Social networks and maintenance of an endangered language: the Kejaman of Malaysia

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Abstract

Purpose – This study examined how social network influences maintenance of the indigenous language of the Kejaman, a small indigenous group living in Sarawak, Malaysia.

Design/methodology/approach – The participants were 123 Kejaman speakers from three generations living in two longhouses in Belaga, Sarawak. Participants were presented with 20 situations relevant to the lives of Kejaman people to find out the people they interact with.

Findings – The grandparents, parents and children's generations all had more exchange networks (M = 131.7) than interactive networks (M = 110.3). They consulted kin on matters related to family, money, culture, death and taboos, providing the avenue for the use of the Kejaman language. Generation 2 had more interactive networks and Generation 3 consulted non-kin on more matters, and the communication takes place in languages other than Kejaman. Chi-Square tests of independence showed no significant differences in the number of exchange and interactive networks across generations. The three generations were not significantly different in uniplexity (M = 29.5%) and multiplexity scores (M = 20.6%). The Kejamans belong to a low-density, uniplex social network community.

Research limitations/implications – There is a limitation in using social network analysis as a reliable predictor of future language use. This is because social networks are not fixed. They can expand, shrink and change over lifetime, and the fact that the generation of children does not talk about family matters in their mother tongue does not mean that they will not do so in future.

Practical implications – As interactive networks comprise non-Kejaman people, there will be inadequate close ethnic ties to support transmission and maintenance of Kejaman linguistic and cultural norms. Therefore, their language fluency may decline to the extent that they experience language anxiety and feel uncomfortable using it.

Social implications – The quantity and quality of interactive networks for the Kejaman are not conducive for upward mobility. What this means in the sociopolitical context of Sarawak is that, this small indigenous group is still family-centred and does not have adequate social contacts in the wider society, indicating lack of social standing.

Originality/value – The study suggests that in future the Kejaman will rely on interactive networks to talk about life-choices, and the lessened contact with Kejaman people will affect maintenance of Kejaman linguistic and cultural norms.

Keywords Kejaman, Indigenous language, Malaysia, Social network, Density, Multiplexity

Paper type Research paper

1. Introduction

In the field of language maintenance and shift, researchers have identified factors that lead to decreased use of ethnic languages such as migration (Dorian, 1980; Gal, 1979), urbanisation

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Compliance with ethical standards: The study was considered low risk and ethical approval from the university ethics committee was not necessary. The research procedures complied with the Helsinki Declaration of 1975, as revised in 2000(5). Informed consent was obtained from the participants before they participated in the study.

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(Alagappar, Dealwis, & David, 2018; Martin & Yen, 1992), religious conversion (David, Naji, & Kaur, 2003), education and intermarriage (Dealwis, 2008; Ting & Campbell, 2007), and small population size (Mohamed & Hashim, 2012). Age is one of them. For example, Roksana (2003) found that older Malays in Singapore frequently meet one another at mosques and weddings, but the younger generation who have more Chinese and Tamil friends spoke more English. The smaller the population, the less likely the transmission of ethnic language. An example is the Sihan group, and Puxon (2018) estimated the population at 250–300 in Belaga. Mohamed and Hashim (2012) found that there is little intermarriage among the Sihan living among local Malays in Kampung Melayu, Belaga. Most (78%) of the Sihan respondents communicated with their own community using the Sihan language on matters related to family, food and agriculture. In comparison, when there is more interaction with other ethnic groups like the Bidayuh, the ethnic language tends to be used less among the younger generation. Coluzzi, Riget, and Wang (2013) found that 83.5% of the Bidayuh living in four Bidayuh villages some distance from Kuching interacted with Bidayuh networks but the younger generation had more non-Bidayuh networks and spoke less Bidayuh, and many of them had moved to towns for studies and work.

Our contention is that social network is the underlying mechanism that can explain how these factors influence language use. For example, when individuals move from rural to urban areas, convert to another religion, or marry into another ethnic community, their social networks change. Once the ethnic composition in one's social network changes, an individual's language use patterns also change. Changes in family language result in societal language shift.

The social network approach has been used as a methodological tool to explain language use but the findings are often contrary to expectations, for example, the close-knit exchange networks do not seem to be able to enforce use of the ethnic language. From Joan and Ting's (2017) study on 30 Kejaman teenagers studying in boarding schools in Bintulu town of Sarawak, it is evident that the close-knit exchange networks did not lead to better proficiency or greater usage of Kejaman. Joan and Ting's (2017) study was small and confined to teenagers but they also pointed out that the virtual interactions could have limited the explanatory power of the social network approach. The social network approach was proposed four decades ago when interactions were face-to-face but at the present time, kin and non-kin may not be in the same physical space and yet can have frequent contact with one another.

Little is known about the density and multiplexity of networks in the digital era, and it is not known how kin and non-kin contacts support the language of small indigenous groups. In fact, it is not enough to study the size and the density of the social network with target language speakers, but also the composition of the network and the L1/L2 usage patterns among the network members (Terry, 2023). The language usage patterns include knowing who they interact with, and what they talk about.

This study examined how the Kejaman social network influences maintenance of the indigenous language. The specific objectives are to: (1) determine the areas of life for which the help of kin or non-kin is sought; (2) compare generational differences in density of exchange and interactive networks; and (3) compare generational differences in uniplexity and multiplexity of social networks.

2. Background of the Kejaman

2.1 Population and location of the Kejaman

The Kejaman community is a small indigenous group living in Sarawak, located on Borneo Kalimantan island bordered by Indonesia on the east. The Belaga District Office (2013) estimated the Kejaman population in Belaga at 2,370 (1,200 speakers in Rumah Kejaman Neh Long Litten and 1,170 speakers in Rumah Kejaman Ba Segaham). The Kejaman heartland is in the interior of Belaga, along the Balui River, in the Kapit Division of Sarawal. The Kejaman have inhabited the Sungai Kajang area since the early seventeenth century. Plates 1–4 show the

Source(s): Photo by authors

Plate 1. Rumah Kejaman Lasah Ba Segaham in Belaga, terrace-like houses with a communal corridor

Source(s): Photo by authors

Plate 2. Rumah Kejaman Neh Long Litten in Belaga

two longhouses of the Kejaman people (Rumah Kejaman Neh Long Litten and Rumah Kejaman Lasah Ba' Segaham), the burial pole, and Kejaman people in their traditional attire.

2.2 Culture of the Kejaman

The Kejaman people have their unique customs and practices for weddings, funerals and festivals. In the past, the Kejaman practised the ancestral belief system called Bungan (Strickland, 1995). Their culture is deeply spiritual, with practices reflecting respect for nature and ancestral spirits, including sacred sites believed to be inhabited by these spirits. Rituals and taboos guide their interactions with the environment and play a role in major life events like weddings and funerals. They were known for constructing tomb posts called "keliering" or "salong," where the bones of deceased descendants of their kings were placed.

However, many have since adopted Christianity, Islam, Buddhism and other religions. Despite these changes, they return to their village for traditional events such as All Souls Day

Source(s): Photo by authors

Plate 3. First researcher with a Kejaman man in front of a Salong (burial pole) for ceremonial purposes

Source(s): Photo by authors

Plate 4. The Kejaman in their traditional attire

and funerals (Luhat, 1986). The Kejaman community is close-knit, with strong ties among relatives in the longhouse. They support each other during both celebrations and times of grief (Luhat, 1986; Strickland, 1995). The Kejaman share some traditions with the Sekapan, Lahanan, and Punan Busang (Luhat, 1986; Strickland, 1995).

Historically, the Kejaman society was stratified, with leaders called "laja levou" (royal lineage), commoners known as "panin," and slaves referred to as "dipen" (Strickland, 1995). While stratification is no longer practised, the village is still led by a headman who is descended from the royal family. During the James Brooke era, the Kejaman were the only group willing to help the Kayan when they were attacked by the British. To ensure their safety,

Kejaman women and children hid in a sacred cave called Batu Kalev'et (Strickland, 1995). Many Kejaman men were killed in the conflict, which contributed to the small population of the group.

2.3 Economic activities of the Kejaman

The Kejaman, like other ethnic groups in Sarawak, have experienced economic changes. Traditionally, the Kejaman economy relied primarily on subsistence activities, closely tied to their environment. They grow crops such as paddy, maize, cucumber and banana and keep pigs and chickens. Shifting agriculture, especially the cultivation of rice, vegetables and fruits, is essential to their livelihood. This practice of clearing and rotating fields allows soil regeneration and supports sustainable land use. In addition, the Kejaman fish in the Rejang River and forage forest resources like medicinal plants, fruits and handicraft materials but these activities have lessened.

In recent years, economic development, such as the Bakun hydroelectricity scheme and timber extraction, has led to an influx of outsiders into Belaga, including Malays, Chinese, Indians and others. Many Kejaman have moved to urban areas for better opportunities, and they now hold professional and government jobs (Strickland, 1995).

2.4 Language of the Kejaman

The Kejaman ethnic group belongs to the Melanau subgroup (Lewis, 2009) but the Kejaman language is different from Melanau. For the full description of the Kejaman language, see Joan and Ekot (2017). The Kejaman language is primarily spoken and has no written form. Intermarriage is common among the Kejaman and other ethnic groups like the Sekapan, Kayan, Kenyah and Iban (Luhat, 1986; Strickland, 1995). As a result, some Kejaman families no longer speak their native language at home. This shift is contributing to the decline of the Kejaman language, as other languages like Sarawak Malay, Bahasa Melayu and Iban are becoming more commonly used (Luhat, 1986). The shift is particularly obvious among the younger generation, with fewer children fluent in Kejaman, especially those studying in Bintulu, Sarawak who interact with other ethnic groups (Joan & Ting, 2022). The ability to speak Kejaman is good to excellent among the grandparents and parents, but the children have poorer ability. Only a small proportion of the Kejaman teenagers studying in Bintulu, another town, can speak Kejaman and they do not use it much because they live among people of other ethnic groups (Joan & Ting, 2017).

The Kejaman language can be classified as level 6a on the Expanded Graded Intergenerational Disruption Scale (EGIDS), meaning it is still spoken by all generations and learned as a first language but the younger generation is using the language less, especially in mixed marriages, as they prefer to communicate in other languages.

2.5 Social networks

A search of the literature shows recent studies conducted using the social network analysis but the theory did not develop further after the 1980s. However, Milroy's (1980) social network analysis was used in several studies to understand language maintenance. Egbah and Efobi (2024) found that the Nigerian military community in the Kaduna air force base continued to use low status language varieties for group cohesion and identity. Strawn's (2023) study on Ecuadorians shows that despite their social networks being denser and more multiplex than those of other Hispanics living in the United States, their networks are porous due to mixed marriages and work environments, thereby letting English into the networks. Regnoli (2020) found that a Malayali (Indian) community in Heidelberg, Germany is close-knit and multiplex as 40% of them are highly integrated, and they still speak Malayalam.

However, in Malaysia, the close-knit or multiplex network does not seem to slow down language shift for immigrant groups. Examples are the Sindhi, Malayalam and Telugu who

migrated from India since the nineteenth century. It is estimated that there are 31,000 Sindhi (Joshua Project, 2022a), 365,000 Malayalam (Joshua Project, 2022b) and 500,000 Telugu in Malaysia (Telugu Association of Malaysia, 2017). David (1996) found that the Sindhi people have more exchange networks than interactive networks. Although the Sindhis interact frequently among themselves for social, cultural and religious purposes, they are shifting toward Malay and English. Similarly, Govindasamy and Nambiar (2003) found that multiplexity of ethnic networks exists in all generations of the Malayalees but the third generation has a much lower density of Malayalees in the school and work networks compared to the first and second generation.

The Telugu living in Sarawak also have a dense and close network system but they are also using more Malay and English in both formal and informal domains (David & Dealwis, 2006). However, these findings were largely based on the researchers' qualitative judgements on the higher or lower density and multiplexity of social networks rather than quantitative scores and, thus, may lead to overrating of generational differences.

3. Theoretical framework of study

This paper focusses on social networks based on the Social Network Approach, where social network is defined as the social structures or contacts made through interaction and which in turn influence an individual's behaviour in daily life (Hawe, Webster, & Shiell, 2004). The types of social contact may influence a speaker's language use (Li, 1994; Milroy, 1982). For instance, if one's interaction are mainly with contacts from the same ethnic group, then the likelihood of using the shared ethnic language is high. The Social Network Approach "attempts to answer the question as to the reason why people continue to use a low status variety when it may be in their economic and social interest to acquire the variety of high prestige" (Egbah & Efobi, 2024).

An individual's social network can be classified into two types based on the Social Network Approach (Milroy, 1987): uniplex network and multiplex network. If a person is connected to an individual in only one capacity, he or she has a uniplex network (Milroy, 1987). In contrast, when a person is connected to many individuals in various settings, he or she belongs to a multiplex network.

An individual's personal network structure consists of three main actors (Denny, 2014; Milroy, 1987; Sarhimaa, 2009), namely, the participant, exchange network and interactive network. The terms "exchange network" and "interactive network" were adapted from Li (1994) and Milardo (1988). Exchange networks refer to "groups of people such as kin and close friends" (Li, 1994, p. 118; Milardo, 1988, p. 26). Interactive networks are non-blood ties such as neighbours, colleagues and sales assistants.

Density of social networks is computed based on the number of exchange and interactive networks. To put it simply, a dense network is one where the contacts know one another in various capacities. Density in network is defined by Milroy (1980, p. 50) as follows: "A network is said to be relatively dense if a large number of the persons to whom ego is linked are also linked to each other". For example, an individual may relate to some people as colleagues and they belong to the same sports club and church, and therefore know one another. "If all, or most, members share the same ties (they work, worship, study, and socialize together), the community's network will be dense and multiplex and likely maintain its core values and traditions" (Strawn, 2023, p. 7). Density reflects the interconnectedness of network members (Terry, 2023).

Equation (1) shows the calculation of density scores, or the quantity of social ties within a network.

$$\text{Density} = \frac{na\,x\,100\%}{N} \tag{1}$$

where na = actual number of links;
N = total number of possible links.

4. Method

The descriptive study involved 123 participants, consisting of three generations of Kejaman speakers (41 grandparents, 41 parents and 41 children). In this study, Generation 1 (G1) are participants who have children and grandchildren, Generation 2 (G2) are participants who have children and Generation 3 (G3) encompasses the generation of children who are in school and university. The abbreviations G1, G2 and G3 will be used henceforth. Table 1 shows other demographic information about the participants.

The sample size is 3.47% of the estimated population of 3,540 Kejaman people in the two villages (Belaga District Office, 2013). The participants took part in the study voluntarily. Purposive sampling was used to select participants with one or both parents who are Kejaman, and they live in the traditional heartland of the Kejaman people.

The research sites were two Kejaman longhouses in Belaga, Sarawak, namely, Rumah Kejaman Neh Long Litten, and Rumah Kejaman Ba Segaham which are half an hour's drive apart. In Sarawak, these terrace-like wooden houses on stilts are occupied by relatives.

A questionnaire was formulated to elicit data on types and density of social networks encountered by Kejaman people in their daily lives. Stoessel (2002) and Lanza and Svendsen (2007) used 12 situations to find out the number of contacts, but we increased it to 20 situations for better coverage. The first section of the questionnaire presents the 20 situations (listed in Table 2). Examples of questions were "Who will you consult when you face financial problems?" (Stoessel, 2002, p. 44) and "When you need someone to take care of your children, who would you seek help from?" (Lanza & Svendsen, 2007, p. 36). A question specific to the Kejaman community is taboo. For instance, asking direct questions about specific rituals or inquiring about the intentions behind certain ceremonial practices can be perceived as intrusive or disrespectful. An example is asking why a certain tree or location is avoided, which may relate to beliefs about spirits or ancestral presence. Such questions are seen as potentially disturbing to the balance of the spiritual world and might be met with silence or indirect responses.

The second section of the questionnaire elicited data on the uniplexity or multiplexity of the participants' social network (Milroy, 1987). The participants were asked to list the names of people who knew one another and the capacities or settings where they knew each other to find out how many capacities they were connected. For example, "Is there anyone whom you have already mentioned as a relative or neighbour whom you know from work or school, etc. as well?" A multiplex network comprising many Kejaman people could potentially contribute to the use of the Kejaman language.

The data were collected after formal permission was obtained from the Bintulu Divisional Administration officer, the Kejaman Association in Sarawak and the head of the two Kejaman villages. At the time when the study was conducted, the university did not require clearance by

Table 1. Demographic information about the participants (N = 123)

Demographic characteristic	Categories	Number	Percentage
Gender	Female	71	57.7
	Male	52	42.3
Education level	Primary education	17	13.8
	Secondary education	25	20.3
	University	65	52.8
Parents' ethnic group	Kejaman father	96	78.0
	Kejaman mother	85	69.1

Source(s): Table by authors

Table 2. Frequency and percentage of social networks in 20 situations for three generations of Kejaman participants ($N = 123$)

Situations	Generation 1 EN ($n = 41$) (%)	IN ($n = 41$) (%)	NN ($n = 41$) (%)	Generation 2 EN ($n = 41$) (%)	In ($n = 41$) (%)	NN ($n = 41$) (%)	Generation 3 EN ($n = 41$) (%)	IN ($n = 41$) (%)	NN ($n = 41$) (%)
1. Family	41 (100%)	0	0	40 (97%)	1 (2%)	0	35 (85%)	5 (12%)	1 (2%)
2. Money/properties	41 (100%)	0	0	40 (97%)	1 (2%)	0	35 (85%)	1 (2%)	5 (12%)
3. Financial matters	40 (97%)	0	1 (2%)	39 (95%)	1 (2%)	1 (2%)	39 (95%)	2 (4%)	0
4. Taboos	31 (75%)	5 (12%)	5 (12%)	28 (68%)	8 (19%)	5 (12%)	28 (68%)	1 (2%)	12 (29%)
5. Funeral and death	27 (65%)	12 (29%)	2 (4%)	35 (85%)	4 (9%)	2 (4%)	28 (68%)	1 (2%)	12 (29%)
6. Emotional problems	40 (97%)	0	1 (2%)	35 (85%)	5 (12%)	1 (2%)	11 (26%)	12 (29%)	18 (43%)
7. Relationship	39 (95%)	2 (5%)	0	28 (68%)	13 (31%)	0	17 (41%)	22 (53%)	2 (5%)
8. Shopping	32 (78%)	0	9 (21%)	33 (80%)	7 (17%)	1 (2%)	14 (34%)	11 (26%)	16 (39%)
9. Education	32 (78%)	0	9 (21%)	25 (60%)	7 (17%)	9 (21%)	13 (31%)	14 (34%)	14 (34%)
10. Travelling	30 (73%)	0	11 (26%)	36 (87%)	3 (7%)	2 (4%)	13 (31%)	9 (21%)	19 (46%)
11. Childcare	7 (17%)	0	34 (82%)	24 (58%)	0	17 (41%)	6 (14%)	1 (2%)	34 (82%)
12. Watching movies	13 (31%)	0	28 (68%)	26 (63%)	8 (19%)	7 (17%)	9 (21%)	14 (34%)	18 (43%)
13. Buying groceries	6 (14%)	30 (73%)	5 (12%)	8 (19%)	28 (68%)	5 (12%)	16 (39%)	6 (14%)	19 (46%)
14. Health	11 (26%)	29 (70%)	1 (2%)	9 (21%)	30 (73%)	2 (4%)	35 (85%)	4 (9%)	2 (4%)
15. Government	25 (60%)	3 (7%)	13 (31%)	30 (73%)	7 (17%)	4 (9%)	9 (21%)	14 (34%)	18 (43%)
16. Law	24 (58%)	3 (7%)	14 (34%)	32 (78%)	5 (12%)	4 (9%)	14 (34%)	3 (7%)	24 (58%)
17. Work/Study	19 (46%)	12 (29%)	10 (24%)	12 (29%)	26 (63%)	3 (7%)	15 (36%)	7 (17%)	19 (46%)
18. Exercising	17 (41%)	4 (9%)	20 (48%)	21 (51%)	12 (29%)	8 (19%)	4 (9%)	17 (41%)	20 (48%)
19. ICT	14 (34%)	6 (14%)	21 (51%)	12 (29%)	24 (58%)	5 (12%)	17 (41%)	18 (43%)	6 (14%)
20. Religion	23 (56%)	15 (36%)	3 (7%)	21 (51%)	17 (41%)	3 (7%)	23 (56%)	11 (26%)	7 (17%)
Total no. of types of social networks	512	121	187	534	207	79	381	173	266

Note(s): 1. Generation 1 refers to grandparents (G1), Generation 2 refers to parents (G2), Generation 3 refers to children (G3), EN refers to Exchange Network, IN refers to Interactive Network and NN refers to No Network
2. Cells with more than 60% are shaded for ease of comparison
Source(s): Table by authors

an ethics review board for non-intervention studies. The first researcher went to the village to distribute questionnaires. The purpose of the study, voluntary participation, freedom to withdraw from the study at any point, anonymity and confidentiality of responses were explained to the participants. The questionnaires were collected within a week. For those who were not literate, the first researcher read out the questions to them, got their responses and filled in the questionnaire for them.

The questionnaire data were keyed into Excel sheets. For each of the 20 situations, the number of contacts from the exchange and interactive networks were totalled. Density scores were calculated using the formula in the theoretical framework of study section. A dense network is one where the participant seeks advice on many situations from people. Based on Milroy's (1987) Network Strength Scale, 0–49% is categorised as low density and 50–100% is categorised as high density. Next, the questionnaire data were used to construct sociograms, Milroy (1987) and Denny (2014).

5. Results

5.1 Areas of life for which the help of kin or non-kin is sought

Table 2 shows generational differences in the networks consulted for 20 situations relevant to the life of Kejaman people. All three generations (85–100%) talked with their family about family matters, money/properties and financial matters, and the interactions usually take place in Kejaman with the use of terminology in Malay or English. Money/properties refers to investment management, whereas financial problem refers to any issue with money that makes it difficult to pay for daily living expenses or debts. In the Kejaman community, and also among Malaysians in general, relatives can be called upon to lend money but not friends, colleagues and other social contacts. This is why these three matters were almost exclusively "for the ears" of kin as far as Generations 1 and 2 are concerned. However, Generation 3 also talked with non-family about these private matters, which takes place in languages other than Kejaman.

Another two situations were considered family-only matters for a majority of the participants, that is, taboos (G1, 75%, G2, 68%, G3, 68%) and funeral and death (G1, 65%; G2, 85%, G3, 68%). These taboos arise from traditional beliefs, rituals and superstitions, and the cultural terms are best expressed in the indigenous language rather than other languages. Kejaman who had converted to Christianity, Islam, Buddhism or even Taoism consulted their religious leaders when they faced belief issues (G1, 12%; G2, 19%; G3, 2%), or they resolved the issues on their own (G1, 12%; G2, 12%, G3, 29%). Two G1 participants did not seek advice from anyone on funeral and death matters because they were the village headman, the point of reference for villagers. Generation 3 was too young to be concerned about these matters and may not know the specific cultural terms for the rituals in the Kejaman language.

Aside from these five almost exclusively family issues, the analysis revealed generational differences in networks consulted for the other 15 situations. Generation 1 talked with family about another five topics: Emotional problems (97%), relationships (95%), shopping (78%), education (78%) and travelling (73%). Being more conservative, Generation 1 kept emotional and relationship problems within their family but fewer of Generation 2 kept these within the exchange networks. Travelling is a family conversation topic for Generations 1 and 2 but 46% of Generation 3 do not talk about it with anyone. Being children, they merely went along with their family on such trips but hardly talked about it.

Talking about childcare and movies involve use of everyday language. Generation 1 was past the age for talking about these topics. When Generation 2 needed help with childcare, 58% of the participants turned to their family but 41% reported not having any network because it is not appropriate to ask for help from their interactive networks. Childcare is an irrelevant topic of conversation for 82% for Generation 3. As for watching movies, 68% of Generation 1 found this pastime irrelevant as there were no cinemas or cineplexes in Belaga at the time of the study. Watching movies was more a lifestyle of city dwellers, which is why 63% of Generation 2

discussed movies with their family and 19% did so with their interactive network. The results for Generation 3 were rather surprising, as 43% of participants did not talk about movies. Internet connection and facilities were limited and Netflix movies was not the trend at the time of the study.

Buying groceries and health are the only two situations, whereby Generations 1 and 2 talked about more with their interactive networks (G1, 73%; G2, 68%) than with their family. The opportunities for the Kejaman language to be used differ. Generation 1 made friends with cashiers and salespeople due to regular contact in Belaga, where the small Kejaman population is concentrated, and therefore their communication is in Kejaman. However, Generation 2 was more into information sharing on good deals with friends, who may be from other ethnic groups and the frequently used languages are Malay or English, and even Iban. For nearly half of Generation 3, these topics are not relevant: buying groceries, shopping. As for health, since Generation 3 participants were young, 85% consulted their family. In contrast, their grandparents (70%) and parents (73%) talked about health problems with medical personnel at clinics and hospitals. The Kejaman language does not have words for medical terms (e.g. scan, vaccination), and English and Malay are commonly used.

Next, Generation 2 was more interested in talking about matters related to the government and law than Generation 1. Generations 1 and 2 trusted their family to reveal their political stance and views. Work was definitely a domain for interactive networks for Generation 2 (63% talked about it with non-kin, 29% with family). Examples of work problems for timber camp workers were difficulties operating cranes to correctly place timber logs. Examples of farming topics were paddy planting activities, irrigation systems and pesticides. Work-related conversations usually take place in languages other than Kejaman because a majority of Generation 2 talked about work with non-kin.

Exercise and ICT are rather modern concepts when compared to funerals and customs, which means that the Kejaman language is less relevant. For exercise, a transition can be seen. Generation 1 either talked about it with family or not at all. Generation 2 talked about exercise with both family and non-kin. Generation 3 talked about it with non-kin. The ICT topic shows an interesting contrast: Generation 3 liked talking about ICT with family (41%) and non-kin (43%) but Generation 1 (34%) and Generation 2 (29%) preferred to talk about ICT with family.

The results on Generation 3's networks can be used to predict the likelihood of a shift away from Kejaman. They hardly talk about the five family matters (family, finance, taboo, funeral and death), resulting in fewer opportunities to speak Kejaman. When they talk about for which they need family help, they resort to the use of words from English or Malay (religion, studies, law, health, childcare, buying groceries, shopping, travelling) as the Kejaman language does not have the modern terminology. Furthermore, Generation 3's contact is more with friends, which means that English, Malay or Iban are frequently used in conversations about emotional problems, relationships, education, movies, government, exercise and ICT.

5.2 Generational differences in density of exchange and interactive networks

Table 3 shows that overall, all three generations had more exchange networks ($N = 395$) than interactive networks ($N = 331$). In Belaga, the Kejaman people were mostly farmers, and their interactive networks comprised shopkeepers and medical personnel who were mostly Malay, Chinese or Iban. Outside of Belaga, the interactive networks were definitely non-Kejamans. The Chi Square test of independence shows that the number of exchange and interactive networks for the three generations of Kejaman participants were not significantly different, $X^2 (2, N = 121) = 2.50, p = 0.9$. There are no generational differences in the number of ties with kin and non-kin.

The overall density scores show that Generation 2 has a higher density (34.3%) than Generation 1 (27.4%) or Generation 3 (26.8%). This is not surprising because Generation 2 who were working adults had more work and social networks compared to their parents who were retired and their children who were studying.

Table 3. Density of exchange and interactive networks of the Kejaman community ($N = 123$)

	Total number of exchange networks	Total number of interactive networks	Density of exchange network (%)	Density of interactive network (%)	Overall total number of networks	Overall density score (%)
G1	125	100	31.6	30.2	225	27.4
G2	143	138	36.2	41.7	281	34.3
G3	127	93	32.2	28.1	220	26.8
Total	395	331	100	100	726	100
Average	131.7	110.3			242	

Note(s): 1. Generation 1 refers to the Grandparents' generation, Generation 2 refers to the Parents' generation and Generation 3 refers to the Children's generation
2. The density score is calculated using Equation (1) in the Method of Study section, and the denominator used for the calculation of Overall density score is 820 (20 situations × 41 participants)
Source(s): Table by authors

5.3 Generational differences in uniplexity and multiplexity of social networks

Table 4 shows that on average the three generations of Kejaman had more uniplex social networks (29.5%) than multiplex networks (20.6%). The Chi-Square test of independence shows no significant differences in the average uniplexity and multiplexity scores for the three generations of Kejaman participants, X^2 (2, $N = 121$) = 1.33, $p = 0.9$. The generation of grandparents, parents and children are similar in the total number of persons to whom they are linked in several capacities. The average percentages show that the Kejaman participants were generally not extensively connected with other community members, and few of their contacts knew one another. Their interactions mostly revolved around their nuclear family and a few close friends or colleagues.

The quantitative uniplexity and multiplexity scores cannot reveal the unique differences in the network profile of the Kejaman. In the rest of this section, sociograms are used to portray the generational differences in network profiles.

5.4 Personal social network patterns of generation 1

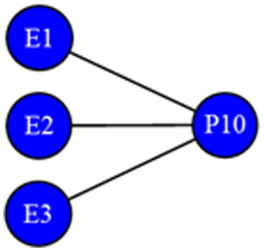
For Generation 1, 95.1% 41 respondents had a uniplex social network and the only two participants who had a multiplex network (interconnected social ties) were men. Figure 1 illustrates the personal social network patterns of Generation 1. In the Kejaman community, Generation 1 women do not eat out with their social contacts but the men have drinking sessions with their friends in coffee shops (cafés).

P10 has a family-centred personal social network comprising three exchange networks who were her children, conducive for use of Kejaman language (Figure 1). P10, aged 96, was widowed when her youngest child was still a baby. Other family members had moved to urban

Table 4. Uniplexity and multiplexity of social networks of the Kejaman community ($N = 123$)

	Average uniplexity score (%)		Average multiplexity score (%)	
	Mean	SD	Mean	SD
Generation 1	27.4	10.1	16.2	10.9
Generation 2	34.3	9.1	21.3	9.9
Generation 3	26.8	10.7	24.3	12.6
Average	29.5		20.6	

Source(s): Table by authors



Source(s): Figure by authors

Figure 1. Personal social network patterns of Generation 1

areas to either study or work. She was too old to walk far or farm, and seldom left her home. P10 helped to care for her grandchildren. She did not talk much with other villagers unless they visited her. P10 died two years after the data collection.

In years to come, the uniplex social networks and reliance on the Kejaman language, characteristic of P10, will be phased out because the availability of mobile devices and social media will put even people living alone in contact with family and friends. Their contacts are no longer confined to their family, and they may befriend some colleagues, who become "family friends".

5.5 Personal social network patterns of generation 2

The sociogram in Figure 2 shows the typical personal network patterns of Generation 2, exhibited by 90.2% of the 41 Generation 2 participants. P39 typify people who are close to kin and non-kin. These patterns also exist in Generation 1, but the difference is that Generation 2 has more ties.

P39 had moved out of Belaga to work as an immigration officer in Bintulu town, a few hours away by land transport. Previously, access was possible only with four-wheel-drive but now the road made it easier for him to visit his village during festivals. P39 had four exchange networks and six interactive networks, which also comprised his neighbours. He lived and worked in an ethnically-diverse environment. Three of his interactive networks (I1, I4, I6) knew one another, but none of them knew his family.

5.6 Personal social network patterns of Generation 3

Figure 3 shows the personal social network patterns of Generation 3. Most Generation 3 participants were teenagers and children, and the 19.5% living in the longhouses hear and

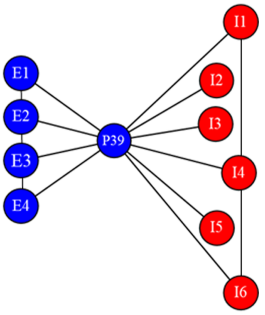


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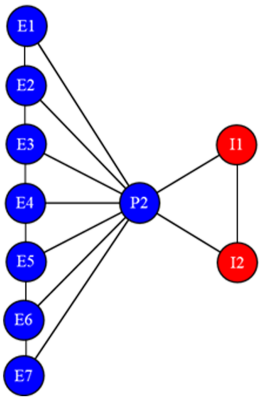
Figure 2. Personal social network patterns of Generation 2



Source(s): Figure by authors

Figure 3. Personal social network patterns of generation 3

speak Kejaman every day but the 80.5% elsewhere have limited opportunities as there are few Kejaman people in their network other than their parents. Out of 41 participants, 40 had a uniplex social network pattern, either family-centred (like the older generations) or comprising kin and non-kin (P2).

P2 has a typical personal social network pattern for teenagers with kin (7 family members) and non-kin contacts (2 school friends), but there are no interconnected ties. Being a teenager, P2 was dependent on his family for emotional and material support. Generation 3's personal social network patterns is transient because when they start working, they are likely to shift into the patterns reflective of Generation 2. The analysis showed that males have more social ties than females. From even as young as eight- or nine-year old, boys already have more playmates who knew each other (multiplex networks) than girls, according to Svendsen (2001) who studied children of exogamous marriages of Filipinos living in Norway.

6. Discussion and conclusion

The study on the influence of social network on maintenance of the Kejaman indigenous language showed that they have a low-density uniplex social network and were dependent on their exchange network. The uniplex social network were either family-centred or comprise kin and non-kin. These findings are discussed.

Firstly, it is surprising that all three generations of the Kejaman people have a low-density uniplex social network. Admittedly, about half of the participants in the grandparents' and parents' generations had migrated to work in towns but the other half of the participants were living in the Belaga heartland. The longhouse folks are known to interact with one another on a daily basis as they sit on mats in the *ruai* (long corridor) outside their houses, but the close-knit relationships in longhouses may belong to the past era. The low-density scores indicate that interactions in the longhouse revolved around the nuclear family, no different from people living in towns. In fact, the three generations had a similar number of networks although the people in their networks are different. In Lippi-Green's (1989) study in Austria, the number of networks was also similar for the younger and older generations, and they depend more on workplace networks than their kinship networks. On the other hand, the Kejaman participants relied more on their kinship networks but the density was low for both exchange and interactive networks, indicating that the Kejaman people may prefer to keep to themselves. Milroy and Margrain (1980) posit that upward mobility is associated with a lower density for kinship networks and a higher density for non-kinship networks. On this basis, the quantity and

quality of interactive networks for the Kejaman are not conducive for upward mobility. What this means in the sociopolitical context of Sarawak is that, this small indigenous group is still family-centred and does not have adequate social contacts in the wider society, indicating lack of social standing.

Next, based on an analysis of situations and exchange networks in daily life, the Kejaman participants are psychologically bound to their family and Belaga, the Kejaman heartland, because their elders are still living there. Those who work or study elsewhere return during family events (e.g. birthdays, weddings, funerals) and festivals such as Christmas and, for some, even All Soul's Day. Being a small indigenous group with an estimate population of 2,370 (Belaga District Office, 2013), the Kejaman people have a strong communal identity. It is only in health matters that Generations 1 and 2 turn to their interactive networks. Looking at this, it is understandable that other researchers had concentrated on exchange networks to explain language use patterns (Coluzzi *et al.*, 2013; David, 1996; David & Dealwis, 2006; Govindasamy & Nambiar, 2003; Mohamed & Hashim, 2012; Roksana, 2003). Exchange networks usually comprise people from the same ethnic group who speak the same language, and the interactions provide the opportunities for the maintenance of the language through conversations on family, money, culture, death and taboos. This result confirms Joan and Ting's (2017) findings on these being strictly family matters for the Kejaman people, except that the Kejaman teenagers in their study turned to exchange networks, particularly on health.

In the present study, the exchange networks are still the focal point of the Kejaman Generations 1 and 2. The family conversations on relationships, emotional problems, shopping, travelling and education keep the Kejaman language alive. Generation 3 is more inclined to seek advice from non-kin about relationships, movies, government and exercise. It can be predicted that in future there will be a decrease in the profound role of exchange networks in the life-choices of Kejaman people. This is already seen in Generation 2's current preference to seek advice about work from their interactive networks although they still frequently talk with their parents about law, government and watching movies. Generation 3 talk about government and movies with their interactive networks, in social media platforms like WhatsApp. At the time of the study, many of the Kejaman children did not own mobile phones but the prices of some models have dropped over the years, making them affordable. Furthermore, during and after the COVID-19 pandemic, it has even become necessary for children to use mobile phones and computers to attend online classes and receive teachers' instructions on their school work. With communication moving into the digital space, it is expected that the role of interactive networks will increase for the Kejaman in the future, and communication with family will be restricted to the five family-centred matters. As interactive networks comprise non-Kejaman people, there will be inadequate close ethnic ties to support transmission and maintenance of Kejaman linguistic and cultural norms. Therefore, their language fluency may decline to the extent that they experience language anxiety and feel uncomfortable using it (Sevinç & Dewaele, 2018). In future studies, it is necessary to examine the proportion of ethnic group members in interactive networks to increase the explanatory power of the social network approach in indigenous language maintenance.

However, there is a limitation in using social network analysis as a reliable predictor of future language use. This is because social networks are not fixed. They can expand, shrink and change over lifetime, and the fact that the generation of children does not talk about family matters in their mother tongue does not mean that they will not do so in future. The measure of social network ties "poses a challenge especially within loose-knit communities where the various socio-economic differences may prove difficult for meaningful comparison, as well as with communities whose network structures may not be as dense or multistranded as is the case for mobile speakers, hence the theory that communities with weak network structures are more susceptible to external changes" (Samuel & Ramakrishna, 2021, p. 181). Nevertheless, the social network analysis is useful to capture a snapshot of the interactions at one point in time, and how those interactions are maintaining the use of certain languages.

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