# Westernization of Self-Perception in Modern Affluent Indonesian School Children

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## Introduction

Self-perception and social identity as that portion of an individual's self-concept that is derived from perceived membership in a relevant social group, group identification and identity signaling, shape common goals and social norms [Tajfel & Turner 1986, Smaldino 2019].

In the Western culture, it is natural for us to translate our perceived status in a group or in society as "high" or "low", since we have been socialized by the concept that, due to our actions and innate conditions, we are climbing a social ladder up or down [Massey et al. 2015].

The question we want to answer in this study is whether children raised in a social environment that greatly differs from European and Western norms and cultural concepts are able to perceive their social status in terms of "high" and "low", or "up" and "down", and to express this self-perception on a rank scale visualized by a wooden ladder.

To address this question, we used the MacArthur Scale of Subjective Social Status (SSS). In this simple test an individual is asked to rank him*herself by marking that rung on a picture of a ladder with the highest rung to be considered "best of" and the lowest to be "worst of" reflecting his*her own position within the society [Adler & Stewart 2007]. This method has been successfully used within medical research to predict the risk of human disease and has been shown to be more accurate for this task than the objective SES [Adler et al. 2000], which is generally measured with the variables "education", "occupation" and "income" [Kumar et al. 2012]. These findings highlight the importance of self-perception on the individual's biology and suggests that the SSS may also be used as a tool for better understanding human growth.

Despite its simplicity the accuracy of this test depends on the cultural background, and thus, alludes to a characteristic problem of such tests that are conducted in and adapted to Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies [Heinrich et al. 2010], and imply representativeness for all societies. Yet even within American studies the MacArthur test appears to work best for White and Chinese Americans [Ostrove et al. 2000] and less well for Latino and African Americans [Ostrove et al. 2000, Allen et al. 2014]. In the study of Amir et al. [2019], in which Western and non-Western societies were compared, this tendency was generally confirmed. The more a population resembled a WIERD society, the more the MacArthur test results followed the expected pattern.

Self-ranking by MacArthur Scale appears higher in younger pupils and declines with age until it stabilizes in older teenage years [Goodman et al. 2001].

Similar results were obtained by Amir et al. [2019] in participants between 4 and 18 years of age, with adequate consistency even among the young children.

We focused on Indonesian children from different social conditions. In order to better approach these children we slightly altered the original MacArthur Scale test version (referred to as Ladder Test) in cooperation with local pediatricians.

The Ladder Test was implemented in an anthropometric study of Indonesian school children, aged 5 to 13 years (see Table 1), derived from different social backgrounds as reflected by the status of the attended school (private school, middle class school, school for people living in poverty). The social situation on the individual level was assessed by using the variables of parents education, school grades and the presence of basic household equipment at home.

To reveal the general influence of social class and age towards the Test's function-ality, the following two hypotheses were tested:

1. If the social background influences the children's self perception, the Ladder Test results should differ between the schools.
2. With increasing age the self perception of their social position should change towards a rank within the society that we would consider more realistic.

Additionally we took into account that Indonesia is a patriarch society with different demands on the sexes [Kollo & Sunarso 2018, Wulan & Bajari (no date)]. Even though positive developments are in progress, as for instance Indonesia has the highest literacy rate in Asia (females 93.59%, males 97.17%) and investments are directed to reduce maternal mortality, women still face structural and cultural inequality. Discriminatory laws on taxes and inheritance are still in place and so are legal barriers in economy [https://data.em2030.org/countries/indonesia/]. The 2016 Women's Health and Life Experiences Survey found that one in three women reportedly experienced sexual violence, yet legislation is weak or goes unenforced.

Boys and girls are in a way experiencing different cultures. We therefore proposed two additional hypotheses:

3. The self-perception of social position differs between boys and girls.
4. The influence of different social variables on self-perception depends on sex.

To test the hypotheses we used the attended schools and the social variables, which were evaluated during the study as markers for the social background.

## Sample and Method

### Sample

In Kupang, Indonesia, three different types of schools were visited, a private school for

children from affluent social background, (referred to as School 1), two state schools (put together as School 2) and a rather dilapidated school for the children living in poverty (School 3). In total 723 children of the ages between 5 and 13 (mean age 9,05 ± 1,62), 369 boys and 364 girls participated (Table 1). For tests, in which age is relevant the age groups 5 and 13 years were eliminated because of low number.

The social situation on the individual level is represented by the variables *education of mother and father, school grades of the child* ("education") and the *access at home to water, TV and a fridge* ("income").

The education level of the parents was categorized in the approximate years of attending an educational facility, ranging from 1 (no school) to 18 (PhD degree). The access to water was ranked from the least favorable condition 1 (getting water from a lake or river) to most optimal condition 5 (having running water at home). The present or absence of a TV and a fridge at home was noted as 0 (absent) and 1 (present). These three equipment factors (water, TV, fridge) were later summed up in a "Household Score" which ranked from 1 (least fa-

vorable access to water, absents of TV and Fridge: $1 + 0 + 0 = 1$) to 7 (optimal water access, presents of TV and fridge: $5 + 1 + 1 = 7$).

The school grades of each child were asked for the subject "math" and "language" and were given in percentage (0-100%). The mean of the two grades were calculated and used in the later analysis.

Lastly each pupil was asked to rank themselves on an eight-level toy ladder. The highest rung (8) was stated to be presidential-like for the reason that the Indonesian president is a familiar figure to each child. Two steps below was associated with the social rank of a medical doctor. All other ladder steps were left without any particular symbolic figure, it was clear though, that the lowest rung represented the weakest and poorest in society. Note, the original MacArthur Scale is picture of a ten level-ladder in which the highest rung is considered "best of" and the lowest rung "worse of". Since more specific associations per rung are left open to the research setting, the reduction of two steps, and the usage of a toy ladder instead of an illustra-

**Table 1** Number of Indonesian children (boys and girls) by age and school.

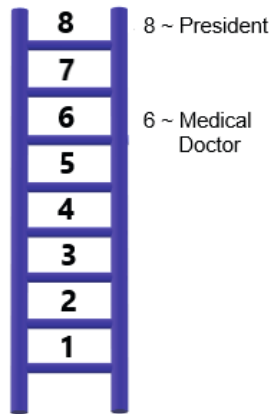| | School 1 | | School 2 | | School 3 | |
|---|---|---|---|---|---|---|
| Age | Boys | Girls | Boys | Girls | Boys | Girls |
| 5 | 0 | 0 | 1 | 0 | 0 | 0 |
| 6 | 10 | 8 | 14 | 9 | 5 | 2 |
| 7 | 12 | 18 | 31 | 29 | 6 | 7 |
| 8 | 12 | 9 | 38 | 49 | 13 | 4 |
| 9 | 26 | 22 | 37 | 52 | 3 | 7 |
| 10 | 26 | 23 | 39 | 43 | 6 | 6 |
| 11 | 14 | 12 | 47 | 37 | 6 | 4 |
| 12 | 4 | 0 | 12 | 10 | 4 | 2 |
| 13 | 0 | 0 | 3 | 1 | 0 | 0 |
| Totals | 104 | 92 | 222 | 230 | 43 | 32 |
| Overall | 723 | | | | | |

**Figure 1** Altered Version of the MacArthur Scale of Subjective Social Status.

tion, are the only deviations made to the MacArthur Scale in this study.

The questions and the Ladder-Test were performed by local-language speaking physicians and pediatricians in the presence of the children's teachers. Parental informed consent was given. Ethical approval was provided by the Medical and Health Research Ethics Committee, Faculty of Medicine, Gadjah Mada University, Yogyakarta, Ref. no. KE/FK/1140/EC/2019.

## Statistics

For the analysis the program R-Studio was used with R 4.0.2 as running system.

As the Ladder Test consist of discrete numbers (1-8) and the results did not follow a normal distribution neither per school, sex nor per age (Shapiro-Wilk Test) we used non-parametric tests to assess whether the outcomes of the SSS differed between cohorts. To compare two groups (per sex, private vs. non-private school) the Mann-Whitney-U Test was performed, to compare more than two groups (per school, per age in complete years) the Kruskal Wallice Test. The critical p-value was set at 0.05.

Additionally we used a linear model to identify a potential relationship between age and the Ladder Test results for the whole data set and per school. As School 2 and 3 showed a similar trend and due to the low number of students in School 3, these two schools were combined as "Non-Private School", in contrast to the private school, School 1.

With a multiple linear model using the "step" function we tested if and which variables of the social components are suited to explain the results of the Ladder Test. The input for the model was "Education Mother", "Education Father", "Grades", "Household Score", "Age in Completed Years", "School" and "Sex". With the settings on "backwards" this function generates different multiple linear models by step-wise taking out variables. The final output is the model with a combination of variables that achieve the lowest AIC value. With this approach our goal was to reveal a general, possibly subtle trend, this is why the critical p-value of a variable's contribution to the model was set at 0.1 instead of 0.05. A step wise generation of multiple linear models was performed for the data set as a whole, for the private and non-private schools and for boys and girls separately.

## Results

### Per School

For School 1, the most frequently chosen level on the MacArthur Scale was rung 5 at 27.6 %. With 29.9 % and 28.0 %, pupils from School 2 and School 3 most frequently ranked themselves at level 7 and 8 respectively, indicating a grossly bumptious self-perception. The distribution of each school is shifted to the high levels of the Ladder Score (Figure 2). The median was 6 for School 1 and 3 and 7 for School 2. The means of the different schools showed no significant differences when analyzed with the Kruskal-Wallis Test.
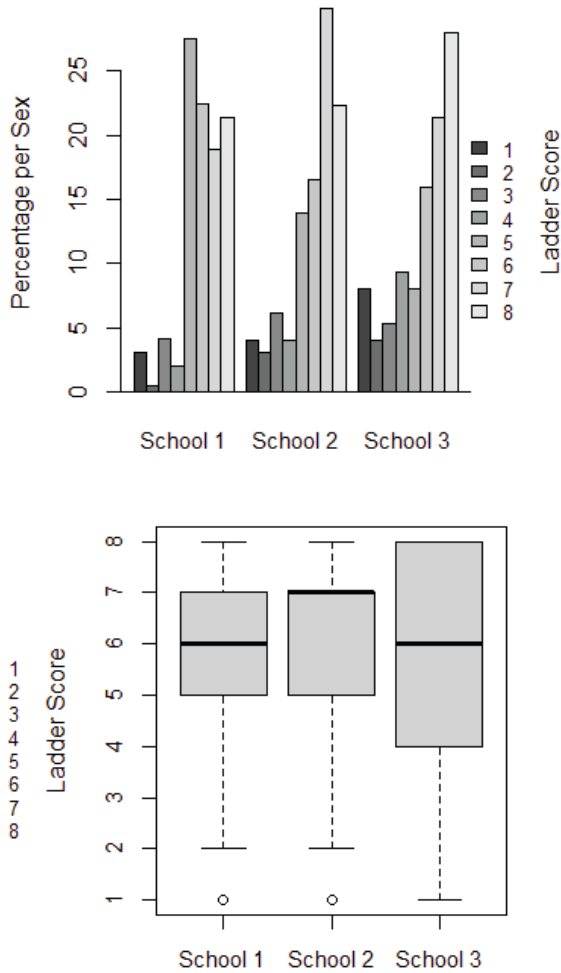
**Figure 3** Ladder Score per Age.

the private school a significant linear relationship was found, as with increasing age the Ladder Score ranking tended towards the lower levels, i.e. from the bumptious self-perception "I am the greatest" to a view that we would consider more realistic in terms of social position within the society. For the non-private schools such a relationship was not found (Figure 4).



**Figure 2** Ladder Score per School.

## Per Age

In the following, the age groups 5 and 13 years were omitted due to low numbers (Table 1). The Median rung for all ages ranged between 6 and 7. No significant difference was found between the results of any age-group (Figure 3). A linear relationship between age and Ladder Score results for the whole group could not be found.

## Per Age and Social Class

To further evaluate the relationship between age and Ladder Score results, we divided the data by private (School 1) and non-private schools (School 2 and 3). For
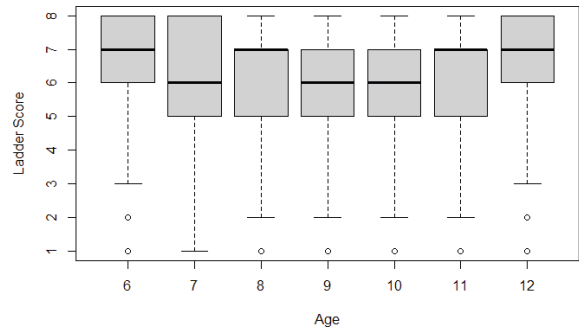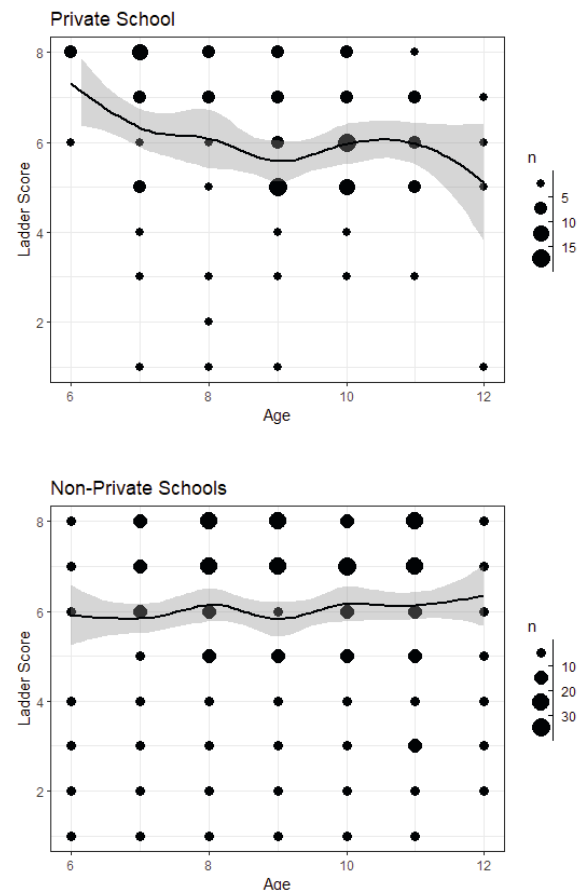


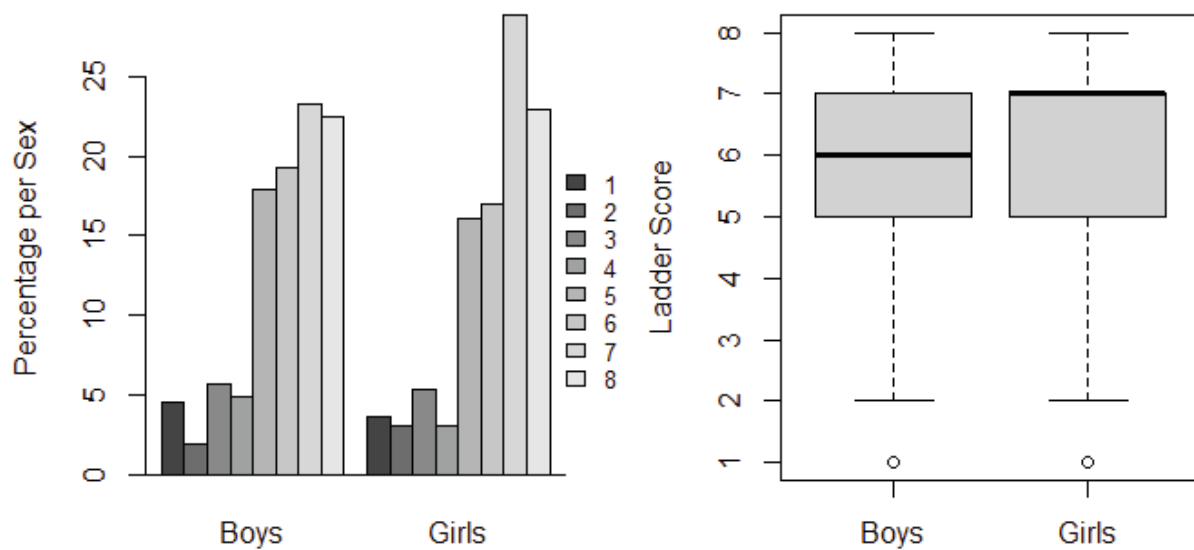**Figure 4** Ladder Score in Privat and Non-Private Schools.

**Figure 5** Ladder Score per Sex.

## Per Sex

Assessing the data by sex, the distribution was shifted towards the higher Ladder Scores for boys as well as for girls (Figure 5). In both groups the second-best level 7 was most often chosen, with 28,8 % for girls and 23,3 % for the boys. The median for the girls was 7, for the boys 6. However, conducting the Mann-Whitney U Test showed that the mean did not significantly differ between the sexes.

## Linear Model

Using the step-wise function for the multiple linear model to explain the Ladder Test outcome for the whole data set, the variables "School", "Sex" and "Age in Completed Years" were discarded, leaving "Education Mother", "Education Father", "Grades" and "Household Score". As we set the threshold of significance at a p-value of 0.1, all variables but "Grades" had a significant influence to the model (Table 2).

Separating the data by sex, the boys' Ladder Score was explained best with the variable "Education Father" (p = 0.01). For the girls only "Household Score" had a significant contribution to the model (p = 0.09). We also divided the data in terms of private and non-private schools. "Education Father" explained the Ladder Test outcome for the non-private pupils significantly (p = 0.04), for the private school children, the variable "School Grades" shaped the Ladder Test results the most (p = 0.06).

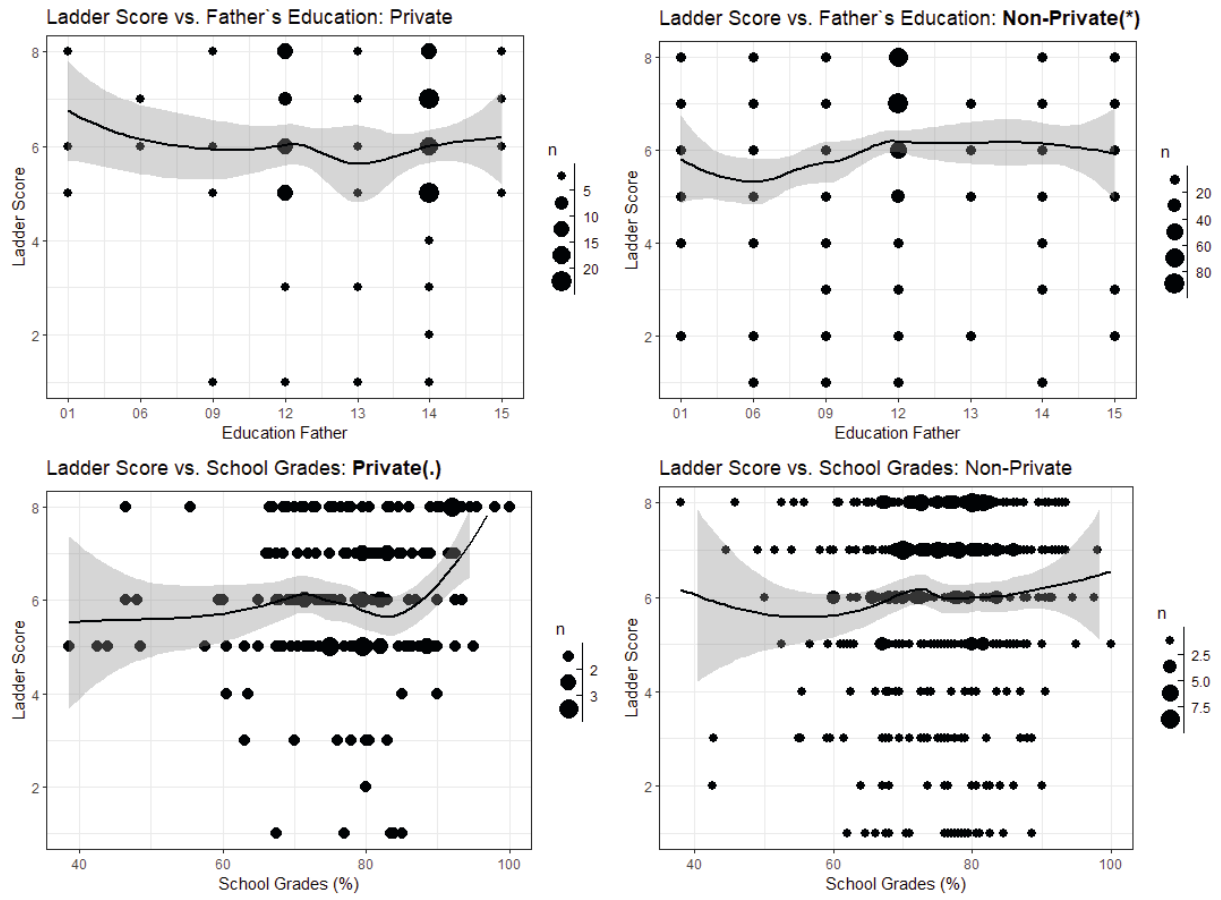In the plots shown in Figure 6, we can see the significant relationships per school cohort graphically.

**Figure 6** Ladder Score xxx.

**Table 2** .Output values of the Multiple Linear Models per cohort with the variables that explain the variance of the Ladder Test outcome the best (generated via a Step-wise Regression, a p-value of 0.1 was considered as significant, Significant Codes:  0.00 = ***, 0.01 = *, 0.05 = .).

| Groups | | Estimate | Std. Error | t value | P value |
|---|---|---|---|---|---|
| **Overall** | (Intercept) | 4.23 | 0.68 | 6.2 | 0.00 *** |
| | Edu. mother | -0.06 | 0.03 | -1.88 | 0.06 . |
| | Edu. father | 0.06 | 0.03 | 1.8 | 0.07 . |
| | Grades | 0.01 | 0.01 | 1.48 | 0.14 |
| | Household-Score | 0.17 | 0.08 | 2.15 | 0.03 * |
| | $R^2$ | 0.02 | | | |
| | $R^2$ adj. | 0.01 | | | |
| **Private School** | (intercept) | 5.10 | 0.90 | 5.66 | 0.00 *** |
| | Edu. mother | -0.07 | 0.04 | -1.61 | 0.11 |
| | Grades | 0.02 | 0.01 | 1.91 | 0.06 . |
| | $R^2$ | 0.03 | | | |
| | $R^2$ adj. | 0.02 | | | |
| **Non-private School** | (intercept) | 4.54 | 0.51 | 8.88 | 0.00 *** |
| | Edu. Father | 0.07 | 0.03 | 2.07 | 0.04 * |
| | Household-Score | 0.13 | 0.09 | 1.56 | 0.12 |
| | $R^2$ | 0.02 | | | |
| | $R^2$ adj. | 0.02 | | | |
| **Boys** | (Intercept) | 4.95 | 0.39 | 12.82 | 0.00 *** |
| | Edu. father | 0.09 | 0.03 | 2.65 | 0.01 * |
| | $R^2$ | 0.02 | | | |
| | $R^2$ adj. | 0.02 | | | |
| **Girls** | (Intercept) | 4.12 | 1.08 | 3.81 | 0.00 *** |
| | Edu. mother | -0.05 | 0.04 | -1.46 | 0.15 |
| | Grades | 0.02 | 0.01 | 1.56 | 0.12 |
| | Household-Score | 0.19 | 0.11 | 1.72 | 0.09 . |
| | $R^2$ | 0.02 | | | |
| | $R^2$ adj. | 0.01 | | | |

# Discussion

We tested to what extent the social background influenced the self perception of an Indonesian school child. We used Ladder Test results to highlight the differences in self-perception in respect to the kind of schools they attend.

The MacArthur Scale of Subjective Social Status (Ladder Test) has been shown to be a suitable instrument to assess the self-perception of children from different social backgrounds on their status in society. We primarily assumed that if children were able to correctly assign their social status position in society, children living in poverty would rank themselves lower, than children living in an affluent environment. Thus, we expected differences in the self-perception between private school children and children attending state schools (hypothesis 1). And with increasing age, we expected a self-perception of their social position within the society that we would consider more realistic (hypothesis 2).

At first view, we seemed to fail. Regardless of the social background, we generally observed a broad overestimation of the children's perception of their social position. The Ladder Test results indicated, that around 50 % of the children from non-private schools and 40 % of the children from private school regarded themselves in a higher social position than a medical doctor, with approximately half of them even being on the same level as the Indonesian president. They ranked themselves as "the greatest". This is coherent with previous findings, in that younger children rank themselves high on the MacArthur Scale [Goodman et al. 2001, Amir et al. 2019]. Yet, in contrast with our second hypothesis: "With increasing age the self perception should become more realistic", there

was no decline in ranking with increasing age when evaluating the entire group [Goodman et al. 2001, Amir et al. 2019]. Only when assessing the data separately for each school we found the decline in ranking solely in older children of the private school. Children attending non-private schools continued ranking themselves high at all ages (Figure 4).

To sum up we found that the children attending the upper class private school ranked themselves in regard to their position in society more moderate and therefore more realistic than participants of the other schools and only the responses of the private school pupils were age-dependent. In other words, the MacArthur Scale of Subjective Social Status worked as expected only for Indonesian children from a high social class.

Within the last two decades, globalization has led to the trend for Indonesian elites and upper class families to "westernize" and adapt to an "international" lifestyle [Tanu, 2014]. Our findings suggest that results obtained by the MacArthur test [Amir et al. 2019] will be more reliable the more a tested cohort resembles a western (WIERD) society. The private school pupils seemed to be better adapted to the western culture and therefore the Ladder Test is more suited for them than for their non-private school peers.

Being able to judge oneself position in society using the symbolic figure of a ladder, seems to be entangled with western culture. For people socialized in a western way, symbols such as a ladder, a staircase, or a mountain are familiar pictures to visualize the hierarchic structure of society. All of these pictured structures can be "climbed", and depending on ones effort and/or starting position one will end up on a level in society considered "high" or "low". In contrast, painting a feudal society as a ladder would be rather ridiculous,

as social classes are predestined by birth with no intention of moving up or down. A ladder or any corresponding image thus is unable to appropriately illustrate such a society.

Presumably, the children from non-private schools neither have a concept of a hierarchic ladder nor do they grasp the idea of placing themselves "higher" or "lower" in relation to the social status of others. Nevertheless, in the multiple linear model we find explanatory variables that seem to reflect cultural influences for all tested cohorts.

Self-perception according to "School Grades" offers an interesting explanation for the responses of the private school pupils. This fits to the western ideology as it strongly emphasizes the individual and his*her own responsibility for social upgrading and a "successful" career.

In contrast, the non-private school group seems to be significantly influenced by the variable "Education Father". Indonesia is a patriarchal society. The children's responses to the Ladder Score appear to depend on structural norms in which the father is the "breadwinner" and head of the household [Sathiparsad et al. 2008].

Despite of the fact that the global self-rating of boys and girls did not differ and that we had to reject Hypothesis 3: "The self-perception of social position differs between boys and girls", the evaluation by sex, highlighted the different cultural conditions for boys and girls and supported our last hypothesis: "the influence of different social variables on self-perception depends on sex". The self-perception of boys significantly correlated with "Education Father", whereas the self-perception of girls was influenced by domestic wealth (represented by "Household Score").

Boys apparently orientate more towards the dominant father-figure, as one day they will become head of a family themselves,

reflecting the still patriarchal structures in modern Indonesia. Girls being far less independent, appear to rely on external financial security provided by someone else (family, husband). Even though Indonesia is changing laws to ensure women's equality, the unemployment rate is disproportional high within females [https://data.em2030.org/countries/indonesia/] reflecting that women are often seen as subordinate and are expected to take care of the home and to raise children [Sathiparsad et al. 2008].

The present findings contradict the notion that measuring self-perception of one's social position using a the Ladder Test is not suitable for non-Western societies. But the responses differ from Western concepts of social positions. We are used to describe social positions in terms of "high" and "low", or "up" and "down" and believe this concept can be visualized by a ladder. We expect persons to self-rank themselves according to this or similar concepts. But this appears to be different in persons who grew up in societies that largely lack the possibility for up- or downward social movements. These persons may rank themselves as "great" and "strong", but this perception reflects their personal self-appraisal, and rather not describes a social rank within the society that according to Western concepts may be considered "high" or "low".

In conclusion, the present study shows that Indonesian children from non-private schools lack a Western concept of social positioning and fail to self-perceive their social position as "high" or "low" among their peers. This is different in children from affluent background attending a private school. With increasing age, they are increasingly capable of ranking their position within the social hierarchy, and appear to recognize life as a career with improved chances according to personal success in school.

# References

Adler, N., & Stewart, J. (2007). The MacArthur scale of subjective social status. MacArthur Research Network on SES & Health. Retrieved from http://www. macses. ucsf. edu/Research/Psychosocial/subjective. php.

Allen, A. J., McNeely, J. M., Waldstein, S. R., Evans, M. K., & Zonderman, A. B. (2014). Subjective socioeconomic status predicts Framingham cardiovascular disease risk for whites, not blacks. Ethnicity & disease, 24(2), 150.

Amir, D., Valeggia, C., Srinivasan, M., Sugiyama, L. S., & Dunham, Y. (2019). Measuring subjective social status in children of diverse societies. Plos one, 14(12), e0226550.

El Taguri, A., Betilmal, I., Mahmud, S. M., Ahmed, A. M., Goulet, O., Galan, P., & Hercberg, S. (2009). Risk factors for stunting among under-fives in Libya. Public health nutrition, 12(8), 1141-1149.

Equal Measures 2030, https://data.em2030.org/countries/indonesia/, last accessed 30.8.2020

Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001). Adolescents' perceptions of social status: development and evaluation of a new indicator. Pediatrics, 108(2), e31-e31.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. Behavioral and brain sciences, 33(2-3), 61-83.

Kollo, F. L., & Sunarso, S. (2018, November). Patriarchy Culture and Injustice for Women in Politics. In Annual Civic Education Conference (ACEC 2018). Atlantis Press.

Kumar, B. R., Dudala, S. R., & Rao, A. R. (2013). Kuppuswamy's socio-economic status scale–a revision of economic parameter for 2012. Int J Res Dev Health, 1(1), 2-4.

Massey, A. R., Byrd-Craven, J., Auer, B. J., & Swearingen, C. L. (2015). Climbing the social ladder: physiological response to social status in adolescents. Adaptive Human Behavior and Physiology, 1(1), 72-92.

Ostrove, J. M., Adler, N. E., Kuppermann, M., & Washington, A. E. (2000). Objective and subjective assessments of socioeconomic status and their relationship to self-rated health in an ethnically diverse sample of pregnant women. Health Psychology, 19(6), 613.

Sathiparsad, R., Taylor, M., & Dlamini, S. (2008). Patriarchy and family life: Alternative views of male youth in rural South Africa. Agenda, 22(76), 4-16.

Smaldino, P. E. (2019). Social identity and cooperation in cultural evolution. Behavioural processes, 161, 108-116.

Tanu, D. (2014). Becoming 'international': The cultural reproduction of the local elite at an international school in Indonesia.

Tajfel H, & Turner JC (1986). The social identity theory of inter-group behavior In Worchel S & Austin LW (Eds.), Psychology of intergroup relations (pp. 7–24). Chicago: Nelson-Hall.

Wulan, R. R., & Bajari, A. POST COLONIAL STUDIES IN INDONESIA: WOMEN IDENTITY IN COLONIAL MECHANISM.

# Figures and Tables

**Table 1**   Number of Indonesian children (boys and girls) by age and school.

**Table 2**   Output values of the Multiple Linear Models per cohort with the variables that explain the variance of the Ladder Test outcome the best (generated via a Step-wise Regression, a p-value of 0.1 was considered as significant, Significant Codes:  0.00 = ***, 0.01 = *, 0.05 = .).

**Fig. 1**   This picture of an eight-level ladder illustrates a wooden toy ladder that was used to assess the pupils self-perception within the society. Via putting their finger on it the children were asked where they see themselves most represented on the ladder, with level 8 regarded as the most powerful (presidential like), level 6 as a respected citizen (medical doctor) and each step below as persons of decreasing importance and power.

**Fig. 2**   Distribution of the Ladder Score results per school. The Kruskal-Wallis Test showes no significant difference between the means: Chi$^2$ = 1.25, df = 2, p = 0.53 (School 1 = private school, School 2 and 3 = non-private school).

**Fig. 3**   The Box-plots of each age show that the median ranges between 6 and 7. The Kruskal-Wallis Test shows no significant difference in means between the age groups: Chi$^2$ = 10.222, df = 8, p = 0.2498.

**Fig. 4**   Linear relationship between age and Ladder Score for private and non-private schools. Private School: intercept = 7.4, slope = - 0.156, p-value = 0.0398 *, Non-Private School: intercept = 8.87, slope = 0.0375, p-value = 0.314.

**Fig. 5**   Ladder Score distribution per sex. The Mann-Whitney U Test shows no significant differences in means between the groups (W=0.624, p = 0.29).

**Fig. 6**   Linear relationship between the social variables and the Ladder Score for private and non-private peers. Note: If the variable is part of the multiple linear model output (using step-wise regression), the concerning cohort is printed bolt. If there is a significant relationship according to that model, this is also added to the title (Signif. Codes:  0.01 = *, 0.05 = .).