spent for schoolwork at home. This means that the more students (positively or negatively) rely on their peers as motivators, the less time they invest at home for schoolwork (and vice versa). Hence, if students report a dependent relationship with their peers who motivate them to learn, they seem to profit from this supportive relationship in a way that they do not have to invest much time in doing their homework. However, if students report depending on peers who do not engage in schoolwork, they as well are less likely to invest time in their homework. This underlines the prominent role peers play for adolescent Philippine students in terms of scholastic support.

Considering the amount of time students spend with an adviser in school, solely TNM was negatively associated with contact with adviser. This potentially implies that students who feel discouraged by the teacher or lack attention or sympathy are more likely to isolate themselves from their adviser. Knowing their adviser portrays a role of an authority figure, students may also tend to isolate themselves from other teachers who they do not like. This assumption is further supported by the negative significant association between TNM and hours spent for school at home. Hence, if students feel discouraged by a teacher, they are likely to spend only little time on schoolwork at home.

In contrast, there was no significant association between ILB and any school-related variable used in this study. However, ILB was positively related to TPM. Hence, students that have a tendency to work on their own and do not engage in cooperative learning behavior with their peers tend to perceive their teachers as positive motivators. In this case the teacher might be seen as a guidance or authority figure (Bernardo et al., 2008) for students who show learning behavior independent of their peers.

Strengths, Limitations, and Future Directions

As with all research, methodological limitations need to be taken into account when interpreting the current findings. Firstly, there are limitations in the psychometric quality of the variable ILB. This instrument, which proved to have good psychometric qualities when used in other countries such as Germany, Canada, and Russia showed restricted psychometric qualities in the current study population. As the Filipinos are collectivistic oriented, individual learning behavior might not be a substantial part of students learning behavior. In fact, studies indicate that cooperation with others is a preferred way of working on tasks and is firmly rooted in the Filipino personality (Bernardo et al., 2002).

Secondly, six of the original REMO items had to be excluded due to cross and/or low-factor-loadings. However, despite reducing the amount of items, all variables of REMO-P (except for ILB) showed good psychometric quality. Third, it should be noted that the present study investigated the age group from 13 to 16 years. Therefore, future research is warranted to include younger and older age groups to obtain further empirical evidence on psychometric properties in different target populations. Fourth, one may criticize the use of self-report measure (Chan, 2009). Despite potential criticisms regarding self-reported data, these negative attitudes are largely unjustified, as research has shown that the four main categories of problems most associated with self-report data (i.e., construct validity, interpreting correlations, social desirability responding, value of data collected from non-self-reported data) may also occur with non-self-reported data (Chan, 2009; Spector, 2006).

Fifth, no other motivation scales were included in the study to check for potential overlaps. However, associations with the included motivational concepts have been proven through the original validation study (Raufelder et al., 2013) as well as through different motivation research using the REMO scales (e.g., Raufelder, Hoferichter, Schneeweiß, & Wood, 2015; Bakadorova & Raufelder, 2016; Hoferichter, Raufelder, & Eid, 2014; Hoferichter, Raufelder, Eid, & Bukowski, 2014). Finally, longitudinal validation studies are advised in order to determine patterns of causality and track change over time.

Despite these limitations, the REMO-P scales have shown it to be a robust measure with good psychometric properties that may be used in a time efficient fashion to determine the role peers and teachers play as source of students' scholastic motivation. Overall, scale structure and psychometric properties of the REMO-P replicated research findings on the original REMO scales, suggesting adequate reliability and validity for both language versions.

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APPENDIX

Relationship and Motivation Scales (REMO-P)
Iskala na Nag uudyok sa Gawaing Pampaaralan

Items Peer-REMO

Peers as Positive Motivators (PPM)

1. It is easier to do well in school when friends motivate me.
   Madali ang mga gawain sa paaralan kapag may mga kaibigan na nag-uudyok sa akin.
2. When my friends learn, I am also motivated to learn more.
   Kapag ang aking mga kaibigan ay maraming nalalaman, ito ang nag uudyok upang ako ay matuto nang higit pa.
3. When my friends want to improve at school, I also want to do better.
   Kapag ang aking mga kaibigan ay nagnanais mapabuti sa paaralan, hinuhusayan ko rin.
4. I make an effort at school when my friends motivate me.
   Nagsisikap ako sa mga gawain sa paaralan kapag ang aking mga kaibigan ay mag-udyok sa akin.
5. At school I try to make a similar effort to that of my friends.
   Sa paaralan sinusubukan kong gumawa ng katulad ng pagsisikap ng aking mga kaibigan.
6. My friends and I motivate each other to make an effort at school.
   Ang aking mga kaibigan at ako ay nag-uudyok sa bawat isa upang lalong magsumikap sa paaralan.
7. Because of my friends, I try to make more of an effort at school.
   Dahil sa aking mga kaibigan, nagsusumikap akong gumawa ng higit pa sa paaralan.
8. I will study harder for an exam when my friends tell me that they are also working hard.
   Pinag bubuti ko ang pag-aaral para sa isang pagsusulit kapag ang aking mga kaibigan ay nagsasabing sila ay nagsisikap din.

Peers as Negative Motivators (PNM)

1. If my friends were not interested in school, I also would not make an effort.
   Kung ang aking mga kaibigan ay hindi interesado sa paaralan, ako ay hindi rin nagsisikap.

2. My friends encourage me to spend as little time as possible on schoolwork.
   Hinihikayat ako ng aking mga kaibigan na huwag masyadong maglaan ng panahon sa pag aaral.

3. At times, I do not make an effort at school because my friends say that it is uncool to try.
   May mga pagkakataon na hindi ako nagsusumikap sa paaralan dahil sa negatibong sinasabi ng aking mga kaibigan tungkol sa pag aaral.

4. If my friends were to say that good grades do not matter, I would study less.
   Kung ang aking mga kaibigan ay sabihin na magandang marka ay hindi mahalaga, di ako nag aaral ng mabuti.

5. When my friends find school boring, I also tend to find school tiresome.
   Kapag ang aking mga kaibigan ay naiinip sa paaralan, may posibilidad na di rin ako masiyahan sa pag aaral.

Individual Learning Behavior (ILB)

1. I can learn better on my own as compared to when I work with others. *Mas mahusay ako kung nag aaral mag isa kaysa may mga kasamang mag aral.*

2. When an exam is approaching, I prefer to study on my own.
   Kapag papalapit na ang pagsusulit, mas gusto kong mag aral mag isa.

3. I never do my homework with friends, I always do it on my own.
Ginagawa kong mag isa ang aking mga takdang aralin, hindi kasama ng aking mga kaibigan.

4. It is easier to succeed at school when you work on your own rather than with others.
Mas madaling magtagumpay sa paaralan kapag sariling gawa kaysa kasama ang iba.

Items teacher-REMO

Teachers as Positive Motivators (TPM)

1. When a teacher helps me, I try to do well in the subject
Kapag may guro ng tumutulong sa akin, sinusubukan kongpaghusayan ang mga gawaing pampaaralan.

2. When a teacher takes her/his time to explain something to me, I will make more effort the next time.
(*Kapag ang guro ay ipinapaliwanag ang isang bagay sa akin, ako ay higit pang magsusumikap sa susunod na pagkakataon.*

3. When a teacher notices that I have tried my best, I will try to give my best again in the future.
(*Kapag napapansin ng guro na sinusubukan kong paghusayan,hinuhusayan ko ulit sa hinaharap.*

4. I will make more of an effort in a subject when I think the teacher believes in me.
Ako ay gumawa at nagsusumikap sa isang paksa kapag sa tingin ko ang guro ay naniniwala sa aking kakayahan.

5. A teacher's enthusiasm in a subject matter motivates me to learn more.
Ang pagkasigasig ng guro sa isang paksa ay nag uudyok sa akin na matuto ng higit pa.

6. When a teacher likes me, I make more effort in the subject.
Kapag nasisiyahan ang guro sa akin, higit pa ang aking pagsisikap sa paksa.

Teachers as Negative Motivators (TNM)

1. When I do not like a teacher, I am not interested in the subject.
   Kapag hindi ko gusto ang isang guro, hindi rin ako interesado sa paksa.

2. When I don't like a teacher, I get tired of the subject.
   Kapag hindi ko gusto ang isang guro, napapagod ako sa paksa.

3. When a teacher doesn't notice that I am making an effort, I stop trying. *Di ko na sinusubukan, kapag ang isang guro ay hindi napapansin na ako ay nagsisikap*

4. If a teacher never gives me a good grade in a subject, I stop caring about how I do in that subject.
   Di ko na masyadong pinapansin ang grado ko kapag binigyan ako ng guro ng mababang marka.

5. When a teacher does not try to help me, I usually give up.
   Sumusuko ako kapag ang isang guro ay hindi tumutulong sa akin.

6. When I think a teacher does not like me, I have trouble being inspired by the subject.
   Nawawalan ako ng gana sa paksa kapag napansin ko na hindi ako gusto ng guro.

7. When a teacher bores me, I do not learn anything at all.
   Di ako natututo kapag ang guro ay nakakawalang gana.