# Preliminary Investigation of the Psychological Sense of School Membership Scale with Primary School Students in a Cross-Cultural Context

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## Online Supplementary Material

### Description of Study Convergent Validity Measures

#### Social and Emotional Health Survey – Primary (SEHS-P).

Four gratitude items and four prosocial items from the SEHS-P were used in this study to assess convergent validity because of school belonging's positive association with gratitude (Froh et al., 2008) and prosocial behavior (Solomon et al., 1996). The SEHS-P is a 20-item strength-based measure developed by Furlong, You, Renshaw, O'Malley, and Rebelez (2013) for use by primary school students, Grades 4–6. Four gratitude items ("Do you feel thankful to go to your school?"… "Are you thankful when you get to learn new things at school?"… "Are you thankful to have nice teachers at your school?"… "Do you feel thankful that you have friends at your school?") were combined to form one index. All three samples had adequate internal consistency: U.S. sample ($\alpha = .68$), Chinese sample ($\alpha = .69$), U.K. sample ($\alpha = .69$). The four prosocial items ("Do you follow the classroom rules?"… "Do you follow the schoolyard rules?"… "Do you listen when your teacher is talking?"… "Are you nice to other students?") were also combined to form one index in the current study. All three samples had high internal consistency: U.S. sample ($\alpha = .82$), Chinese sample ($\alpha = .81$), U.K. sample ($\alpha = .80$). The items used the same six-point response scale as the PSSM (1 = *no, never*, 2 = *no, almost never*, 3 = *yes, sometimes*, 4 = *yes, often*, 5 = *yes, very often*, and 6 = *yes, always*).

#### Me and My School Questionnaire (M&MS).

For the U.S. and U.K. samples, the M&MS (Deighton et al., 2013) was used as a measure of divergent validity because school belonging has been found to be inversely related to distress. The M&MS is a 16-item self-report distress measure for use with children ages 8-12 years old. It has a 10-item *emotional difficulties* scale (e.g., "I feel lonely") and a six-item *behavioral difficulties* scale (e.g., "I break things on purpose") on a three-item response scale: *never*, *sometimes*, *always*. Deighton and colleagues (2013) found good internal consistency for the emotional difficulties and behavioral difficulties scales and high external validity. The measure was also found to have a two-factor solution in England: emotional difficulties and behavioral difficulties (Deighton et al., 2013). For this study, internal consistency for the U.S. sample ($\alpha = .76$) and the U.K. sample ($\alpha = .77$) were high, as measured by an overall M&MS distress score, which was used in the path analyses.

#### Strengths and Difficulties Questionnaire (SDQ).

For the Chinese sample, the SDQ was used as a measure of divergent validity because it is also a measure of distress (Goodman, 1997). The Chinese sample completed the SDQ, a 25-item measure analyzing five scales: emotional symptoms, conduct problems, hyperactivity-inattention, peer problems, and prosocial behavior. Most studies have reported high internal consistency (Stone, Otten, Engels, Vermulst, & Janssens, 2010) and support for the SDQ factor

structure (Van Leeuwen, Meerschaert, Bosmans, De Medt, & Braet, 2006), and results for measurement invariance show consistency across ethnicities (Niclasen, Skovgaard, Anderson, & Somhovd, 2013). The SDQ uses a three-item response scale: *not true, somewhat true, certainly true.* The first four SDQ scales produce a total difficulties score (e.g., "I get very angry and often lose my temper"), indicating the severity of psychosocial problems. An overall SDQ total difficulties score was used in the current study's path analyses. The Chinese sample had high internal consistency for the SDQ total difficulties score (Cronbach's $\alpha = .84$).

## Data Collection Procedures

U.S. sample procedures. In the United States, data collection procedures were approved by the University of California Santa Barbara institutional review board. Students from seven schools in California completed the survey only when a parent or guardian gave signed consent. A student opt-out option was also included at the beginning of the online survey. The self-report survey, proctored by classroom teachers, was administered on school computers and tablets during fall 2016 and fall 2017. Items were presented in a random order with two items presented at a time on the screen using the Qualtrics ® survey application. When a student did not respond to an item, they were prompted to give a response, but not required to respond. Student responses were filtered using three verification items to evaluate if they were able to read items and correctly fill in requested responses. Four percent of the sample was filtered out.

Chinese sample procedures. In China, a team of researchers from Hunan Normal University conducted data collection in five elementary schools between December 2016 and June 2017. Parents/guardians were provided with opt-out consent forms prior to the start of the study. In each school, four to seven classes were randomly selected and all students in each class were invited to participate in the study. Students completed a paper version of the survey that was administered during a selected class time. Graduate student researchers and teachers gave directions to the students and graduate student researchers were provided with a script to read to the students prior to competing the survey. The survey was read aloud to students who had difficulty with reading.

U.K. sample procedures. In the U.K., a team of researchers from the University of Roehampton collected data in three mainstream primary schools between February and June 2017. The protocol for this study was approved by the University's Research Ethics Committee. Opt-out consent forms were provided to the parents/guardians of all primary students within the three schools which participated in the study prior to the start of data collection. Students that participated in the study completed a paper version of the self-report survey during a selected class time. Graduate research assistants read instructions prior the completion of the questionnaires and provided support by reading aloud or answering queries to the students who were experiencing difficulties with reading.

## Exploratory Factor Analysis Results

The initial EFA with all 18 items identified adequate fit for a two-factor solution, $\chi^2(118) = 290.49$, $p < .01$; RMSEA = .06; SRMR = .09; CFI = .92. However, when examining the factor loadings, there were

several items that cross-loaded and items that did not load strongly on either factor. Due to these inconsistencies, a parallel analysis was conducted, which supported a one-factor solution, indicating that the two-factor model did not fit best.

A series of EFAs were run following one-by-one item deletion based on low loadings and cross-loadings (deletion of items 2, 3, 4, 14, 15, 18). Another EFA was run with the remaining 12 items, where only two items loaded onto the second factor (items 5 and 9) and both items were similar in wording (i.e., item 5 = "Are most teachers at your school interested in you?"; item 9 = "Are teachers interested in students like you?"). Thus, one of these items was deleted to maximize measurement efficiency. Since the item 9 wording is more abstract, where students were asked to hypothesize about teacher's interest, it was deleted and item 5 was retained.

A subsequent EFA was run using the remaining 11 items, which generated good fit for a one-factor solution, $\chi^2(44) = 99.95$, $p < .01$; RMSEA = .06; SRMR = .04; CFI = .95. According to Howard's (2016) criteria, item 12 was deleted because it did not load well onto the factor structure. Another EFA was run using the remaining 10 items. A one-factor solution fit best and met fit index criteria, $\chi^2(35) = 92.94$, $p < .01$; RMSEA = .08; SRMR = .04; CFI = .95. However, at this stage, only one negatively worded item remained and was distinctive from the other items: (i.e., item 16 = Do you wish you were in a different school?). In order to maintain an efficient and streamlined measure, this item was deleted so that the remaining survey items would include only positively worded items. This modification allowed the survey to measure a unidimensional positive construct of school belonging with nine items.

## References

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## Psychological Sense of School Membership (PSSM) Scale Items Modified in Question Format for Primary School Grade Students

**1. Do you feel like a real part of your school?***
你觉得你是学校真正的一员吗？

2. Do people at your school notice when you are good at something?
当你擅长某些事情时，学校里的人会注意到吗？

3. Is it hard for students like you to be socially accepted at school?
在学校里，像你这样的学生在人际交往中会难以被他人接受吗？

4. Do other students at your school think you have good ideas?
学校里的其他同学认为你有好主意吗？

**5. Are most teachers at your school interested in you?***
学校里的大部分老师关注你吗？

**6. Do you belong at your school?***
你觉得你属于你的学校吗？

**7. Is there a teacher or some other adult at school you can talk to if you have a problem?***
当你有困难的时候，你可以跟学校里的老师或其他成年人诉说吗？

**8. Are people at school friendly to you?***
学校里的人对你友好吗？

9. Are teachers interested in students like you?
老师们关注像你这样的学生吗？

**10. Are you included in a lot of school activities?***
别人会邀请你参与学校的很多活动吗

**11. Are you treated with as much respect as other students?***
你受到跟其他同学一样的尊重吗？

12. Do you feel that you are different from other students at your school?
你觉得你和学校里的其他同学不同吗？

**13. Can you be yourself at school?***
你能在学校里做你自己吗？

14. Do teachers respect you?
老师尊重你吗？

15. Do people at school know you can do good work?
有老师和同学们知道你能做好很多事情吗？

16. Do you wish you were in a different school?
你希望自己是在另一所学校就读吗？

**17. Are you proud to be a part of your school?***
你为自己是学校的一员感到骄傲吗？

18. Do other students accept you just the way you are?
其他同学接受这样的你吗？

*Note*. (*) indicates the final items retained in the study.