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Lauri Luoto

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Identifying prominent actors in historical networks: The case of the New Education movement

Lauri Luoto

Department of Education, University of Turku

ABSTRACT

Social network analysis is becoming increasingly popular for studying the past. However, during the last decades, studies have applied pre-collected datasets for social network analysis, which limits the use of the method to cases where such data is available. This article presents another approach whereby two-mode network data are collected from less structured documentary sources, and the findings are enriched with documentary evidence. The approach is used to analyze how 42 notable members of the British New Education movement between 1905 and 1935 were affiliated with 31 organizations. The analysis provides empirical support for the previously proposed idea that there were two kinds of prominence within the movement: that of conveners, who formed close-knit groups with like-minded people, and that of mediators, who built bridges between such groups. Moreover, we discuss how this structure helped the movement to achieve its goals of more up-to-date, equally available education. The method presented in the article is suitable for researchers working with bibliographical or archive material in various domains.

KEYWORDS

Social network analysis; two-mode networks; New Education movement; history of education

Introduction

In May 1924, famous psychoanalyst Carl Jung undertook a lecture tour in London. During one of the events, novelist H. G. Wells approached Beatrice Ensor, the organizer of the tour, to ask if she could introduce him to Jung. What followed had long-lasting consequences. Beyond the introduction, Wells asked them both back to supper at his flat, and Ensor recalled, "[I]t was so interesting to hear those two men discussing" (as quoted in Turner 2006, 23). From that day, Jung and Wells became familiar with each other, and they built an occasional relationship, showing interest in each other's works and thoughts (Draper 1987; Jung 1929).

This initial encounter between a Swiss professor and an Englishman most known for his fictional novels characterizes how the international New Education movement was spreading at the time. The remarkable movement, with its golden age in the first quarter of the twentieth century, aimed to incorporate new moral doctrines and discoveries in the field of child study into intellectual discussions and, eventually, school practices. The central demands of the movement included offering public schooling to more children and moving from the curriculum based on the three Rs—reading, writing, and arithmetic—to a pedagogy that would promote both the intellectual and personal development of pupils. The New Education reformers believed that changes in schooling could help to address the social problems of the time, including juvenile delinquency.

This article contributes to the discussion on New Education, much of which is focused on its transnational influences (e.g., Hai et al. 2020; Middleton 2017), by demonstrating what kind of national networks were built that spread its ideas across one of the prime moving countries, the United Kingdom of Great Britain (UK). The present study analyzes what kind of structure made it possible for the movement to remain influential for several decades even when social conditions changed. Moreover, the article demonstrates a method of conducting formal network analysis using varying biographical sources, an approach that has been applied in few if any historical studies. Amid growing interest in using network analysis in historical studies, this study combining

CONTACT Lauri Luoto laeflu@utu.fi Department of Education, University of Turku, Turku, FI-20014, Finland.

qualitative and quantitative approaches provides new perspectives on whether and how network measures have correspondence to historical reality.

Thus far, it has been argued that the narratives of the movement foreground the ideas and activities of men. Women appear in the texts, but always as wives, sisters, followers, assistants, and believers and rarely as leaders, idealogues, founders, or policy makers (Hilton and Hirsch 2000, 1). Beatrice Ensor[1] is a good example of an actor who did not hold a politically influential role and was not an author who introduced shaping ideas. Today, she is not the subject of an entry in the *Dictionary of British Educationists*, let alone the subject of a full biography. Nevertheless, having founded perhaps the most remarkable organization in the field, the worldwide New Education Fellowship (NEF), Ensor was in a key position to bring people together. By focusing on people's networks rather than their achievements, the article looks at the agents and their interactions that have not yet been an object of historical interest but have greatly influenced educational developments on the local, national, and international levels (Fuchs 2007, 185–6). As such, this article discusses how the network method may be used in historical scholarship to give a voice to underrepresented actors.

New Education was partly rooted in the struggle of women to be admitted into the public sphere and the sphere of paid work. The former struggle culminated in the granting of votes to women over the age of thirty in 1918, while the professionalizing project of women benefited from the development of teacher education and opportunities for careers within education. Because there were few viable employment alternatives for women, teacher training colleges enabled social rises for many young women from lower middle-class and professional homes. The teaching force in the elementary system became substantially feminized, increasing from 50% women in the 1870s to 75% by 1914 (Hilton and Hirsch 2000, 10). Beginning in the late nineteenth century, the growing participation of the children of the industrial poor in formal education challenged pedagogy based on submissive obedience and the "three Rs" curriculum. The challenge of adapting the schooling system to handle a larger number of students from more diverse backgrounds required, as women educationists advocated, the recognition of the science of proper child nurturing and the acceptance of teaching as equal in status to other, male-dominated professions (Hilton and Hirsch 2000, 12–3). This project was implemented by founding various professional organizations and teachers' training colleges and by establishing the first professorships in the field of education at the beginning of the twentieth century.

As a social movement, New Education was a combination of interrelated interests, with no obvious leaders or shared theories. Usually, the various ambitions were promoted on separate platforms. Concern for the social conditions of the working classes, the creation of a new, science-based teaching profession, and the testing of radically new approaches to learning took place under the auspices of various schools, associations, and interest groups. The use of sophisticated network analysis measures along with other source material helps with the identification and discussion of how these groups interacted. In addition to identifying prominent persons among the reformers, this paper discusses the different, mutually supportive, kinds of prominence in the British New Education movement.

Research approach

Network analysis in historical studies is not a unified approach but rather a collection of intersecting traditions with diverse theoretical underpinnings. Traditionally, historical network analysis has been done primarily by sociologists. It has dominantly been, as was indicated by the editors of the inaugural issue of the *Journal of Historical Networks*, "undertaken by historical sociologists rather than social historians and has thus remained mostly outside the sphere of traditional academic history departments" (Rollinger et al. 2017, v). This tradition has contributed landmark works (e.g., Padgett and Ansell 1993; Rosenthal et al. 1985) as well as studies that lean on particular social science theories to uncover the historical past, such as the diffusion of innovation (Edwards 2014; Jackson 2016, 338).

Another established tradition within the application of social network analysis takes place under the umbrella of the digital humanities and new social history. The researchers of this tradition focus on people, themes, and sources that previously have been mostly dismissed by mainstream historians, such as tax registers and records of marriages, which, in many cases, capture ordinary people's life experiences. In recent years, this approach has enjoyed increasing attention due to the increased availability of digitized materials that are often searchable due to optical character recognition (OCR), which allows for big data applications (Lemercier and Zalc 2019, 19–22; Morrissey 2015).

Yet another tradition consists of more interpretive approaches, such as prosopography or collective biography, where network analysis or other quantitative methods are used along with other approaches or where prosopographical data are used to interpret network observations to support understanding of the past in all its complexities (Schipper and Spekkink 2015; Verbruggen 2007). The present study follows this tradition in the sense that documentary data are utilized along with structural analysis. In terms of research data, the study continues the long line of inquiry of studying board interlocks, which refers to individuals who have several concurrent memberships, such as board memberships, and who thus have a structural position that allows for the spreading of ideas and information. Interlocking has been used in historical studies, among others, to identify "big linkers" within boards (Wilson, Buchnea, and Tilba 2018, 781–2).

Besides the research question, the choice of methods depends on what kind of data is available. As a rule, for a network analysis, one needs comprehensive information about the existence or nonexistence of a tie between all persons concerned. While this kind of information cannot usually be gleaned afterward using standard historical sources, such as correspondence, attention has often been directed to more accessible resources, such as membership lists and other affiliation data generally available in archives. Many recent studies have applied a two-mode approach, where the data are not about interactions between people but about people's co-appearance at the same events, as found in public documents (Jackson 2016; Ochab, Škvrňák, and Škvrňák 2022) or membership lists (Han 2009; Wilson, Buchnea, and Tilba 2018). On some occasions, people are connected by multiple relations (Bingenheimer 2018; Levine 2021).

Many recent works, including those named above, have applied pre-collected datasets, such as databases or published membership lists, which support the use of large research data but limit the method's usefulness to cases where such data is available. Collecting data systematically from documentary sources enables contributions to a wider variety of historical debates by utilizing widely available sources, such as biographies and archives of organizations.

Constructing the research data

As archives are often organized by people and organizations, they can be easily considered representations of two-mode networks, the data of which consists of memberships in organizations. This article follows an approach in which the source material has been treated as both structural network data and documentary data, which can be used to verify and understand structural observations. This approach, where not every source is considered qualitative or quantitative as such but has the potential to go in both directions, enables the building of network data even from less structured material (Sandelowski et al. 2009).

The collection of information about affiliations from unstructured historical sources has famously been applied in the past. Davis, Gardner, and Gardner (1941) studied women's stratification by class in Mississippi in the 1930s by collecting systematic data on the attendance of 18 women at 14 informal social events using sources, such as guest lists and newspapers. The collected data have been used in a dozen recent research articles on two-mode network analysis methods, and the dataset has become a *de facto* standard for testing new two-mode methodologies (Freeman 2003). Rosenthal et al. (1985) studied nineteenth-century women's reform in New York State, for which the authors compiled a list of women mentioned in three biographical dictionaries and then collected their organizational affiliations from biographies. More recently, the data collection method presented above has not been very popular in historical studies, despite the increased availability of biographical material. The method makes it possible to conduct research with material where almost no information has been preserved about individuals other than the specific organizations to which they belonged, thus helping the historian handle sources of varying quality.

The present work applied reputational sampling, where the researcher studies all or some of those named on a list of nominees produced by knowledgeable informants (Scott 2017, 48). While there is no scholarly consensus about the boundaries of the New Education movement, all 948 persons who were mentioned in one of the five most comprehensive sourcebooks on New Education were initially considered.[2] Only one person, Homer Lane, who founded a pioneering school for delinquent children in 1913, was mentioned in all five books, and 10 others were mentioned in four books. In total, 757 people are mentioned in just one book. As the sourcebooks have slightly different emphases on time and content, the number of mentions has not been the sole criterion for selecting reformers for closer examination. Instead, the list was shortened using cascading exclusion criteria.

Pioneering New Education organizations had already been founded during the last quarter of the nineteenth century, but societies gathering wider masses operated

mainly between ca. 1905 and ca. 1935. First-generation reformers within the movement had mostly retired by 1905, and the importance of the organizations where they had operated decreased. The following high points of the movement were affected by the landslide victory of the Liberals in the 1906 election which eventually led to many social changes. During the 1930s, the movement lost much of its importance because many of its central demands had been echoed by the government. This is an indication of the movement's success. Thus, the period covered in the present analysis constitutes one clear stage of educational reform, and people who contributed mainly before or after the period covered were excluded, as were people who were obviously irrelevant to our purpose. The excluded group includes individual pupils and teachers at pioneering schools, writers from whose texts individual quotations had been taken, and rank-and-file participants of large gatherings who were presented in sourcebooks merely for illustrative purposes. These criteria eliminated 792 persons.

A further 114 persons were excluded due to their lesser importance. Either they operated mainly outside of the UK, or their contribution as authors or officials of organizations was considered local or momentary. In some cases, assessments of the importance of the persons were not consistent across the sources, or views may have changed in this respect since the sourcebooks were published. Therefore, emphasis was placed on how extensively the persons were involved in the movement. Some influencers from overseas, such as the already discussed Carl Jung, inspired their British followers or lent their faces to distribution campaigns. However, they did not actively participate in the activities of local organizations to put reforms into action, which is the subject of this study. After these exclusions, the final list consisted of 42 persons.

Strictly narrowing down the group for examination is essential both to maintain the focus of the study and because the network relationships have to be collected manually for all the persons in question. Besides the above-mentioned sourcebooks and general references, such as the *Oxford Dictionary of National Biography*, both biographies and histories of the organizations were consulted to collect the list of organizations with which the persons were affiliated. As new organizations emerged during the course of the study, published sources about those organizations were consulted to see whether other reputational members were also affiliated with them. This process enabled the management of the varying quality of source materials. If less material about some organizations was available, information about memberships could be gathered from individual biographies, and vice versa. The process was stopped when no new connections could be found, and every organization with at least two shared members was included in the final research data. Altogether, 42 reformers attended 31 organizations. The average person was connected to 3.2 organizations and the average organization was connected to 4.4 people.

Since the affiliation data were collected from documents, much additional data about the purpose and content of the connection were also gathered. The same documents that provided information about memberships and their duration included background information, even if secondary, about the circumstances in which the roles took place. The data assist the researcher in considering the importance of shared memberships as platforms that bring people together.

Given the length of the period covered by the study, shared memberships are not considered to be signs of social relationships between people. Rather, the links represent shared interests manifested by joining an organization. The organizations tried to have members who could boost their reputation and increase political capital for the fulfillment of their reforms. Meanwhile, the people, who in many cases were already holding influential positions elsewhere, considered on which cause they wanted to spend their time or at least to which organizations they were willing to lend their names. In the material, there were narratives both of how management determined suitable members for organizations as well as of refusals to join and resignations.

Eventually, shared memberships created a dense network of relationships. In the whole network, depicted in Figure 1, lines indicate memberships of people (circles) in organizations (squares), demonstrating that each person had at least an indirect connection with every other person, and no distinct cliques emerged. The actors involved in the networks, whether organizations or people are nodes. The size of a node in Figure 1 demonstrates its *degree centrality*, i.e., in the case of persons, the number of organizations with which the person is affiliated as a member (range: 2–7), and in the case of organizations, the number of members the organization has within the sample (range: 2–17). Among the most widely attended organizations, there were large umbrella organizations of reformers, such as the New Ideals in Education and the NEF. Other highly attended organizations, like the Montessori Society and Workers' Educational Association, were concentrated on the promotion of a single cause within the wider movement. King Alfred School represented a third kind of

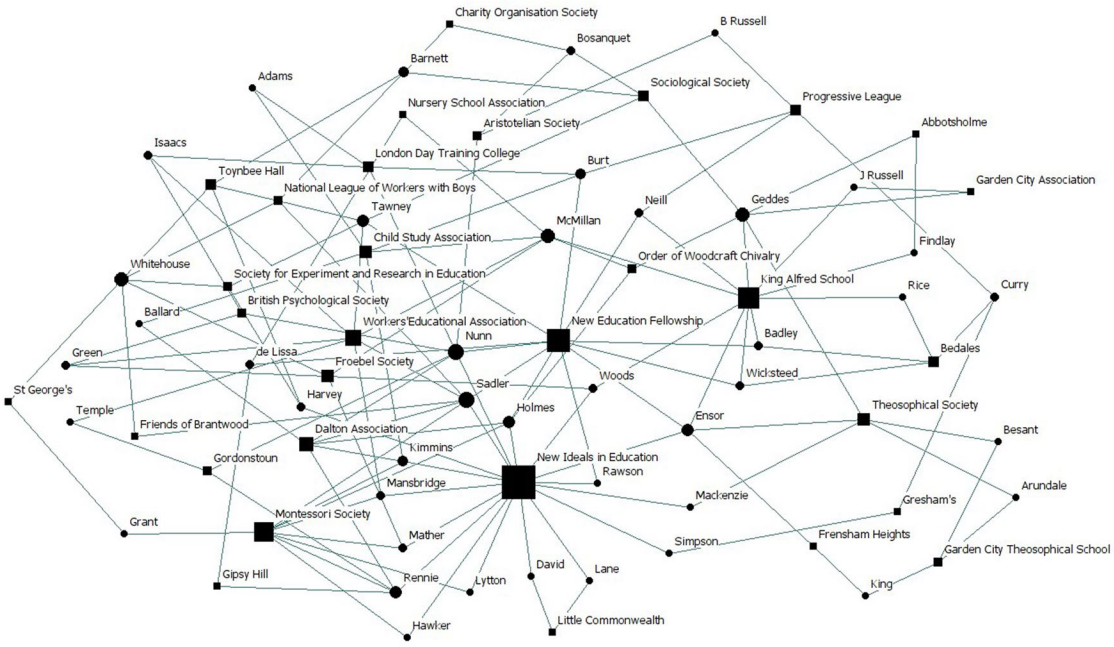

Figure 1. Network of reformers (circles) and the organizations in which they were members (squares). The sizes of the symbols indicate the number of memberships associated with each person or organization.

influence: as a reformatory school, it aimed at testing new ideas in practice.

The connections between the organizations were partly the result of the movement's gradual development. Beatrice Ensor's circle of Theosophists first had its meetings within the yearly conferences of the New Ideals of Education before it began to stand on its own feet and eventually founded the NEF (Stewart 1972, 353, 365). The group was involved in the founding of several progressive coeducational schools situated in the country in beautiful surroundings. These included King Alfred's, one of the most central organizations in Figure 1, which Beatrice Ensor joined as Vice President in the 1920s (Brooks 1998, 89; Stewart 1972, 163).

However, there are many persons whose varying roles in the network are less clear than those named above. Understanding the whole network of 136 connections goes beyond what could reasonably be conducted using biographical methods only. Therefore, important persons are identified from the network using different network measures. Since the people selected through reputational sampling were all prominent to some extent, the main purpose of the analysis is not to distinguish important persons from less important ones, as in some previous studies, but to distinguish different forms of influence.

Measuring prominence in two-mode networks

It has been argued that the New Education movement was merely a social movement rather than a paradigm (Brehony 2001, 742–4). While the movement was fueled by new theories of childhood, such as those presented by Jung (1928), classic books on the subject have found little, if anything, that brought the movement together in terms of the goals of theories (e.g., Selleck 1968, 330–5). More recently, Peter Cunningham (2001) hypothesized in a widely cited piece that as diverse and disparate as the agendas of individual reformers within the movement were, they formed two kinds of networks that enabled the growth of the movement: (1) horizontal networks that built on the authority of individual innovators, derived from the persuasiveness of arguments and coalescence of mutual concerns and shared ideals that brought like-minded people together, and (2) vertical networks in which the influence of innovative approaches was enhanced by positions of power that their advocates occupied and by official sponsorship of innovation. While Cunningham's classification is not accompanied by examples, it provides a promising way of understanding the fragmented movement. Umbrella organizations, such as the NEF, were important in disseminating the reform, but at the end of the day, they only channeled the enthusiasm that was originally born elsewhere.

Mario Diani (2003, 118–9) has, in the context of other social movements, presented a somewhat similar division. He argued that social movements are occupied by two kinds of prominent actors: high network centrality positions, which can be taken as an indicator of movement leadership in the more conventional sense, and intermediating positions that are

crucial for the integration of the movement and whose strengths lie in their ability to attract support from groups with different worldviews.

Diani's analysis was performed with one-mode data, so some modifications are needed for the present purpose. Traditionally, two-mode networks have been analyzed using one of two methods, both of which aim to convert the networks into a format that enables the use of standard network analysis methods. In bipartite analysis, both people and organizations are treated as similar nodes, which works technically but affects the ways in which measures can be interpreted since connections between same-mode nodes are not possible. In the projection method, which has been more popular in historical studies, the data are converted into one mode (Borgatti, Everett, and Johnson 2018, 275–7). Hence, people are considered to have a connection if they, for example, are members of the same association, share the same place of residence, or have co-participated in protest action (e.g., Crossley et al. 2012; Lintunen and Elo 2019).

Analyzing projected networks has certain shortcomings, and it has been considered a non-preferred method in network literature (Duxbury 2020, 8; Liebig and Rao 2014, 1–2; Opsahl 2013, 159–60). Moreover, structural information is lost because information about the property that caused the connection is discarded (Burchard and Cornwell 2018, 13; Knoke et al. 2021, 36–7; Taheri et al. 2017, 22). These issues have been recognized by previous authors of historical studies and managed by avoiding using network measures not suitable for projected data (Lintunen and Elo 2019, 292) or by comparing the measures to a random baseline that is projected in the same manner as the research data (Ochab, Škvrňák, and Škvrňák 2022, 5, 16). However, the initial reason for projections, namely the possibility of using a wider variety of analysis methods, is less relevant today due to the growing number of native two-mode analysis methods. Methods that have been used to identify prominent actors in historical data, such as key players and closure (Levine 2021, 207; Ochab, Škvrňák, and Škvrňák 2022, 5), currently have their native two-mode counterparts (Duxbury 2020; Opsahl 2013). Moreover, new and improved approaches for conceptualizing prominence in two-mode networks have been developed recently, including identifying brokers and bridges (Burchard and Cornwell 2018; Jasny and Lubell 2015).

Throughout the following steps of the analysis, organizations and their members are examined concurrently using native two-mode measures. Organizations where people gather, just like protests and other second-mode events, have been created for a purpose, and preserving the duality allows for analyzing the importance of both modes.

The most central reformers

To measure the different roles of reformers, appropriate network properties were calculated using the R software package and its *tnet*, *igraph*, and *statnet* libraries, which are suited to analyzing two-mode data (R Core Team 2019). *Prominence*, meaning having a strategic location within a network, can be manifested in different ways, and various measures have been developed for its identification (Wasserman and Faust 1994, 169). The first extensive study about the performance of centrality indices undertaken by L. C. Freeman showed that betweenness centrality outperforms degree centrality in capturing the essence of important actors. Betweenness centrality also generated the largest actor variances, which led Freeman to recommend its usage over the others (Wasserman and Faust 1994, 215–9). While degree centrality refers to the number of connections, *betweenness centrality* is a measure of how often a given person falls along the shortest path between two other persons. The length of the path refers to how many people the route passes through in the network to create a connection between two people. Being a short distance from everyone else potentially allows controlling information or building links between others.

Given the empirical application, it is noteworthy that global measures, such as betweenness centrality, are sensitive to missing or patchy data, which is not uncommon in historical studies. Because global measures consider all the connections in the network, the scores are also affected for those nodes that are distant from the location from which the data are missing. In a small network, it is possible to connect with a fairly large proportion of all nodes, while in larger networks, this proportion is lower, assuming that "connection" means something that requires something of an individual's limited resources, such as time. Therefore, in smaller affiliation networks, a high degree of centrality increases the likelihood of scoring high on betweenness centrality.

Hence, both the type and the size of the data affect the utility of the measures. In some past historical studies, betweenness and degree centralities identified different forms of prominence (e.g., Bingenheimer 2018, 60), while other studies point to the same persons (e.g., Levine 2021, 201–2).

In addition to calculating network properties correctly, a historian using network methods faces the question Bingenheimer (2018, 60) asked somewhat

critically: "Does 'central in the graph' translate into 'central for the history'?" Düring (2016, 100) proposed that centrality measures, such as degree and betweenness centrality, are useful in historical studies to narrow down the list of potentially influential actors, but they only manage to produce ~70–80% of the same list of influential actors as would be identified using other methods. Meanwhile, de Valleriola's (2021, 121) analysis revealed that centrality measures are robust when used with historical data and that particularities of the field of application need to be considered when choosing methods.

Considering everything that has been said above, several network properties have been applied in parallel in the following analysis. Degree centrality has been utilized in two forms: *two-mode degree* refers to the number of memberships in organizations, whereas *one-mode degree* indicates the number of people that can be reached through memberships. Total two-mode cohesion is a key player metric[3] that identifies persons who are in an optimal position for diffusing, for example, new ideas (Duxbury 2020). Table 1 presents a comparison of various measures among the reformers who are in the top five by any of the measures.

Table 1. Reformers who are in the top five by any of the network measures.

	Two-mode degree	Betweenness	Total cohesion	One-mode degree
Percy Nunn, Professor of Education	**7**	**133**	**0.54**	**29**
Michael Sadler, Professor of Education	**7**	**98**	**0.56**	**30**
Patrick Geddes, President of King Alfred School	**6**	**187**	**0.51**	16
John Whitehouse, Headmaster of Bembridge	**6**	**119**	**0.55**	9
Margaret McMillan, President of Nursery Schools' Association	**6**	94	0.49	23
Beatrice Ensor, Founder of New Education Fellowship	5	74	0.41	**30**
Belle Rennie, Honorary Secretary of Dalton Association	5	67	**0.51**	20
Edmond Holmes, His Majesty's Inspector of Education	5	57	0.48	**26**
William Curry, Headmaster of Dartington Hall	3	**102**	0.33	7
Alice Woods, Principal of Maria Grey College	3	3	0.33	**26**

Note: The five highest scores on each measure are emphasized, indicating relatively good agreement across measures on the most prestigious actors.

Two-mode degree centrality, betweenness, and total cohesion have good agreement on the most important persons: four out of five names are the same, and the fifth, pioneering nursery schooling advocate Margaret Macmillan, is close to the cutoff. She scores sixth by two other measures.

The ability to disrupt a movement has been observed as a potentially useful measure for identifying bridging within a historical network (Han 2009, 152–4). *Fragmentation centrality* calculates a node's potential to yield maximal network disruption by measuring the change in the average distance among the remaining nodes when the given node is removed. In one-mode networks the value ranges between 0 and 1; however, the two-mode variant of the method can also produce values that will exceed 1. In both cases, higher values reflect more vulnerable positions in a network, and nodes with a value close to 0 have minimal potential for disruption (Duxbury 2020, 2, 5). In the present material, the fragmentation centrality generated only minimal actor variances, with a range between 1.19 and 1.28 for the people analyzed, and is therefore not reported in Table 1. With regards to the organizations, even the main umbrella gatherings like the New Ideals in Education (1.55) and the NEF (1.33), scored only slightly higher than the least disrupting organizations (1.20). In the New Education network, people were connected to each other in several parallel ways. The removal of any of the actors would cause some increase in average distances. However, fragmentation centrality does not produce significant additional information about the roles within the network compared to what has already been reported.

The top-scoring reformers presented in Table 1 are representatives of academia, pioneering schools, advocacy organizations, and the government, thus demonstrating the cooperation between the sectors in promoting reform. The significance of these actors has also been confirmed by historians. High-scoring people, such as Margaret McMillan and Professors of Education Michael Sadler and Percy Nunn, have been referred to in recent literature as "'big beasts' of early twentieth-century progressivism" or "very well-known figures" (del Pozo Andrés and Braster 2018, 854; Howlett 2017, 461). These people were often in place when ascendant organizations needed officials who could provide them with expertise and prestige. In the case of the NEF, Beatrice Ensor recalled the role of big names as follows:

> The movement started when the time was ripe, because it was extraordinary how all kinds of people [joined it], at first it was chiefly primary school teachers who belonged, and then suddenly we began to get people like Percy Nunn who was a perfect dear and others, Michael Sadler and [Paul] Langevin in France and people of great intellectual ability and well known coming into the Fellowship. It was extraordinary how it changed and how the training colleges got the idea. (as quoted in Turner 2006, 24)

For further analysis, one-mode degree centrality has been chosen as the indicator of prestige. It is theoretically the closest counterpart for degree centrality that has been frequently used in relation to one-mode networks in the works cited above. Moreover, one-mode degree centrality, which indicates the number of people that can be reached through memberships, best describes the ability to connect people rather than just fame and status.

Besides Professors Sadler and Nunn mentioned above, the highest-scoring persons by this measure include Edmond Holmes and two remarkable women, Beatrice Ensor and Alice Woods. Holmes and Ensor both served as His Majesty's Inspectors of Schools and in this position became critical toward the state of the schooling of the day. Holmes resigned in 1911 and published the remarkable *What Is and What Might Be* (1911) that inspired many reformers of the day, including Ensor. Ensor followed Holmes's footsteps a few years later to support change in schools outside of governmental positions. In an address titled "Schools of the Future," she pointed out that the war showed that something was lacking in the education of the past. She believed that cooperation must replace competition in schools and that schools should bring out the best in every child (Skegness Literary and Philosophical Society 1918).

Rather than pushing for specific changes, Ensor catalyzed change as a whole. Her educational philosophy was an unorthodox mixture of Jungian and Theosophist views (Skidelsky 1969, 144–6), and she was flexible and curious in her thoughts. In 1937, she commented retrospectively that "the [New Education] Fellowship has purposefully refrained from formulating any dogma in the field of education. It has not even urged the advisability of any particular form of school room procedure" (cited in Howlett 2013, 144). Howlett (2013, 143) called Ensor "the spider of this particular web [of progressivists]" who "served to bring together those in a range of disparate fields and disciplines, thereby giving an intellectual hegemonic legitimacy to the fount of emergent progressive ideas." Her contribution helped wed education and educational strategies to political, literary, scientific, and philosophical aspirations built upon creating a "better world."

Alice Woods, whose background was as a teacher and headmaster, was appointed at the turn of the nineteenth century as the principal of Maria Grey Training College, the first college to train women teachers. Besides this duty, she participated broadly in many central organizations. Woods was a committee member of the New Ideals in Education simultaneously with Professor Sadler, whom she befriended. With Ensor, she shared an interest in the experimental King Alfred's School, for which they were both long-time board members.

One of the forms of leadership within progressive reform is the obtainment of official sponsorship for new ideas from politically powerful people. This group of reformers undoubtedly served that function. By serving on various committees and holding visible roles, the leaders had political leverage. Holmes's criticism of the state of schools eventually led to the resignation of the permanent secretary of the Board of Education in 1911, while Sadler was considered in 1916 to join the government as the president of the Board of Education. Even Prime Minister Ramsay MacDonald promised to "observe keenly" the activities of the *New Era*, a journal edited by Ensor (Howlett 2013, 143 n2). While important, the role of the actors who pushed forward the reform at the national level was dependent on joint action in local communities that focused public attention on the shortcomings of the education systems. These two processes were strictly intertwined, but they required the reformers to take on different roles in promoting these changes.

Dual roles of the reformers

The measures in the previous part of the analysis tended to identify persons who were active in various fields. Another capacity relevant for New Education reformers are networks that build close-knit groups. This phenomenon can be observed by measuring the interconnectedness of personal networks. In connection with one-mode networks, Jackson's (2016) study demonstrated that a relatively low density of a person's network ties was a usable and more predictive measure than betweenness centrality to identify the same opinion leaders as those recognized by historians.

In social networks, nodes tend to cluster into densely connected groups. This tendency can be measured by clustering coefficients. Global clustering coefficiency assesses the overall level of clustering in a

network, and the local clustering coefficient assesses clustering in a single node's immediate neighborhood (Opsahl 2013, 160). Several clustering coefficients for two-mode networks have been proposed in the literature. One of the most recent and widely cited is presented by Opsahl (2013) and implemented in the *tnet* package, which is defined as the ratio between the number of closed four-paths and the number of all four-paths. These paths are closed when they are part of a loop of six ties with five nodes. The coefficient varies between 0 and 1, so a fully connected network is equal to 1 (Opsahl 2013, 162).

In data where each person is affiliated with several organizations, the local clustering coefficient demonstrates how often these organizations are connected by members with mutual affiliations. Low values indicate that the person is bridging otherwise disconnected people, while high values indicate that the person is part of a close-knit group. In the next part of the analysis, we discuss local clustering coefficients in relation to one-mode degree values. All the persons and their positions in terms of these two variables are presented in Figure 2.

The global clustering coefficient, which refers to the average clustering coefficient of the entire network, is 0.25. This is indicated in Figure 2 as a vertical line. People on the right side of the line are, on average, promoting the clusterization of the network. A horizontal line indicates the average one-mode degree. People above the line have more relationships with other people created through memberships than average. As can be seen from the figure, there is a

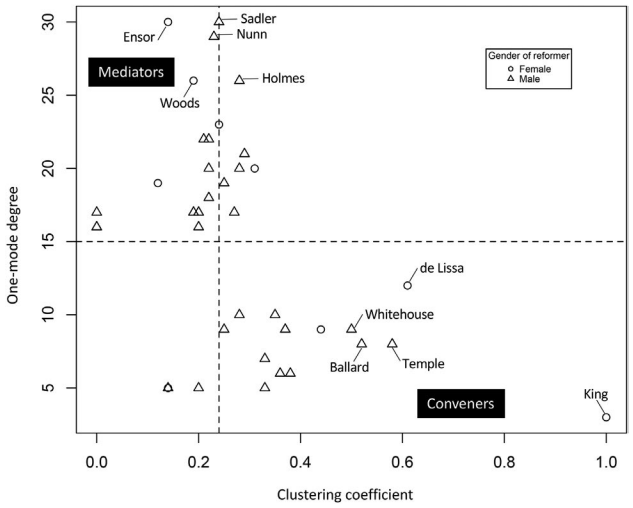

Figure 2. New Education reformers assessed through clustering coefficient and one-mode degree, i.e., number of connections to other people. Reformers' distribution in quadrants distinguishes two types of prominence. Representatives of both types are indicated and named.

tendency among the reformers to convene in the top-left quadrant. These reformers, some of whom were discussed in the previous section, built a network with a large group of people who were otherwise not very connected with each other. Hence, this group is called the *mediators*. Another group is collected in the bottom-left quadrant. This group called the *conveners*, preferred to form networks where they were connected with a smaller number of people but where these people were densely connected with each other. Hence, the analysis suggests that the movement was fueled by close-knit networks whose members had similar interests, as judged by the fact that they joined the same non-governmental organizations. Another powerhouse group was the mediators who built links between smaller groups, forming a larger movement that was potentially more able to affect decision making and public opinion. There were also some persons who did not score especially high on either measure. A combination of the two measures helps to identify not only extremes but also nuances between extremes.

To assess the degree to which the division described above was caused by the method itself rather than by historical reality, a random-graph model was created. The distribution of the reformers in the four quadrants was compared to a set of 100 random two-mode networks with the same number of nodes and edges. As in the case of the research data, the distribution in quadrants is based on the average one-mode degree and the global clustering coefficient. In the research data, the proportion of nodes located in the upper-left quadrant is higher than in 98% of the random networks. For the nodes in the bottom-right corner, the proportion is 97%. For the nodes in the upper-right and bottom-left corners, the proportions are 7 and 0%, respectively. This comparison demonstrates that the distribution of the reformers in the four quadrants clearly differs from the distribution of nodes in the random networks.

Within a movement that touched thousands of people, the present discussion is limited to its elite, who steered its direction. Unsurprisingly, considering the zeitgeist, this group was male-dominated. While the organizations that introduced new teaching methods, such as the Montessori society, were well attended by women, the leading roles were still largely occupied by men (Brehony 1999, 7–8). The genders of the reformers are indicated in Figure 2, which demonstrates that only 21% of the reformers identified as reputational in the study were female. However, as was demonstrated earlier, some of the women within the movement had an exceptionally prominent position. The distribution of genders in the figure shows

that women's roles in building networks were as diverse as men's. The small group of women who had cleared their way to the top of the movement took active leadership roles of various kinds.

Some of the names of the reformers are omitted from Figure 2, partly for readability but also to avoid misinterpretation. While the main claim of the article is the general division into two kinds of prominence among reformers, the exact position of individuals, especially those with a small number of connections, is of lesser interest.

The highest-scoring mediators named in Figure 2 have been discussed already in the section named "The most central reformers." In the following section, professional contributions of the five top-scoring conveners are briefly described. Focusing on individual life courses and consulting information other than just the number of connections allows for a comparison respecting the different roles of the conveners and the mediators.

Conveners within the New Education networks

William Temple was the son of an archbishop who himself became the holder of the seat later in his career. Philanthropic activities during his university studies provided Temple with working-class contacts, and his social conscience led him to the university settlement movement, where volunteers from the middle classes and universities resided with the underprivileged and supported them with the goal of alleviating poverty. Temple had lively natural sympathy with working-class aspirations and saw in education one means for their achievement. When the Workers' Educational Association was founded in 1908, he became its active chairman for sixteen years and, even after resignation, stayed its lifelong supporter.

Whereas Temple worked for improved social conditions for workers, Lillian de Lissa devoted herself to early childhood education. Having first started her career as a progressive teacher in Australia, she decided to leave Australia for England to become the first principal of Gipsy Hill Training College, a pioneering institute for providing training to early childhood teachers. She held the seat for 30 years. Later, de Lissa's enthusiasm for promoting early childhood education led her to become the first Vice Chairman and then Chairman of the newly founded Nursery School Association.

The third educator in this cluster is Philip Ballard, inspector of schools in London between 1906 and 1930. He is most well-known for his many books and other endeavors to introduce mental testing. Ballard's interest in the subject was inspired by his experience as a teacher. He hoped that intelligence testing would ensure that each child was taught according to his natural level. A key arena for this pursuit was the Child Study Association, in which he was a highly active member. He retrospectively described the association as aiming for "building up education as a science and not [a] mere body of undemonstrated doctrine" (as cited by Wooldridge 1995, 41).

Practical in nature, Ballard's kind of scientific approach was somewhat untypical for New Education, where new ideas were often tested by founding new schools. Isabel King was leading a progressive school at Frensham Heights, while John Whitehouse founded Bembridge School on the Isle of Wight. As a friend of Beatrice Ensor's, Isabel King led two pioneering schools founded by the NEF. Before joining Frensham, she headed the first Garden City Theosophical School at Letchworth, UK.

Whitehouse demonstrated a full dedication to one cause. He had declared his social and educational vision, highly affected by social critic John Ruskin, in *Problems of a Scottish Provincial Town* (1905) and sought forums to realize it. At the peak of his career, Whitehouse served as a member of parliament. He was, however, unable for the most part to direct this political capacity to advance his educational ideals. Instead, he was often in opposition in his thoughts even within his own party, and lost his seat in the election of 1919. Remaining in the minority, he left for the Isle of Wight to form his own school, Bembridge, and to preserve Ruskin's legacy by stressing the relationship between the school and its region and putting great emphasis on natural history and the arts and crafts.

Whitehouse built connections with mutually interlocking networks. Instead of joining existing forums for educational discussion, Whitehouse founded his own, often filling the board posts with his loyal supporters. The most prestigious among them was Professor Michael Sadler, who remained friendly with Whitehouse throughout his life (Eagles 2011, 179). Sadler was Whitehouse's most prestigious connection to established education circles and the occasional supporter of his mission of preserving Ruskin's legacy. While there is no full biography of Whitehouse, the titles of the most comprehensive accounts of his life and work, "Ruskin's True Disciple" and "Keeper of the Flame," demonstrate his contribution well (Eagles 2011; Wildman 2005).

The depictions presented above demonstrate the conveners' role of working with like-minded people

rather than building broader networks. They all were dedicated for decades—for the most part—to one clear-cut mission. Some of them also had political power for some part of their career, Temple as bishop and Ballard as His Majesty's Inspector of Schools. Whitehouse served as the Parliamentary Private Secretary for David Lloyd George just before Lloyd George was chosen as the UK Prime Minister in 1916. Nevertheless, if these individuals did use their influence, it was mostly related to the promotion of issues close to them rather than that of wider reform. The conveners promoted New Education ideas of new forms of learning and more widely available education for underprivileged groups on a grassroots level.

The personal descriptions also demonstrate that the conveners did not primarily connect with other conveners. In fact, the five persons presented above had hardly any connection with each other. They were united by the characteristic that they all were part of a close-knit group of various kinds. Conveners were often connected with mediators, thanks to which their individual missions were connected to the wider movement. For Professor Sadler, who scored highest on the number of memberships in organizations, preserving Ruskin's legacy was just one of the seven missions he was involved in. Meanwhile, for Whitehouse, this mission was something that, in his biographer's words, "turned into an obsession" (Eagles 2011, 258–61).

Isabel King, who was the highest-scoring convener, served as teaching head of Frensham Heights School from 1925. At the time, she shared the management of the school with Beatrice Ensor, who served as the administrative head (Stewart 1972, 198–9). The leading of pioneering Theosophical schools is the sole contribution for which King is known today, whereas Ensor's role as mediator was significant for the shaping of the entire New Education movement.

Conclusion

This study shedded light on how the New Education movement, which appears to have been built from various agendas with no obvious leaders, managed to maintain its influence through much of the first half of the twentieth century. The question of what held the movement together has received attention in the literature over several decades.

Regarding the movement's elite, the study provided empirical support for Cunningham's (2001) hypothesis that the movement was fueled by two kinds of actors. Conveners were parts of close-knit groups that focused on a well-defined topic, such as the promotion of working-class education or Theosophical school education. Mediators, by contrast, built bridges between various groups, thereby uniting the movement. Beatrice Ensor and the NEF did this in the purest form by purposefully refraining from formulating any dogma in the field of education. As the leading mediators occupied various positions in society, including professors, educationalists, and government officials, they were able to link people and new ideas with advancement opportunities. Many of them served, among other roles, as sponsors of pioneering schools that were located all over the country. This allowed them to connect the discussions that occurred in London with those of people who lived the change in question in their local communities. This structure might have made the movement flexible enough to adapt to varying political and societal situations during the turbulent inter-war era of British society.

In terms of achievements, the movement was successful not just in the sense that some of its demands were implemented in the legislation. The mediators could provide official sponsorship for initiatives created by the conveners, which promoted the institutionalization of the reform. As the reform progressed, the activities of the reformers presented in this study also changed. Emerging activities, such as organizing of teacher education, which had been previously arranged by voluntary organizations, were taken care of by universities, and new roles, such as professorships in Education were created. Sometimes, they were taken up by the reformers included in this study. As new channels for promoting educational reform were established, the role of New Education as a social movement, diminished.

While agreeing with existing histories that describe the New Education movement as one that did not have specified leaders who could have led the entire reform, the present study demonstrates that focusing on two kinds of leadership—convening and mediating—helps to identify the individuals whose roles were important for the movement's progress.

After the turn of the century, the teaching force in the UK and some of New Education organizations became increasingly feminized. However, only one-fifth of the reformers identified as reputational in this study were female. The pioneering female reformers discussed in this article showed that women, who managed to become principals, school inspectors, or chairs, took on equally diverse roles in building networks as those of men. which contributed to more equal gender participation in the society.

This study, which identified prominent actors, concentrated on the overlap in memberships between non-governmental organizations. Other kinds of prominence, such as authoring remarkable books or bringing ideas from overseas, were purposefully disregarded. In addition, the study focused on network relationships between the 42 leaders of the movement rather than between the leaders and their followers. While the perspectives left unaddressed are mostly well covered elsewhere, this poses a limitation on how comprehensive this study can be considered.

Given the mixed results obtained in previous studies on how well network measures identify the same prominent actors as historians, various network measures were analyzed in parallel with qualitative material. The main results presented above are confirmed by both qualitative and quantitative data, which helps to control the limitations due to the reliability of the measurement methods used. Relying on comparable information about memberships in organizations allows for giving a voice to underrepresented actors, particularly women, whose contributions have been discussed more narrowly in the literature. Nevertheless, although the material has been collected from multiple independent sources, the possibility cannot be ruled out that the persons and memberships mentioned in the source material have been somewhat influenced by the positions of their authors, e.g., by reducing the number of women in the material.

Amid a growing interest in historical two-mode studies, this study attempted to open new avenues that have been discussed less in past literature. The use of reputational sampling and the creation of network data from documents enable contributions to a wider variety of discussions and bring quantitative history closer to traditional historical research. Recently, the emergence of natural language processing has increased the collection of historical data (e.g., Franzosi 2017) and network data (Błoch, Filho, and Bojanowski 2022) from less structured documents, increasing the importance of this method of information acquisition. The use of native two-mode measures, such as key player metrics and clustering coefficients, helped to avoid disadvantages caused by projecting the network data. The present data was relatively small and characterized by a large number of alternative routes. Further studies with co-affiliation data not sharing the above-mentioned characteristics would affirm to what extent the approach presented here for identifying the most prominent actors is suitable for other historical research layouts.

Notes

1. Beatrice Ensor (née de Norma) married in 1919 and is referred to by her married name throughout.
2. The sourcebooks consulted include Boyd and Rawson (1965), Selleck (1968, 1972), Skidelsky (1969), and Stewart (1972).
3. R code for calculating key player metrics is available on GitHub at Duxbury (2018).

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ORCID

Lauri Luoto http://orcid.org/0000-0001-8964-6278

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