



## Using Social Network Analysis to Compare Vietnamese and Expatriate Teachers' Interactions within Vietnam's Growing International Schools

Robert Preston Williams<sup>1,+</sup>,  
Jayson W. Richardson<sup>2</sup>

<sup>1</sup>Cognita Schools Group, Ho Chi Minh City, Vietnam; <sup>2</sup>Department of Educational Leadership and Policy Studies, University of Denver, United States  
<sup>+</sup>Corresponding author • Email: [profe.robert.williams@gmail.com](mailto:profe.robert.williams@gmail.com)

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### ABSTRACT

Vietnam's embrace of globalization and rise in wealth among locals has meant a greater demand for international schools. The growth of the international school sector has resulted in a new kind of international school that serves local Vietnamese students taught by expatriate and Vietnamese teachers. These teachers may have limited interactions due to language and cultural differences. Using a survey, the researchers collected data from the teaching staff at the international school. The researchers analyzed the social networks of Vietnamese and expatriate teachers to identify informal leaders, identify subgroups, compare network density among expatriates and Vietnamese, and test the hypothesis that there is stratification between expatriate and Vietnamese teachers. The findings indicate that Vietnamese and expatriate teachers were not stratified into different subgroups; stratification did occur based on culture. Higher density among Vietnamese teachers suggests more interactions with each other. Implications for this study is that administrators need to build social capital among teachers through professional learning communities. Administrators must also provide teachers with professional development to increase their cultural competency.

## 1. INTRODUCTION

International schools have seen unprecedented growth in enrollment since 2000. Rapid school growth worldwide is expected to continue until 2030, with a rate of 60 international schools being built per month (Brumitt & Keeling, 2013; Bunnell, 2016; Bunnell, 2019; Gaskell, 2016; Hayden & Thompson, 2016). The international school sector requires an additional 300,000 teachers by 2027 to keep up with growth. Given the demand, there is little chance that all these positions can be filled (Bunell, 2019). Expatriates and host country national teachers will need to fill these teaching positions.

The definition of international schools varies across the literature. A broad definition of an international school is a school delivering a non-national curriculum in a language not native to the country in which the school resides (Bunnell, 2019). The number of international schools in Vietnam has grown from 84 in 2011 to 320 in 2023 (Bunnell, 2019; ISC Research, 2023). The rapid growth of international schools has resulted in a new kind of international school, which Hayden and Thompson (2013) label as type C non-traditional international schools. Type C international schools are usually for-profit and serve an affluent student body from the local population. These international schools are part of a network of schools owned and operated by corporations (Bunnell, 2019). Globalization has increased the wealth of locals who demand a better education for their children (Brumitt & Keeling, 2013; Tate, 2016).

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One country that has embraced globalization and seen a rise in wealth among locals demanding international schools is Vietnam (Bunnel, 2019; Elliot, 2012; Fforde, 2017). The Vietnamese Ministry of Education (2018) enacted 'Decree 86', which increased the cap of local students attending international schools from 20% to 50%. Government reforms and parent demand have resulted in the country being flooded with international schools, most of which are composed entirely of Vietnamese students.

Essential members of these international schools are the teachers, who have been called a neglected "middle actor" between the multinational corporations who supply the schools and the local parents who demand them (Bunnel, 2017). For this study, the term international teachers comprises a mix of expatriates teaching non-national curriculum and host country nationals, teaching national curriculum. In this study, we aimed to analyze interactions between expatriate teachers and host country national teachers in a type C international school in Vietnam by answering the following research question: How do the social networks of expatriate teachers compare to Vietnamese teachers?

## 2. LITERATURE REVIEW

Teacher leaders take on various roles within schools, making generating a broad, consistent definition of teacher leadership challenging. Findings suggest that teacher leaders are expert teachers. Teacher leaders' expertise comes in the form of knowledge (Anderson, 2008; Emira, 2010), experience (Lovelace, 2019), and pedagogy (Ghamrawi, 2010). Teacher leaders may use their expertise to influence colleagues and administrators. Teacher leaders could also influence colleagues by collaborating (Emira, 2010; Muijs & Harris, 2006) and sharing ideas and resources (Fairman & Mackenzie, 2015). Teacher leaders have two overarching goals when they influence colleagues and administrators: first, to improve teachers' practice (Angelle & Teague, 2014; Fairman & Mackenzie, 2012) and second, to improve student learning (Hunzicker, 2013; Nolan & Palazzolo, 2011). Defining teacher leadership based on a set of characteristics and actions means that every teacher has the potential to be a teacher leader. The literature distinguishes teachers who are formal and informal leaders.

### Formal Teacher Leaders

Formal teacher leaders (FTLs) work within the hierarchy created by administrators in roles such as department heads or instructional coaches (Martin, 2018). However, FTLs are classroom teachers responsible for instructing their students. School structures might put FTLs' administrative and classroom duties at odds with one another. Research shows that FTLs may not have enough time to do both effectively (Margolis, 2012). The literature suggests that FTLs' job is too hard to do alone, which might mean FTLs may benefit from colleagues' help. However, FTLs' administrative tasks might create contentious relationships with colleagues, making collaboration difficult (Hirsh & Bergmo-Prvulovic, 2019). Building solid relationships could counteract this problem, but overworked FTLs may not have the time.

### Informal Teacher Leaders

Although researchers have tried to define informal teacher leaders (ITLs), determining a consistent definition is problematic because it varies depending on the school's context (Katzenmeyer & Moller, 2009). ITLs are expert teachers who are influential, collaborative, share ideas and resources, focus on improving teachers' practice and improving students' learning. However, ITLs exercise leadership without formal positions (Martin, 2018; Penuel et al., 2010). Rather than relying on the power of a position, ITLs need to build strong relationships to influence others.

### Expatriate Teachers

For expatriates, the aim of becoming an international teacher is employment and travel opportunities, and not an ideological commitment to international education (Bright, 2022). Bunnel and Poole (2023) conceptualize expatriate teachers as both a globalized precariat, given their isolation in the host country, and a privileged member of the global middle class, given the ease at which they can move around. Expatriate teachers can be divided into four categories: (1) career professionals without children, (2) career professionals with children, (3) teacher tourists, and (4) permanent residents of the country hosting the international school (Hardman, 2001; Watts & Richardson, 2022). Sims (2011) reported that 85% of the expatriate teaching population employed in international schools is Caucasian, 48% are unmarried, 48% are in their 30s, and 24% are in their 20s. These data suggest that expatriate teachers are young, White, and may have little teaching experience.

### Host Country National Teachers

Host country national teachers are teachers indigenous to the country hosting the international school. Their culture and first language are the same as the student body from the local population. Host country nationals join international schools for status, economic benefits, a desire to leave language centers or the national education system, and as a transition for overseas returnees (Poole, 2022). The ability to speak English is a requirement to work in international schools. Hence, these teachers speak English as a second language. However, many host country national teachers likely prefer to speak in their first language. In many countries, international schools employ local teachers because of government-mandated curricula.

Host country nationals' salary is significantly lower than that of expatriate teachers. Hayden (2006) argued that this reality may prove harmful in the long term for international schools because host country national teachers may be unwilling to move back into the national system but have little chance of being promoted as administrators or teacher leaders. The split salary structure and lack of professional opportunities affect host country national teachers' motivation, morale, and self-worth (Brandin, 2021; Hammer, 2021). In the context of the current study, host country nationals are Vietnamese.

### **Conceptual Frame: Building Capital in International Schools**

Although Vietnamese and expatriate teachers have different languages and cultures and deliver different curricula, both groups share the same set of students. As such, these two groups may need more formal positions to build social capital and exchange human capital within the international school hierarchy. However, Vietnamese and expatriate teachers may build and exchange capital informally in their social networks.

Social capital theory proposes that resources are embedded within social relationships, and these resources can facilitate action (Bourdieu, 1986; Coleman, 1988). In *The Forms of Capital* (1986), Bourdieu developed the theory of social capital within his broader discussion on the different forms of capital. Bourdieu's ideas were later expanded upon by Coleman (1998), who focused on the functions of social capital. Both Bourdieu and Coleman theorized social capital as something *privately* owned. This notion was challenged by Putman (1995), who argued that social capital is a *public* good. Despite the differences between these schools of thought, each theorist added valuable ideas to social capital theory.

Bourdieu (1986) defined social capital as the combination of potential resources linked together through a network of individuals. Social capital focuses on the resources people gain by being members of a group. The degree of social capital possessed by a person depends on two factors. The first factor depends on the number of ties a person has within their social network and the strength of those ties. A tie can either be strong, weak, or absent, depending on the strength of the relationship between two people (Granovetter, 1973). The second factor depends on the combined capital within their social network. By adding and strengthening network connections, people can increase their human capital. In this way, social capital acts as a multiplier effect for a person's human capital.

Some researchers have used social capital theory when studying interactions among teachers (e.g., Penuel et al., 2009) and the diffusion of knowledge as a byproduct of these interactions (e.g., Spillane et al., 2012). In one example, Lena and Pil (2006) examined the correlation between school effectiveness and the strength of ties among teachers, administrators, and stakeholders. The results of Lena and Pil's study suggest that more social capital among teachers, principals, and other stakeholders predicts higher levels of student achievement. Lena and Pil highlighted the importance of building social capital in schools as it may impact student learning.

Building social and human capital is vital in international schools that predominantly serve the local population. Strengthening the connections between Vietnamese and expatriate teachers may improve student learning by facilitating human capital exchange between these two groups of teachers. Vietnamese teachers may benefit from expatriate teachers' pedagogical expertise and international school experience. Expatriate teachers may benefit from Vietnamese teachers' culture and language as it is the same as the student population. Strengthening all teacher connections might create conditions for informal teacher leaders to emerge. Informal teacher leaders leverage social and human capital to facilitate action in their social networks because they do not have the power that comes from formal positions. A better understanding of human capital and its effects on social capital is needed within an international school context.

Social capital theory was used as our conceptual framework for this study. The theory was used to examine the relationships between expatriate and Vietnamese teachers. The theory also aided in the selection of the research instrument and the analysis of the quantitative data.

### 3. MATERIALS AND METHODS

We used social network analysis to answer the question: *How do the social networks of expatriate teachers compare to Vietnamese teachers?* We did this by taking two approaches. First, we analyzed social capital and human capital exchange in teachers' social networks. Second, we tested the hypothesis that stratification exists between expatriate and Vietnamese teachers.

#### Sampling

The research site was an elementary international school in Ho Chi Minh City with 41 teachers. The researchers have never been employed at the research site. There were 36 expatriate teachers at the international school, 14 being formal teacher leaders and 22 without leadership titles or positions. There were five Vietnamese at the international school; all with no leadership titles or leadership positions. The 41 teachers taught grades preschool through grade five. The expatriates taught an American curriculum, and the Vietnamese taught the Vietnamese national curriculum. All 41 teachers employed at the research site participated in the study.

#### Instrument

Social capital theory supported the selection of the research instrument. We modified an existing instrument designed by Smith et al. (2018). The survey was available in English and Vietnamese. The *ITL Identification Survey* was divided into two sections. In the first section, the survey asked participants to designate themselves as expatriates or Vietnamese. In the survey's second section, participants were asked: *To what extent do you rely on each of the following individuals for your professional growth and development?* Below the question, participants were provided a roster of classroom teachers with no leadership titles or positions; formal teacher leaders' names were omitted from the roster. Next to each name on the roster, participants were provided a 5-point Likert scale ranging from "not at all" to "to a great extent."

Documents at the research site were also used to supplement the survey's demographic data. Based on the data analysis, we identified ITLs, identified subgroups, compared subgroups within each social network, compared network density among Vietnamese and expatriates, and tested the hypothesis that stratification exists between Vietnamese and expatriates.

#### Data Collection

A recruitment email was sent to the Head of School detailing the study's purpose and the data collection process. When the Head of School agreed, we requested a list of classroom teachers with no leadership titles or positions to populate the teacher roster on the survey. A high response rate was critical to analyzing each international school's social network as the approach demands that researchers ideally collect responses from all social network members (Avila de Lima, 2010).

We chose to deliver the survey during a faculty meeting to explain the purpose and process of the study to the teaching staff and administrators. After the explanation, the Head of School sent an email to the teaching staff with the link to the survey. While completing the survey, the participants could ask any clarifying questions. The survey took approximately ten minutes for the participants to complete. The survey response rate was 100%.

#### Data Analysis

The survey data were input into a valued matrix within UCInet, social network analysis software, to identify the ITLs, identify and compare subgroups, and compare network density. The survey participants were input into rows, and the names of those on the teacher roster were input into the columns. When names intersected in the valued matrix, numbers ranging from '0' to '4' were input into the boxes. These numbers correspond to the Likert scale selection from the survey. Documents from the research site were used to supplement demographic data from the survey. The demographic data were numerically coded and entered into a spreadsheet within UCInet.

ITLs were identified based on two criteria: degree centrality and the central tendency of ties. Degree centrality is the proportion of possible ties directed toward a node by those realized (Atteberry & Bryk, 2010). Degree centrality was interpreted as an individual's social capital, "in which a node's position is a source of opportunity and advantage" (Borgatti et al., 2013, p. 164). Any teacher's node with a degree centrality of '2' or above met the first criteria as an ITL, a criterion set by Spillane et al. (2010) in a similar study. For the second criterion, we analyzed the strength of the ties directed at each teacher's node. Using the valued data from the Likert scale in the survey, a tie's strength ranged from '0' to '4' and we considered '0' absent ties, '1' and '2' weak ties, '3' and '4' strong ties. From a social

capital perspective, “stronger ties can be counted on for providing help” (Borgatti et al., p. 272). Teacher nodes with a tie strength of ‘3’ or above met the second criterion as an ITL. Teachers’ nodes were ranked based on degree centrality and strength of ties using UCInet. Teachers who met both criteria were identified as ITLs at the research site.

To detect subgroups in the social network, we performed the Girvan-Newman algorithm in UCInet. The algorithm calculates the betweenness centrality of the ties and finds the ties with the highest scores. The highest scores were removed, and the betweenness centrality of the ties was calculated again. The algorithm repeats the process until cohesive subgroups form within the social network (Borgatti et al., 2013). The number of cohesive subgroups was set at two to test the hypothesis that stratification exists between expatriate teachers and host country national teachers.

We calculated the density of expatriate and Vietnamese teachers in their social network. Density is the number of ties divided by the number of possible ties (Borgatti et al., 2013). We interpreted density as a measure of human capital exchange between teachers within their social network. The interpretation derives from Borgatti et al.’s (2013) definition of density, with each tie representing human capital exchange between teachers.

### Validity and Reliability

The researchers used a valid and reliable instrument designed by Smith et al. (2018). Validity was also achieved by linking the survey’s content directly to the teacher leadership literature. Activities listed in the survey include discussing instructional strategies (Angelle & Teague, 2014; Fairman & Mackenzie), sharing ideas and resources (Anderson, 2008; Lovelace, 2018), and discussing student difficulties with content (Hunzicker, 2013; Nolan & Palazzo, 2011). Reliability was achieved by testing for internal consistency as individuals have stronger ties with similar attributes (Borgatti et al., 2013). The survey’s Likert scale items were analyzed using Cronbach’s  $\alpha$ . The Cronbach’s  $\alpha$  reliability test produced a 0.77 result, which indicates an acceptable reliability (Haele & Twycross, 2015).

## 4. RESULTS AND DISCUSSION

We created a valued matrix by entering the survey data into UCInet. This produced a social network for the teaching staff (see Figure 1). The network has five Vietnamese and thirty-six expatriates, each depicted as a node. Teachers’ names were on each node and input as pseudonyms. Figure 2 illustrates the social network that shows the teachers categorized by expatriate and Vietnamese teachers. The number of arrows directed at each node indicates the number of teachers who rely on that node’s human capital. Expatriate nodes are concentrated in the middle of the network due to having the greatest number of ties. Vietnamese nodes are on the network’s periphery due to having the least number of ties.

In most instances, nodes without directed arrows are formal teacher leaders (FTLs). This means that FTLs could not be selected in the survey but could identify whom they rely on for professional growth and development. Because of this, many FTLs are on the network’s periphery unless they happen to select a large number of teachers in the survey. No Vietnamese teachers were found to be FTLs. Only expatriate teachers had formal leadership positions. See Figure 3 for teachers categorized based on leadership positions.

The nodes’ size was adjusted in UCInet to reflect each teacher’s level of in-degree centrality (see Figure 4). Each node’s overall in-degree centrality was calculated by binarizing the valued matrix data. UCInet did not consider whether a node had strong or weak ties; only those ties were present when calculating in-degree centrality. We ignored weak ties to identify ITLs in the network and recalculated each teacher’s in-degree centrality based on strong ties ( $\geq 3$ ). Based on this recalculation, teachers with an in-degree centrality level of  $\geq 2$  are identified as ITLs. We found five Vietnamese ITLs and eighteen expatriate ITLs. Vietnamese teachers overwhelmingly selected Vietnamese ITLs. Only two expatriate teachers chose Vietnamese ITLs. Expatriate teachers overwhelmingly selected expatriate ITLs. Only two Vietnamese teachers chose expatriate ITLs.

With a density of .21, human capital exchange among international teachers within the network appears low. However, density is best discussed comparatively (Borgatti et al., 2013). As such, the density increases when teachers are examined according to their roles within the school. Among expatriate teachers, the density is .23, a slight increase compared to the overall network density. Among Vietnamese teachers, the density is .50. The greater density may



mean that Vietnamese teachers seek out each other to exchange human capital but do not seek expatriate teachers for their human capital.

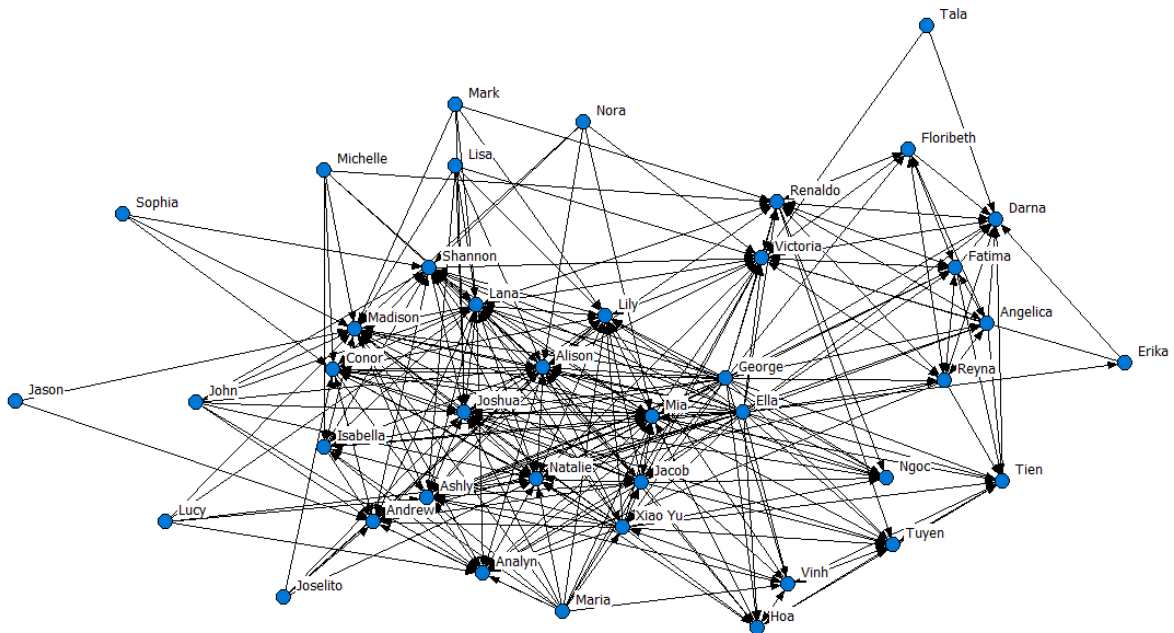


Figure 1. Social Network of the Research Site

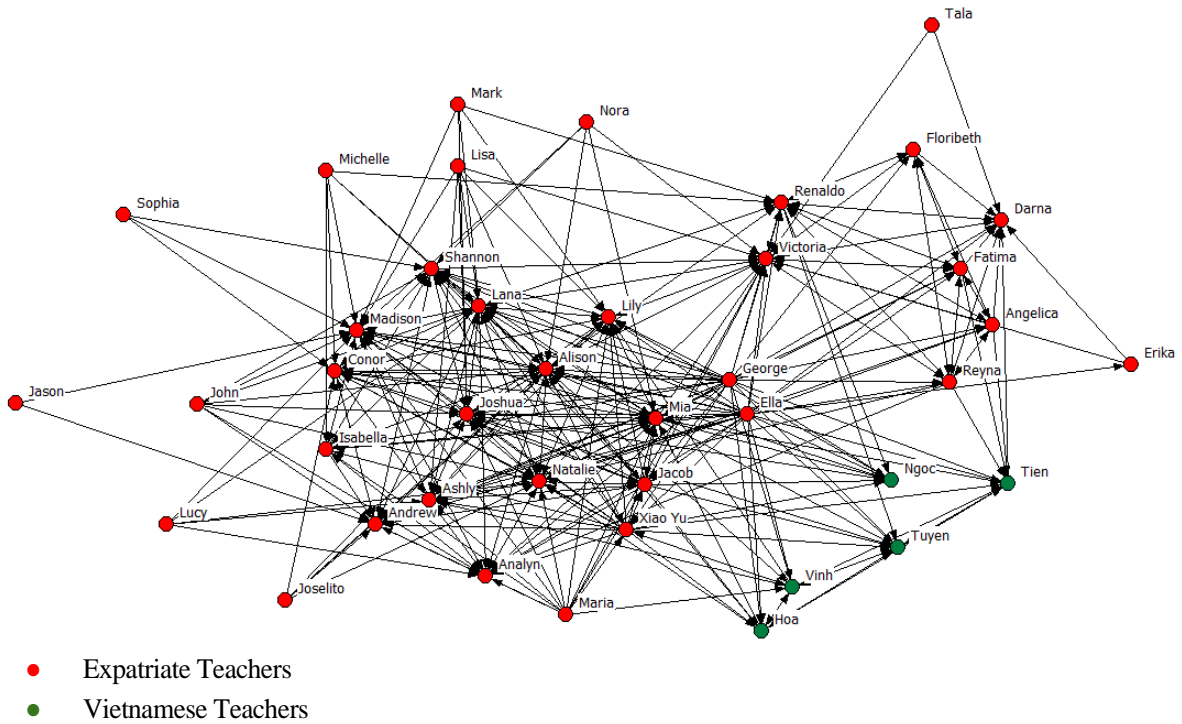


Figure 2. Social Network Based on Roles

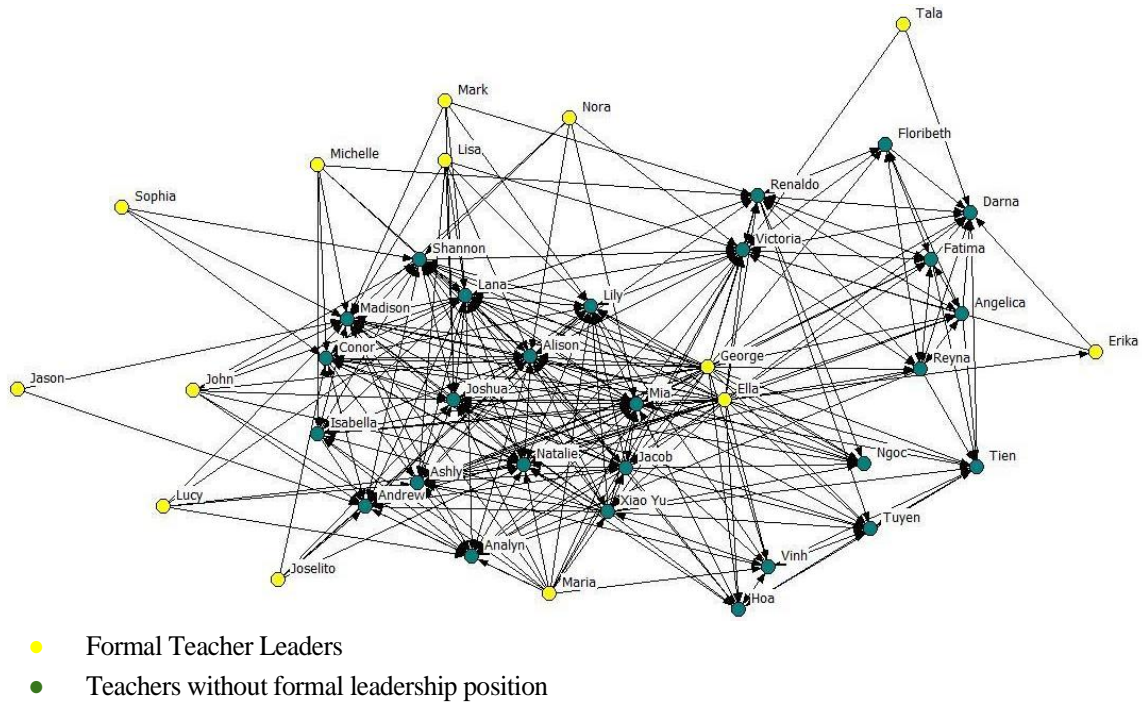


Figure 3. Social Network Based on Leadership Titles and Positions

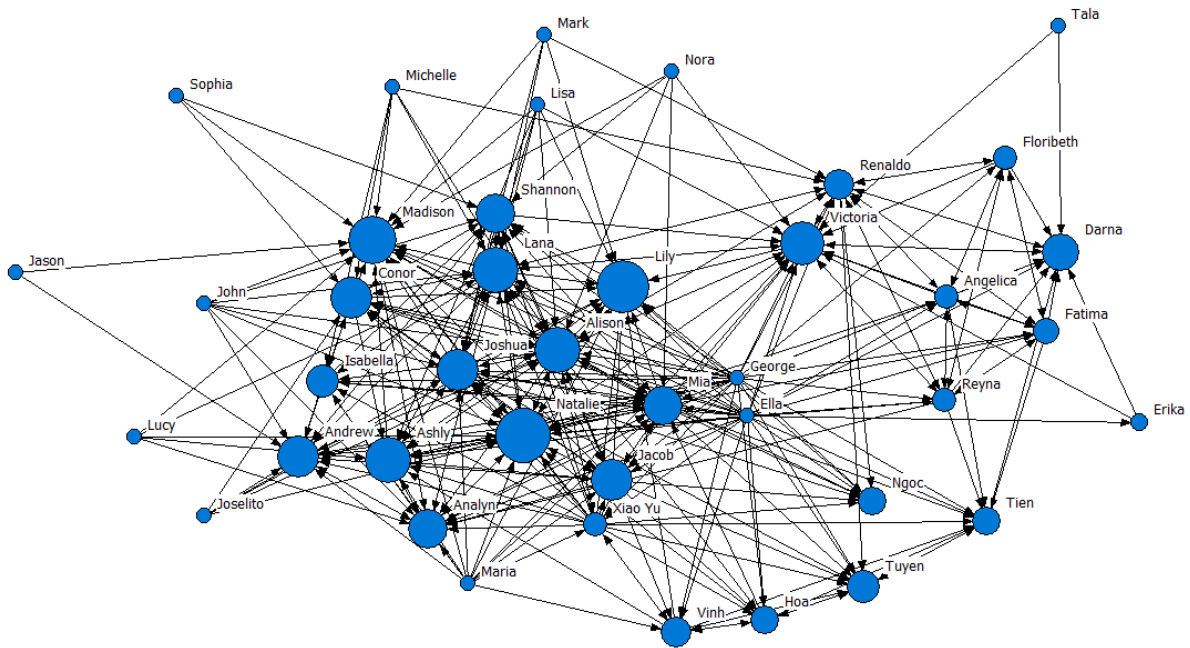


Figure 4. Social Network Based on In-Degree Centrality

**Identified Subgroups**

The Girven-Newman algorithm was used in UCInet to detect subgroups. We set the threshold at two subgroups to test the hypothesis that stratification exists between expatriates and Vietnamese. Additional documents were provided from the research site to give context for members of these subgroups.

Setting a threshold for subgroups at two produced an SNA image with nodes colored corresponding to teacher subgroups (see Figure 5). The SNA image was compared to the teachers' role within the school. Vietnamese are not contained within their subgroup, so the hypothesis that stratification exists between expatriate teachers and host country national teachers was incorrect. One Vietnamese teacher is a member of subgroup one, comprising twenty-five expatriates. The other four Vietnamese are members of subgroup two, comprising eleven expatriates.

While a threshold of two did not indicate stratification between Vietnamese and expatriates, another variable caused satisfaction between teachers. Subgroup one mainly comprises teachers from Australia, Canada, Europe, and the United States. Subgroup two specifically includes teachers from China, India, the Philippines, and Vietnam. With Western teachers dominating subgroup 1 and Asian teachers dominating subgroup 2, the results suggest that stratification occurred based on cultural similarities. The SNA suggests that few, if any, interactions occur among Vietnamese and Western expatriate teachers. Vietnamese teachers are off to the side of the social network and are mainly interacting with Filipino teachers.

While the subgroups contain similar cultures, members do not have the same number of interactions. Subgroup one has a density of 0.29, and subgroup two has a density of 0.17. The density levels suggest that Western teachers have higher amounts of interactions within their social networks than Asian teachers. The structures and culture at the international school may encourage interactions among the Western expatriate teachers but might not encourage interactions among Western expatriates and Vietnamese.

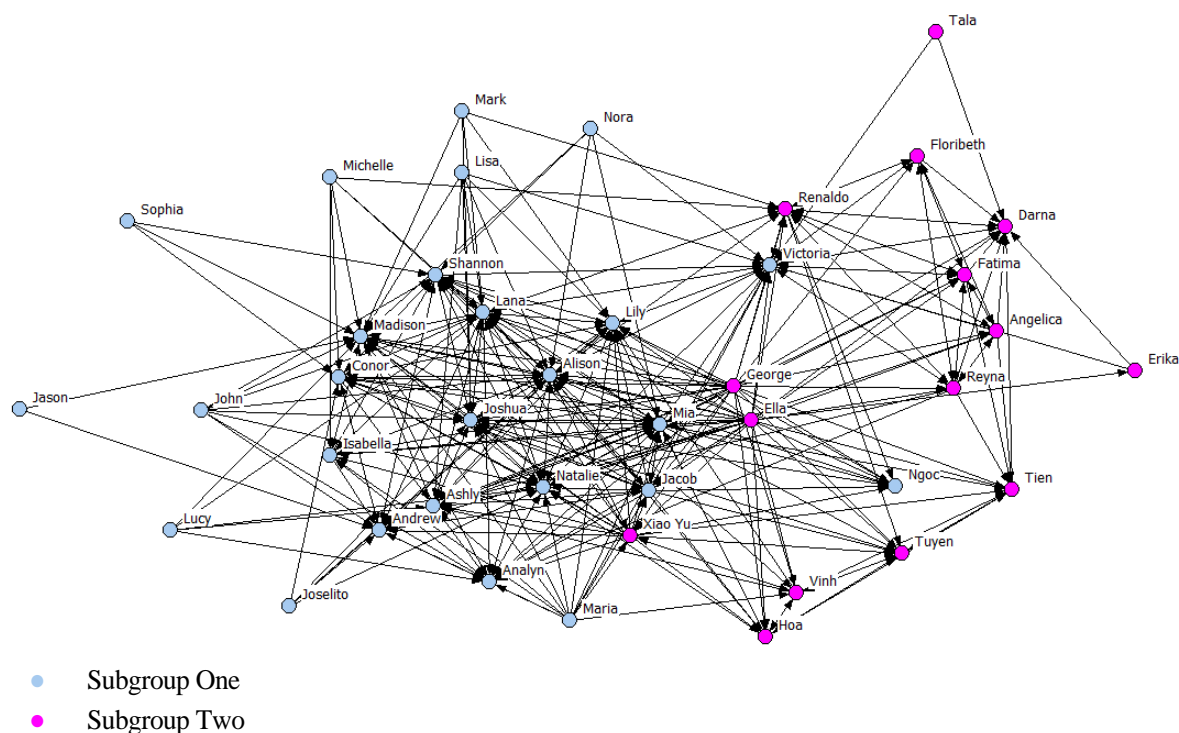


Figure 5. Identified Subgroups with a Threshold of Two

Stratification emerged between Vietnamese and expatriate teachers when the subgroup threshold was set at three in UCInet (see Figure 1.6). The new threshold resulted in no change in membership and density for subgroup one. The subgroup still contained the same teachers from Australia, Canada, Europe, and the United States, and a .29 density. No change in density or membership in subgroup one when changing the threshold suggests little, if any, stratification among Western teachers. Stratification occurs between Asian teachers. Subgroup two mainly comprises teachers from the Philippines. Subgroup three mainly includes teachers from Vietnam. However, subgroup two and subgroup three's density increased by 0.59 and 0.50, respectively.



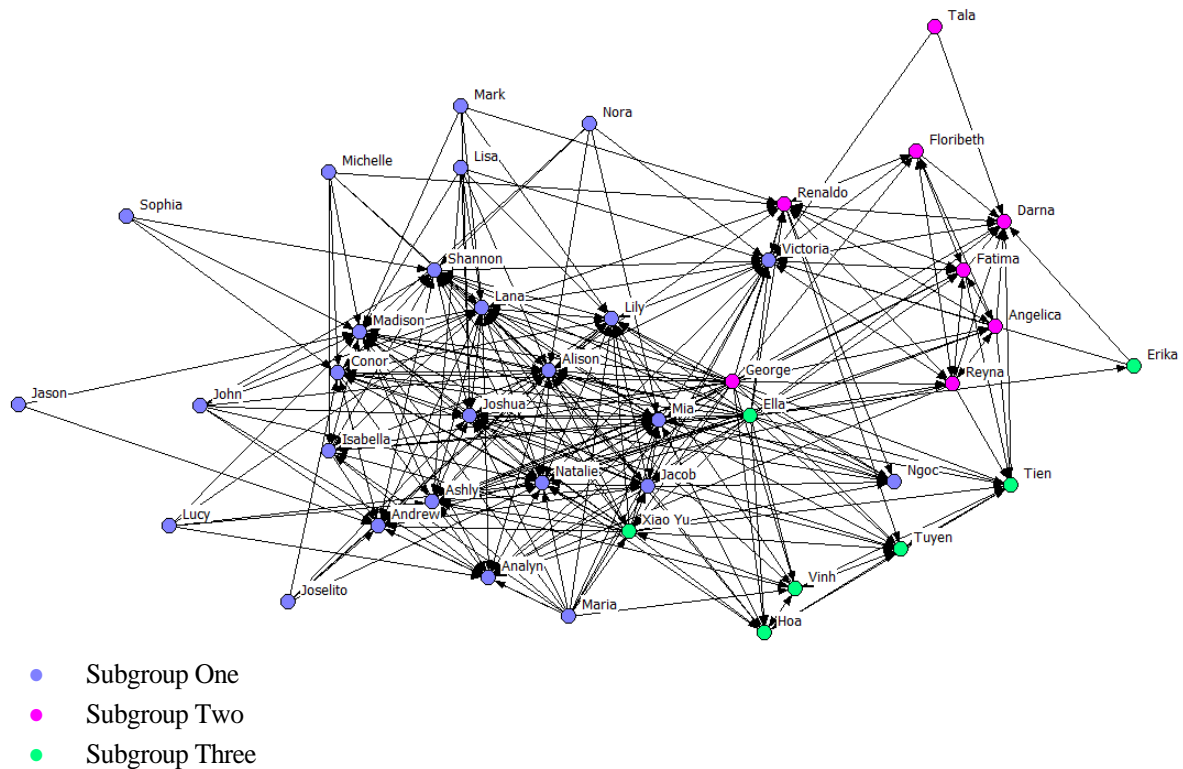


Figure 6. Identified Subgroups with a Threshold of Three

## 5. CONCLUSION

The findings from this study provide insights into the interactions between expatriate and Vietnamese teachers in one international school. We found that human capital was exchanged within groups of Vietnamese and expatriate teachers instead of across groups of Vietnamese and expatriate teachers. The findings align with Bailey's (2015) study on international teachers in Malaysia, in which expatriates reported learning nothing from host country nationals. While language could be a barrier to human capital exchange, we did find ties between Vietnamese and Filipino teachers. This suggests that culture may be an essential variable. Vietnamese teachers may feel more comfortable interacting with Filipino teachers since both groups are from Southeast Asia. The same may be true for the American, Canadian, and European teachers, who overwhelmingly interact with each other.

Cultural similarities between teachers may be more pronounced when living abroad. Hofstede's cultural dimensions theory is a lens to understand teachers' culture in international schools. Using Hofstede's theory for cultural comparison, Vietnam and the Philippines rank high on power distance, while the USA, U.K., Canada, and Australia rank low on power distance. Cultures that rank high on power distance accept and do not question the hierarchical order; those with authority are not challenged (Hofstede Insights, 2023). Expatriate teachers might be perceived as the experts in international schools because the aim is for students to learn English and study an international curriculum. Because of this perceived expertise, Vietnamese teachers might feel uncomfortable advising expatriate teachers.

According to Hofstede, Vietnam and the Philippines rank low on individualism while the USA, U.K., Canada, and Australia rank high on individualism. Cultures that rank low on individualism value being a part of the member group and view groups in organizations akin to familial units (Hofstede Insights, 2023). In a social network, this manifests into cliques, where every node is connected to the other nodes in a subgroup (Borgatti et al., 2013). Cliques are hard to break apart and hard to break into to access their human capital (Baker-Doyle & Yoon, 2010). In the current study, expatriate teachers have many ties, but most are weak. Vietnamese teachers have fewer ties, but all are strong and connected to a clique.

All Vietnamese teachers were identified as informal teacher leaders, which suggests that Vietnamese teachers take on leadership roles despite having no formal leadership position. The findings did not reveal why Vietnamese teachers have no formal leadership positions. Administrators might be critical in fostering Vietnamese teachers' leadership and social and human capital in international schools.

The rapid growth of international schools in Vietnam has resulted in the formation of many schools serving the local population. Vietnamese teachers should have a more significant influence on schools composed entirely of Vietnamese students. Vietnamese teachers can support expatriate teachers in understanding the language and culture of their Vietnamese students. Given the international school growth in Vietnam and the worldwide demand for international teachers, international schools may need Vietnamese teachers to deliver an international curriculum in English rather than expatriates. The future of international schools in Vietnam should have more Vietnamese agency and empowerment. Vietnamese teachers should take on leadership positions but may need help to take on formal leadership roles within international schools. Vietnamese teachers can gain human capital from expatriate teachers, given their experience teaching and leading in international schools. Building social capital between these two groups can foster collaboration and innovation.

Expatriate and Vietnamese teachers may not gravitate towards each other due to language and cultural differences. Therefore, administrators need to build social capital in their international schools. One way to increase interactions among expatriates and Vietnamese teachers is through professional learning communities. Professional learning communities foster collaboration, build strong relationships, encourage teachers to share ideas and resources, and improve student learning (Lin et al., 2018; Wilson, 2016). Professional learning communities increase collaboration, innovation, and human capital among Vietnamese and expatriate teachers and foster informal teacher leadership. Administrators might also need to provide professional development to increase teachers' cultural competency. Expatriate and Vietnamese teachers may avoid interacting because they lack experience dealing with different cultures in a working environment. Future research is needed to explore this nuance. Future research is also needed on the experiences of host country national teachers in international schools.

There are two limitations to the current study. The first limitation is that the study was confined to one school in one city in Vietnam. Hence, the findings from the study may not apply to all type C international schools. The second limitation was the method for identifying informal teacher leaders. The survey and social network analysis may not have captured all of the informal teacher leaders at the international school. Finally, the social network analysis was based on self-reported data, and participants may have forgotten people with whom they interacted while completing the survey. Hence, some interactions may have been inadvertently omitted.

**Conflict of Interest:** No potential conflict of interest relevant to this article was reported.

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