

# **The Company You Keep**

The Effects of Peers and Disruptive Behavior on Educational  
Achievement and Choice of Education

**PhD Dissertation 2016**

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## Resume

I denne afhandling undersøger jeg en af de mekanismer, der skaber sociale uligheder i uddannelse. Afhandlingens primære fokus er, hvorvidt og hvordan elevsammensætninger påvirker læringsudbytte og uddannelsesmæssige beslutninger. Afhandlingen bidrager med en dybere forståelse af kammeratskabseffekter ved at anvende kvasi-eksperimentelle metoder, og derved undersøge de årsagssammenhænge der er imellem elevsammensætninger og læringsudbytte og uddannelsesmæssige beslutninger.

Forskningen der præsenteres i denne afhandling viser, at selv i et socialt og økonomisk lige samfund som det danske, er der stadig tendens til at have ulige resultater i uddannelse. Elevsammensætningerne i klasser og skoler kan have positive som negative effekter på de enkelte elevers valg af uddannelse efter grundskolen og afgangskarakterer. Afhandlingen viser at kammerater kan have vidt forskellige betydninger for hvordan den enkelte elev klarer sig i uddannelsessystemet, afhængig af kammeraternes og elevens egne karakteristika.

## Summary

In this dissertation, I examine one of the mechanisms that create social inequalities in education. The dissertation's focus is whether and how student compositions affect learning outcomes and educational decisions for the individual students. The dissertation contributes to a deeper understanding of peer effects using quasi-experimental methods, and thus the causal relationships between student compositions, learning outcomes and educational decisions.

The research presented in this dissertation, shows that even in a socially and economically equal society such as the Danish, there is still tendencies for unequal outcomes in education. The student compositions can have positive and negative effects educational outcomes, such as the individual student's choice of education and educational achievements. The dissertation shows that peers can have different influences on the individual student is doing in the education system, dependent on peers' and the student's own characteristics.



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# 1. Introduction – Research in Peer Effects

The 20th century saw large expansions in the educational levels of the populations of post-industrialized countries. A consequence of the post-industrialization is that many trades and industries are declining, creating a larger demand for skilled labor. Although governments and states have heavily invested in their respective education systems, educational attainment still varies with social origin. Sociologists have therefore looked at schools as both resources to counteract the inequality of educational opportunity and as producers of inequality of educational opportunity. One of the most debated works on schools as resources for educational achievement is the “Coleman Report” by James S. Coleman and colleagues (1966). This immense work on the American education system in the 1960s had as its basic premise that the students’ outcome should be equal, irrespective of the students’ social origins, race or gender. The Coleman Report found that social origin and race had a large association with differences in students’ learning and achievement and hence social inequalities in educational opportunities.

School quality measured as, for instance, per pupil expenditure and size of school library had a very small effect on the students’ learning outcomes, especially when compared to the effect of the students’ social background characteristics, such as race and socio-economic status. The student composition, however, showed a large association with students’ learning outcomes. This result suggested that manipulating the peer composition, or school body at large, rather than the expenditure per student had amenable effects on the most disadvantaged students in terms of academic achievement (Brock and Durlauf 2001).

The report’s findings were controversial and underwent an almost unprecedented academic scrutiny, leaving a still existing mark on the research community within the fields of sociology of education and economics of education (Cain and Watts 1970; Goldberger and Cain 1982; Goldsmith 2011; Jencks and Brown 1975; Kandel 1978). The report was not only influential within the research community, but also in the public policies, e.g. in the form of desegregation of students and busing of disadvantaged students to schools with a more advantaged student composition and de-tracking schools.

The report both led to theorizing about the importance of the social interactions amongst students, and more methodological discussions (Heckman and Derek 1996). One of the main problems with the report was the methods used to investigate the relationship between peer effects and educational achievement. The authors behind the report assumed that all relevant effects of the peer groups included in the statistical models could be seen as exogenous. The peer group, however, is not a randomly determined entity. Rather, the peer group is selected; parents select the schools which the children should attend, and the children themselves sort into groups or cliques, based upon various social mechanisms. More wealthy or otherwise resourceful parents

may choose to send their children to schools with a high-ability student composition; an option that might not be possible for less resourceful parents. The statistical separation of peer effects from other possible effects, such as individual characteristics or contextual effects, such as the school or neighborhoods is further troubled by the fact that the effect of peers on student achievement is determined simultaneously with the student's own achievement, which in turn might also affect the peers' achievement. This simultaneity was not accounted for in the Coleman Report, and has since been a subject under scrutiny. The Coleman Report thus generated an increased interest in peers as resources for equality of educational opportunity, in the sense that peers can provide resources that the individual student would not receive elsewhere (Flashman 2012b). Overall, the research building upon the Coleman Report shows that peer influence is a complex matter that operates through various mechanisms and channels.

In this dissertation, I investigate heterogeneity in peer effects on educational choice and educational achievement. The dissertation addresses sociological theories of peer influence within educational contexts and tests these theories by using newly developed econometric and social network methods.

The dissertation contributes and extends the sociological research on peer influence along three lines. First, I use econometric methods to identify and investigate how peers affect educational outcomes, by addressing problems of endogeneity of peer group selection. The use of more rigorous methods provides a harder test of the applied theories, leading to more knowledge of the mechanisms that operate underneath what is known as peer effects.

Second, I extend the research on peer effects by addressing the fact that not all peers are equal and therefore have heterogeneous effects on the individual students. This means that I address the structure of peer effects. Along with the econometric methods, this means that some of the investigated theories could be revised, based upon new evidence of peer effects.

Third, using sociological theories of peer influence in education, I both directly and indirectly model the mechanisms through which peer effects operate in relation to educational outcomes. The dissertation therefore contributes to the field of sociology of education and more generally to the field of social stratification.

The research presented in this dissertation, generally suggests that even in a socially and economically equal society as the Danish, there is still a tendency to have unequal outcomes in education. The dissertation further shows, that although the Danish education system is formally un-tracked the students are informally segregated based on their preferences of friends and achievement, leading to unequal outcomes of educational achievement.

This introductory chapter is organized in the following way: First, I define what is meant by peers and perhaps more crucially, what is meant by peer effects. I then offer a short introduction to the problems of investigating peer effects. Following this, I explain the theoretical and methodological underpinnings of the dissertation and then introduce the remaining four chapters of

which this dissertation consists, followed by conclusions on the research shown in this dissertation.

### **Definition of Peer Effects**

In this dissertation, peers are defined as a group of students who attend the same schools. I therefore, possibly, exclude other persons that might affect the individual students, such as best friends who do not go to the same school or other social networks in which the individual might be involved. This exclusion, however, does not affect the term of peer effects used here, as I am interested in the effects from the spillovers from the persons with whom the students interact within the school. These persons are the ones who are most likely to influence the individual students during classroom activities – either through the level of disruptions the students create or participation in classroom activities – and be used as a point of comparison for the students (Jonsson and Mood 2008). Although the number of disruptions within a classroom rises with the number of students in a classroom (Lazear 2001), peer effects are not conceived as the number of students within the schools or classrooms. The number of students is instead conceptualized as a school resource or environmental effect that is distinct from peer effects.

The term “peer effects” is also broadly defined as externalities in which the peers’ background characteristics, behavior or outcome spillovers and affect the individual students’ educational outcomes. If, for instance, a student is placed in a peer group with a norm of committing to doing their homework and the student thus does more homework, then this is conceived as a peer effect. Likewise, if the student is placed in a classroom with students who disrupt the teachers’ teaching and demand disproportionately more attention from the teacher, leading to lower academic achievement for the individual student, then this is also a peer effect. Although peer effects are defined in broad terms, the definition of peer effects is thus effects that are conditional on the context of the individual student, which might directly or indirectly affect the inequalities in educational achievement or attainment. Peer influence is thus defined as any social process by which a student changes his or her individual behavior in response to his or her social context and actions of other individuals (Weber 1978). This definition also includes students becoming more similar to one another in response to their peer group, or changing a behavior if other students do the same.

### **The Problem of Studying Peer Effects**

Though it has been almost 50 years since the publication of the Coleman report, there is still disagreement about the existence and importance of peer effects (Abulkadiroglu, Angrist, and Pathak 2014; Angrist 2014). Though ethnographic studies and qualitative interviews suggest the existence of peer influence in education, risky behaviors, delinquency and labor market outcomes (e.g. Fletcher and Bonell 2013; Giordano, Cernkovich, and Holland 2003; Milner 2013), these studies also have problems of separating the actual influence from peers or friends, from