**Modified Attitudes Towards School, Teacher And Peers Are Found In Networks Of Mixed Ethnicity**

**Mary-Anne Holfve-Sabel**

University of Borås, Sweden

*Presenting Author:* **Holfve-Sabel, Mary-Anne**

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Many countries experience large-scale migration with immigrant children experiencing new countries, new surroundings and schools. Although many immigrant students may display general optimism about opportunities in their new country, many obstacles remain to be solved. The adaptation of these new students is often evaluated from their school engagement (Suárez-Orozco, 2001). Recently Chiu et al. (2012) published an OECD-PISA-study from 41 countries around the world, 27 of them European states, showing that immigrant 15-year-old students had better attitudes toward school compared to native students, but weaker sense of belonging to school. In pre-adolescence interaction of group members of the same age is important (Lease, Musgrove, & Axelrod, 2002). Children with low acceptance by their peers have more limited opportunities to adapt socially, which might also undermine their academic progress (Parker, & Asher, 1987). Especially learners with uneven profiles, which may be the case with many immigrant children, may benefit from interaction with peers (O'Donnell (2006). When pupils experience only rare positive relationships in their neighbourhood outside of school they become more dependent on relationships within the school they belong to. It is essential that the school institution demonstrates coherent strategies towards behaviour in order to promote relationships with all members (Roffey, 2012). Apart from acceptance and good relationships with peers and students' learning, teacher-student relationship plays an important part of student well-being at school, and the feeling of belonging to school. A high scoring of well-being in a classroom is connected to a number of critical issues with impact on educational outcomes (Holfve-Sabel, 2014a).

Interethnic contact has been shown to be positively related to favourable out-group attitudes in a majority of studies compiled by Pettigrew and Tropp (2006). It cannot be assumed from their study, however, that ethnically mixed schools will promote more tolerant attitudes to immigrants generally, since they did not investigate mixed group settings and the studies mostly concerned interracial attitudes. Recently Janmaat (2014) published an investigation of 14-year-old native students' attitudes to inclusion views of immigrants, covering 14 countries, 13 of them European. He found that inclusiveness was much stronger in countries with substantially more second than first generation immigrant students. He concluded that this discrepancy may be a temporary problem.

Sweden has experienced an increasing residential segregation (Yang Hansen & Gustafsson, 2012), and there is great variability of ethnicity between school classes (Gustafsson, 2006). In a recently published study including 1697 students from 78 classes in Göteborg it was found that students' choice of peers to work with during lessons had an equal strength of coherence, independent of the type of network, i.e. Scandinavian, non-Scandinavian or mixed origin (Holfve-Sabel, 2014b). Segregation within schools thus was at least partly neutralized by peer effects seen in students' voluntary choices.

The present investigation is exploring a spectrum of attitudes to school, teacher and relations to peers offering a more complete picture of students' adaptation to their school class and the dependence of the type of network the students' voluntary have chosen during breaks.

The research questions more generally were: Are there any difference between networks of Scandinavian, non-Scandinavian or mixed composition in attitudes to school factors and relational factors?

*Methodology*
Self-reports on attitudes from 1085 12-year-old students in 55 classes in grade 6 in Gothenburg, Sweden were sampled. Their responses to 40 questions with five alternatives were used in confirmatory factor analysis on individual (within-class level) and between classes (Holfve-Sabel, 2006). On within-class level seven attitude factors were found; Interest in School (IS), View of Teacher (VT), and Work Atmosphere (WA). These factors were labelled "school factors" while Relations with Classmates (RC), View of Peers (VP), Lack of Anxiety (LA) and Perception of Disruption (PD) were labelled "relational factors" and presented as z-scores for each student and for each factor.

Each student was also asked to write the name of 3 peers he/she preferred to play with during breaks in the order 1-3. A Matlab program (Bengtsson & Holfve-Sabel, 2013) was used for calculation of semi-symmetrised matrices identifying reciprocal (bilateral) choices. The interpersonal data were given numerical weights: 0.6 for first choice, 0.3 for second and 0.1 for third choice. The highest eigenvalue (SSI) of the network indicated the coherence of each network. Three categories of network were identified by names of the members (Holfve-Sabel, 2014b), i.e. category 1) Scandinavian, 2) non-Scandinavian and 3) mixed networks. Members outside networks were labelled "single". Information about first- or second-generation migrant was not available. Data were analysed using IBM SPSS Statistics 21.0 (ANOVA with Tukey post-hoc test, t-tests or non-parametric tests, correlation) and WinPepi statistical software for epidemiologists ($\chi^2$ test). Statistical significance was set at $p < .05$. Cohen's d was used to illustrate effect-size.

**Conclusions, expected outcomes or Findings**

875 students (52.6 % girls) had reciprocally chosen each other in preference to play with during breaks, while 210 individuals (59.5 % boys) remained single. The average number of students in the classes was 22.3 (SD 4.7). About 1/5 of the total number was non-

Scandinavian (21.6 %). Thirteen of the classes had Scandinavian students only, 11 had 10-30 %, and 14 classes had 31-94 % non-Scandinavians and in one all were non-Scandinavians. There was no difference between the proportions of Scandinavian to non-Scandinavian students in network, or between genders represented in network. In a total of 235 identified networks 139 represented category 1, 23 networks category 2 and 73 networks represented category 3. Single students showed no difference of attitudes in any of the 7 factors when Scandinavians were compared with non-Scandinavians. The number of members or the structure of networks did not differ between the 3 categories. Members within all the network categories were analysed with ANOVA and differed markedly (p 0.000) in IS-scores. Most positive was the non-Scandinavians (category 2) which had the highest scoring with a highly significant difference (p 0.000) compared to category 1 and to category 3. Working Atmosphere also differed, with a significantly higher mean value for category 2. View of Teacher showed very large variation especially in category 2. The same pattern was seen in the relational factors. Non-Scandinavians in the mixed group had lower mean scores of IS then members in category 2, although higher than their peers of Scandinavian origin in category 3. Non-Scandinavians in group 3 had markedly better correlations between IS and the other factors (e.g. VT, VP, PD) compared to Group 2. It is concluded that non-Scandinavian students in mixed classes choosing Scandinavian peers had more varied attitudes to their teacher and peers than those in non-Scandinavian networks.

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