# Interorganizational Network Approaches for Launching, Scaling and Sustaining Cultures of Health for Systemic Change: Lessons from Ellen G. White and Adventist Social Entrepreneurship

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## Introduction

The emergence of the studies of social enterprises and social entrepreneurship since around the 1990s resulted in an expansion of interest in the two areas of focus for such organizational research. First, there has been an increased interest in research investigating nonprofit and for-profit organizational economic activity that leads to societal transformations such as ending hunger and poverty (Seelos & Mair, 2005; Yunus, Moingeon, & Lehmann-Ortega, 2010), ending unemployment and health disparities, (Defourny & Nyssens, 2006; Nicholls, 2008), as well as alleviating climate change (Wry & York, 2017). Second, there has been an increase in research addressing the use of commercial venturing to boost nonprofit financial resources to aid in the achievement of nonprofit social missions (Dart, 2004; Dees, 1998a; Defourny & Nyssens, 2017; Kerlin, 2013). However, whereas the societal issues that social enterprises seek to address are complex and require broad organizational collaborations (Kania & Kramer, 2011), much of the social enterprise research either focuses on

1. the strategies of individual social entrepreneurs or individual organizations engaging in this work, (such as Seelos & Mair, 2005) or
2. collective action of individuals or organizations targeted at the local community level and a few on the regional level within a state or province (such as York, Hargrave, & Pacheco, 2016)

Regardless of the worthwhile incremental contributions made in social enterprise research, scholars reviewing the field continue to lament the excessive amounts of conceptual publications overshadowing empirical research in this field as well as the lack of research to examine the use of social enterprises for systemic (social) change (Cook, Dodds, & Mitchell, 2003; Granados, Hlupic, Coakes, & Mohamed, 2011; Hill, Kothari, & Shea, 2010; Hoogendoorn, Pennings, & Thurik, 2010; Short, Moss, & Lumpkin, 2009).

Therefore, there is need for more studies that both highlight

1. the collective economic and social action of organizations for systemic change, and
2. research investigating impactful action resulting in systemic change at the national level

Such research both needs to take an interorganizational collaboration approach covering at least a nationwide scope and to also look at a long period of time to understand the mechanism and processes of such change action.

In this paper, I propose that one way to effectively study these two topics together, one needs to have a case comprising of both:

1. the collective economic action of a large group of organizations collaborating for a long period of time to bring systemic change on a common cause; in other words, one needs organizations belonging and collaborating within a social movement, and
2. a study case that has already evidenced social and economic impact for systemic change at a large scale such as at a national level

The length of time such interorganizational collaborations occur should be for an extended period of time so that researchers can understand the resilient nature of the structures, mechanisms and processes of such change action. Therefore, this study adds to empirical research on social enterprises collaborations that address social change through systemic change. My efforts here are to help scholars understand how collaborative action among social enterprises can lead to social change.

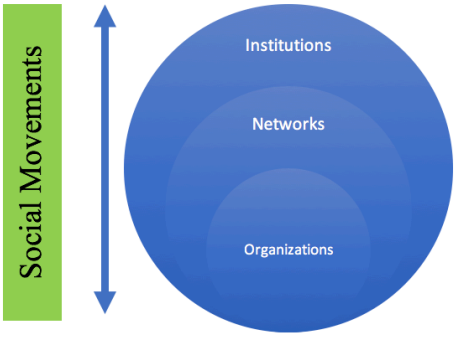
In this study, I focus on the Adventist health reform movement, a social movement that has effectively used social enterprises in its interorganizational collaborations to advance its agenda of transforming healthcare and public health in the United States and around the world since 1866. I use mixed methods social network analysis (MMSNA) (Crossley & Edwards, 2016) to understand the structure, processes, mechanisms which Adventists used to incrementally transform community health practices and national health and medical perspectives in the United States for the past 150 years.

## Relevant Literature

### Social Enterprises

Some scholars define social enterprises as "not-for-profit organizations driven by social mission" (Mort et al., 2003; Sakarya et al., 2012: 1712). These scholars essentially place social enterprises under a subcategory of organizations within the nonprofit sector. A subset of these definitions focus on nonprofits that are seeking to diversify their financial resources by generating earned income to support the nonprofits core social activities (Dees, 1998a). Others define social enterprises broadly to encompass organizational forms that take any legal form (for-profit, non-profit, or otherwise) as a means to an end of bringing solutions to particular social problems (Defourny & Nyssens, 2006; Young, 2001). This definition is broadly adopted by scholars in the United States (Kerlin, 2006). The social enterprises which I investigated under this study fit in either tradition but I focused on social enterprises that are legally registered as nonprofit entities which operate like businesses and generating earned income. These are known as entrepreneurial nonprofits, according to the typology by Defourny and Nyssens (Defourny & Nyssens, 2017).

### Institutions, Organizations and Social Movements




Organizations are elements that exist in local communities. The organizations create interorganizational networks when various organizations work together (collaborate) by sharing financial, information, human, and other resources, or by teaming up on various engagements.. Various interorganizational networks make up an institution such as governments, nonprofits, for-profits, and professional associations. These institutions form the wider cultural and normative frameworks that influence individual organizations. DiMaggio and Powell (1983) suggest that these influences on organizations may be due to political influences and legitimacy-seeking processes (coercion), modeling others to avoid ambiguity and uncertainty (mimetic), or pressures from professionals (normative). These scholars also define organization field as "those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products" (p. 148). In other words, an organization field is a sphere in which organizations that fall under one institution exist. Therefore, for this study, the organization field in which the Adventist health reform movement target their strategies is the field comprising of regulators, for-profit, nonprofit and other organizations engaged in healthcare policy and practice, public health, and health promotion.

Social movements, on the other hand, comprise of individuals, organizations, or interorganizational networks which work to influence organizations, interorganizational networks, institutions, or even nation-states to resolve their economic, social, cultural, or environmental grievance. Traditional perspectives of social movements have used the contentious politics model which focuses on the intentional strategic public clashes of organized groups or communities with governments or authority holders for social change (Edwards, 2014; Haenfler, Johnson, & Jones, 2012). In contrast, new social movements as theorized by Jurgen Habermas (Edwards, 2009) generate lifestyle movements, which unlike traditional social movements, are social movements that utilize and mobilize personal everyday private practices (lifestyles) of individual members to effect social change on a public social cause.

Traditional organizational research particularly using institutional theory has emphasized organizations as passive entities within society that react and conform to institutional pressures or contexts (DiMaggio & Powell, 1983; Galaskiewicz & Wasserman, 1989; Thornton, Ocasio, & Lounsbury, 2012). This

perspective has influenced major scholars studying social enterprises and social entrepreneurship (see, for instance, Dart, 2004; Huybrechts & Nicholls, 2013; Nicholls, 2010). However, researching societal transformative organizational activity requires a different perspective that takes account of how organizations can have agency so they can be seen as proactive and transformative actors in the institutional contexts (Davis, McAdam, Scott, & Zald, 2005; Thornton et al., 2012). Such a perspective allows us to investigate organizations that mobilize to transform their institutional contexts. Therefore, this study uses the case of the Adventist health reform movement to understand how its interorganizational collaborations utilized social enterprises to aid the ability of the social movement's goals for systemic change in public health and healthcare across the United States. Understanding how this social movement implemented the model proposed by Ellen G. White, the founder of this social movement, allow us to investigate effective collaborations that have been implemented and tested for decades to address challenges in social challenges within local communities but are collectively for transforming the nationwide public health and healthcare system.

Using a mixed methods approach, this study attempts to begin to understand the processes and mechanisms which scholars have cited as lacking in the studies of nonprofit collaboration (Gazley & Guo, 2015), social movements (McAdam, Tarrow, & Tilly, 2001), social networks (Crossley & Edwards, 2016), institutional change (Thornton et al., 2012), and organization fields (Davis et al., 2005).

## Origins of Social Enterprise Research: Economic Activity for Social Change

The origins of social enterprise research emerged from two separate fields of studies. On Mainland Europe, social enterprise research emerged from the study of co-operatives. In contrast, in the United States, social enterprise research emerged as a field related to the field of nonprofit studies. First, Crimmins and Keil's (1983) article, *Enterprise in the Nonprofit Sector,* was one of the earliest articles to discuss arts commercial ventures in the nonprofit sector. These arts organizations included Denver's Children Museum (Colorado), Disc Village (Florida), Des Moines Ballet (Iowa), and Southwest Craft Center (Texas).

Around the same time, Dennis Young's (1983) book, *If Not for Profit, for What?: A Behavioral Theory of the Nonprofit Sector Based on Entrepreneurship*, was significantly influential in the founding of the social enterprise field. Young coined the concept of non-profit entrepreneurship, which preceded the concept social entrepreneurship. His work is credited with igniting interest in the study of entrepreneurship within the nonprofit sector and cross-sector collaborations. Young's contribution was to show the existence of Schumpeterian entrepreneurship within nonprofit organizations.

In addition, Young's work addressed and ignited the discussion about what roles nonprofits can play in collaboration with for-profits and governments in dealing with societal challenges. The book's insights provided an impetus to think about how the government could play a role to promote nonprofit, for-profit, and hybrid ventures using tax incentives to help address societal concerns. At the time when Young published his book, much of nonprofit theory focused on the demand side of nonprofit services, for instance, failure of governments and markets (Hansmann, 1980). In contrast, Young's contribution was to highlight a supply-side theory of entrepreneurship that focused on the behavior of those serving the demands highlighted by the demand theories. In other words, while demand existed for nonprofit services, it was interesting to think of the entrepreneurial behavior of those choosing to serve such demands in society.

In addition to the early work of James and Rose-Ackerman (1985), and Skloot (1987), the contribution of Waddock and Post (1991) was to define the social entrepreneur in the context of social entrepreneurship, social enterprises, and other activities focused on policy and systemic change. Waddock and Post placed the social entrepreneur as a person coming from the private sector but focused on transforming the public sector. In addition, these authors posit that a social entrepreneur is a temporary actor that may be dealing with a symptomatic area but who wishes to ultimately catalyze significant change. In other words, the social entrepreneur is aware of his or her limited resources but leverages those

limited resources and any available publicity channels to effect a process that ultimately brings about greater change over time.

During the same period, Adams and Perlmutter (1991) helped to highlight the consequences that nonprofits face when they launch ventures to increase revenues. These researchers indicate that the growth of government contracting contributed to the increase in nonprofit commercial ventures. Not only did their research confirm that size and stability of nonprofits contributed to successful commercial ventures, they also found that successful commercial ventures are also risky for nonprofits. In particular, they contributed to the subset of social enterprise studies that focus on mission drift. Basically, successful commercial ventures caused some nonprofits to displace their original programs to accommodate the demands of the new ventures. According to these scholars, it is important for a nonprofit to start new ventures that are very close to the current mission of the nonprofit. Otherwise, a nonprofit risks losing significant resources during the process of starting and developing very different ventures that significantly differ from its current core programs.

Emerson and Twersky's (1996) work highlighted the approaches that social enterprises play to empower communities and remove dependencies on the traditional models of nonprofit service deliveries. The study they conducted involved social enterprises in the San Francisco bay area that served the homeless and other disadvantaged people. Unlike Porter (1995) whose emphasis was on inner cities that use exporting businesses to rebuild themselves, Emerson and Twersky suggests that inner cities should develop community-based social enterprises targeting local issues. According to these authors, these social enterprises become the bridge for the inner-city population. Such local-based social enterprises provide a learning platform from which disadvantaged individuals switch from being dependent on traditional nonprofit services towards independence through finding employment in the private sector.

Towards the end of the 1990s, Dees' three 1998 articles were key in making Dees the so-called father of social entrepreneurship who thereby significantly shaped both social entrepreneurship and social enterprise research even to this day. Dees' work likely was the connecting work that brought business and management scholars to start beginning engaging social enterprise and social entrepreneurship research. One of his article he wrote under the commission of the Kaufmann Foundation (Dees, 1998b) laid the groundwork for a better definition of social entrepreneurship that helped to distinguish it from traditional for-profit entrepreneurial work. His Harvard Business Review article (Dees, 1998a) laid the ground for a more focused study of social enterprises in the nonprofit sector. His *Business Ethics Quarterly* (Dees & Elias, 1998) article which discussed the challenges of combining social and commercial enterprises laid the groundwork for much of the social enterprise research that focuses on hybrid organizations.

Also at the Kaufmann Foundation, Schuyler (1998) published an article that emphasized the role of how profit within social enterprise would be an enabler to the ultimate goal of promoting societal benefits. In other words, this paper provided a foundation to what is now considered the double bottom line in the study of socially-conscious organizations. This paper highlights innovation and enthusiastic problem-solving as key factors of differentiating between traditional nonprofits and those that embark on social entrepreneurship. Schuyler was one of the first to distill the comparisons of for-profit entrepreneurs and social entrepreneurs in ways that merged commercial and social purpose characteristics. Such an article framed the discussion of social entrepreneurship in a language that would be both familiar and interesting to business scholars. As a result, we find that after this time period social enterprise research begins to be taken up by business scholars. This paper, which appears to be written with the business schools as the audience, outlines some of the ways that business schools can rejuvenate excitement among their students by blending business education and meaningful impact that social enterprises are meant to achieve.

At the same time, Wallace (1999) brought these same issues to the attention of audiences engaged in development by emphasizing the role of social enterprises that pursue a double bottom line to increase their social impact. Wallace's contribution to social enterprise research is that of framing the benefits of social enterprise within overall community development efforts. Wallace's article proposes a new paradigm of community development that utilizes the market for sustainable community development. Traditional nonprofits continued to rely on government grants and donations. However, in the continued

dwindling of resources from these sources at a time of the retreating welfare state, community development efforts of nonprofits were endangered. Therefore, social purpose enterprises provided an alternative source of funding to keep such community development efforts existing. In addition, another powerful contribution of social enterprises to community development was that it confronted the challenges of government funding that limited innovation in community development efforts. For instance, social enterprises were able to collaborate with for-profit entities to find ways that empower local communities through payment of services that the local communities considered relevant to the solutions of their challenges.

In Mainland Europe, in this same period, Borzaga and Santuari (1998), consolidated the work of many other scholars and fully embraced the label social enterprises to frame Mainland Europe's version of social organizations that seek to advance employment opportunities for the disadvantaged and those excluded from the regular employment sector. Therefore, such so-called work-integrated social enterprises (WISE) would also be providing avenues for empowering individuals.

From this period, the research in both social enterprises and social entrepreneurship greatly expanded on both continents and around the world. First, with the joining of Canadian scholars and business scholars, the field eventually opened up to other researchers from around the world. However, regardless of the expansion of such research on societal transformation, to this day, not much research has been done to examine the use of social enterprises for systemic change.

Much of the social enterprise research interested in these topics either focuses on:

1. the work of individuals or individual organizations engaging in this work, (such as Seelos & Mair, 2005) or
2. collective action of individuals or organizations targeted at the micro-level and a few on the meso-level (such as York, Hargrave, & Pacheco, 2016)

Therefore, there is need for more studies that both highlight

1. the collective economic action of organizations for systemic change, and
2. research investigating impactful action resulting in systemic change at the macro-level

Such research both needs to take an interorganizational collaboration approach covering at least a nationwide scope and to also look at a long period of time to understand the mechanism and processes of such change action.

Through this study, I propose that one way to effectively study these two topics together, one needs to have a case comprising of both:

1. a large group of organizations collaborating on a common cause for a long period of time; in other words, one needs organizations belonging and collaborating within a social movement, and
2. a study case that has already evidenced economic and social impact for systemic change at a large scale such as at a national level

Therefore, this study focuses on the Adventist health reform movement to understand how its interorganizational collaborations utilized social enterprises to aid the ability of the social movement's goals for systemic change in public health and healthcare across the United States.

## Ellen G. White and The Adventist Health Reform Movement

According to Scott and his colleagues (2000, p. xvii) ever since the 1920s "[organized] medicine, backed by the power of the state, exercised hegemonic control over healthcare, determining who could perform which services and how these were to be delivered and financed." The strength of this hegemony in healthcare has fluctuated overtime. Nonetheless, the continued power of the medical professions, the power of the insurance and pharmaceutical industries, the state's role in regulating healthcare within states, and the recent political fights over the individual mandates of the federal Affordable Healthcare Act are evidence of the hegemony's persistent existence.

Healthcare, as a cause, could be considered to be so major, too expensive and too complex for local communities to effect any impactful changes on a national level. However, the Adventist health reform movement is a lifestyle movement that has sought to transform U.S. healthcare and public health for the past 150 years. While the movement began as a small powerless movement around 1866, it now

runs one of the largest hospital systems and one of the largest health food social enterprise networks in the United States. In addition, it runs health-related media, associations, universities and other health promoting nonprofits in the country. This social movement has influenced health promotion, health research and public policy extensively in the United States during the 150 years of its existence.

The Adventist health reform movement is a social movement that originated in 1863 in Battle Creek, Michigan, and continues today. While Ellen G. White, the founder of this social movement, died in 1915, the nonprofit and social enterprise collaborations she theorized and launched during her lifetime continue to exist today. White's social movement, which is embedded in a religious movement, has sought for 150 years to transform how Americans and others around the world approach health. This social movement is an example of what researchers have observed when religious groups become "crucibles of social movements" (Cnaan & Heist, in press; Zald & McCarthy, 1987a).

Before this social movement chose to get organized, the members of this social movement resisted creating any form of organization. However, in my exploratory investigations of this social movement, I found that the social movement has created a network of thousands of nonprofits and for-profits to both address the immediate healthcare needs of communities while also endeavoring to change the systemic issues in public health.

Even now, thousands of organizations within White's social movement are collaborating worldwide to advance the Adventist health promotion agenda. These include health food stores, food manufacturers, farms, hospitals, churches, publishing houses, and other for-profit and nonprofit social enterprises. White conceptualized and founded these collaboration networks in order for her social movement to successfully challenge and change the perspective of public health and healthcare from one that is disease-centric to one that is wellness-centric. In other words, the social movement sought to move from the logic of healthcare and public health that mainly emphasized institutionalization and that focuses primarily on developing experts and technological innovations that treat disease to an approach that focusses on preserving health and wellness and empowers individuals, families and community to own their own health and avoid disease (White, 1905, 1970). These various organizational networks have been effective tools for sustaining the social movement's mission and enhancing its social impact.

## The Economic and Social Impact of the Adventist Health Reform Movement on American Health

Independent groups have noted how the Adventist health reform movement has significantly contributed and gradually impacted the culture of American health perspectives in the past 150 years. For instance, one independent research center has tracked how this social movement was a key player in advocating for vegetarian diets and innovatively producing and distributing vegetarian foods for the past 120 years (Shurtleff & Aoyagi, 2014). As of the 1980s, more than hundred years after the social movement started, the Adventist health reform movement had established the sixth largest healthcare system in the United States (Daily, 1993; Morgan, 2001: 3) which it has maintained, if not grown since that time.

One of the ways that Ellen G. White's ideas impacted American health was through Dr. John Harvey Kellogg. Although John H. Kellogg intended to be an educator, Ellen G. White and her husband recruited and advised him to become a doctor in their social movement. They sponsored his medical training and helped to install him as the medical director of the social movement's first sanitarium hospital (Schwarz, 1964). Dr. Kellogg was mentored and sponsored to Dr. John Harvey Kellogg (1852–1943), created an Adventist legacy and impacted American healthcare and public health in a way that still has not been surpassed. Dr. Kellogg, an Adventist physician mentored by Ellen G. White, became the most important physician leader during the founding years of the social movement. Among other things, he revolutionized American diets by inventing breakfast cereal ("John Harvey Kellogg," 2004).

In the United States, the multi-billion-dollar enterprise, the Kellogg Company, whose success gave rise to the W. K. Kellogg Foundation, resulted from Dr. Kellogg and his brother's efforts at the first Adventist medical institution which Dr. Kellogg directed (Schwarz, 1964; A. F. Smith, 2003). The Oxford Encyclopedia of Food and Drink in America notes, "No single individual influenced American eating habits during the early twentieth century more than Dr. John Harvey Kellogg" (A. F. Smith, 2004).

Many of his patients included former presidents of the United States, business and other leaders such as John D. Rockefeller Jr, Thomas Edison, Henry Ford, Warren G. Harding, Booker T. Washington and Sojourner Truth (Markel, 2011). His impact among surgeons and other physician groups continues to be recognized to this day. For instance, his legacy is recognized by the American College of Surgeons as follows:

> *"Not only was he an accomplished surgeon, but also a successful inventor, health advocate, educator, and food reformer. He performed more than 22,000 surgical procedures during his career while contributing many inventions and innovations including promotion and marketing of peanut butter, Bulgarian yogurt, meat substitutes, granola, breakfast cereals, and artificial milk derived from soybeans. Toasted Corn Flakes became one of his most famous cereal products. But his creativity was not limited to foods. He also invented the electric blanket, a methanol nasal inhaler, tanning lights, surgical instruments, and exercise equipment"* (Jackson, Dudrick, & Sumpio, 2004: 817).

Dr. Kellogg became the leading doctor running the leading medical institution among his colleagues in this social movement in its first forty-years of existence. He set the pace for innovation and systemic transformation through his various efforts as a medical professional, inventor, social entrepreneur, educator, among other roles. Schwarz (1970), a historian, indicates the following about Kellogg's strategy to impact the medical profession:

> *"In contrast to the tactics of many of the many of the earlier [non-Adventist] health reformers, Dr. Kellogg did not attack and discredit the medical profession. He set their conversion as his goal, something he could only accomplish if they accepted him as "regular" and in good standing. With this in mind he joined both the Michigan and American Medical Associations shortly after receiving his degree. In 1877 he helped organize a city medical society in Battle Creek. Although in the early part of his career Kellogg's unorthodox views caused many upraised eyebrows among doctors, within twenty years he had won, if not complete acceptance, at least wide respect among his colleague."* (p. 38)

Dr. Kellogg and Ellen G. White spearheaded many of the social movement's social enterprises around the world with their inspirational leadership. However, around 1906, Kellogg left the social movement and its network of organizations refusing to conform to Ellen G. White's conceptualized model of inter-organizational health networks. Interestingly, in relation to this study's focus on collaboration for success, his world-acclaimed medical institution ended up in bankruptcy and eventually closed. However, a significant number of organizational networks that continued to collaborate as Ellen. G. White instructed continue to exist worldwide even today.

In Australia and New Zealand, since 1898 due to Ellen G. White's leadership, this social movement has launched and run the largest nonprofit breakfast cereal corporation based in that region, the Sanitarium Health and Wellbeing Company. This nonprofit enterprise is now a multi-million-dollar health food manufacturer and distributor that holds twenty percent of the breakfast food market in that region (Hardy, 2008; Hardy & Ballis, 2013).

In the United States, this social movement has had notable impacts on national health research and policy. The most impactful tool that the Adventist health reform movement has used to transform the culture of health in United States has probably been the biomedical and epidemiological studies of Adventist members (Dysinger & Minchin-Comm, 2007). There is probably not a single group of people that have contributed to health research findings and also published such findings in so many peer-reviewed journals as the Adventists. Studies now reveal that Adventists generally live ten years longer than average Americans and are one of the five groups that live the longest worldwide (Buettner, 2012; G. E. Fraser & Shavlik, 2001; Orlich et al., 2013). These studies have generated significant interest among medical researchers and policymakers as will be discussed below.

There are various clusters within the Adventist community that are leading in publishing scientific research that is significantly influencing research and policy in the United States and around the

world. One group is affiliated with the Lifestyle Medicine Institute that is led by Dr. Hans Diehl. Another group is affiliated with Loma Linda University's Adventist Health Studies. A third group is related to Adventist universities in Australia. The last major group is related to the American College of Lifestyle Medicine which was started by Dr. John Kelly.

To illustrate the significance of the research these groups are conducting, I will discuss the research being produced by the Loma Linda University group which is based in California. Since the 1950s, this university has researched and published about 430 scientific publications on the Adventist health lifestyle habits in 170 journals around the world. For articles see: http://adventisthealthstudy.org/. These journals include Lancet, the Journal of the American Medical Association, the American Journal of Clinical Nutrition, the British Journal of Cancer, the American Journal of Epidemiology, the Korean Circulation Journal, the South African Medical Journal, the Scandinavian Journal of Dental Research, the Papua New Guinea Medical Journal, the Medical Journal of Australia, the New Zealand Medical Journal, and the European Journal of Epidemiology, among many others.

Using Google Scholar to identify citations, as of May 28, 2017, these 430 articles collectively have been cited more than 39,000 times. The citations of the articles range from zero to 2331 citations per article. They average 90 citations per article with a median citation of 39 citations per article. The number of articles published in each of the 170 journals range from one to 73 with an average of two articles per journal but a median of one article per journal. The citation of the articles per journal range from zero to 6,742 citations in a journal. On average, there is 213 citations per journal with a median of 28 citations per journal. What is even more interesting is that the researchers published only one article in 110 of the 170 journals. However, each article in these 110 journals generated so much interest that these one-time articles have an average of 48 citations and a mean of 17 citations each. I briefly describe the five main studies from which the 430 articles were published below.

The Top 25 (of 170) journals in which Adventist Health Studies Have been Published

| | Journal | Citations | Articles |
|---|---|---|---|
| **1** | American Journal of Clinical Nutrition, The | 6742 | 73 |
| **2** | American Journal of Epidemiology | 3265 | 26 |
| **3** | Public Health Nutrition | 475 | 12 |
| **4** | Journal of The American Dietetic Association | 443 | 11 |
| **5** | Cancer | 1806 | 10 |
| **6** | Annals of Epidemiology | 258 | 9 |
| **7** | Ethnicity & Disease | 220 | 9 |
| **8** | Journal of The National Cancer Institute | 1730 | 8 |
| **9** | International Journal of Epidemiology | 804 | 8 |
| **10** | Nutrition and Cancer | 250 | 8 |
| **11** | Archives of Environmental Health | 854 | 7 |
| **12** | American Journal of Public Health | 765 | 6 |
| **13** | Journal of Clinical Epidemiology | 560 | 6 |
| **14** | Cancer Epidemiology, Biomarkers & Prevention | 516 | 6 |
| **15** | Archives of Internal Medicine | 1342 | 5 |
| **16** | International Journal of Cancer | 616 | 5 |
| **17** | JAMA: The Journal of The American Medical Association | 643 | 4 |
| **18** | Environmental Health Perspectives | 575 | 4 |
| **19** | Cancer Causes & Control | 552 | 4 |

| | | | |
|---|---|---|---|
| **20** | Journal of Exposure Analysis and Environmental Epidemiology | 414 | 4 |
| **21** | Preventive Medicine | 282 | 4 |
| **22** | British Journal of Nutrition | 202 | 4 |
| **23** | Epidemiology | 195 | 4 |
| **24** | Chest | 190 | 4 |
| **25** | Nutrition Research | 106 | 4 |

Since the 1950s, this lifestyle social movement has attracted major funders for its research projects including the National Institutes of Health, the National Cancer Institute, the National Heart, Lung and Blood Institute, the National Institute for Environmental Health Sciences, the U.S. Environmental Protection Agency, and the American Cancer Society. In other words, the practices of this lifestyle movement are gaining audience among influential policymaking and legislative bodies nationwide and even worldwide. The Blue Zones Project, launched from a National Geographic research on five groups that included the Adventists, is now working with various cities around the country to make those cities healthier cities.

Beginning in 1958 to 1975, the National Cancer Institute of the National Institutes of Health funded the study of 23,000 Adventists in California. This study, known as the Adventist Mortality Study, found that Adventists had lower rates of cancer mortality in comparison to non-Adventists (Kyulo, Knutsen, Fraser, & Singh, 2012; Le & Sabaté, 2014; Singh, Haddad, Tonstad, & Fraser, 2011; Singh, Sabaté, & Fraser, 2010).

Another study, the Adventist Health Study-1, was conducted between 1975 to 2002. This study on 35,000 Adventists tracked the dietary habits of these Adventists (G. E. Fraser, Orlich, & Jaceldo-Siegl, 2015; Kitahara et al., 2014; Teras et al., 2014). From this larger dataset, a smaller study was done using data from 6,000 Adventists. This smaller study is known as the Adventist Health Air Pollution (AHSMOG) Study and it began in 1977. The National Cancer Institute, the National Heart, Lung and Blood Institute, the National Institute for Environmental Health Sciences, the U.S. Environmental Protection Agency, and the American Cancer Society funded the AHSMOG Study. The goal of the study was to understand the health effects of long-term exposure to air pollution (Chen et al., 2005; Mcdonnell, Abbey, Nishino, & Lebowitz, 1999; Mcdonnell, Ishikawa, Petersen, Chen, & Abbey, 2000). Researchers have considered Adventists to be a great group to study because they generally do not smoke, practice healthy eating and exercise habits, come from different socio-economic backgrounds, and are considered the most racially diverse religious group in the United States (Lipka, 2015).

The Adventist Health Study-2, which began in 2002 is researching a sample of 96,000 Adventists in the United States and Canada. This study is investigating links between lifestyle, diet, and disease among Seventh-day Adventists (Burkholder-cooley, Rajaram, Haddad, Fraser, & Jaceldo-siegl, 2016; Ford, Jaceldo-siegl, Lee, & Tonstad, 2016; Penniecook-sawyers et al., 2016; Tantamango-bartley et al., 2016; Serena Tonstad, Jaceldo-siegl, Messina, Haddad, & Fraser, 2015). Under this large study, the National Institute of Aging is funding the Biopsychosocial Religion and Health Study (BRHS) to understand the role of the Adventist religious culture in relation to the factors that give Adventists better health and longevity than their American counterparts (Holland, Lee, Marshak, & Martin, 2016; Lee et al., 2009; Morton, Lee, & Martin, 2017; Reinert, Campbell, Bandeen-roche, Sharps, & Lee, 2015).

Surprisingly, this social movement is now wading into policy discussions around climate change by highlighting the reduction of greenhouse gas emissions that consumers and the overall country will make by shifting to plant-based (vegetarian) protein sources (Harwatt, Sabaté, Eshel, Soret, & Ripple, 2017; Soret et al., 2014).

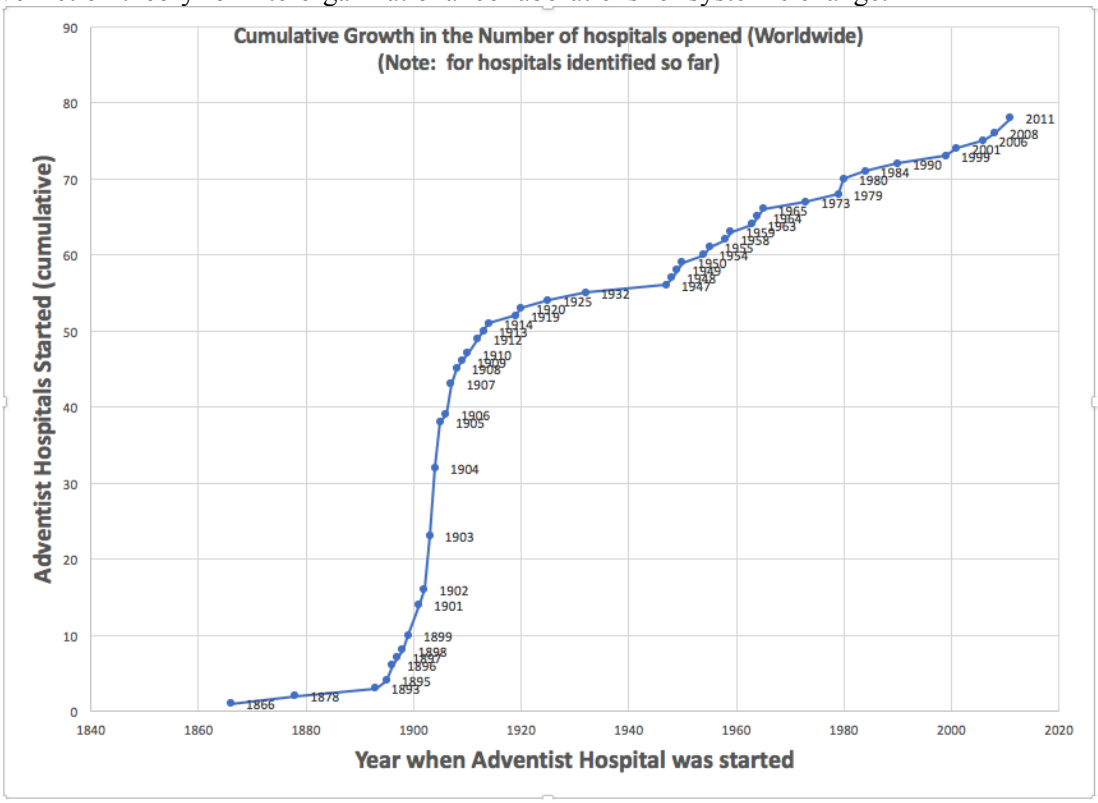
Of interest to the context of this study is the role that Adventist organizations played in the execution of these studies. For instance, the Nationals Institutes of Health gained access to the members of this social movement by partnering with Adventist universities that provided the key researchers who

conducted these studies. In addition, these universities utilized the other types of organizations such as churches to connect to the general Adventist membership. The studies have had unusual high rates of response and consistence due to the high level of trust among the universities, Adventist members and the other bridging Adventist organizations (Dysinger & Minchin-Comm, 2007).

Overall, these studies have found that the Adventist health lifestyle, including their vegetarian diets and non-smoking habits, allow the Adventists to live about ten years longer than average Americans. A National Geographic study identified the Adventists as one of the five groups that live the longest in the world (Buettner, 2012). In addition, Adventists age well and have lesser rates of cancers and other chronic diseases that are prevalent among Americans. The findings about the benefits of the Adventist health lifestyle are holding true even for non-White Adventists members (G. Fraser et al., 2017; Montgomery et al., 2007; S Tonstad et al., 2013). These studies, particularly the Adventist Health Study-1 and 2, have revealed what Adventist individual actors are doing to promote a culture of health among themselves. What is not understood and has not been studied is the role of Adventist organizational actors in helping this social movement to recruit and retain new members and sustain and perpetuate these healthy lifestyles across multiple generations since the 1860s.

## Ellen G. White's (EGW) Collective Action Model

To better understand the collective economic and social activity of the Adventist health reform movement, it is important to investigate EGW's Collective Action Model (collective action of the social movement's social enterprises and philanthropic nonprofits). While this model is at the foundation of what this social movement has done around the United States and around the world, it still has not be studied. This paper discusses the model's network contributions to growth and resilience of this social movement. Before this model, few hospitals were being launched by the social movement. However, after Ellen G. White introduces this model to her movement in the 1890s, there is exponential explosion of hospitals launched across the United States as well as schools, factories, restaurants and stores, as partly seen in the following figure. Therefore, this study attempts to begin to formalize Ellen G. White's Collective Action theory for interorganizational collaborations for systemic change.



Through this paper, I seek to present the structure of the collaborations within White's social movement during an early part of the social movement's existence between 1898 and 1948. This study develops a network model of how a global social movement uses local collaborations to enhance its local impact and global growth. This study will look at how the collaborations increased the capacity and impact of the hospitals and the other health-related organizations in ways that multiplied the available resources, reduced resource dependencies and ultimately increased this social movement's social impact in the United States' healthcare and public health.

## Theoretical Perspective

I will use network theory to conduct this study (Borgatti & Halgin, 2011). Scholars of social networks trace the origins of social network analysis to the times of French philosopher Auguste Comte (1798-1857) and French sociologist Émile Durkheim who posited that "the reasons for social regularities [are] not to be found in the intentions of individuals but in the structure of the social environment in which [the individuals] are embedded." (Borgatti et al., 2009, p. 892; Durkheim, 1951). Unlike traditional statistical analysis, the network theory perspective posits that outcomes of an organizations are a function of the organization's social environment (Borgatti et al., 2009). Therefore, in studying the culture of health among Adventists, network theory allows us to look to the social environment around Adventists, which they have largely created through their health promoting organizations. This allows a researcher to understand how Adventists perpetuate those habits of health from generation to generation among their demographically diverse membership when their American peers may not do so.

The most dominant perspective in the study of social enterprises has been the rational economic perspective. This perspective highlights how social enterprises are organizations that use commercial activities to generate revenue that in turn is used to support programs addressing social issues. Scholars credit the origins of this perspective to early research such as those looking at art-based organizations using commercial activities (Crimmins & Keil, 1983; Kerlin, 2006) or that other scholars who wrote about nonprofits engaging in commercial practices more generally (Adams & Perlmutter, 1991; Dees, 1998; James & Rose-Ackerman, 1985; Skloot, 1983, 1987). Much of this work developed in the political context of the shrinking welfare state whereby government significantly downsized their social programs. As a result, nonprofits lost significant funding and had to opt for alternative revenue generation strategies to manage their budgets. In light of these, nonprofits would seek commercial activities to remain viable.

In contrast, Raymond Dart, a Canadian scholar, contributed an article challenging the dominant economic rational theories (Dart, 2004). Dart's key contribution sought to provide a more general sociological perspective to the existence of social enterprises in the nonprofit field. For this, he utilized institutional theory and focused on the moral legitimacy of nonprofit social enterprises within a "neoconservative" political context, which in the United States is known as the 'neoliberal' political context (p. 411). Dart saw the prevailing rational economic theorizing of social enterprises as limited and narrow. As a result, he developed a broader sociological perspective of social enterprises using institutional theory and more specifically moral legitimacy (Suchman, 1995). In his paper, Dart posits that social enterprises in the nonprofits sector are a characteristic of the political and ideological values of the modern societies. His perspective allowed him to predict that over time more and more nonprofits will adopt commercial activities but engage in less social innovation and social and systemic change.

As has been observed elsewhere, the use of institutional theory in sociological research of organizations prescribes notions of reactive organizations that are conforming to their environment (Davis et al., 2005; Thornton et al., 2012). Similarly, Dart's use of institutional theory within the social enterprise field brings with it the same limitations. Social enterprises, from Dart's perspective, are nonprofit organizations who are reactive and conforming to the political and ideological values around them. Dart's strips out any claims of agency among the social enterprise field and predicts that social enterprise seeking moral legitimacy will over time become aligned with the prevailing broader institutional values. Dart sees the

claim of social enterprises seeking to transform society through social innovation practically fading away in due course of time and the seeking of moral legitimacy prevailing. Dart's predicts a gradual move towards market-based approaches without real innovation and social change.

The use of Jürgen Habermas in social enterprise research may provide us an opportunity to fulfill Dart's intention of moving beyond rational economic theories to developing an alternative broader sociological perspective but still account for social change through social enterprises. Habermasian theory presents us with a broader sociological perspective that accounts for non-conforming social enterprises that are proactive against their institutional context and are engaging in systemic change. Habermas also introduces us to a useful distinction between what he terms the lifeworld and the system. To Habermas (1987), the lifeworld represents the personal identity, lifestyle or culture, and social relationships of individuals. Within the lifeworld, these three elements thrive whenever there is communicative action, which is respectful dialogue that facilitates mutual understanding. The development of such mutual understanding is what Habermas alludes to as intersubjectivity.

In contrast, the system comprises of the state, the market, and the expert professions. The system is driven by the purposive rational action which are necessary for the bureaucratic state, the market, and expert professions to properly function effectively and efficiently. Today we observe, for instance, that "governmental action directs itself according to economic actualities and administrative facts" (Horster, 1992, p. 52). Unfortunately, as the institutions of modern society continue to grow, the system's institutional complex invades and colonizes the lifeworld and erodes communicative action.

As we see in the figure below, Dart and Habermas differ in their conceptualization of the social enterprise actions as they relate to the norms. Dart would conceptualize social enterprises as existing because they seek legitimacy in the institutional context. As the welfare state continues to decline, the social enterprise adopts certain approaches because the institutional norms drive it to respond and embrace these practices to obtain or retain legitimacy. They do so to adopt socially desirable institutional norms and this conformity allows them to gain certain benefits. In contrast, Habermas would conceptualize social enterprises as adopting practices that counter institutional norms so as to push back against the encroachment of the institutional complex in the lifeworld. In other words, where Dart sees social enterprise conforming, Habermas sees social enterprises as emerging as revolutionary responses to the institutional complex.

Figure: Predictive difference between Dart's theory and Habermasian theory

**Dart's Sociological Perspective on Social Enterprises**

| **Social Enterprises** | | **Institutional complex** |
|---|---|---|
| - Seek legitimacy<br>- Conform, react and change to become like the institutional complex | → | Dart predicts social enterprises conforming to the currently prevailing pro-business and pro-market, neo-conservative political and ideological values (Dart, 2004) |

**Habermas' Sociological Perspective on Social Enterprises**

| **Institutional complex** | | **Social Enterprises** |
|---|---|---|
| - Becomes transformed by social enterprise and social movement action<br>- Systemic change by social enterprises make institutional complex to adopt values of social enterprises and social movements | → | The Habermasian perspective allows us to predict that non-conforming social enterprises will emerge to challenge the institutional complex to re-infuse communicative action in the lifeworld and push back on the institutional complex's purposive rational action |

In essence, Dart and Habermas present us with and predict diverging paths of for the future of social enterprises. Dart predicts that social enterprises that conform to the institutional complex and move away from social innovation and social or systemic change. However, social enterprises under the Habermasian perspective take a path that would shun conformity and actually seek strategies and opportunities to transform the institutional complex. The Habermasian theory would predict that the more social enterprises conform to the institutional complex the likely they will fail at effecting social or systemic change. Habermasian social enterprises would aim to generate social innovation and create social or systemic change. Dart's social enterprises are institutionally conforming whereas Habermasian social enterprises are institutionally transformative. Therefore, this study will use the Habermasian perspective to study the social movement activities of the Adventist health reform movement which sought to challenge the institutional complex since the 1860s.

## Research Questions

This study formalizes Ellen G. White's Conceptual Model by developing a structural representation of the model as well as the qualitative explanation of the model using a mixed methods social network analysis (MMSNA). Therefore, the key research question and relevant subquestions are:

What is the structure, processes, and mechanisms of the *EGW Collective Action Model* of interorganizational collaborations between Adventist social enterprises and nonprofits?

- According to Ellen G. White, what organizations comprise a local network that it used to impact each city?
- How do these organizations collaborate?
- What were the roles of these organizations?
- How do these roles boost the network's capacity and social innovations for systemic change?

Nonprofits and social enterprises have an interest in addressing societal issues. Donative nonprofits are defined as those nonprofits that seeks donations to fund their programs and achieve their missions (Galaskiewicz, Bielefeld, & Dowell, 2006). In contrast, this study defines social enterprises as socially-organizations that seek to achieve social missions through some form of business venturing (Dees, 1998a; Defourny & Nyssens, 2017; Granados et al., 2011).

## Research Design

This study is structured as a modified explanatory sequential mixed methods research design (Creswell, 2014; Creswell & Plano Clark, 2010). An explanatory sequential mixed methods design comprises of both a quantitative study that happens first followed but a qualitative study that follows; the qualitative study seeks to explain the findings of the initial quantitative study. This study is a slight modification of that design in that it starts with a qualitative data collection approach; however, it then firsts converts the data and conducts a quantitative (social network analysis) study and follows that with a qualitative study to explain the content and context of the quantitative social network analysis findings.

Mixed methods research utilizes the strength of both quantitative and qualitative approaches. As Creswell (2009) discusses:

> *"the problems addressed by social and health science researchers are complex, and the use of either quantitative or qualitative approaches by themselves is inadequate to address this complexity… [and] there is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself. Their combined use provides an expanded understanding of research problems"* (p. 203).

Mixed methods research is increasingly being used in education, communication, public health, mental health, among other fields of study. Mixed methods research involves consolidating quantitative and qualitative approaches under one study in order to broaden the possible scope of research findings and/or

to expand or build on one approach with another. However, mixed methods research is challenging because it requires training in both qualitative and quantitative approaches, requires more extensive data collection, and usually is more time-consuming than taking either a qualitative or a quantitative approach.

The beginning of mixed methods research is traced backed to the multitrait-multimethod matrix of Campbell and Fiske (1959) and earlier attempts to triangulate quantitative data with qualitative data or the other way round (Jick, 1979). Additional work of scholars that include Creswell and Plano Clark (2010) brought mixed methods research to the mainstream as a research design strategy. For this study, it is very useful to utilize a mixed methods research design for various reasons. First, scholars of social movements have called for a combining of qualitative approaches with quantitative approaches to understand dynamic processes and relational networks in social movements (McAdam, 2002). Scholars have also called for complementing qualitative and quantitative approaches in social network analysis, as will be discussed below.

## Methods

This study uses archival data comprising of White's letters, book chapters, manuscripts and a magazine article. In this study, I utilized archival records to determine the structure of the social network of the Adventist health reform movement in the period around 1900. Unlike survey approaches, observation techniques, and other similar strategies that allows a researcher to *directly* observe evidence of a phenomenon or event, archival records provide us with evidence of *indirect* observation of phenomenon (Bernard, Wutich, & Ryan, 2017). In this study of text documents, while other analytical approaches such as discourse analysis or narrative analysis focus on text as the object of analysis, this study falls in the analytical approaches that focus on text as a proxy of experience (Ryan & Bernard, 2000). In other words, in this study the focus of the analysis is on using text as evidence of interactions between organizations (collaborations). The current study analyzes text to capture the relational data among organization and use technique of social network analysis (to elicit the structure of the collaborations) and qualitative text analysis (to better understand the meaning and processes of those collaborations).

## Sampling and Data Collection Procedure

This study uses a purposive sample strategy to identify the documents to analyze for this research. I relied on the official compilation produced by the Ellen G. White Estate (White Estate), which is the current steward of Ellen G. White's published and unpublished materials. *The Health Food Ministry* (HFM book) is the official sampled compilation which the White Estate produced to highlight the role of the health food social enterprises within the overall context of the collaborations in the social movement as intended by Ellen G. White. This book was published in 1970 for distribution among Adventists in the management of health food social enterprises around the world. These Adventists included the managers of Loma Linda Foods, the American social enterprise, and the Sanitarium Health and Wellbeing Company, the Australia-New Zealand social enterprise. While Ellen G. White died in 1915, it is interesting that twenty years later (in 1934) after her death, one of the major health food social enterprises, Loma Linda Foods, approached the church's official repository of Ellen G. White's writings to request her additional unpublished counsel (White, 1970, p. 3). They valued these writings as useful to help them manage their operations in accordance with her original prescribed intents. These materials were then later compiled in the book *Health Food Ministry* which has been distributed for decades around the world to other Adventist leaders and followers. This official compilation contains excerpts from White's letters, manuscripts, book chapters, and articles that deal with Adventist health food social enterprises. Around 2010, the White Estate generated an electronic version of this book (95 pages) and provided this version online for free. This is the 95 pages I used in my data collection.

The HFM book's 95 pages of excerpts contain the references of the source document of each excerpt. I used these references to locate the original source texts which included the complete manuscripts, articles, book chapters, and letters. I considered this necessary in order to find the full complete text related to

each excerpt. The complete text will provide me a complete context of the published paragraphs or sections which the White Estate had compiled. At the end of my search, I was able to identify 41 source documents from which the excerpts had been extracted. These comprised of 41 unique documents for my analysis which include five book chapters, 18 letters, one magazine article, and 17 manuscripts. All these documents were written between 1898 and 1912. White wrote seven of the documents when she was in Australia beginning in 1898 until 1900. She later wrote the rest of the 34 documents upon her written to the United States beginning in 1900 to 1912

The context of the social movement during the time at which these documents were written validate their relevance for this study. At the time, White appears to have begun to be develop these writings as if she was in anticipation of the impending and ultimately imploding crisis of the original American model of health promotion she had launched in 1866. In 1898, when she begins to write this set of documents, she had travelled to Australia. She had realized that Dr. John H. Kellogg, the leader of the American model began creating a monopoly of the model under himself. He had been in the ever-growing tensions with the denomination's religious leaders. Therefore, at this time, in 1898, she is writing to various leaders of the social movement, including Dr. John H. Kellogg, as she is developing a new Australian model. It is as if she anticipates replacing the older and soon-to-implode American model (which eventually imploded around 1906).

1898 is also a significant year because she, with her colleagues, launched the social movement's hallmark health food social enterprise which currently continues to exist in Australia as the social movement's largest social enterprise. This religious and nonprofit health food social enterprise, the Sanitarium Health and Wellbeing Company, is a breakfast cereal company in Australia and New Zealand which currently generates $300 million in revenue each year (Hardy, 2008; Hardy & Ballis, 2013).

## Data Collection Procedures and Analysis

### Instrumentation

Using the process described below, this study developed a codebook through thematic analysis to identify the organizations that exist in Adventist local networks, the ties (connections) between the organization (dyadic ties), and type of interactions between these collaborating organizations.

### Coding qualitative relational data

To analyze the data, I used MaxQDA qualitative software to identify themes related to the inter-organizational collaborations between the health food social enterprises and the rest of the social movement's organizations. I used the community capitals framework to ensure a comprehensive coding of all possible collaborative themes among the organizations that address all aspect of systemic change as reflected in this social movement (Emery & Flora, 2006).

This framework contains the following elements:

1. Natural capital refers to natural and environmental resources in a geographic area.
2. Cultural capital refers to the traditions, language, ways of living and knowing of a community.
3. Human capital includes skills, education, experiences, abilities of members of a community.
4. Social capital is concerned with the social connections or interactions between people and organizations in a community.
5. Political capital refers to the knowledge and access to the structure and processes of power sharing and decision making in a community.
6. Financial capital is the financial resources available to a community.
7. Built capital includes physical development such as roads and buildings available to the community.

For instance, the category of human capital under the framework ensured that I coded the provision of volunteers and trained professionals from the church to sanitarium hospital as a form of one type of

capital shared between these two organizations. Therefore, using the community capitals framework, I coded the data to identify the key words reflecting Adventist social enterprises and their relevant collaborations. The first set of codes coded each paragraph which described each type of social enterprise. I labeled each of those paragraphs with a word reflecting the type of social enterprise discussed in the paragraph, for instance, "restaurant" for a vegetarian restaurant. When using MaxQDA qualitative analysis software, such a coding process is efficiently done by searching the word and automatically coding (autocoding) all paragraphs containing that searched word.

I developed tge second set of codes by manually reading each of those autocoded paragraphs, described above, to code the dyadic relational data representing the nature of collaborations among the organizational actors. A dyad represents two actors that have a relationship; dyadic relational data is the type of relationship connecting the actors in the dyad. I categorized these dyadic relational data under the relevant dyads. For instance, I used the label "factory to store" to categorize certain themes reflecting how a food factory collaborates with a health food store.

### Segmentation of text (Coding paragraphs with key words for further analysis)

To determine the focal words for Key-Words-In-Context analysis, I arranged the documents in chronological order according to the date they were written. I then read every sentence in the first document, middle document, and last document in the chronological arrangement. As I read, I identified the words the author used to discuss health-related social enterprises taking note of the organizations with which these social enterprises collaborated.

This process was important for two reasons. These documents were written more than one hundred years ago; therefore, it was necessary to inductively develop the focal words for analysis. Any list of words from current literature would likely not provide relevant words used for social enterprises at that time. For instance, when perusing the documents, I found that during the early 1900s, this author used the phrase "benevolent enterprises" instead of "social enterprises." In addition, Ellen G. White was writing about many issues in her letters including religious matters, church administration issues, and many other issues not relevant for this study. Therefore, analyzing only relevant health-related paragraphs helped the study focus on what is in the scope of this research. To illustrate, I identified the following words in the first document in the set of documents relevant to this study:

The words I identified are shown below under each source text:

1898 Ms 105

- facilities
- manufacture
- foods
- business
- agriculture

7T Chapter 17

- sale
- factories
- products

1912 Ms 59

- No additional key words found

After identifying such relevant key words in first document, middle document, and last document, I took each of those words and autocoded all the paragraphs in which the word appears in all the documents in my sample. I used the root of a word to capture all the variations of the word. For instance, I searched "agric" to retrieve paragraphs with the words "agriculture" and "agricultural." From there, I then read each of the coded paragraphs to identify additional words indicating social enterprises in these documents. I repeatee this process and identified and coded other new key words related to social enterprises until the process did not generate any new key words that can be used to code paragraph segments discussing social enterprises. This process segmented the text into codeable units (Krippendorff, 1995).

Below are the additional words I identified and the corresponding number of paragraphs in which each word was mentioned in the data:

| Key Word | Paragraphs Coded | Key Word | Paragraphs Coded |
|---|---|---|---|
| **agric*** | 5 | **profit** | 17 |
| **business** | 80 | **experiment** | 12 |
| **facilit*** | 23 | **sell** | 13 |
| **factor** | 20 | **store** | 21 |
| **foods** | 120 | **monopol*** | 4 |
| **manufactur*** | 45 | **patent** | 3 |
| **sale** | 26 | **baker*** | 4 |
| **product** | 42 | **commerc*** | 22 |
| **produce** | 24 | **compan*** | 22 |
| **suppl*** | 27 | **till** | 21 |
| **preparation** | 42 | **cultivat*** | 14 |
| **restaurant** | 65 | **planted** | 22 |
| **industr*** | 18 | **orchard** | 4 |
| | | **enterprise** | 23 |

Some of the paragraphs retrieved in my search contained versions of the words that were not relevant to my study. In the coding process, I reviewed the coded paragraphs and deleted the code from a paragraph if the meaning of the word was not relevant. For example, I noticed that if I searched for the word "store" (related to the retail health food store), the search results included words such as "restore" or "storehouse" (a reference to the tithe donation repository in the Christian Bible). Therefore, I deleted any codes that extracted such irrelevant versions of the word.

Once I identified all the paragraphs with key words in all the sampled documents, I coded all collaboration themes in those coded paragraphs that contained the key word. At times, it was necessary to read the paragraphs before or after to get the full context and meaning of the coded paragraph. For instance, I noticed it was unclear whether a collaboration mentioned was in relation to a hospital or an education institution. The passage author was discussing "Loma Linda" which now operates both a large hospital and a university. Reading the surrounding paragraphs helped me to identify that the relevant paragraph was discussing the hospital and not the education institution.

### Iterative codebook creation and refinement

The process of code development was an iterative one with each step providing an opportunity to define each code and refine it to reflect each additional data that resembles the code (Bernard et al., 2017). A codebook is an organized list of codes, their definitions, and descriptions which a researcher continually uses in the coding process to ensure the accuracy and reliability of the codes. I will use this codebook in future studies to code the relational data in actual accounts detailing how the social movement members practically implemented the model to facilitate interorganizational collaborations among local health-related Adventist organizations. First, I used a sample documents from the set under study. I developed a codebook draft by identifying organizational collaboration themes. To identify the collaboration themes, I used the Key-Words-In-Context, indigenous phrases and missing data approaches (Bernard et al., 2017).

### Converting qualitative relational data to quantitative (matrix) data for social network analysis

To convert the qualitative relational data into quantitative social network data, I exported a file containing all the codes from MaxQDA into an Excel file. The Excel file listed all the dyadic relational data

representing the nature of collaborations among the organizational actors. These codes were listed under the categories of the dyads. For instance, a dyadic relational data such as "supplying health foods" was listed under "factory to store" dyad to reflect the relevant collaborating organizations reflected in the coded themes.

Organizations Composing the Adventist Local Health Network

By the end of my coding, I had identified nine organizations that collaborated as part of the Adventist health network: church, factory, farm, medical, publishing, restaurant, school, store, treatment room. The following explanations clarify the nature of the operations of these organizations within the context of the Adventist local health network.

1. The church is a religious collection of Adventists which is an incubator to launch and fund the rest of the organizations in the health network. The workers in the other organizations, including the doctors, are normally members of the Adventist church.
2. A factory, based on the data, refers to an organization located outside a major city that manufactures healthy foods for the market. Bakeries or breakfast cereal manufacturing entities are examples of factories discussed in the data.
3. A farm is an agricultural center located outside a major city and, from the data, is the geographical location for the medical institution, the school, and the factory. The farm primarily generates fresh produce and other foods to supply to these three organizations that are on site.
4. Although the treatment room is technically a medical office, in this study "medical" refers to a major hospital-like center (called a sanitarium in the data) which would be located outside a major city (preferably on the farm). This sanitarium primarily provides in-patient medical services by admitting patients for at least days or weeks.
5. In contrast, a treatment room is a smaller out-patient center located within a major city or town. It provides minor medical services including consultations and refers patients to the sanitarium for major medical services.
6. A publishing company is owned and operated by Adventists and is tasked with publishing Adventist-related literature (including health promotion materials). The publishing entity supplies published material to other Adventist organizations and members. It also sells and/or gives the literature away free.
7. The restaurant, which is located within a city, provides ready-made health food during normal operations. However, it also runs health promotion workshops and cooking lessons to the general public.
8. A school is an education institution that provides elementary, high school or post-secondary education and could be a university. A school should locate at the farm and preferably near a factory and a medical institution to provides appropriate students with employment and medical training, respectively.
9. The store is a retail operation located in a city. It sells the health foods from the factory which is located outside a city. Therefore, it gives the city inhabitants access to a retail center for them to access locally produced health foods.

From my collection of archival documents, I coded the data to identify the key words relevant to social enterprises and their relevant collaborations. Each code captured the paragraphs under which each word appeared. From those paragraphs, I then found the themes that highlighted the nature of collaborations among the organizational actors. I categorized these themes under the dyadic collaboration which they applied. For instance, certain themes reflected how a factory collaborated with a health food store.

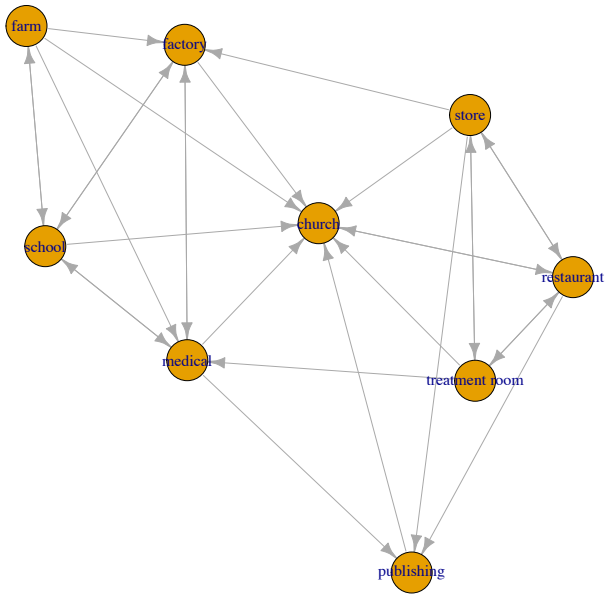
I created a matrix to reflect the unweighted and directed connections or ties among the organizations. Below is the table reflecting the ties among the organizations:

| | church | factory | farm | medical | publishing | restaurant | school | store | treatment room |
|---|---|---|---|---|---|---|---|---|---|
| **church** | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **factory** | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **farm** | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **medical** | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| **publishing** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **restaurant** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| **school** | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| **store** | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| **treatment room** | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |

## Results

Using the software R, I generated the following sociogram from the data. This sociogram maps the inter-organizational collaborations for the overall period for which the health network would be in existence. The sociogram shows the collaborations among the organizational actors as they engaged in health promotion in a local area. This is the model that the social movement sought to replicate in every city around the world to advance its health promotion agenda. At the time when these documents were written between 1898 to 1912, most of this work was being successfully implemented in Australia and the United States.

The sociogram of this network shows the connection of each organizational actor to the others. It also shows the model of directed ties which are the collaboration links showing direction of collaboration benefits. In social network analysis, the position of each point (i.e., each organization) on the page is meaningless; what is meaningful is the connection of each organization to the others.




This sociogram captures all the collaborations throughout the period of this network's existence. Some of these collaborations happen as the network is being formed which involves the starting of new

organizations to join the network. Other collaborations take place as the network becomes mature and are the collaborations that sustain the network for years to come. To better analyze the collaborations that sustain a network once it matures, I decided to develop a second sociogram. As a result, I will discuss the comparisons of these two sociograms to provide a better picture of collaborations that sustain a mature network from those that happening throughout a network's different stages of existence.

As will be discussed later and can be seen in the above sociogram, the church is very central in the network that captures the overall lifespan of the network. A qualitative review of the collaboration data shows that the centrality of the church within the network is primarily due to the church's role in contributing initial capital and labor at the launch of the network. Since this social movement is a religious-based movement, the church plays a key role when launching all the other eight organizations in the network.

The following quotes from the data reflects some of these ties through which church members provide capital and labor to launch or support the other organizations.

> *We must provide greater facilities for the education and training of the youth, both white and colored. Lt25-1902 (February 5, 1902) par. 19}*
>
> *The Lord calls upon those who are in positions of trust, those to whom He has entrusted His precious gifts, to use their talents of intellect and means in His service.… Interested workers will be led to offer themselves for various lines of missionary effort. Hygienic restaurants will be established. {7T 112.2}*
>
> *For years the work in Southern California has needed help, and we now call upon our brethren and sisters who have means to spare to put it into circulation, that we may secure the places so well suited for our work. {Ms119-1902 (October 8, 1902) par. 23}*

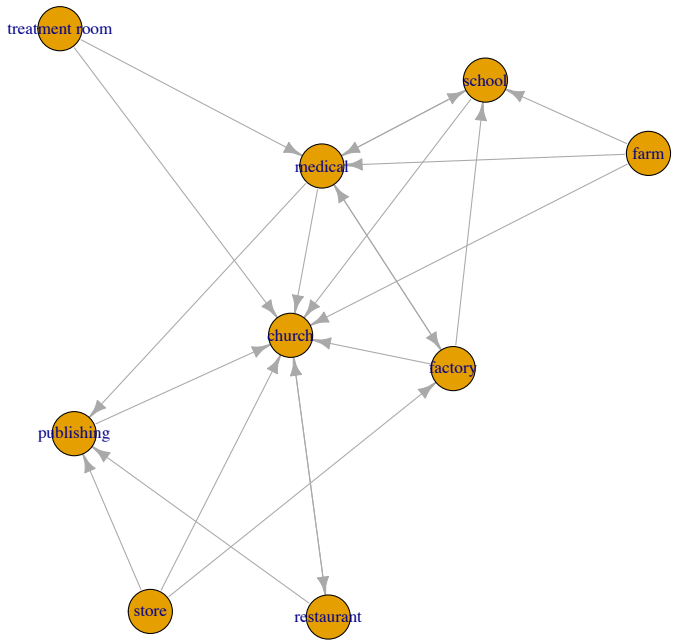
I decided to control for these initial capital and labor contributions coming from the church to reduce the ties and understand the rest of the network's inter-organizational collaborations when a network matures. Therefore, I removed the following ties. These ties reflect that the church provides capital and labor in the launching of the other eight organizations.

1. Church → Factory
2. Church → Farm
3. Church → Medical
4. Church → Publishing
5. Church → Restaurant
6. Church → School
7. Church → Store
8. Church → Treatment room

Upon removing the ties discussed above, I also decided to remove the ties that indicate passive collaborations that happen due to co-location of any of two organizations. For instance, stores, restaurants, and treatment rooms (outpatient centers) would utilize the same facility which obviously helped with cost sharing and possible labor sharing. I decided to remove those ties to reveal the network of active collaborations beyond such passive (co-locating) collaborations. Upon removing the ties which I just discussed, the updated matrix looks as follows:

| | church | factory | farm | medical | publishing | restaurant | school | store | treatment room |
|---|---|---|---|---|---|---|---|---|---|
| **church** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **factory** | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **farm** | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| **medical** | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| **publishing** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **restaurant** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **school** | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **store** | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **treatment room** | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

The sociogram showing the model is as follows:




"Overall Period" Health Network

The density of the "overall period" network is 0.65; this indicates that, of the total possible collaborations, there are 65% collaborations among the organizations. Therefore, the network's collaborations are significantly high with many of the of the network's organizations collaborating among one another.

"Mature" Health Network

The inter-organizational collaborations upon network maturity sustain the network in the long-term. The density in this mature network is 0.52, which is still more than half of the possible collaboration ties the network could utilize. Therefore, even controlling for the initial capital and labor contributions and the

co-location of some organizations, the collaborations among the organizations is still 52% of possible collaborations.

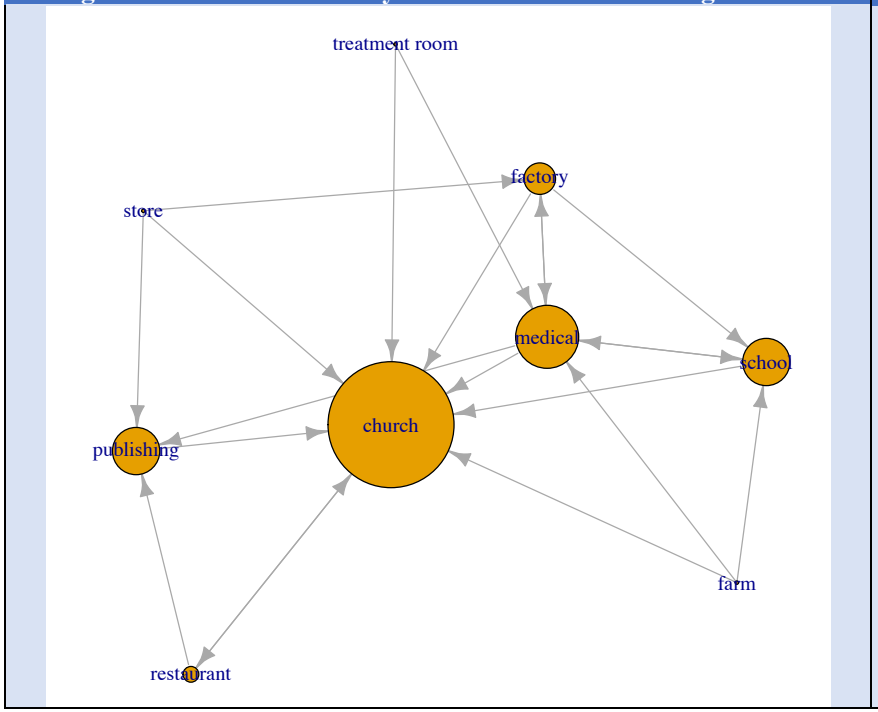
Compared to the "overall period" network in which the church has both high indegree and high outdegree (due to its investment of capital and labor to start all eight other organizations), in the mature network the church enjoys returns to its initial investments. In the mature network, the church engages in significantly lower work compared to the other organizations which take more central roles in the health network. In the mature network, the medical institution and health food social enterprises move to a more central role.

Further Analysis of Mature Health Network

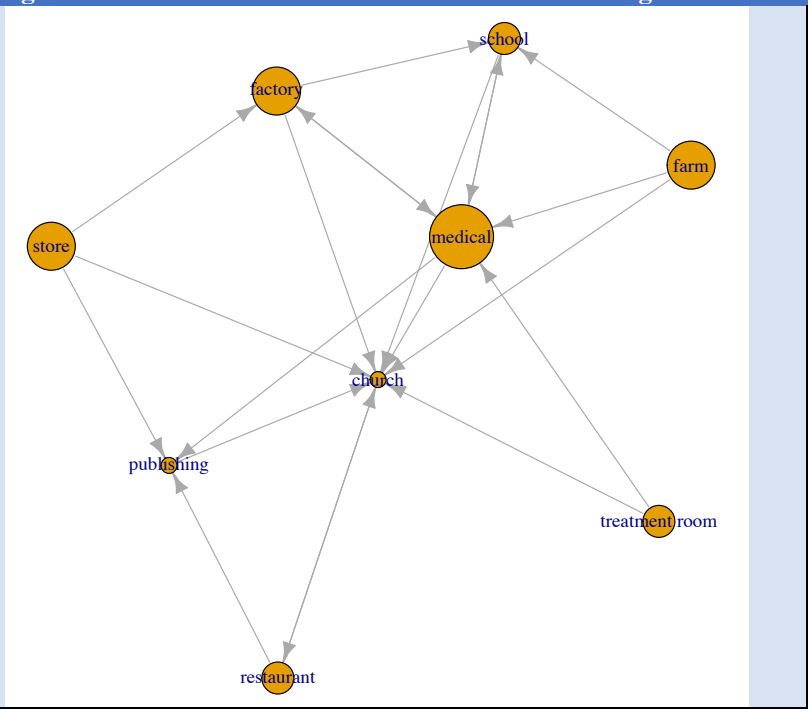
These next sections further analyze the mature Adventist health network. The sociogram on the left shows the mature network with each organization scaled based on the how many organizations are bringing "in" some collaboration value to that organization. In a mature network, the church receives contributions from the most number of organizations (all eight) followed by the medical, publishing and school institutions. This is interesting because all these organizations that are benefiting from the most number of organizations are all not health food social enterprises.

In contrast, on the right, the sociogram shows the mature network with each organization scaled based on the number of organizations it is benefiting. The medical institution contributes to the most organizations (four) followed by the factory, farm, and store. Therefore, in addition to medical services, this movement is emphasizing food related contributions as key to any impactful health network.

## Mature Health Network by Indegree
## Larger Circles are Served by the Most Number of Organizations




## Mature Health Network by Outdegree
## Larger Circles Contribute to the Most Number of Organizations



Distinct Types of Collaborations in a Mature Health Network

The analysis above is done by checking whether any collaboration exists between any two organizations. However, that analysis fails to consider the variety of collaborations between the two organizations. For instance, the factory has 19 distinct contributions it provides to the church and four to the school. In the above analysis, the factory contributions to both these organizations are scored the same with a score of one (1). Here I put weights to account for the distinct types of contributions in the matrix as shown below. The numbers indicate the diverse types of collaboration between any two organizations.

| | church | factory | farm | medical | publishing | restaurant | school | store | treatment room |
|---|---|---|---|---|---|---|---|---|---|
| **church** | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| **factory** | 19 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 |
| **farm** | 5 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 |
| **medical** | 3 | 2 | 0 | 0 | 1 | 0 | 2 | 0 | 0 |
| **publishing** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **restaurant** | 14 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| **school** | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **store** | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **treatment room** | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |

These new weighted scores will provide new results for the weighted indegree and outdegree (first generation) measures. Therefore, instead of only showing that the church gets contributions from all eight organizations, the new measure will show that the church gets 57 types of contributions in total from the eight organizations. The circle of the church will be scaled based on this new indegree measure of 57. Also, the new weighted scores will allow the lines in the sociograms to be as thick (showing collaboration strength) as the proportion of the distinct types of collaborations among the organizations.

Before graphing the new sociograms, I also calculated "second generation" indegree and outdegree measures (Opsahl, Agneessens, & Skvoretz, 2010). These "second generation" measures take into account both the total "types" of collaborations to (or from) a specific organization and the total number of organizations with which that organization collaborates. For instance, A and B may both be giving out 4 types of contributions each. However, if A is giving out its 4 types to C, D, E, and F, (one to each) but B is giving all 4 types to G only, then A would get a higher collaboration score for collaborating with four organizations (C, D, E, F) than B which is collaborating with only one organization (G).

Beneficiaries receiving the largest number of collaboration contributions

Using the tnet package in R (with alpha of .5) the following are the standard indegree, "first generation" weighted indegree, and the modified "second generation" indegree measures. The measures are arranged in descending order of the "second generation" indegree measures.

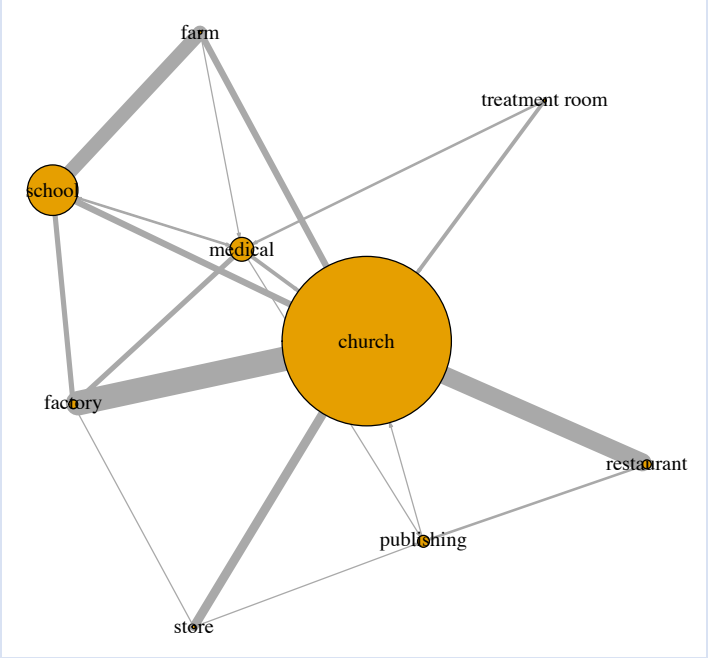
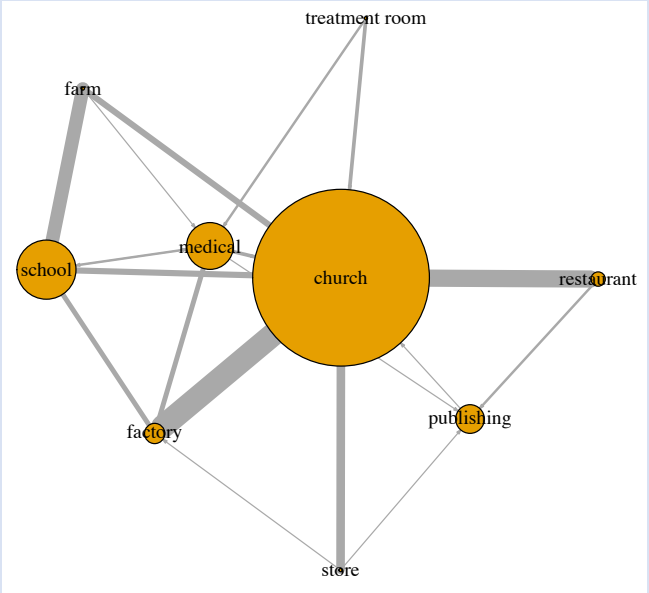
| Node | Indegree (standard) | Weighted Indegree* (first generation) | Second generation Indegree |
|---|---|---|---|
| **church** | 8 | 57 | 21.35 |
| **school** | 3 | 17 | 7.14 |
| **medical** | 4 | 8 | 5.66 |
| **publishing** | 3 | 4 | 3.46 |
| **factory** | 2 | 3 | 2.45 |
| **restaurant** | 1 | 3 | 1.73 |
| **farm** | 0 | 0 | - |
| **store** | 0 | 0 | - |
| **treatment room** | 0 | 0 | - |

** Weighted for unique collaboration type. In other words, organization X may be collaborating with Y (counted as one in Indegree column). If X shares money and food with Y, this is counted as two in the Weighted column (one for money and one for information).*

In the following sociograms from this updated measures, the lines connecting a pair of organizations are weighted and sized in proportion to the variety of collaboration types connecting the pair of organizations. For example, organizations sharing food and money (two collaboration types) will have a thicker line than those sharing food only (one collaboration type).

The sociogram on the left uses the weighted "first generation" indegree measures. In contrast, the sociogram on the right uses the "second generation" indegree measures. Having the two sociograms side by side confirms that when the weights are added to the sociogram, the organizations that are central using weighted indegree are also central even when "second generation" measures are factored in the measurements. In other words, the church, the school and the medical institutions are receiving the most types of collaboration contributions and they are also receiving them from the largest variety of organizations compared to all other organizations.

The left sociogram scales each organization based on the collaborations coming in to benefit that organization. In contrast, the right sociogram scales each organization by both collaborations coming in but also takes into account the variety of organizations collaborating with the organization (see Opsahl et al., 2010).

| **Beneficiary organizations receiving the largest variety (types) of collaboration benefits<br>Weighted Indegree* (first generation) (nodes not scaled)** | **Beneficiary organizations receiving the largest variety (types) of collaboration benefits<br><u>and</u><br>from the largest variety of organizations<br>(second generation indegree) (all nodes scaled 3 times for visibility)** |
|---|---|
|  |  |

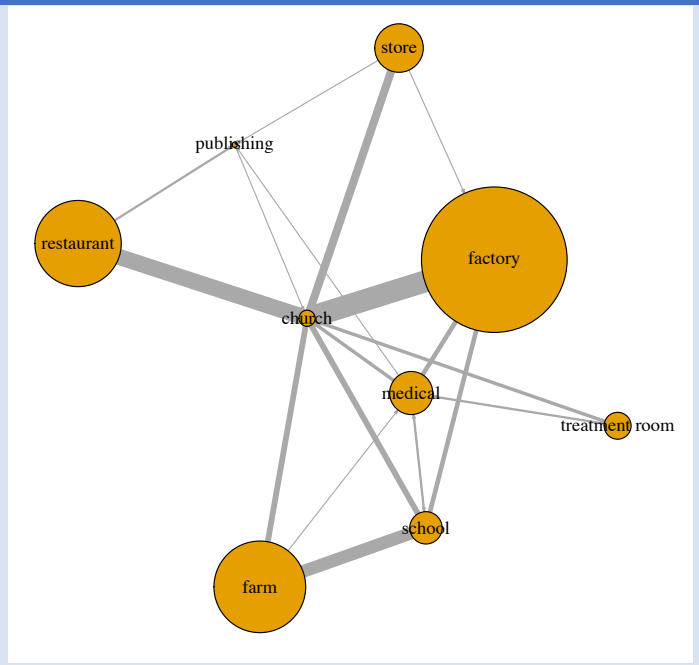
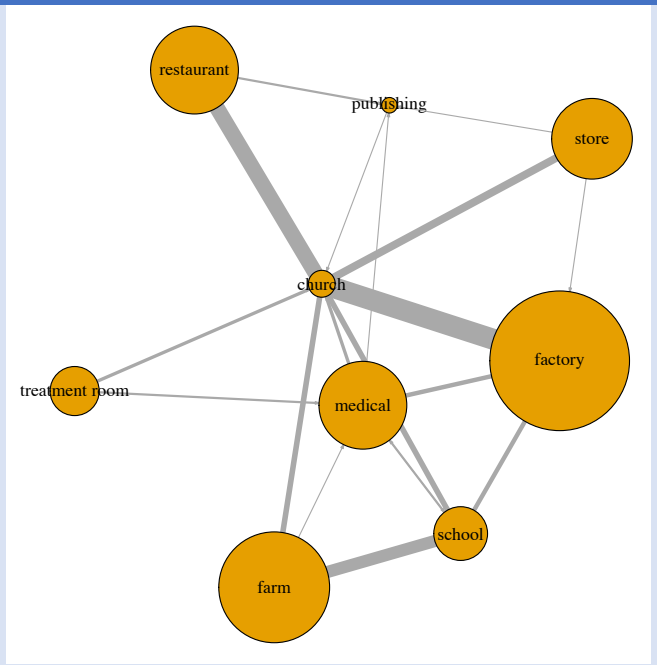
The most active organizations

Below are the calculations of the outdegree measures using the new weighted matrix. Again, using the tnet package in R (with alpha of .5) the following are the standard outdegree, "first generation" weighted outdegree, and the modified "second generation" outdegree measures. The measures are arranged in descending order of the "second generation" outdegree measures.

| Node | Outdegree (standard) | Weighted Outdegree* (first generation) | Second generation Indegree |
|---|---|---|---|
| **factory** | 3 | 27 | 9.00 |
| **farm** | 3 | 17 | 7.14 |
| **restaurant** | 2 | 16 | 5.66 |
| **medical** | 4 | 8 | 5.66 |
| **store** | 3 | 9 | 5.20 |
| **school** | 2 | 6 | 3.46 |
| **treatment room** | 2 | 5 | 3.16 |
| **church** | 1 | 3 | 1.73 |
| **publishing** | 1 | 1 | 1.00 |

** Weighted for unique collaboration type. In other words, organization X may be collaborating with Y (counted as one in Outdegree column). If X shares money and food with Y, this is counted as two in the Weighted column (one for money and one for information).*

As before, the sociogram on the left uses the weighted "first generation" outdegree measures. In contrast, the sociogram on the right uses the "second generation" outdegree measures. The factory, the farm and the restaurant are providing the most types of collaboration contributions and they are also providing them to the largest variety of organizations compared to all other organizations. Therefore, taking into account the second generation measures does not change the centrality of these organizations. However, it does reduce the centrality of the store which becomes a less significant contributor than the medical institution. This is because the medical institution is contributing to more organizations (i.e., four organizations) than the store (i.e., three organizations).

| Contributing organizations providing the largest variety (types) of collaboration benefits<br>Weighted (first generation) Outdegree (all nodes scaled 2 times for visibility) | Contributing organizations providing the largest variety (types) of collaboration benefits<br>**and**<br>to the largest variety of organizations<br>"Second generation" Outdegree (all nodes scaled 6 times for visibility) |
|---|---|
|  |  |

Based on this further analysis of the mature health network, the church moves to less active role once the network matures. Its important to note that its not that the church is inactive. The church's key energies would be moving and making new investments in a new "local" area to replicate the network by starting another network elsewhere. This is how the local health network then gets replicated and the social movement grows its global network. Nonetheless, even when the church shifts much of its energies to a new geographic territory, in the current local area the church still collaborates with the restaurant to conduct health promotion through cooking class seminars, for example. However, within this current local area, the health food social enterprises (factory, farm, store, and restaurant) and the medical institutions become the significant actors.

Description of Organizational Collaborations

The directionality of the ties and qualitative context for interpreting the data was based on the findings outlined in the paragraphs belows and based on the typical exemplars shown in the table that follows:

Church ←→ **Restaurant** collaborations: cooking schools for health promotion to general public

This collaboration goes in both directions. The church and the restaurant collaborate to conduct "cooking schools" which are general hands-on seminars/workshops that teach the general community members lessons on hygiene, nutrition, physiology and healthy cooking.

**Store** → Church: food supply, supporting church's humanitarian endeavors

The health food stores serve as supply centers for the church's members to support the vegetarian practices of the church members. In addition, the stores created income to help support the church's humanitarian work especially related to its health promotion efforts.

Church → **Restaurant**: guardian Christian family to be a spiritual mentor especially to young employees

The church helps the restaurant stay on course in its social mission. The church provides a family to a restaurant to provide spiritual teaching to help employees retain the restaurant's mission focus. All restaurant employees are to be concerned about the physical, mental, and spiritual health of the restaurant customers. The members of the Adventist health reform movement believe that health promotion is a spiritual and moral obligation; therefore, the role of this family at a restaurant seems to be part of the strategy to minimize the chance of the restaurants becoming too commercialized.

**Restaurant** → Church: food-related innovations; memorial for God

On the other hand, the restaurant served the church by serving as a place of food innovation and experimentation. This helped to the social movement to develop many new recipes and food products. It also served as a "memorial for God" by having some unique practices such as remaining closed on Saturday "to rest" which would create public curiosity about the social movement's overall physical, mental, and spiritual health beliefs.

**Factory** → Church: employment for poor, minorities, and other members

The factories provide health food products for church members and income for launching new networks in new regions. One of the incidental benefits of the health food factories, is that they would provide employment for the poor and minorities especially during the days when slavery was still publicly or covertly practiced in the United States. In addition, the health food factories would provide work for members of the church who would be fired from their jobs for refusing to work on Saturdays.

**Factory → Store**: inexpensive locally produced health foods

The factory, as expected, provides products for which the stores sell to the community. The social movement decided to create its own local-based factories to provide itself a supply of local and inexpensive health food to sell through its stores.

**Store → Factory**: In city location to sell (factory is located outside of city)

The data shows that the social movement resisted creating factories within cities. Therefore, the stores became the conduits through which the social movement reached the cities.

**Factory** → School: supply, employment (students and parents)

The factories provided employment opportunities for both parents and students to alleviate tuition costs of the students. In addition, they provided the schools with food.

**Factory** → Medical: income/profit, supply for patients

The food factories were to provide income to help the medical centers in their daily operations. In addition, they would provide food for the patients at the medical centers. The social movement used the title sanitarium to indicate hospital-type medical organizations providing in-patient services.

**Farm** → School: supply of food, education, student employment

As mentioned above, the social movement resisted establishing major institutions in the cities. Major institutions including schools were located on the farms which the social movement bought. These farms were to also provide employment opportunities and health food for students at the schools.

**Farm** → Medical: location and food

The farm also served as the location for the medical centers. It also provided food for the patients at these medical institutions.

Medical → Publishing ← **Restaurant**: food innovations and cookbook development

As a result of the experimentation at the restaurants and medical centers, new recipes would be developed and used to create cookbooks for helping families in the community learn how to make their own health foods. These cookbooks would be published by the publishing companies and sold to both members and the general public.

**Restaurant** ←→Treatment Room ←→ Store: City-based location for outpatient services

The outpatient services in the cities were provided by centers called treatment rooms. In a number of cases, the restaurant and the store provided a location from which the treatment room would provide outpatient services. In another case, the restaurant was on one floor and it provided the treatment room in the floor above the restaurant.

**Store** → Publishing and **Restaurant** → Publishing**:** distribution centers for published literature

The Adventist-owned publishing companies produced literature which was provided to the restaurants and stores for distribution or sale to the general public. In this case, I considered both the restaurant and the store as providing the publishing companies with more channels to distribute published literature.

Medical → School: student training

The social movement promoted the co-location and interaction between medical centers and schools. In particular, the medical centers provided medical-related training for the schools' students. Some of these medical-to-school interactions later became Adventist medical schools.

Typical Exemplars of Organizational Collaborations in the Data

The following are the examples of the typical exemplar that where I identified the collaboration in the data.

| Collaboration Ties (health food social enterprises in bold) | Typical Exemplar from Data |
|---|---|
| **Church to/from** Restaurant<br><br>**Purpose**:<br>**Running cooking "school" seminars for public** | *Every hygienic restaurant should be a school. The workers connected with it should be constantly studying and experimenting, that they may make improvement in the preparation of healthful foods. In the cities this work of instruction may be carried forward on a much larger scale than in smaller places. But in every place where there is a church, instruction should be given in regard to the preparation of simple, healthful foods for the use of those who wish to live in accordance with the principles of health reform. And the church members should impart to the people of their neighborhood the* light they receive on this subject. {7T 112.3} |
| **Church to** Restaurant<br><br>**Purpose**:<br>**Guardian Christian family to be a spiritual mentor especially to young employees** | With every restaurant there should be connected a man and his wife who can act as guardians of the helpers, a man and woman who love the Saviour and the souls for whom He died, and who keep the way of the Lord. {7T 118.4} |
| Restaurant **to Church**<br><br>**Purpose:**<br>**Experiments to generate new recipes; Restaurant as symbol of Faith** | Those working in these restaurants should be constantly experimenting, that they may learn how to prepare palatable, healthful foods. {Ms79-1900 (December 23, 1900) par. 10}<br><br>But our restaurants should not be opened on the Sabbath. Let the workers be assured that they will have this day for the worship of God. The closed doors on the Sabbath stamp the restaurant as a memorial for God, a memorial which declares that the seventh day is the Sabbath and that on it no unnecessary work is to be done. {7T 122.3} |
| Store to **Church**<br><br>**Purpose:**<br>**Health food supply, supporting church's humanitarian endeavors** | In all our plans we should remember that the health food work is the property of God and that it is not to be made a financial speculation for personal gain. It is God's gift to His people, and the profits are to be used for the good of suffering humanity everywhere. |
| Factory **to Church**<br><br>**Purpose:**<br>**employment for poor, minorities, and for fired members (who would lose work jobs for** | The time will come when those who embrace the truth in the cities will have to take their families away from the cities, and these industries will help to provide them with homes and employment. {Lt27- 1902 (February 26, 1902) par. 7} |

| | |
|---|---|
| **refusing to work on Saturdays)** | |
| Factory **to** Store<br><br>**Purpose: inexpensive locally produced health foods** | The message God has given me is that His people in foreign lands are not to depend for their supply of health foods on the importation of health foods from America. The freight and the duty make the cost of these foods so high that the poor, who are just as precious in the sight of God as the wealthy, cannot have the advantage of them. {Ms156-1901 (November 27, 1901) par. 29} |
| Store **to** Factory<br><br>**Purpose: In city location to sell (since factory is located outside of city)** | After the Los Angeles camp-meeting, we went to San Diego. Here our people are conducting a hygienic restaurant and a food store and treatment rooms in the very best part of the city. The work is carried on in rooms once used as a saloon. {Ms119-1902 (October 8, 1902) par. 15} |
| Factory **to School:**<br><br>**Purpose: Health food supply, employment (students and parents)** | The schools are to be sustained by the starting of various industries. {Lt27-1902 (February 26, 1902) par. 6}<br><br>In establishing schools, the important thing is to find a location where industries can be started that will enable the students to be self-supporting. The work should be carried on with as little outlay of means as possible. In connection with a school there should be enough land to raise sufficient crops for the school consumption and also some to sell for the benefit of the school. {Lt27-1902 (February 26, 1902) par. 9} |
| Factory **to Medical**<br><br>**Purpose: Income to medical center, health food supply for patients** | And the profits from these foods are not to be used merely for the benefit of the sanitariums. God builds no such partition walls. These profits are to be used for the good of suffering humanity everywhere. {Lt98- 1901 (June 19, 1901) par. 15}<br><br>The health food business is to be connected with our school, and we should make provision for it. We are erecting buildings for the care of the sick, and food will be required for the patients. {AUCR July 28, 1899, Art. B, par. 18} |
| Farm **to School:**<br><br>**Purpose: supply of health food, vocational training/education, student employment** | I have been shown that study in agricultural lines should be the A B and C of the educational work of our school. This institution must not depend upon imported produce for the fruits so essential to healthfulness, and for their grains and vegetables. This is the very first work that must be entered upon. Then as we shall advance and add to our facilities, advance studies and object lessons should come in. {Ms105-1898 (August 26, 1898) par. 2}<br><br>Schools are to be established away from the cities, in places where plenty of land can be obtained. Thus the students can be given |

| | |
|---|---|
| | opportunity to help to support themselves while in schools, and at the same time they learn the valuable lessons taught by the cultivation of the soil. With the schools are to be connected various other industries. {Lt25-1902 (February 5, 1902) par. 7} |
| Farm **to Medical**<br><br>**Purpose: location and health food supply to patients** | We must have a Sanitarium, and we must have it out of the city, in a convenient location, where there is plenty of water, because we use water in the place of drugs. The Sanitarium is to be located in a restful place, where trams are not passing all the time. It should be away from the smoke of the chimneys of a city, where the atmosphere is as pure as can be found. {AUCR July 28, 1899, Art. A, par. 16}<br><br>My message is, Do not build up sanitariums in the cities. {Lt201-1902 (December 15, 1902) par. 9} |
| **Medical to Publishing/** Restaurant **to Publishing**<br><br>**Purpose: Cookbook development** | Recipes that are formed on the old plan of preparing food are gathered up and put into our health papers. This is not right. Only recipes for the plainest, simplest, and most wholesome food should be put into our health journals. We must not expect that those who all their life have indulged appetite will understand how to prepare food that will be at once wholesome, simple, and appetizing. This is the science that every sanitarium and health restaurant is to teach. {Lt201-1902 (December 15, 1902) par. 2} |
| Restaurant **to Medical**<br><br>**Purpose: City-based location for outpatient services** | Los Angeles is a center for tourists from all parts of America, and it is surely time that we had a sanitarium near that city. For two years past, our medical work there has been carried on in rooms over the hygienic restaurant…" {Lt140-1906 (May 6, 1906) par. 10} |
| **Publishing to** Store/**Publishing to** Restaurant<br><br>**Purpose**: **published literature for public distribution** | Those who claim to be Christians do not do half that they might for the Master. Beside all waters the seed of truth is to be sown. Our restaurants and food stores must be made a means of enlightening minds. Let the workers have at hand leaflets and tracts containing the very best selections. If these cannot readily be sold, let them be given away; and good results will be seen from the seed thus sown. {Ms81-1906 (September 27, 1906) par. 25} |
| **Medical to School**<br><br>**Purpose: co-existence and training for the schools' students.** | Small sanitariums should be established in connection with our larger schools, that the students may have opportunity to gain a knowledge of medical missionary work. This line of work is to be brought into our schools as part of the regular instruction. {Lt25-1902 (February 5, 1902) par. 21}<br><br>The Sanitarium and school interests in College View are to clasp hands, each working for the advantage of the other. Their interests |

| | |
|---|---|
| | are not to be divorced, but to unite as if they were one. {Lt192-1901 (July 3, 1901) par. 10} |

## Discussion

One of the key takeaways of this study, is that this movement is emphasizing food-related contributions as key to any impactful health network that seeks to promote a culture of health. Adventists have clearly embraced healthcare services as part of their so-called "medical missionary" work since they run one of the largest healthcare systems in the country. However, based on the study, their model for addressing local communities also emphasizes the tackling of food-related matters as key to community health issues. Therefore, from the beginning of their movement, they have developed a system that touches on the diverse aspects of a community's food provision, preparation, and culinary (including home cooking) systems.

This study has developed a model by which a health-related social movement can utilize local organizations to increase its local impact and also replicate its successes in more regions. The principles of this model could be useful for researchers and practitioners exploring similar uses of organizational actors in collaborations engaged in causes they hope to scale.

The Adventist health reform movement used this model to expand its influence in health-related causes around the world. Looking at the model, the primary benefit of each organizational collaboration is to help build capacity for the whole network towards advancing social movement's health promotion agenda. Each organizational actor provides a unique contribution that helps the network achieve greater impact in its work. However, when the network matures, the health food social enterprises serve the network more than they are served, based on in-degree and out-degree measures. The church, which is the ideological mission center and vision control center of the network, initially plays the role of incubating the other organizations through capital and labor investments. However, as the network matures, the church plays a less active role and gains the most benefits from the network; it benefits from significant returns on investment. The network's collaborations also provide incidental benefits not directly related to the social movement's original health promotion agenda. For example, the collaborations provided employment opportunities to poor members as well as to African-American members of the social movement when segregation was still widely practiced.

The types of organizational actors identified in this study are still in existence today. However, it is likely that their roles may have changed significantly after 100 years of the social movement's existence. Therefore, studies should explore and compare the social network model developed in this study to test how well the social movement still collaborates in a manner this study found

Also, while this study has found that there are nine organizational actors engaged in these collaborations, one more modern organizational actor did not appear in the data. The social movement currently utilizes a tenth type of organization, namely associations. These include Adventist Medical Evangelism Network (AMEN) and Outpost Centers International, for instance. Since the data does not discuss associations, it appears this tenth organizational actor was non-existent when the social movement began. A separate study which possibly includes interviews may be needed to capture the role of these modern associations within the social movement's heath networks.

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