



Relationship patterns in the 19th century: The friendship network in a German boys' school class from 1880 to 1881 revisited



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ABSTRACT

The article presents a friendship network from 1880 to 1881 in a school class, which goes back to the exceptional mixed-methods study of the German primary school teacher Johannes Delitsch. The re-analysis of the historic network gives insights into what characteristics defined the friendship networks in school classes in Germany at the end of the 19th century. ERGMs of the so far unmarked data show structural patterns of friendship networks similar to today (reciprocity, transitive triadic closure). Moreover we test the influence of the class ranking order (Lokationsprinzip), which allocates the pupils in the class room according to their school performance. This ranking order produces a hierarchy in the popularity of pupils, through hierarchy-congruent friendship ties going upwards in the hierarchy. In this respect, concerning the effect of school achievement on popularity, we find a strong stratification, which is not always prevalent today.

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1. Introduction

A look at the history of social network analysis shows that the first attempt to find structural principles goes back to the 30s of the 19th century: worthy of mention are e.g. Auguste Comte (1830–1842) and Alexis De Tocqueville (1835–1840). The decisive conceptual step is often attributed to the sociologist Georg Simmel (1908), who provides network thinking in the center of his theoretical approach.¹ The first big wave of "network" studies were chronologically and geographically located in the middle of the 20th century in the Anglo-American region (for a historical overview see Freeman, 1996, 2004; Gamper and Reschke, 2010). However "Child Study", and later on "Sociometry", deserve a special mention, since they represent precedent empirical approaches to social networks. In these early studies² e.g. made by Almack (1922), Wellman (1926), Bott (1928), Hubbard (1929) and by Moreno (1934) friendship relations between pupils in schools were the subject of interest. A look at these early studies shows, that the

meaning of friendship can shift within sociocultural and historic boundaries. However friendship ties have been always regarded as essentially meaningful especially for the development of a sense of identity and for a positive primary socialization (DuBois and Hirsch, 1993; Douvan and Adelson, 1966). Therefore it is not surprising that social network research tends to this day to focus on friendship networks of pupils.³ Nowadays questions revolve around the effects of school performance (Kandel, 1978; Lubbers and Snijders, 2007; Knecht, 2008), of social status (Adler and Adler, 1995), of gender (Goodreau et al., 2009; Lubbers and Snijders, 2007), of ethnic affiliation (Snijders and Baerveldt, 2003; Knecht et al., 2010), and of age (Crockett et al., 1984) on the formation of friendships. Especially the questions, which pupil's characteristics are rewarded with popularity have drawn attention. Popularity friendship research in school classes asks which pupils tend to attract much friendship avowals. Since friendship formations and popularity rankings in schools reflect also how social ties operate in the larger society, as Coleman (1961) argues, the study of pupils friendship networks can generate conclusions on the functioning of such processes on a more general level.

Against this backdrop we present one of the earliest studies – maybe the earliest study – in the field of social network analysis

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¹ Hollstein showed that Simmel revealed different kinds of structural configurations which are still used in current network analysis (Hollstein, 2001, 2008).

² An early network analysis regarding the homophily of friendships in school classes can be found in Monroe (1898).

³ There are probably also methodological reasons for the ubiquity of friendship networks in school classes as a topic of network analysis. School classes are easily accessible, have rather well-defined boundaries, and are not too big in size.

which was carried out prior to the theoretical foundations of network thought by [Simmel \(1908\)](#) or the empirical works which were mentioned above. In the year of 1880–1881 the German teacher Johannes Delitsch collected socio-relational data of a class with 53 pupils with the aid of a sociomatrix. The results were published in the year 1900 in the ‘*Zeitschrift für Kinderforschung*’ (‘Journal of Child Study’). Delitsch’s empirical work is a germ of early social network analysis and an unmarked curiosity of its history. First it provides an insight into the process of friendship formation in school classes during an interesting time where western states were establishing their public education sector ([Hofstetter and Schneuwly, 2006](#)). Furthermore, the empirical approach was methodologically elaborated and in form and content a distinguished work in its own right. With the aid of a mixed method approach he collected quantitative and qualitative data which has started to grow in popularity in the network-research community only recently (e.g. [Gamper et al., 2012](#); [Hollstein, 2010, 2011](#)). The analysis of this data promises insights into what characteristics defined friendship networks in school classes in Germany at the end of the 19th century and how the school class can be described in regard to transitivity, reciprocity, clique behavior, and stratification. The huge amount of knowledge accumulated in more than one hundred years of research on friendship ties in school classes makes a look back on this early forgotten work from today’s perspective a promising endeavor.

Since the original study by Delitsch was written in German, the access to his work is hindered for the present-day social network analysis community. Furthermore the special historical and scientific context of the original study has to be clarified, to further elucidate the work. Therefore, we take a closer look at the original data collection process and the presentation of the dataset. In the original article many of his hypotheses remain implicit, and he also lacks the modern statistical tools to test them thoroughly. Therefore we put forward new hypotheses in reformulating implicit assumptions by Delitsch, and align them to what we theoretically and empirically know today about friendship networks in school classes. In our statistical model we take a deeper look at structural characteristics of friendship ties for the pupils in this primary school class like reciprocity and different forms of triadic closure. Beyond this we analyze the relationship between the class ranking position, which depends on the marks of the pupil, and the pupil’s popularity. We test whether this effect is produced through a higher probability of directed friendship ties going up in the hierarchy in opposition to ties going down. Furthermore we modify our model by including special terms for exceptional pupils Delitsch described with qualitative methods. He argued that the four repeaters and a ‘sweets giver’, a guy who gives sweets to other pupils, have a higher popularity in the class. On the other hand pupils with a physical, psychological or social disability are less popular. Through this approach, we can discern, whether the mixed-method approach by Delitsch produces a benefit for the statistical model. At the end we draw a short conclusion.

2. Historical and academic context of the Delitsch study

Delitsch’s study is not only worthy to be recognized in respect to the history of social network analysis, but also because of the historical insights it gives. The German empire at the end of the 19th century is an interesting historical context for an analysis of friendship networks in school classes. In the 19th century the nation state was a decisive agency for establishing public schooling in Western civilization: ‘schooling gradually became an affair of State, each and every one considering that the nation’s future was at stake’ ([Hofstetter and Schneuwly, 2006](#): 1; see also [Tröhler et al.,](#)

[2011](#)). The objective targets differ thoroughly in content and topic among the national educational systems, however: In the US the establishment of a national democratic identity was prevalent to aid in integration of the unending stream of immigrants, whereas in Germany – which did not become a national state until 1871, comparatively late in the history of European state formation – public schooling was supposed to help develop *one* national consciousness in the many former kingdoms and principalities. The latter was defined more strongly by hierarchical structures than current societies – at least in the so-called ‘western’ world. According to national stereotypes, this was especially true for the German empire where militarism was very visible in public life. Though current historic research qualifies the image of a totalizing militant society in the German empire ([Clark, 2006](#): 596–611), from a sociological perspective it is nevertheless beyond question that the relation between individual and community was defined on different terms than it is today.

At this important period Delitsch carried out his mixed method study which was published in the German ‘*Zeitschrift für Kinderforschung*’ (‘Journal of Child Studies’).⁴ This journal was founded in 1896 by a group of pedagogues, medics and theologians in order to deal with psychological aspects of child education and therapy ([Trüper, 1896](#)). For this purpose the articles strongly referred to a ‘new’ tradition of research that spread from Northern America and Great Britain to continental Europe at the turn from the 19th to the 20th century ([Ufer, 1896](#): 117). The so called Child Study Movement deployed positivist notions of science and Darwinian theory in order to study children ([Depaepe, 1993](#)). This new paradigm provoked a great number of empirical research projects that affected the education of children ([Hulbert, 2003](#)). In order to gain knowledge about the ‘nature’ of the child, parents, teachers, and doctors started to observe their children systematically in everyday life ([Eßer, 2011](#); [Tervooren, 2008](#)). Although ‘Child Study’ as a movement came to an end around the beginning of World War I ([Depaepe, 1993](#): 54), the long lasting effects may not be underestimated (e.g. [Ryan, 2011](#)).

Delitsch and his network study, which was published in 1900, fitted well into the framework of the German Child Study journal. This may be understood thematically as well as biographically: Johannes Delitsch was born in 1858 into a bourgeois home in Leipzig/Saxony and started his career as an elementary teacher in the provincial town Plauen in 1882 ([Schmidt, 2008](#)). There he founded a special class for handicapped children and, later on, became the first principal of the school for mentally handicapped children. Besides that, he was socially committed to the foundation of a local youth services organization and worked as a house teacher. Other than his empirical study on pupils friendships Delitsch published articles on social welfare for mentally handicapped juveniles ([Delitsch, 1912](#)) and neglected children ([Delitsch, 1910a,b](#)) in the ‘*Zeitschrift für Kinderforschung*’. Johannes Delitsch died in 1920 at the age of 61 ([Fig. 1](#)).

Delitsch’s study on his school class is remarkable in several respects even within the context of the Child Study Movement. Whereas the importance of nurture for the development of children was broadly discussed, comparable empirical approaches to peer culture are hard to find. Delitsch had already conducted the fieldwork to his article in the years 1880/1881. Contrastable and influential studies of that time focused on the observation of the single child’s development (i.e. [Darwin, 1877](#); [Preyer, 1882](#)). While for many of his contemporaries the mind of the child was the object of interest ([Shuttleworth, 2010](#): 359), Delitsch was

⁴ For a closer description of the journal see also [Eßer \(2010\)](#).

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