PARTICIPATORY ORTHOGRAPHY
DEVELOPMENT AS A BASIS FOR LANGUAGE MAINTENANCE INITIATIVES IN TEMIAR

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PARTICIPATORY ORTHOGRAPHY DEVELOPMENT
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INITIATIVES IN TEMIAR

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STUDENT'S DECLARATION

I, Jonathan Graydon Lublinkhof, hereby declare that the work in this dissertation is my own and does not contain materials that have been written or published elsewhere, except where acknowledgements indicate otherwise. Also, the dissertation work is original.

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PARTICIPATORY ORTHOGRAPHY DEVELOPMENT AS A BASIS FOR LANGUAGE MAINTENANCE INITIATIVES IN TEMIAR

ABSTRACT

This study describes and responds to issues related to language shift as experienced by the Temiar language community of Peninsular Malaysia. Motivated by these issues, this preliminary research comprises a descriptive sociolinguistic case study describing a community-driven participatory orthography development initiative conducted with select representatives of the Temiar language community. The study utilised a purposive sampling method in collaboration with 8 Temiar communities to obtain a study sample representative of the two major Temiar dialects. The research design is based on Kutsch-Lojenga’s (1996) theory of participatory research in linguistics and informed by Benjamin’s (2016) prior analysis of Temiar phonology. Building on these, data was collected and analysed together with 15 Temiar participants in an adaptation of the highly successful “participatory approaches” to orthography development (Kutsch-Lojenga 1996; Easton & Wroge 2012; Yoder 2017). In this workshop, participants learned how their sound system differs from Malay and chose a new set of graphemes with which to represent their oral language in a linguistically accurate and socially acceptable way. They further produced preliminary literacy materials, including an alphabet chart and sample texts, such that their new orthography can be shared effectively in the wider language community. This orthography will serve as a basis for any number of future initiatives that the Temiars may later implement to maintain their language and ensure that it thrives for generations to come.

Key words: Temiar, language maintenance, minority languages, Aslian languages, orthography development
PENCIPTAAN SISTEM EJAAN SECARA PARTISIPATIF SEBAGAI ASAS UNTUK USAHA-USAHA PENYELENGGARAAN BAHASA TEMIAR

ABSTRAK

CHAPTER 1: INTRODUCTION

Malaysia has a long, rich history of cultural and linguistic diversity. This beautiful nation’s multicultural society is a source of pride for Malaysians and an inspiration to others. Indeed, many fail to realise the true extent of this diversity: Malaysia is home to an estimated 133 languages (Ethnologue 2019). While most discussions of Malaysian multiculturalism and multilingualism tend to focus on interactions among the majority ethnic groups (Malay, Chinese, and Indian), many people, even Malaysians, remain unaware of the vast majority of Malaysian languages – 112 of them – which are spoken by Malaysia’s indigenous peoples. Long ago, before the coming of the Indians or the Chinese or the many other ethnicities – before even the earliest Malays arrived – Malaysia was already inhabited by its many indigenous peoples: those groups now known as Orang Asli (or Orang Asal in East Malaysia), meaning ‘original people.’

In the time since, Malaysian society has changed dramatically. The Orang Asli have experienced enormous shifts in circumstances. One of many profound changes they have faced is the encroaching influence of the Malay language that has come with increased interaction between them and mainstream Malaysian society. Since 1961, the Malaysian government has emphasised ‘developing’ the Orang Asli groups and encouraging their integration with mainstream society (Nicholas 2002:13). Resulting government initiatives providing housing, education, employment, and more have helped these communities in many ways, but at the same time have also increased the day-to-day impact of the Malay language and culture on the traditional lifestyles of the Orang Asli. Consequently, many of these indigenous language communities are now experiencing the phenomenon of
language shift: as many as 95 are endangered, while 13 are dying out entirely (Ethnologue 2019).

This study reflects on and responds to the issues of language shift and language maintenance as they pertain to the Aslian languages of Peninsular Malaysia, and in particular to the Temiar language. The motivation for this study comes from within the Temiar community, whose members want to start taking measures to document and sustain their language traditions. In collaboration with Temiars, this research aims to address a first, fundamental issue: the need expressed in the Temiar community for an orthography: a written standard with which to represent their oral language in an accurate and acceptable way, such that it can be used effectively by the entire language community. This is a practical, foundational first step toward sustaining L1 language use in the Temiar community and ensuring the long-term maintenance of their heritage language.

1.1 Background

1.1.1 The Aslian languages

The term ‘Aslian’ is commonly used in reference to the approximately 20 distinctive Mon-Khmer languages spoken in Peninsular Malaysia and Southern Thailand. All speakers of Aslian languages belong to the indigenous, tribal groups whom have been categorized collectively in Malaysia as Orang Asli, Malay for ‘original people.’ While the term ‘Aslian’ was derived and subsequently introduced by Diffloth (1974) from the name ‘Orang Asli,’ the term does not encompass all Orang Asli languages. Rather, within the sociolinguistic grouping of ‘Orang Asli languages,’ a distinction has commonly been made between those languages which are of Mon-Khmer heritage (under the Austroasiatic family), and the remaining Orang Asli languages,
which belong to the Austronesian family and are more closely related to Malay (Benjamin 2012:136).

1.1.2 The Temiar language

The Temiars are among the most well-documented and highly publicised of the Orang Asli groups. Others have previously documented many aspects of Temiar culture and society, describing at length their religious belief systems (Benjamin 2012), traditional dietary restrictions and taboos (Benjamin 2012; Abdullah et. al 2016), language (Benjamin 2016), music and art (Roseman 1984, 1991; Jennings 1995), social organisation (Benjamin 2001b), traditional medicines and healing rituals (Jennings 1995; Roseman 1998; Benjamin 2012), and more. These accounts are highly informative and, for the most part, easily accessible; as such, only a brief overview of Temiar life is provided here.

The Temiars are a member of the group of Orang Asli known as Senoi, and the Temiar language is classified as a Central Aslian language, most closely related to its neighbour Semai (Benjamin 2012:148-9). Historical accounts of the group have documented many variations of the ethnonym ‘Temiar’ – a characteristic common of earlier literature discussing the Orang Asli (cf. Lye 2001:207-22; Benjamin 2013; Endicott 2016:4) – though it is now standardised and widely documented in recent literature in its current form. Temiars themselves still vary in their preferences, with some having embraced their ‘official’ ethnonym and others still using other names or preferring the simple descriptive sënʾōy serôkh (‘forest people’), though all now accept and use the name ‘Temiar’ when interacting with non-Temiars.

Like many Orang Asli groups, the Temiars have traditionally lived in heavily forested areas in the interior of the Peninsula, surviving within a form of subsistence economy: a mixture of swidden cultivation of crops, hunting, fishing, and foraging
that is supplemented by trading or selling what they catch or produce (Endicott 2016:6, Benjamin 2016). Historically, Temiar settlements consisted of small groups, generally organised based on kinship and ranging in size from very small (a single family) to 150 people (Benjamin 2001b:126). Although a majority of Temiars now live in settlements designated and built by the government (KKLW 2015), for most of history Temiars have traditionally built their own homes using bamboo, wood, and other forest products; indeed, many still do. Similarly, until recently Temiars were largely self-sufficient and relatively isolated from mainstream society, though in recent decades many have adopted technological innovations and have increased interaction with (Benjamin 2016:2).

The majority of Temiars live in Perak and Kelantan, with a small number in northern Pahang (cf. Benjamin 2014:37; Endicott 2016:4), as roughly shown by the shaded area in Figure 1.1 below:

![Figure 1.1 – Geographical Distribution of the Temiars](image)

The disparate geographical distribution of Temiars has led to the development of some regional variation, of which the two major dialects are now termed “Northern Temiar” and “Southern Temiar” (Benjamin 2016:2). This variation is minor, however, and all dialects of Temiar are mutually intelligible.
According to the most recent data available from the Jabatan Kemajuan Orang Asli (JAKOA 2008), formerly called Jabatan Hal-Ehwal Orang Asli (JHEOA), there are an estimated 24,900 Temiars in Peninsular Malaysia. The Centre for Orang Asli Concerns (COAC 2003) reports a slightly higher estimate of 25,725, a variation likely attributable to different counting procedures; specifically, the JHEOA data may not account for Temiars who have moved into cities (Phillips 2012:220). Others have more recently estimated the number of Temiars to have increased further, to approximately 28,000 (Benjamin 2016). This indicates a significant rate of population growth and, consequently, an increase in Temiar language speakers. In contrast to the rather rapid decline of use among neighbouring Aslian languages such as Kintaq, Kensiu, and Lanoh, which are now highly endangered with populations dwindling below 300 speakers (Ethnologue 2019), the outlook for the Temiar language in terms of ethnolinguistic vitality is therefore relatively positive.

1.1.3 The shifting sociolinguistic situation of the Temiars

As a result of government initiatives over the past several decades to develop and educate Orang Asli communities, most Temiars now receive an education in Malay. Large infrastructure and environmental changes, including the construction of the East-West highway, the Temenggor Dam, palm oil plantations, and extensive logging of their traditional lands, have significantly impacted their socio-spatial situation and increased their interaction with the wider Malaysian culture (cf. Lye 2011:40; Benjamin 2001b:128-129). Moreover, many Temiars have experienced significant change due to government resettlement initiatives, known as “Rancangan Pengumpulan Semula (RPS) Orang Asli,” since 1980 (KKLW 2015). As a result, they are increasingly embracing norms of the wider society, seeking regular
employment, and using technological conveniences such as mobile phones and motorcycles in daily life.

For minority language communities that live in prolonged contact with a larger, more dominant language, Paulston (1994:7) suggests there are only three possible outcomes: Firstly, the minority group may resist learning the dominant language through the establishment and maintenance of strong boundaries either by the minority group itself or by the majority group, allowing the community to carry on with little exposure to the second language and, consequently, little risk of language shift as long as that situation is maintained. This situation, however, is increasingly unlikely in a world rapidly growing more interconnected; it seems likely that the time of the truly ‘untouched’ language has already passed. Secondly, then, speakers of the minority language may achieve a state of diglossia, with all members becoming fully bilingual. The stability of a diglossic situation is uncertain, however, and without conscious effort to maintain L1 use across domains, the eventual outcome will likely be a shift to the dominant language. Finally, the minority language speakers may simply forgo the attempt to maintain their first language, shifting to use the language of the majority. Often, this occurs gradually, with each new generation using the minority language less than their predecessors. Occasionally, the shift occurs much more rapidly – within a generation or two. Whether for social, educational, economic, or other reasons, language shift is the most common result of prolonged language contact between a minority language and its majority counterpart (Miller 1996:1956).

Of the three scenarios mentioned above, Aslian language communities like the Temiar generally fit into the second. Nearly all Orang Asli are now bilingual in Malay and have therefore achieved, to varying degrees of stability, a state of
diglossia (Benjamin 2012:138). Temiar in particular is considered among the most stable of the Aslian languages, not only by virtue of its relatively large (in Aslian terms) population of speakers, but also owing to its status as a *lingua franca* among speakers of various other Northern and Central Aslian languages (Ethnologue 2019). Yet among growing concern in the field for the endangered status of Aslian languages in general, even Temiar is at increased risk. Bradley (2007:412) reports that Temiar is losing domains of use, while Benjamin reflects on the significant shift in the Temiar sociocultural situation that has occurred since he began fieldwork among them: “from isolated, non-literate tribal society to literate, physically mobile peasants and proletarians…instead of a fixed roster of already known entities they now confront a new and constantly changing world” (Benjamin 2016:32).

1.2 Statement of the problem

Such significant changes inevitably affect language use. In his recent paper describing the current state of Aslian linguistics, Benjamin describes a concerning trend of language shift arising from historical sociocultural events in Peninsular Malaysia which have resulted in Malay “sweeping many of the Aslian languages away” (2012:151). He notes that the extensive, long-term influence of Malay on the Aslian languages is a crucial consideration in any discussion of Aslian language endangerment (2012:152). Writing as the lead authority on the Temiar language in particular, Benjamin notes that at the time of his fieldwork among them (beginning in the late 1960s), the Temiars had largely retained their language without evidence of significant influence from Malay. This was likely due to the fact that, until recently, the Temiars had been shielded from mainstream Malaysian culture by surrounding Aslian groups and tended to be “orientated more towards their own immediate situations than to the outside world” (Benjamin 2012:152).
Over the subsequent decades, however, the world of the Temiars has changed dramatically. An increasing number of Temiars not only speak Malay but are educated in government schools and therefore literate in the language of education (Malay), while their first language remains an oral one. With no prior exposure to the notion of literacy, Temiar children can face significant obstacles in their education (Renganathan 2016:276), which often leads to tensions between their traditional ethnolinguistic identity and their success in school or in mainstream society. In addition to educational factors, the Temiars have been exposed to many entirely new linguistic domains as their way of life has been impacted by resettlement, new infrastructure, new employment opportunities, new religions, and new technologies.

All of these changes have inevitably led to changes in language use as well. Although there has been little formal documentation or measurement of language shift in the Temiar language, intergenerational differences in language choice are readily observable. Communication with Temiars indicates that they themselves are aware of these differences, and this has led members of the Temiar community to consider measures that might help to counter language shift and maintain their heritage language for future generations. With an increase in education and literacy in Malay, a growing segment of the Temiar language community is now expressing interest in reading and writing Temiar as well (cf. Section 3.3.1). As a precursor to literacy, the question of orthography naturally needs to be addressed. Many Temiars are already engaging regularly in written communication through SMS and via social media applications like Facebook and WhatsApp (cf. Benjamin 2012:167; Hassan, R., Ghazali, K., & Asmah Haji Omar 2015:501). However, attempts to write Temiar using their existing knowledge of a Malay alphabet result in significant phonemic
underrepresentation (cf. Section 2.3), resulting in frequent spelling inconsistencies and major obstacles to reader comprehension.

1.3 Objectives of the study

In view of the above, this study therefore aims to facilitate the development of a new, preliminary orthography that is both usable from a linguistic perspective and acceptable to the Temiar community in their unique sociolinguistic situation. This will be accomplished through what is now known as a “participatory approach” to orthography development: that is, a process of participatory community decision-making, through which Temiar participants examine the phonemic sounds of their own language and collectively decide how to represent them orthographically. To that end, the specific research objectives of this study are as follows:

**Objective 1:** To determine in which instances the standard Malay orthography is insufficient to represent Temiar phonemes.

**Objective 2:** To choose the most appropriate written representations of those phonemes based on prior linguistic analysis as well as current sociolinguistic considerations.

Since many Temiars have at least some degree of literacy in Malay and are therefore comfortable with the writing conventions of that language, the first aim of this study was to determine which Temiar phonemes could not be adequately written with existing Malay graphemes. While there are mixed attitudes about the Malay language and the influence it has had on their heritage language, ultimately the Temiars have generally recognised Malay as “their” language too. Participants therefore felt no need to make any drastic shift away from existing Malay spelling conventions in
instances where they already work well. Instead, they agreed to generally maintain
the use of Malay graphemes where those were deemed already suitable.

Prior analysis (Benjamin 2016) has already largely explained which sounds
are phonemic in Temiar, and that analysis is outlined in more detail in Chapter 2. In a
sense, a linguist could therefore anticipate the answers to these questions, or at least
make a reasonable hypothesis, based on existing analyses; indeed, Benjamin (2016)
already suggests and employs a phonemic orthography in his account of Temiar.
However, studies demonstrate that accurate linguistic representation is actually only
a small part of developing a successful orthography (Cahill & Rice 2014). Many
other sociolinguistic and even non-linguistic factors –political, educational, religious,
and technological – contribute to that success, often taking precedence over linguistic
accuracy (Karan 2006) based on what makes the orthography most acceptable – and
therefore most likely to be used – in the language community.

With so much dependent on factors beyond the linguistic analysis, it is vital
that these objectives be addressed in collaboration with the Temiars themselves. The
participatory approach utilised therefore involved facilitating exercises to help raise
participants’ phonemic awareness to the point that they could recognise the
distinctions in question and make informed decisions. As an outsider, the trained
linguist could also provide different perspectives, introducing the Temiar participants
to potential options (e.g. diacritics) beyond those they had experienced or considered
previously. However, the more important perspective is that of the Temiars, and that
perspective is uniquely shaped by the complexities of their sociolinguistic situation.
After that initial facilitation, therefore, all resultant orthography choices are entirely
their own.
To achieve the two objectives stated above, this study therefore employs a participatory approach to orthography development to obtain answers to the following two research questions:

**Question 1:** In which instances is the standard Malay orthography insufficient to represent Temiar phonemes?

**Question 2:** Based on prior linguistic analysis as well as current sociolinguistic considerations, what are the most appropriate written representations of those phonemes?

By addressing these questions in collaboration with key representatives of the Temiar community in the context of their first participatory orthography development workshop, this study was able to effectively achieve its stated objectives, facilitating new, community-owned orthographic decisions in a way that is not only informed by sound phonological analysis but also prioritises what is most acceptable in, and beneficial to, the Temiar community.

### 1.4 Significance of the study

Many gaps still exist in the field of Orang Asli studies, especially with regard to Aslian linguistics. Benjamin, who is perhaps the most outspoken advocate for the Aslian languages, has long pled the case for Aslian linguistic research, urging an increased interest from both Malaysian and foreign scholars. He claims that “…continued scholarly neglect of field-research in Orang Asli linguistics is an academic scandal” (Benjamin 1989:21). With the exception of a few significant contributors since, that situation remains largely unchanged, to the detriment of both Southeast Asian cultural studies and the field of linguistics as a whole (Benjamin 2012:139).
While others have worked with the Temiars before, most notably Benjamin himself, there has been relatively little focus on the Temiar language in recent years. There is even less regarding the significant changes to their social situation and the linguistic consequences thereof. Indeed, while Orang Asli groups have gained increasing research interest in other fields such as anthropology, sociology, and economics (cf. Endicott 2016), interest in linguistic research among these language communities seems to be on the decline (Lye 2011:33). Those few scholars who are actively contributing to the Aslian linguistics literature have focused on other languages such as Jahai (Burenhult 2005), Semelai (Kruspe 2004), and Mah Meri (Kruspe 2010). Another recent lexicostatistical analysis of 26 Orang Asli languages (Dunn et al. 2011) has focused primarily on classifying relationships among those languages, and therefore makes little effort to address the subject of language maintenance. The present study therefore addresses an existing gap in the research on Temiar, making a preliminary contribution to the discussion of practical language maintenance initiatives for the Temiar language in light of the shift they have undergone and with relation to their current circumstances. More importantly, this study has given members of the Temiar community an unprecedented opportunity to consider practical steps they themselves can take to address their concerns and maintain their heritage language, starting with writing it down. The participatory method employed will ensure a new orthography that is both informed by linguistic analysis and acceptable to the community, and which will serve them as a foundational tool for the pursuit of future literacy and language maintenance initiatives.

The results of this study also have broader significance to the region, in that a Temiar orthography has the potential to influence many others beyond the Temiar
community. Firstly, it could be used directly by the many other Aslian groups who also speak Temiar as a regional *lingua franca*, augmenting existing oral language use and helping to promote the regular use of written Temiar by more people and in more domains. Moreover, many of the other Aslian languages have closely related sound systems (cf. Phillips 2012:93-94, Benjamin 2013:13-16). This means a well-chosen orthography that accurately represents the Temiar sound system would likely be transferable for use in writing other Aslian languages. At the very least, it would serve as a useful and instructive example to other Aslian language communities considering similar language development initiatives.

1.5 Limitations of the study

It must be stated from the outset that this study, however successful, was never expected to yield a finalised orthography. There are a great many factors other than linguistics – including political, sociolinguistic, educational, and technical factors – that influence the acceptability of orthographies (Karan 2006, Cahill & Rice 2014), and there is a high likelihood that this preliminary study in its brevity will not succeed in adequately addressing every one of those factors. Moreover, as Karan (2006) argues, orthography development is always a process that requires testing and revision over time in the context of the wider language community. Participation in the present study is therefore merely one of the first steps in the process of the Temiar community’s long-term language maintenance pursuits.

1.6 Definition of terms

It is important to clarify several of the key terms used in this study, especially in instances where multiple definitions do exist. For the purposes of this study, I will adhere to the following definitions:
• **Aslian languages**: the term commonly used to refer to the approximately 20 distinctive Mon-Khmer languages spoken in Peninsular Malaysia and Southern Thailand (Benjamin 2012:136).

• **Ethnolinguistic vitality**: the degree to which a language is stable and safe from endangerment, measured especially according to:

  1) Users: how much the language is transmitted from one generation to the next.

  2) Uses: how much the language is used in different domains of daily life (Fishman 1991).

• **Domain of language use**: functions or circumstances (topics, participants, and locations) wherein a given language is used (cf. Lewis & Simons 2015:16).

• **Grapheme**: a symbol (e.g. a letter or group of letters) used to represent a speech sound, or phoneme, in written form.

• **Language shift**: a “process whereby intergenerational continuity of the heritage language is proceeding negatively, with fewer speakers, readers, writers, and even understanders every generation” (Fishman 1991:1).

• **Language endangerment**: “a language is *endangered* when it is on a path to extinction” (Brenzinger et al. 2003:2).

• **Orthography**: “a system for representing a language in written form” (Cahill & Rice 2014), usually by choosing graphemes to represent the contrastive phonemes of the language.

• **Phoneme**: the smallest unit of meaning in a language; the sounds that are meaningfully distinct to speakers of a language.
• **Semantic domain**: “an area of meaning and the words used to talk about it” (SIL 2012).

1.7 Conclusion

The Aslian languages represent an important repository of knowledge for linguistic research in the region, and preservation of this knowledge has broader implications for further historical, cultural, and anthropological research as well. The fact that Temiar has remained relatively stable thanks to its relative isolation in the past does not preclude it from risk of endangerment now or in the future. Already, little hope remains for some of its neighbouring Aslian languages. But with increasing awareness and a proactive response from the Temiar community, together with the cooperation of researchers and policymakers, there is still great potential for the maintenance, development, and ongoing vitality of the Temiar language. It is therefore crucial to involve the Temiars themselves in the dialogue surrounding language shift, to raise awareness regarding the vitality of their language and to facilitate a process of *participatory* orthography development as one of the first practical steps that they themselves can take toward maintaining their language for generations to come.
CHAPTER 2: LITERATURE REVIEW

2.1 Introduction
This study builds on the theory and findings of key scholars in two main fields: language maintenance and orthography development. As a precursor to the discussion, this section provides an overview of key contributors to the field of Aslian linguistics, narrowing to focus on interaction with the Temiar language in particular. Following this is an outline of the evolution of perspectives on the issue of language shift and some perspectives on its potential threat to the Aslian languages. The discussion of language shift and maintenance is rooted in Fishman’s seminal theory of language shift, introduced in his 1991 book *Reversing Language Shift*, as well as Lewis and Simons’ *Sustaining Language Use* (2015), which expands on and updates Fishman’s ideas. The discussion then specifically addresses the field of orthography development, including an overview of historical approaches as well as the relatively newer innovations of participatory methods, ending with several examples of their implementation in Malaysia and around the world.

2.2 Aslian linguistics
The record of scholarly interaction with the Orang Asli and their unique languages dates back at least 125 years, with linguists including Vaughan-Stevens (1892), Martin (1905), and Skeat and Blagden (1906). These writers made valuable initial steps in describing the Orang Asli languages, but on the whole were primarily concerned with their typological classification: that is, where they fit in to the bigger picture of Southeast Asian languages in general. Skeat and Blagden (1906) in particular are notable for their large, two-volume compilation of the indigenous languages of Peninsular Malaysia.
After the turn of the century, the relatively few significant contributions to the literature include those of Wilkinson (1926), Schebesta (1928), Evans (1936), and Noone (1939). Most of these early writings, while valuable and informative, are generally considered old-fashioned and less rigorous in their analysis than what is required in modern research (Benjamin 2012:158). Moreover, many of these early writers wrote primarily from an anthropological perspective rather than a linguistic one. Linguistic research in the modern sense, then, really began in the 1960s, with Dentan (1965), Diffloth (1974), Asmah Haji Omar (1976), and Benjamin (1976). These were the pioneers of modern linguistic research among the Orang Asli; especially Diffloth and Benjamin, who continued to write prolifically on Aslian languages in the decades since. Both Diffloth and Benjamin remain leading authorities in the field to this day; although other key contributions have been made more recently, both are still heralded as the seminal authors of Aslian linguistics (Matisoff 2003:1).

Building on and joining in with the work of those pioneers, other significant contributors to the field today include Burenhult (1999-2009) and Kruspe (2004-2010), both of whom continue to conduct research and add to the growing literature on Aslian linguistics. It is worth noting as well that Lye, a Malaysian anthropologist, has compiled a remarkably comprehensive bibliography (2001) and historical overview (2011) of the literature dealing with Orang Asli topics (not only language-related), which update previous bibliographies by Bishop and Peterson (1995) and Burenhult (1999) and will certainly be of interest to anyone who wishes to engage with Aslian languages. Phillips (2012) provides a historical comparative treatment of data on the Aslian languages which offers insight into their common linguistic ancestor, or ‘Proto-Aslian’. A further survey of Aslian languages is that compiled by
Matisoff (2003), which offers detailed description of the various Aslian languages as well as an insightful synthesis and discussion of the literature related to Aslian languages.

2.3 Research on Temiar linguistics

Among the Aslian languages, Temiar is among the most well-documented. This is due in large part to the work of Geoffrey Benjamin, an anthropologist and linguist who carried out extensive fieldwork among Temiars beginning in the 1960s. Carey (1961, 1976), a JHEOA anthropologist, had published studies on various aspects of the Temiar language previously, but his accounts of the language were later found to be based on insufficient phonetic and phonological analysis (Benjamin 2016:3). Another early attempt at documentation was in a Temiar-English dictionary compiled in the 1960s and 70s by Paul and Nathalie Means, which was later published by their son (Means 1998). With a rich lexicon, this dictionary certainly remains valuable. Unfortunately, it also displays a great deal of transcriptional error due to inadequate phonological analysis (Benjamin 2012:158), along with some incorrect grammatical information, such that it is difficult to use reliably, whether for Temiars or for others interested in the language. Another local researcher who has more recently done fieldwork among the Temiars is Yap Ngee Thai (2009a, 2009b), who builds on Benjamin’s work to provide some secondary analysis of Temiar grammar, especially its morphology.

Benjamin, however, is widely regarded as the first and only linguist to have carried out research with a view to a comprehensive documentation of Temiar (1976). Even though his initial focus was anthropology, he has since the time of his fieldwork published a great wealth of linguistic material about the Temiar language as well, which he still revises and updates regularly. In a recent update to his original
(1976) account of Temiar grammar, Benjamin (2016) summarises his analysis of Temiar phonology. Those interested in the full account of this analysis and the Temiar data it is based on will find Benjamin’s latest update a fascinating and worthwhile read, as phonology is only a small part of the paper. For the purposes of this discussion, the contrastive phonemes of Temiar as presented by Benjamin are outlined in Figures 2.1 (consonants) and 2.2 (vowels) below:

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<th>Labial</th>
<th>Dental</th>
<th>Palatal</th>
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<td>Approximants</td>
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*Figure 2.1 – Temiar consonant phonemes (Benjamin 2016)*

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<td>Long oral</td>
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<td>Long nasal</td>
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*Figure 2.2 – Temiar vowel phonemes (Benjamin 2016)*

Benjamin’s analysis indicates that Temiar has many more contrastive phonemes than Malay, and that an accurate orthographic representation – especially of its complex vowel system – requires an orthography that distinguishes among vowel sounds with much greater specificity than the existing Malay or English alphabets.
2.4 Perspectives on addressing language shift

In broader sociolinguistic surveys of the region, Temiar has been ranked as an endangered language (Bradley 2007). As mentioned earlier, Benjamin has also written on many occasions about the endangered status of the Aslian languages, and notes that even those that have until now appeared stable, such as Temiar, should by no means be considered safe (Benjamin 2012:167-173; 2016:2). It is therefore a pressing concern for the Temiar community to address the issue of language shift.

Discussions of language shift and its implications for the world’s languages became urgent in the early 1990s, with the major publications of Fishman (1991) and Kraus (1992). Kraus urged linguists and language scholars to take action, presenting a dire outlook on the future survival of the world’s languages and predicting that up to 90% would likely be extinct by the end of the twenty-first century. A variety of approaches to language maintenance and revitalization have resulted from that initial sense of urgency, but the rate of language shift and subsequent language death is still increasing (Lewis and Simons 2010:3).

Fishman’s Graded Intergenerational Disruption Scale (GIDS), introduced in his book *Reversing Language Shift* (1991), provides a means of classifying languages according to 8 levels of language endangerment. The seminal work on language shift and likely the most-cited in the discussion of language endangerment since its introduction in 1991, Fishman’s theory of language shift and its potential reversal addressed the clear need for a response in the wake of Kraus’ predictions. Fishman (1991) describes the issue of language shift as being rooted in two main factors: a language’s users (whether there is intergenerational transmission of language use) and its uses (the domains in which the language is used). His publication of the GIDS in 1991 provided an evaluative framework that is still
widely viewed as the foundational model for measuring the vitality of endangered languages (Lewis and Simons 2010:4). As such, it must also be considered foundational for approaching any study in this area, as well as for documentation and revitalization efforts among endangered languages.

More recently, Fishman (2001) emphasised the need for a change in focus from merely theorising about language shift to doing something in response. Shortly thereafter, UNESCO (Brenzinger et al 2003) published another metric with a greater focus on language revitalisation, resulting in the “Language Vitality and Endangerment” (LVE) scale. This 6-level scale has also gained ground in more recent studies related to language documentation. However, Lewis and Simons (2010) note imbalances present in both Fishman’s GIDS and the LVE scale. Specifically, the GIDS is weighted more heavily toward measuring those languages at the safe end of the scale, while the LVE scale places greater emphasis on the endangered levels but fails to adequately distinguish between levels at the safe end of the scale (Lewis and Simons 2015:4). They therefore propose a new scale wherein they incorporate both of the aforementioned metrics, harmonizing both major scales with their own additional categorisation criteria (Lewis and Simons 2015:4). The result, their Expanded Graded Intergenerational Disruption Scale (EGIDS), comprehensively categorises languages along a 13-level continuum. The EGIDS is rooted in and supported by their extensive experience as editors of Ethnologue, perhaps the most comprehensive documentation of the world’s languages both in print and online. It is also the evaluative metric used by Ethnologue now; it has therefore become widely referenced in discussions of language shift, ethnolinguistic vitality, and language development. Assessing the vitality of a language using EGIDS is also an early step in Lewis and Simons’ (2015) Sustainable Use Model
(SUM), the framework they propose for minority language communities to better understand and respond to language shift and language maintenance issues (Lewis and Simons 2015).

The implementation of all these theoretical discussions into real, practical language maintenance initiatives is generally carried out by language communities themselves, albeit often with initial help from an outside facilitator. While outside researchers might be interested in documenting an endangered language for academic interest, however, only the speakers of that language determine its ongoing vitality, based on whether or not they continue to use it. Fishman (1991, 2001) and Lewis and Simons (2015) are in agreement that the best hope for a minority language community to maintain its language is to achieve a state of stable *diglossia* in which their language is not in direct competition with other, more dominant languages. Rather than competing, the language community should consider how its heritage language can complement any other language(s) that are used. Both further discuss the value of literacy development as a language maintenance strategy; if a language community can read and write its heritage language, its members can access many more tools for sustaining ongoing language use.

2.5 Aslian languages and language shift
The issue of language shift among Malaysia’s indigenous languages has been raised by many scholars dealing with Orang Asli topics. As one of the preeminent authorities in Aslian studies, Benjamin (1989-2016) in particular has repeatedly advocated for documentation and study of the Aslian languages. A growing number of others have also reported recently on the significant issue of language shift among the Aslian languages and the influence of the Malay language. In a survey of Aslian languages, Matisoff (2003:59-61) describes that influence as “considerable,”
especially in terms of the increasing use of Malay loan words in Aslian languages. He further demonstrates that Malay influence goes beyond the lexical level, such that many Aslian languages have adopted aspects of Malay grammar and syntax as well. It is important to note, however, that the extent of Malay influence varies considerably among the Aslian languages. For instance, Kruspe (2004:28) states that the kind of language loss feared by Benjamin and others is not evident among the Semelai, though she concedes that there are domains in which Malay lexical influence has resulted in some level of shift.

In a thorough survey of historical studies of all topics related to the Orang Asli, Lye (2011) cites many linguistic and language-related studies. Regarding the future of Orang Asli studies in general, she writes:

In view of the rapid changes happening among the Orang Asli today, any ethnography is dangerously close to becoming history in just years rather than decades, which makes documentation of the lesser-known communities even more urgent (Lye 2011:39).

While Lye’s concern here goes beyond language shift, it remains a fundamental issue; rapid language shift and eventual language loss, especially among the smaller Aslian communities, are major factors in the ultimate loss of cultural knowledge feared by scholars.

Local researchers who have engaged with these issues include Alias Abd. Ghani & Salasiah Che Lah (2015), who demonstrate evidence of language shift among the Kensiu. Similarly, a recent study by Hassan, R., Ghazali, K., & Asmah Haji Omar (2015) helps to provide an updated understanding of the linguistic vitality of Aslian languages in Northern Perak, including: Temiar, Jahai, Kintaq, Kensiu, and Lanoh. Based on questionnaires and interviews, that study corroborates the conclusions of those previously discussed, demonstrating significant levels of language shift already affecting the smaller Aslian languages and increasingly
impacting larger ones as well. There is therefore increasing advocacy for and interest in research focused on the documentation and preservation of these languages. These studies demonstrate that the level of endangerment of the Aslian languages largely varies, from those with a relatively high ethnolinguistic vitality to those that are, or are very nearly, extinct already (cf. Benjamin 2013:5). It has been estimated that the Aslian languages together account for around 15-20% of Mon-Khmer linguistic history (Benjamin 2013:4) and, consequently, the linguistic history of much of Mainland Southeast Asia. This represents a significant amount of linguistic knowledge, much of it yet to be explored, that will be lost forever if the Aslian languages fade into extinction.

2.5.1 Examples of language maintenance in Malaysia

In addition to studies focused on assessing language shift, there are also at least some who have considered ways of responding to the issue with practical language maintenance initiatives for Malaysia’s indigenous languages. For instance, Haja Mohideen (2016) wrote an article discussing steps for language communities and local governments to take toward preserving and maintaining Malaysia’s endangered minority languages. Previous practical steps toward language documentation and maintenance have included wordlists and dictionaries, recordings of songs and stories, and grammatical analyses of indigenous languages in Sabah and Sarawak (Majius 2004; Miller 2016; Bongarrá, Arritt & Kayad 2017; Buck 2017; Conklin et al 2017) as well as several of the Aslian languages (notably Roseman 1984, 1991; Asmah Haji Omar 2006; Basrim bin Ngah Aching 2008; Burenhult 2005; Kruspe 2004, 2010; Benjamin 2016; Phung 2017a, 2017b). These are all invaluable foundational contributions to the documentation and long-term maintenance of these minority languages.
There is, however, an important distinction to be made: much of the existing literature – particularly that pertaining to the Aslian languages – is in the form of formal, academic papers and dissertations. While these are invaluable in documenting these languages, they are largely produced by and for academics, usually in English, making them inaccessible for practical, real-life use by the language communities themselves. And many of these communities do want to pursue language maintenance: recent surveys emphasise that “speakers of indigenous languages in Malaysia feel strongly about the preservation of their languages” (Haja Mohideen 2016:3). Many of the examples listed above have recognised the importance of involving language communities in their own language development, but in many cases there remains a disconnect between those researching Aslian languages and the communities looking for practical ways to develop and sustain their heritage languages.

For the Temiar, the nearest and most closely-related example of ongoing language maintenance is the Ministry of Education’s plan to incorporate the Semai language in state schools over the past 20+ years (Smith 2010, Alias Abd. Ghani 2015). Members of the Semai community have also independently initiated language development steps, including dictionaries and literacy materials (Basrim bin Ngah Aching 2008; Phung 2017a, 2017b). Despite difficulties stemming from dialectical differences and lack of materials in the Semai language, these initiatives have made a major contribution to the Semai language community—especially in promoting the ongoing use of their heritage language. Smith (2010) describes the experiences of the Semai as well as three indigenous language communities in Sabah and Sarawak who have undertaken similar multilingual education initiatives with great success. Similarly, Kayad and Arritt (2017) document the positive experiences of the Bidayuh
language community in Sarawak, where multilingual education programmes and ethnic language school curriculum have done much for that community’s language maintenance efforts. The Temiar and other Aslian language communities could learn much from these examples and even, in some cases, adapt those existing resources for use in their own respective language maintenance efforts.

2.6 Perspectives on orthography development

The various perspectives outlined so far clearly indicate the serious nature of the issues facing minority languages threatened by language shift. As discussed, these issues have garnered increasing awareness over the past 20 years especially, with an emphasis on finding practical, sustainable approaches to long-term language maintenance. Of course, orthographies have a much longer history than that – languages have been represented and preserved in written form for thousands of years. But the relatively recent, increasingly rapid loss of minority languages discussed above has led to new perspectives on how orthography development can be used specifically as a strategy for language maintenance. Naturally, there are many factors that contribute to successful ongoing maintenance of a minority language; where a pursuit of literacy is often viewed as the default strategy, it is important to recognise that literacy alone does not guarantee increased (or even sustained) language vitality. Where literacy initiatives are employed as a language maintenance strategy, however, orthographies are the first, fundamental component.

2.6.1 Traditional approaches to orthography development

There are now thousands of examples of oral minority languages that have been written down and introduced to literacy. Before discussing this further, it is important to note that there remains some debate about whether it is always beneficial for oral
language communities to pursue orthography development and literacy in the first place. Attempts to transition oral languages toward literacy have not always helped and, in some cases, have backfired with undesirable consequences (cf. Crowley 2000b, Dunn 2000, Grenoble and Whaley 2006:102, Guerin 2008, Liddicoat 2000:426, Mühlhäusler 1990). Some people fear, for example, that writing a previously unwritten language might actually interfere with its transmission to future generations if people start to think their language is “safe” once written, or that introducing literacy might create undesirable inequality in the society between those who become literate and those who are unable to do so (Guérin 2008: 62-63). While these are legitimate issues that should not be dismissed lightly, they tend to be dispelled by the notion that, ultimately, the goals and desires of the language community itself should take precedence over anything else. When working through these issues with an oral language community, it is not the job of the linguist to dictate what is best, but to respect the desires of the language community in question (cf. Dwyer 2006, Guérin 2008, Tsunoda 2005:216).

In any case, over the years many have undertaken orthography development in unwritten languages all over the world. This has resulted in a considerable literature on the topic of orthography development. Indeed, there is so much research in this area that it becomes difficult to narrow the focus of the discussion to specific theorists or their contributions. It is likely more useful to take a broader approach, outlining several major themes that stand out as being common among historical approaches to orthography development. Traditionally, orthographies have been developed by linguists. Training in linguistics enables them to analyse the phonology of a language, determining which sounds are phonemic to that language – something of which native speakers generally have little awareness. Based on this phonological
analysis, the linguist then determines how to reduce the spoken language to writing. This determination is generally made by adhering as closely as possible to the phonemic principle, which requires a linguistically ‘ideal’ orthography to represent all of the contrasting sounds in a language, and only those sounds (Pike 1947). The rule of thumb is that each phonemic sound in a language ought to be represented by its own unique written symbol or grapheme. Similarly, each of these graphemes ought to have only one pronunciation.

This sort of approach is generally based on one primary goal: to make reading and writing as easy as possible by accurately representing the spoken language. One of the earliest discussions on this topic is Smalley (1964), who lists 5 criteria by which a writing system might be deemed “adequate.” Often referred to as “Smalley’s Maxims,” these criteria are as follows:

1. Maximum motivation for the learner.
2. Maximum representation of speech.
4. Maximum transfer (i.e. to a national language or LWC).

For the past 55 years, these basic criteria, or some variation, have been viewed as guidelines for linguists determining how best to write unwritten languages. Principles like these produce very good, accurate orthographies from a linguistic perspective.

2.6.2 Problems with traditional approaches to orthography design

In the implementation of these orthographies, however, significant challenges often arise due to the inherent difficulty of balancing all these ideals within the practical reality of the broader sociolinguistic situation. Often, the solution that the linguist might consider ‘ideal’ is not acceptable to the language community due to any
number of other sociolinguistic or even non-linguistic external factors. As Eira (1998:176) notes, “whether or not one can propose principles for a linguistically optimal writing system, it does not at all follow that linguistic efficacy is the only or the most significant factor in the creation of orthography, defined as the accepted standard for writer/readers of the language.” For an orthography to be successful, it must be acceptable to those who are going to use it. This requires that the process of orthography development take into consideration many other factors beyond what is optimal from a merely linguistic standpoint, as has traditionally been the case (Mühlhäusler 1990: 205).

These other factors in the process may, as mentioned, include sociolinguistic as well as non-linguistic considerations. These factors and the ways they may influence the success of an orthography are discussed at length in Cahill & Rice (2014). Sociolinguistic factors include: dialects, language attitudes, and religious, political, or other social groups within the language community. Non-linguistic factors may in various contexts include: governmental policy and approval, educational considerations (ease of reading, transferability to other language(s), testing), and technological factors such as typing and publishing scripts, fonts, and uncommon orthographic symbols. Depending on the context of a given language community, any or all of these considerations might play a role in determining the ultimate acceptability and long-term use of a new orthography.

The other major challenge to the traditional approach is that of ownership: when orthography choices have been made by an outsider(s), it may be difficult for the language community to feel that the orthography is truly theirs. This can significantly impact the motivation that members of the language community have to adopt and use it. The kinds of sociolinguistic and non-linguistic factors that
contribute to acceptability, as discussed above, have increasingly influenced orthography development initiatives over the years (Clifton 2016), but these considerations are still generally seen as issues for the outside expert, the linguist (Seifart 2006). In traditional approaches, “even when social and cultural factors are considered, the linguist is still the center of the orthography development enterprise” (Yoder 2017:1). This puts the language speakers themselves in a passive role as merely recipients of an orthography with which, though it purports to represent their language, they feel no connection because they have had no say, no choice, and generally little involvement in the process. This lack of community ownership often reduces overall motivation to learn and use the new orthography.

Due to these issues, orthography development initiatives following a traditional, linguist-centred approach as discussed are increasingly viewed as inadequate in terms of their ultimate efficacy for language maintenance. Attempts to create orthographies “often begin with detailed analyses to set the (linguistic) scene, then switch track halfway through, beckoning us into the messy world of human relationships, with their entrenched opinions, rivalries, conflicts and, here and there, successful collaboration” (Roberts 2014: 782). No matter how perfect an orthography is in terms of linguistic accuracy, in the end it is these human factors that determine its success or failure.

2.6.3 Participatory approaches to orthography development

Participatory approaches to orthography development have come about partly in response to the issues outlined above, and partly as part of a broader shift in ideology with regard to language development work in general. This ideological shift in focus is rooted in an increased appreciation for the knowledge that language communities already have about their own language, culture, and sociolinguistic situation.
Linguists and others involved in these kinds of initiatives have increasingly emphasised that languages belong to their speakers, and it is therefore language communities that should ultimately decide how they will use and/or develop their language (Dobrin 2008; Rice 2010). Yoder (2017:2) describes a participatory approach to language development as an “ideological framework” that “values community knowledge and local expertise.” While still recognising the importance of good phonological analysis and all the principles that traditionally guide the design of a linguistically “ideal” orthography, participatory approaches take the focus off the outside expert, the linguist, and encourage language communities to take ownership of their own language maintenance initiatives (Dobrin & Schwartz 2016). Linguists may work together with the language community to facilitate such initiatives, but they avoid trying to make decisions for them, recognising that “if community members are not involved in decision making, they will often reject what outsiders do for them” (Yoder 2017:2).

Moreover, participatory approaches recognise the plethora of sociolinguistic or even non-linguistic factors that impact the ultimate acceptability of orthographies. These factors often differ significantly from one context to another, making it all the more vital that those who are most intimately familiar with these factors – members of the language community in question – also be intimately involved in determining which orthographic choices will be most acceptable in their circumstances. As Yoder notes, the success and failures of orthography development approaches over the years clearly indicate that “a community orthography developed with a participatory approach is more likely to be widely adopted, promote learning, and create goodwill than an orthography developed primarily by a linguist” (Yoder 2017: 1). Based on this evidence, many minority language communities, and the linguists working with
them, are now adopting participatory methods in their language development and language maintenance efforts.

2.6.3.1 Two major approaches

There have been two major approaches to participatory orthography development, which have since been implemented in many adaptations and variations all around the world. The first is “Participatory research in linguistics,” a broad participatory approach to language development pioneered by Kutsch-Lojenga (1996) in what is now the Democratic Republic of Congo. This early approach exemplified two fundamental ideas that have shaped participatory methods since, affirming to the language community that a) “the language is theirs” and b) “they are capable of working on the written development of the language themselves” (Kutsch-Lojenga 1996:3). Members of the language community therefore take part in each step of the research: they begin by collecting a large word list (at least 1000 words), then proceed to sort and re-sort these lexical data in various ways in order to observe patterns of phonemic contrast and conduct an analysis of the phonology as a basis for orthographic decisions. This approach assumes that there has been no prior analysis of the language in question, but it also emphasises the importance of the participatory method when it comes to establishing phonemic awareness among native speakers involved. The success of this initial study has since been replicated in dozens of participatory orthography initiatives.

A second and more recent approach is that of “Alphabet Design Workshops,” which began as a language development tool for indigenous language communities in Papua New Guinea (Easton 2003; Easton & Wroge 2012). Using this method, linguists have helped over 100 language communities to make decisions and establish orthographies in PNG alone (Easton & Wroge 2012:1). Unlike the first
method discussed above, these workshops employ a text-based approach. This at first seems counterintuitive when dealing with languages that remain unwritten and thus have no existing texts; however, in this method it is assumed that language communities have prior exposure to literacy in an LWC or national language. Workshop participants are therefore asked to transcribe simple stories, using whatever writing conventions they already know. In trying to work out how to write their own language, they see firsthand where the sounds of their language differ from those of the other(s). Participants note these issues in their own writing, then compare their results with others to note further spelling inconsistencies which are likely to indicate orthography issues. Once these difficult-to-handle sounds are isolated, the linguist facilitates a discussion wherein participants consider various potential ways to represent each sound and collectively make decisions about which are most suitable for their new orthography. This process results in a trial orthography that is largely based on a familiar LWC or national language, but which also represents the unique sound system of the vernacular as needed.

Both of these approaches make the general assumptions that a) there is no existing phonological analysis of the language, and b) language speakers have some prior exposure to literacy in another language. An advantage of the first approach, Participatory Research in Linguistics, is its very systematic breakdown and subsequent analysis of the language based on eliciting large amounts of lexical data. It likely requires less prior knowledge of participants, as it takes native speakers through the process from the bottom up, raising their phonemic awareness along the way such that they feel equipped to make their own orthographic decisions. The strength of the second approach, the Alphabet Design Workshops, is that the starting point is stories, allowing participants to engage with orthographic issues in the
context of real-life discourse rather than only in isolated words. This can make the process more interesting as well as revealing potential orthographic issues that occur above the word level, including post-lexical phonological processes, word breaks, punctuation, and more. Which approach is most appropriate in a given language community therefore depends on the context and especially on the prior knowledge and experiences of the participants. Both, however, are rooted in the same principles of participatory methods and similarly emphasise the importance of local ownership and acceptability.

### 2.6.3.2 A hybrid approach

While the two major approaches described above have been very successful in their respective contexts, the situations of minority language communities vary greatly from one context to the next. The process of orthography development must therefore take into consideration the unique circumstances of the language in question. This requires, as Dobrin & Schwartz argue, “a method flexible enough to respond to the complexity and diversity of what goes on in particular cross-cultural researcher-community relationships” (2016:253). In other contexts, then, language communities have employed various adaptations and combinations of the two major participatory approaches described here.

One example is documented by Yoder (2017), regarding the participatory orthography development process undertaken by the Abawiri language community of Papua. This combination of the two major participatory approaches into a third, hybrid implementation was based on the existence of prior phonological analysis. Since both major approaches typically assume little or no prior knowledge of a language’s phonology, the steps related to phonological analysis constitute a large proportion of their process. In this case study, however, the linguist had already
completed a good deal of analysis on the Abawiri language (Yoder 2017:6). The challenge was therefore to adapt aspects of existing approaches to fit the context of the Abawiri, as well as to incorporate insights from existing linguistic analysis that could inform and streamline the orthographic decision-making process. The linguist facilitated a participatory workshop in which members of the language community began with individual words already known to contain target phonemes and demonstrate contrast, followed by a gradual progression into wordlists, sentences, and stories. The case of the Abawiri community demonstrates that no single approach fits every context, but their success also demonstrates that the underlying principles of participatory research methods can be effectively combined and adapted for orthography development in any context – provided the process is owned by motivated members of the language community.

2.6.3.3 Participatory orthography development in Malaysia

Several indigenous language communities in Malaysia have already developed orthographies, and some of these have done so using some variation of these participatory approaches to orthography development. Those documented in publications include Kadazandusun, Iranun, Iban, and Semai (Basrim Ngah Aching 2008, Smith 2010), but others have undertaken similar processes informally. With successful orthographies, some groups have gone on to publish dictionaries, produce books and other literacy materials, and even develop mother-tongue or multilingual education programs (Basrim Ngah Aching 2008; Smith 2010; Subramanium et. al 2014; Jaafar & Osman 2017; Kayad & Arritt 2017). There is an increasing awareness among local researchers of the importance of ethnic languages to the identities of the communities that speak them, and of the consequent need to consider ethnic
languages in public education curriculum and policy (Smith 2010; Renganathan 2016; Subramanium et. al 2014; Jaafar & Osman 2017).

Still, many of Malaysia’s indigenous languages remain unwritten. Of the Aslian languages, only Semai has a working orthography, which is both taught in schools and in regular use by the language community (Smith 2010, Alias Abd. Ghani 2015, Coluzzi 2017:155). Even this remains a source of division, however; although Semai people did attempt participatory orthography development in the past, as documented by Basrim Ngah Aching (2008), the resulting orthography was not promoted successfully in the community and ultimately was superseded by another, government-developed orthography. The latter orthography was developed by outsiders without sufficient community consultation, and this has resulted in outstanding issues of both linguistic accuracy and community acceptability. The Temiar community can therefore learn from prior examples, successful or not, as they participate in the development and promotion of their own orthography.

2.7 Conceptual framework
With reference to the larger field of orthography development theory, the primary theory informing this study is the ideological paradigm outlined in Kutsch-Lojenga’s (1996) “Participatory research in linguistics,” which emphasises the capacity of a language community to participate in and drive its own language development initiatives. The research is also equally informed by Benjamin’s (2016) prior analysis of Temiar phonology, which provides a significant ‘head start’ in understanding the phonemic distinctions in question. Building on that existing analysis, and in keeping with the aforementioned participatory research theory, this study therefore adopts the practical approach described by Yoder (2017) to initiate participatory orthography development with the Temiar language community.
Based on the underlying theories discussed in this chapter, the theoretical underpinnings of this study are outlined in Figure 2.3 below:

![Conceptual framework for the study](image)

**Figure 2.3 - Conceptual framework for the study**

### 2.8 Conclusion
Orthography development has a long and varied history. With the advantage of hindsight, it is now clear that participatory approaches are more effective than traditional, linguist-centred approaches in producing orthographies that are linguistically accurate as well as meeting the needs and unique circumstances of the language communities that use them. With the successful implementation of participatory orthography development around the world, and particularly in
Malaysia, there is now greater hope than ever for the ongoing maintenance of the Temiar language and others like it.
CHAPTER 3: METHODOLOGY AND PROCEDURES

3.1 Introduction
This chapter describes the practical components of the study, including: research design, sampling method, study sample, procedures used for data collection and analysis, and pertinent ethical considerations.

3.2 Research design
This is a descriptive sociolinguistic case study based on a two-phase qualitative research design. The study was conducted using an adaptation of the participatory approaches to orthography development detailed in the previous chapter. Study participants were chosen via a purposive sampling procedure, which reflects the needs of the study to a) represent a population that spans a large geographical area and at least two major dialectical variations, and b) involve respondents who are trusted to make decisions on behalf of their respective communities. The first phase took place in a participatory planning discussion about the motivation and goals of the various stakeholders within the Temiar community, which provide the motivation for planning and implementing the second, major phase: the participatory orthography development workshop.

3.3 Sampling
As cited previously, the current total Temiar population is estimated at approximately 28,000, with those speakers divided roughly equally into the two major Temiar dialects (Benjamin 2016). With respect to this large population size and the disparity of geographical distribution, a study of this nature is inherently limited in scope. However, choosing the right sampling method helps to mitigate these limitations by ensuring that respondents: a) represent both of the two major
dialects in question and b) have the appropriate knowledge, authority, and influence to make decisions on behalf of their language community and to subsequently communicate those decisions to their respective communities for further testing and revision.

3.3.1 Sampling method

For these reasons, this study utilised a purposive sampling method. Firstly, participants were invited from the regions where the two main Temiar dialects are spoken. Although these dialects are mutually intelligible, it is nevertheless important that people from both dialects be involved in such a significant decision-making process. Interdialectical intelligibility does not always correlate to mutual acceptance of the same written standard. As Nida (1987:249) notes, the response of a language community is “far more conditioned by factors of acceptability than by those of intelligibility.” Hasselbring (2006:3) further stresses the importance of cross-dialectical acceptance to an orthography’s success, stating, “both comprehensibility and acceptability of the standard influence the extensibility.” It was therefore crucial that this study sample represent both dialects to ensure: a) that the new Temiar orthography can be used to accurately represent both, and b) that it is acceptable and thereafter embraced by both communities, making it as extensible as possible.

Together with Temiar community leaders and other influential community members with whom the researcher had prior acquaintance, an initial discussion was facilitated to identify the important stakeholders from various Temiar communities that should be involved in making decisions and setting goals for their orthography development. It was agreed that these should include: community leaders, religious leaders, respected elders, and educated community members. The communities involved were tasked with appointing and sending representatives accordingly.
Those chosen to represent their communities in this way constituted the sample of participants for the subsequent phase of the research, the participatory orthography development workshop. Representatives of the Temiar community thus played an integral role in all parts of this study, including selecting the participants and taking ownership in the process of their orthographic decision-making.

3.3.2 Sample size

This study included 15 respondents representing 8 villages in the Temiar communities around Hulu Perak, Sungai Siput, and Gua Musang. These respondents were chosen to represent their respective communities following the initial planning meeting. Although few in relation to the overall Temiar population, this diverse sample included representatives of the two major Temiar dialects, as well as more minor regional variations, spoken by most of the wider Temiar population. The Temiar communities involved in choosing the participants represent a large portion of the Temiar population and were therefore confident that the participants chosen for the study collectively possessed the necessary insights to make decisions on their behalf. Indeed, it was emphasised repeatedly that the main priority should be to include the ‘right’ participants in terms of their capacity to represent the wider Temiar community in the decision-making process. Moreover, a participatory methods workshop works best when the group is small enough that all opinions can be heard, and when participants have sufficient time and opportunities to engage with the topics. There was also agreement from all parties to limit the number of participants based on logistic practicality and issues of feasibility, as participation required many of the respondents to travel to the workshop location and stay there for the duration.
3.4 Data collection

The nature of this participatory approach makes it difficult to divide the processes of data collection and data analysis into neatly defined categories, as much of these take place concurrently as researcher and participants work through the participatory workshop procedure. In their discussion of the trend toward participatory research methods, Dobrin & Schwartz agree that such methods differ from (and go beyond) collecting data in the traditional sense as “a way to integrate positive social relations into…research practices” (2016:256). Having clarified the somewhat different nature of data collection and processing that is inherent in this method, the next sections outline the participatory approach and procedures utilised in this study.

3.4.1 Phase one: Participatory discussion and planning meeting

As the first step in the process, members of several Temiar communities throughout Perak and Kelantan gathered for a meeting facilitated by the researcher. The purpose of this preliminary meeting was not to collect data but to facilitate some foundational discussion about the language community’s current sociolinguistic situation to establish the need for an orthography and confirm the Temiars’ motivation to develop one. It was also important to identify the different stakeholders that ought to be involved in the process, and agree on some fundamental orthographic principles – that is, the goals and priorities that are most important to the community and should therefore guide orthographic decisions. Following this introductory discussion, the meeting also included time to discuss and collaboratively plan the logistics of the second phase of the study: a participatory orthography development workshop.

The initial meeting was held in Gerik, Perak on 22 October 2019. This meeting was attended by ten participants representing eight different villages from various major Temiar settlements, including the areas of RPS Kemar, RPS Dala,
Hulu Perak (Gerik and Pengkalan Hulu), Sungai Siput, and Gua Musang (RPS Kuala Betis and Pos Bihai). These ten attendees all had previously expressed a commitment to the maintenance of their heritage language and a desire to help initiate steps toward sustaining Temiar language use in their communities.

Language shift as perceived by the Temiars

The discussion began with topics related to the current sociolinguistic situation of the Temiar community and corresponding language shift, particularly the influence of increasing Malay language use in their communities. The first topic the group addressed was that of domains of language use (cf. Fishman 1991). As mentioned previously, the entire Temiar community is bilingual and therefore in a diglossic situation, using Temiar in some domains and Malay in others. The group therefore described to one another when, where, and how their respective communities generally use their two languages. There was a consensus that most Temiars still consistently prefer to use their L1 in domains like the home, the village, and traditional activities such as hunting, fishing, and gathering food. Participants also affirmed that Temiar is commonly used as a language of wider communication with neighbouring Aslian groups (cf. Ethnologue 2019). Meanwhile, Malay is typically spoken in domains that involve interaction with other, non-Aslian groups, especially in the domains of education, employment or trade, religion, and technology. There is some variation in the extent of Malay language influence in any of these domains, primarily due to the disparate geographical distribution of Temiar speakers, which significantly impacts their level of exposure to mainstream society.

In considering domains in which Temiars have clearly shifted to using Malay, or even relatively new domains that have used Malay from the beginning, the group was also asked to discuss the perceived impact of that shift. For situations where they
typically use Malay now, they considered ways it might benefit the sustainability of their language if they were able to use Temiar in those domains instead. Although in some cases that would not be feasible due to the necessity of communicating with non-Temiar speakers, the group did suggest ways in which L1 use could more easily be promoted, especially in education and literacy. Suggestions from the group included: developing written Temiar for easier documentation of their language and culture; producing Temiar books and other reading materials; and advocating for the use of Temiar in their local schools and kindergartens.

Following the initial discussion of language uses, respondents also addressed the topic of language users (Fishman 1991); specifically, how they experience intergenerational differences in language use in their communities. Although a different topic, there was a significant degree of overlap with the previous topic because, due to the rapid socio-circumstantial changes described in earlier chapters, younger generations of Temiars have been exposed to new and different domains of language use to a much greater extent than their parents and grandparents were. According to the group, the domains perceived as contributing most to intergenerational differences are those related to education and technology.

Firstly, the last two decades have seen significant changes in both the availability and the quality of public education in Orang Asli communities (cf. Renganathan 2016:276-277). Increasing access to national-language education inevitably influences language use over time, especially with no corresponding L1 education available, as Temiar youth learn to read and write only in Malay. This naturally has many implications for language maintenance, but the most obvious immediate impact – as perceived by Temiars – is that their children are using more
and more Malay loan words in daily life, ultimately forgetting the original Temiar terms – if they ever learn them at all.

Similarly, rapid advances in technology, especially digital media, have a significant impact on language use: many Temiars now have access to, and regularly engage with, many kinds of media: television, movies, social media, music, internet videos, and more. Since very few of these media, whether audio-visual or written, are available in Temiar, most of this technological interaction is only furthering the influence of Malay and contributing to language shift in Temiar communities. Fortunately, the widespread availability of such technology also provides many opportunities for language maintenance applications, but only if members of those communities are willing to take on the task.

**Language maintenance goals of the Temiar community**

Inspired by these concerns, participants began to consider some foundational questions regarding their desire to write Temiar. They first shared about what ways, if any, their L1 was already being written in their various communities. Again, many indicated technology, especially social media such as WhatsApp and Facebook, as major media for written communication. Some pointed to YouTube music videos with popular Temiar songs, including subtitles written in *ad hoc* spellings based on the Malay orthography. Such examples are a strong indication that Temiars not only *want* to write their language, they are already trying to find ways to do so.

However, with no formal or agreed-upon standard for written Temiar, it remains virtually impossible to promote L1 literacy initiatives with any efficacy in Temiar communities. Various participants acknowledged the difficulties they presently face in reading others’ attempts at written Temiar – all of which stem from the lack of adequate, standardised conventions for writing. Firstly, there are many
spelling inconsistencies: different people spelling words different ways, or even the same person spelling the same words inconsistently from one instance to the next. Secondly, as mentioned previously, the Temiars have until now been limited in their writing attempts to the characters in the Malay orthography, leading to drastic underrepresentation of many phonemic Temiar sounds that do not exist in Malay. This results in confusion and hinders reader comprehension, as there are many cases where two (or more) words with different meanings are spelled the same way. Moreover, the lack of sufficient characters with which to accurately represent Temiar sounds means that people simply do not know a good way to write many of those sounds. Attempts to negotiate the task of writing are consequently subjective, based on the best guess of the individual, and therefore inconsistent and confusing for the reader.

Acknowledging these present challenges, the Temiar participants collectively affirmed once again the need for a written standard. An orthography designed, owned, and eventually used by the entire Temiar community would help to overcome existing obstacles to L1 literacy which currently hinder the successful pursuit of language maintenance initiatives. To that end, the group proceeded with plans to conduct the 5-day orthography workshop, collaboratively organising the logistics such as date, location, and accommodation, as well as committing to invite suitable people to represent their respective communities.

3.4.2 Phase two: Participatory orthography development workshop

After initial arrangements were made in collaboration with various Temiar communities, the second phase of this study took place in a participatory orthography development workshop. The time, location, and participants for this workshop were all determined by members of the various Temiar communities represented during
and following the preliminary meeting described in Phase 1. The workshop was conducted from 18-22 November 2019 in Gerik, Perak. The 15 Temiar participants, chosen and sent to represent their respective communities, included a variety of village leaders, teachers, religious leaders, and other community members. Of these, 11 participants were literate in Malay, 1 of whom was also literate in English, and the remaining 4 of the oldest participants were illiterate. As in the previous meeting (Phase 1), these participants represented eight different villages from various major Temiar settlements, including the areas of Hulu Perak (RPS Kemar, RPS Dala, Gerik and Pengkalan Hulu), Sungai Siput, and Gua Musang (RPS Kuala Betis and Pos Bihai). This allowed for representation of both major Temiar dialects discussed by Benjamin (2016), as well as some of its smaller regional varieties.

Participants were also invited from Muslim, Christian, and traditional animist backgrounds in an attempt to represent those different factions within Temiar society. However, the Temiars themselves did not view religion as a significant factor affecting choices about orthography or other language maintenance initiatives; they readily agreed that such initiatives could involve cooperation and collaboration among Temiars of different backgrounds and beliefs, saying “a Temiar is a Temiar.” All participants came to the workshop already informed about the nature of the study and its overall purpose: to facilitate the development of a new orthography as a means to writing their language. The workshop procedure utilised in this study was an adaptation of the combined approach to participatory orthography development recently developed by Yoder (2017), which is discussed in Chapter 2 and also outlined in further detail below. The decision to use this approach was based on the availability of prior analysis and documentation of Temiar phonology (Benjamin 1976, 2016),
corroborated by the researcher’s own personal field data and prior knowledge of the language, which negated the need for a long process of word collection and subsequent phonological analysis before proceeding to orthographic issues. There was naturally still a need for some initial discussion of phonology, but its primary aim was to facilitate sufficient phonemic awareness among participants, such that they could understand the issues that are presented in writing the sounds of their language and effectively make decisions that enable them to do so accurately and consistently.

During the workshop, several practical exercises were planned to facilitate participatory discussion and decision-making based on the six-step procedure described by Yoder (2017). That original procedure is briefly outlined below for reference:

**Step 1: Discussion – general characteristics of good writing systems.** Introduction to basic orthography principles, including: sound-symbol correspondence, advantages of representing all contrasting phonemes, ease of reading and learning, ease of writing/typing, and transferability to/from the national language.

**Step 2: Write out sample words for each consonant and vowel.** All groups try to write specific words containing “target sounds” – i.e. contrastive phonemes. Work through examples for each consonant and vowel phoneme, then compare results with those of other groups. Note and discuss inconsistencies.

**Step 3: Write words by semantic domain.** Each group is assigned a semantic domain that has a lot of words. The group lists as many words as they can think of in that domain. Participants view, compare, and discuss each other’s work.

**Step 4: Write procedures.** Each group chooses (or is assigned) a simple procedure from daily life to write out in complete sentences. While writing, note “problem areas” such as sounds that people are unsure of or have difficulty spelling. Afterward, one person from each group reads the procedure to the larger group. Participants view, compare, and discuss each other’s work.

**Step 5: Assemble a grapheme chart.** All participants discuss each sound that has been considered and collectively decide on a tentative representation. Start with sounds that everyone has agreed on; this part of the orthography is already a success! Next, list each sound that caused problems or inconsistencies, along with each way in which it was represented so far. Discuss pros and cons of each option.
(and suggest other potential options). Emphasizing that decisions are *tentative* and can be changed, decide on one representation for each problem sound. If agreement cannot be reached during the session, facilitate further in-depth discussion.

**Step 6: Write stories.** Each small group chooses (or is assigned) a simple narrative to write out, using their agreed conventions. Once complete, one person from the group reads the narrative to the large group (or groups exchange narratives and practice reading others’ work.)

In the procedure outlined above, the earlier steps serve to highlight contrastive sounds as perceived by native speakers, both confirming the accuracy of existing analysis and raising the participants’ phonemic awareness in the process. Participants then progress beyond the pre-planned examples to consider together how different phonemes contrast in other words, then in in sentences, which helps to verify where areas of difficulty exist beyond the lexical level. Based on these exercises, the group will be able to tentatively agree on orthographic symbols, which they finally practice and test by writing those conventions in a longer text.

The workshop procedure utilised in this study is loosely based on the steps listed above, though these were adapted to suit the context and needs of the Temiars. The resulting adaptation has minor changes made to procedural order, as well as different labels for some of the stages which more accurately reflect a) the purpose of each stage and b) what occurred at each stage. The following section describes the introductory, foundational discussion on the first day, then proceeds to outline the adapted workshop procedures employed in the study, describing in detail the various successes of the planned methods as well as instances where changes to the plan were necessary.

**Introductory discussion**

Since the participants in this workshop were not all the same people that attended the Phase 1 planning meeting, the introductory session of the orthography workshop
involved facilitating another discussion about issues of language shift in the Temiar community. This was not a means to collect new data; indeed, it was largely a reiteration of the foundational topics already discussed in the Phase 1 meeting. Rather, the primary purpose of this discussion was to start off the week with everyone on the same page, having a ‘big picture’ sense of their language’s current situation as well as working from a fresh sense of shared motivation based on common language maintenance goals defined at the outset. As in the initial meeting, workshop participants discussed their perceptions of the current state of their language, according to its uses and its users in their various communities. Based on those perceptions, they then collaborated to list and discuss the many reasons that being able to write their language would be advantageous to their communities and to the future of their language.

This was followed by a brief, simple overview from the researcher of existing research done on the Temiar language, especially the relatively small pool of research specifically related to phonology and language development. Participants were surprised to learn of the existence of a Temiar-English dictionary (Means 1998), further demonstrating the claim (Benjamin 2016:3) that such previous efforts by outsiders to write the language have proven inaccurate and largely ineffectual: remaining unknown, unaccepted, and unused by the Temiar community. This also served to underscore the importance of community involvement in language maintenance initiatives. This was further emphasised by the researcher in the introductory description of this participatory workshop, making it clear from the beginning that all decisions would be made and owned by the Temiar participants themselves, and would subsequently be submitted to the wider Temiar community for review, feedback, and revision as necessary.
After the preliminary discussion about language maintenance issues, the group began to focus in earnest on the specific questions of orthography development. The researcher facilitated a new discussion, asking the group to consider a) why they want a common spelling system for their entire language community, and b) why agreeing on one consistent orthography is important. To help everyone understand the question at hand, the group considered some examples of how inconsistent spelling can lead to confusion. The researcher presented pairs of common words that have often been spelled the same way, despite containing contrastive phonemes and thus different meanings. For instance, the words [həʔ] ‘yes’ and [hɛʔ] ‘only’ were both being written by participants as hek. Upon seeing this word and others like it written on the board, participants realised that the Malay alphabet that they have tried to use until now results in significant underrepresentation of the sounds in their language. More importantly, these examples emphasised to participants the practical consequences of that underrepresentation: it makes their writing hard to read! After these initial considerations, the group was ready to implement the practical exercises prescribed by the participatory workshop procedure.

**Workshop procedures**

The following is a detailed account of the various stages of the 5-day participatory orthography development workshop conducted with the Temiars:

1. **Discuss characteristics of good orthographies.** The group was first presented with several common principles for what makes a good orthography. These principles and their theoretical underpinnings have already been discussed in detail in Chapter 2, so here only the most important ones are briefly described again. The first
principle for choosing a good orthography is that all “important sounds,” or phonemes, should be represented as accurately as possible. Secondly, orthographic choices should adhere as closely as possible to the “phonemic principle,” the notion that each phoneme should be represented by only one written symbol (or grapheme). Conversely, each grapheme in the orthography should represent only one sound; that is, any given symbol should only be pronounced one way. In choosing graphemes to represent the phonemes of the language, other principles to keep in mind include: ease of learning, ease of reading, ease of writing/typing, and transferability to/from the national language(s). Moreover, while adherence to the preceding principles helps to ensure a linguistically accurate and usable orthography, more important still is whether the orthographic choices made are acceptable to language users (not only those participating in the workshop, but the wider Temiar community as well).

These introductory statements continued with a brief overview of the Temiar sound system, informed by Benjamin’s analyses (1976, 2016) and corroborated by the researcher’s own field data collected over the previous two years. In summary, the group was informed that they would be considering the “important” sounds of their language, reported by Benjamin (2016) to include 19 consonant phonemes and as many as 30 vowel phonemes (9 short + 9 long oral vowels; 6 short + 6 long nasal vowels). As is typically true of native speakers who have not had prior linguistic training, the participants had not previously realised the extent of their own phonology. As a starting point, however, they readily accepted the existing research and agreed to proceed with their orthography development process informed by existing analyses.
2. Write out sample words for each phoneme.

Based on prior personal fieldwork and several months learning the Temiar language, and informed by existing analysis of Temiar phonology (Benjamin 2016), the researcher had compiled a list of sample words containing each of the consonant and vowel phonemes under consideration (see Appendix A). On the first day, the group began by considering the consonant sounds in their language. A Temiar facilitator led the group in these exercises in order to ensure accurate pronunciation. Participants worked together in small groups, according to their region and/or dialect. These groups were then instructed to listen and write out the sample words as dictated by the facilitator, based on their own instincts and using whatever existing conventions they could think of. The facilitator was provided with sample words in a specific order (cf. Appendix A), such that she dictated words containing target phonemes likely to be “easier” or less controversial at first and progressed to those phonemes deemed more difficult to represent using Malay conventions, which would likely be more controversial.

After all groups had made their attempts at writing the sample words provided, they grouped their words together on the wall for comparison and discussion. The researcher then led the group through a process of considering each of their consonant phonemes in turn, examining in each case how each of the various groups had represented the phoneme in question. Based on previous experience with the language group, the group discussed most of the plosive sounds first, followed by nasals, then fricatives and approximants. In instances where all participants already agreed on how to represent a sound, their chosen graphemes were recorded directly on the whiteboard. Here it is important to note a significant change to the procedure adapted from Yoder (2017): rather than waiting to assemble a grapheme chart later in
the week (Yoder’s Step 5) as originally planned, the researcher documented each of the grapheme choices, even tentative ones, as soon as the decisions were made. This adaptation made the process more encouraging for the group, as they saw their progress each time they collectively agreed on an orthographic representation of another phoneme.

While many of the consonant graphemes were confirmed and chosen relatively easily, for some consonant phonemes more in-depth discussion was needed. It was by examining these instances more closely that participants realised exactly for which Temiar sounds the Malay orthography is insufficient for accurate orthographic representation and/or undesirable to the Temiar language community. The specific consonant phonemes in question includedː /c/, /ŋ/, /ɲ/, /ʔ/, /ɟ/ (word-finally), and /k/ (word-finally). In these instances, the various possible representations suggested by the different groups were written on the whiteboard, together with additional options suggested by the researcher based on how those sounds have been represented in other languages. Dr. Timothy C. Phillips, who advised the neighbouring Semai in a similar orthography development process (cf. Basrim Ngah Aching 2008), was also on hand as an adviser during much of this process; although having no formal role in the study, he made himself available to offer linguistic insights, examples, and advice.

On Day 2 of the workshop, participants repeated the above process, working in the same small groups to write out sample words containing the 9 basic Temiar vowel phonemes (Appendix A, Wordlist A.2: left-hand column). At this point, issues of vowel length and nasalisation were postponed for later discussion. Again, all examples were dictated to the group by a Temiar facilitator to ensure accurate pronunciation. Employing the same strategy used for the consonant phonemes the
day before, examples were again given in a predetermined order, based on starting
the group with those vowels anticipated to be “easier” and progressing to those likely
to be more complicated. The specific grapheme choices made for the various vowel
phonemes are documented in detail in the discussion of the findings in the next
section.

3. Orthography Trial #1: Writing words by semantic domain (word-level test).

Having made tentative choices for consonant phonemes and at least the base vowel
phonemes (with long and nasal vowels still under discussion), the group now had a
working grapheme chart to which participants could refer in subsequent discussion
and exercises. They also rearranged their graphemes on the whiteboard to reflect the
familiar alphabetical order of Malay. In the next exercise, the researcher asked
participants to once again work together in small groups. Since all participants had
already agreed on how to represent each phoneme, the groupings thereafter were no
longer strictly based on region or dialect. Each of the 4 groups was assigned a
semantic domain expected to yield a substantial number of words, then asked to list
as many words as they could think of related to that domain. Semantic domains
assigned were: animals, food, body parts, and relatives. Participants were asked to
write their wordlists using only their newly-chosen conventions, referring to the
grapheme chart on the whiteboard to remember the choices they had made so far.
This activity continued until all groups had at least 20 lexical items. Afterward,
groups exchanged their wordlists with one another to observe how well they could
read something written by others using their chosen graphemes. Based on this
exercise, participants noted any remaining areas of difficulty or uncertainty for
further discussion.
During the initial trial described above, it was observed that many participants had difficulty remembering which of the new graphemes they had chosen was associated with which phoneme. Despite having the graphemes written on the large whiteboard in front of them, they continued to forget them or mix them up – especially the vowels with diacritics. The decision was therefore made to alter the planned procedures and include a new activity at the beginning of Day 3: assigning example words to each grapheme on the chart. To accomplish this, the researcher assigned participants to 3 different groups, instructing members within each small group to collaborate and find examples of words containing each of the letters represented on their grapheme chart. After returning to the large-group format, we considered the various example words provided by the 3 groups – supplemented by additional examples provided by the researcher from previously-collected data – and participants chose one example word to be included on the grapheme chart along with each sound. Later, participants drew illustrations to further augment their grapheme chart. Having these specific examples to refer to helped participants to more easily recall which sound was which in relation to the graphemes they had chosen, and this was of great benefit in subsequent exercises during the remainder of the workshop.

4. Orthography Trial #2: Write simple procedures (sentence-level test).

In the next exercise, participants worked together in small groups to craft 3-4 sentences detailing a simple procedure of their choice. For example, one group’s topic was “How to catch a squirrel.” The purpose of this exercise was twofold. Firstly, it allowed participants to begin experiencing writing their new language in the context of a real text, rather than simply writing words in isolation as in the first exercise. Secondly, orthographies include more than the phonemes of a language;
writing in complete sentences gave opportunity to note and discuss issues of word breaks, capitalization, and punctuation, which were not present during the word-level trial exercise. While writing, then, participants were asked to note “problem areas,” especially sounds that remained difficult to spell. The researcher also noted for later discussion examples of inconsistency in handling word breaks, capitalization, and punctuation. Afterward, the resulting texts were exchanged among the groups, with one person from each group reading out a text written by someone else. Participants then had further opportunity to view, compare, and discuss each other’s work.

During the procedure-writing exercise, some participants continued to struggle with adhering to the graphemes the group had chosen. At this stage, they not only had the graphemes organised in a chart, but each letter was supplemented by an example word demonstrating its pronunciation and a picture clearly illustrating each example word. While this was sufficient for many of the participants, some continued to have difficulty. While some indicated that they simply needed more practice, others expressed dissatisfaction with some of the orthographic decisions. These indicated a need for further discussion and negotiation, claiming that the initial choices made for word-final [ʔ] and [k] (written as straight apostrophe ¹ and k respectively) differed too greatly from the familiar letters of Malay, which uses the grapheme k to represent the word-final glottal stop, and were thus causing unnecessary confusion. After reminding the group of their reasons for the initial choice – including a desire to adhere to the phonemic principle and a desire to distinguish their language from Malay – the researcher asked the group to discuss those two graphemes further in view of what they deemed most acceptable to the wider Temiar community. Ultimately, the group decided that acceptability and familiarity should take precedence over adherence to the one sound, one symbol
principle; they therefore reverted to using $k$ to represent word-final [ʔ]. This meant they had to choose another way to represent word-final [k], and ultimately they settled on the digraph $kh$ for this purpose.

After this revision, in an effort to help all participants fully grasp the correspondence between the letters being written and the sounds of their language – all the while trying to avoid singling anyone out – the researcher again made alterations to the schedule to include extended, collaborative group practice using the new orthography. A second whiteboard was placed at the front of the room, and participants took it in turns to write out sentences, prompted by the researcher and/or other participants. During this exercise, participants were free to ask the group for help if they were unsure how to spell any given sound using their new conventions. The group also gave feedback on the sentences as they were written, ensuring that the spelling adhered to the choices outlined on their grapheme chart and that all participants were in agreement that the spelling was therefore “correct.” After multiple rounds of this exercise, all participants expressed a much higher level of confidence with regard to the graphemes they had associated with each phoneme.

5. Orthography Trial #3: Write simple paragraphs (sentence-level test #2).

Building on this increased confidence, participants were asked to repeat the sentence-writing exercise. This time, they were asked to simply write a few sentences about themselves and/or their families. In this second iteration of the exercise, the aim was to give participants a very simple topic that would not require much thought as to the content, thus enabling them to give their full attention to the task of spelling out their language and gaining confidence using their new trial orthography. All literate participants took part in this exercise by writing their own sentences, while non-literate participants dictated their sentences to others or to the workshop facilitators.
As before, the resulting texts were then swapped around the room for comparison, feedback, and discussion.

6. Orthography Trial #4: Write stories (discourse-level test).

By the latter half of Day 4, participants were feeling increasingly confident in their grasp of their new orthography. As a final exercise, they were asked to work in small groups to write out a short story on a topic of their choosing. When all were finished, the final written texts included 4 short stories and the lyrics of a popular song. The groups spent some time revising their spelling to ensure they had adhered to their new orthographic conventions. These texts were shared and read aloud in a “closing ceremony” of sorts on the final day of the workshop, then collected and scanned digitally for documentation purposes. Some sample texts written in the new Temiar orthography are transcribed and included in Appendix B.

3.5 Data analysis and follow-up

As mentioned previously, the nature of this participatory workshop procedure is such that data is both collected and analysed along the way as participants discuss issues and negotiate orthographic decisions. They further tested their new orthographic decisions in writing and reading increasingly complex vernacular texts as the workshop progressed. After participants agreed on a tentative system of orthographic symbols to use, they also collaborated to produce a preliminary alphabet chart (included in Appendix B) for distribution and testing in their communities, which will include simple pictures and words to visually represent the newly-chosen letters of their alphabet. This will aid with spreading awareness in Temiar communities, ensuring opportunities for further testing, community feedback, and any necessary revisions.
The last stage of follow-up was to document the orthography development process and the initial results. The preliminary orthographic decisions agreed on by Temiar participants have therefore been compiled and recorded in Chapter 4. Later, this can be used to develop an orthography statement or community spelling guide in a format suitable for use by the Temiar community, so community members have a reference to use when practicing, teaching, and testing the orthography. The results of this study will also be submitted to JAKOA for their reference and made available to others for use in future language maintenance endeavours that the Temiars may wish to pursue.

3.6 Ethical considerations

There are several important considerations to account for in proceeding with a study like this. The study was planned and conducted based on an invitation extended by members of the Temiar community, including multiple village leaders, to visit and conduct research among the Temiar communities in question. Further, the study was conducted with formal approval from the Department of Orang Asli Development (cf. Appendix C). From personal communication with members of the community prior to the study, it was clear that participants from the Temiar community would be interested and available to participate in the study without expecting monetary compensation. However, all participants were provided with meals, accommodation, and travel expenses necessary to enable them to attend the workshop. With regard to the handling of personal information and data collected, all respondents were informed of how their responses would be used, and the results of the study will be freely available to any who are interested. Respondents will remain anonymous.
3.7 Conclusion

Perhaps the single most important factor in choosing the methodologies outlined above, and the proposed research design as a whole, is that of community involvement. The participatory approach employed ensured that the Temiars had ownership of their orthography development process, as well as the opportunity to take initiative in setting their own language development goals. While the scope of this study is admittedly limited and unable to engage the wider Temiar community in its entirety, its strength as it pertains to the specific communities in question is in its participatory approach based on the previously-expressed interest of the community. Study participants had the chance to consider their language situation in a way they likely never had before, and as a result they now have further opportunity to consider how they can respond with further language maintenance initiatives.
CHAPTER 4: FINDINGS AND ANALYSIS

4.1 Introduction

This chapter details the findings of the study by describing the results of the various exercises, participatory discussions, and the resulting graphemic decisions made by the Temiar participants during their first orthography development workshop. A small sample of the resulting alphabet chart is included in Figure 4.1 below:

![Figure 4.1 – Temiar Alphabet Chart Sample](Image)

The complete illustrated Temiar alphabet chart is also included for further reference in Appendix B.

4.2 Results: orthographic decisions

This section provides a summary of the Temiar phonemes considered in the orthography workshop and their corresponding graphemes in the new orthography. This is followed by a discussion of the process and rationale by which workshop participants arrived at these conclusions.

4.2.1 Consonants

The following is a summary of all Temiar consonant phonemes considered during the workshop, along with the corresponding grapheme choices made by study participants for inclusion in their preliminary orthography. For each Temiar phoneme described, the phoneme in question is written in forward slashes, /p/, and phonetic realisations are written in square brackets, [p], according to standard IPA
conventions. The grapheme associated with each phoneme is written in **bold**. Unless otherwise stated, each grapheme is used to represent its respective phoneme in all contexts. All choices remain subject to further revision after testing and feedback from the wider Temiar community.

**Table 1 – Temiar Consonant Graphemes**

<table>
<thead>
<tr>
<th>Consonant phoneme</th>
<th>Grapheme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plosives</strong></td>
<td></td>
</tr>
<tr>
<td>/p/ [p′]</td>
<td>voiceless bilabial unreleased plosive word-finally p</td>
</tr>
<tr>
<td>[p]</td>
<td>voiceless bilabial plosive in all other contexts p</td>
</tr>
<tr>
<td>/b/ [b′]</td>
<td>voiced bilabial unreleased plosive word-finally b</td>
</tr>
<tr>
<td>[b]</td>
<td>voiced bilabial plosive in all other contexts b</td>
</tr>
<tr>
<td>/t/ [t′]</td>
<td>voiceless alveolar unreleased plosive word-finally t</td>
</tr>
<tr>
<td>[t]</td>
<td>voiceless alveolar plosive in all other contexts t</td>
</tr>
<tr>
<td>/d/ [d′]</td>
<td>voiced alveolar unreleased plosive word-finally d</td>
</tr>
<tr>
<td>[d]</td>
<td>voiced alveolar plosive in all other contexts d</td>
</tr>
<tr>
<td>/c/ [c′]</td>
<td>voiceless palatal unreleased plosive word-finally ch</td>
</tr>
<tr>
<td>[c]</td>
<td>voiceless palatal plosive in all other contexts ch</td>
</tr>
<tr>
<td>/j/ [j′]</td>
<td>voiced palatal unreleased plosive word-finally j</td>
</tr>
<tr>
<td>[j]</td>
<td>voiced palatal plosive in all other contexts j</td>
</tr>
<tr>
<td>/k/ [k′]</td>
<td>voiceless velar unreleased plosive word-finally kh</td>
</tr>
<tr>
<td>[k]</td>
<td>voiceless velar plosive in all other contexts k</td>
</tr>
<tr>
<td>/g/ [g′]</td>
<td>voiced velar unreleased plosive word-finally g</td>
</tr>
<tr>
<td>[g]</td>
<td>voiced velar plosive in all other contexts g</td>
</tr>
<tr>
<td>/ʔ/ [ʔ]</td>
<td>glottal stop word-finally k</td>
</tr>
<tr>
<td>/ʔ/ [ʔ]</td>
<td>glottal stop word-medially k</td>
</tr>
<tr>
<td><strong>Fricatives</strong></td>
<td></td>
</tr>
<tr>
<td>/s/ [s]</td>
<td>voiceless alveolar fricative s</td>
</tr>
<tr>
<td>/h/ [h]</td>
<td>voiceless glottal fricative h</td>
</tr>
</tbody>
</table>
Nasals

/m/  [m]  voiced bilabial nasal  \textbf{m}
/n/  [n]  voiced alveolar nasal  \textbf{n}
/p/  [n]  voiced palatal nasal  \textbf{ny}
/ŋ/  [ŋ]  voiced velar nasal  \textbf{ng}

Rhotics

/r/  [r]  voiced alveolar trill word-initially and word-finally  \textbf{r}
[ɾ]  voiced alveolar flap word-medially  \textbf{r}

Approximants

/l/  [l]  voiced alveolar lateral approximant  \textbf{l}
/w/  [w]  voiced labial-velar approximant  \textbf{w}
/y/  [j]  voiced palatal approximant  \textbf{y}

**Process and Rationale**

Many of the grapheme choices listed above align closely with the standard Malay consonant letters and thus do not require further explanation. Guided by the principles of acceptability and transferability, in most instances the group tried to maintain that alignment with Malay. Their main goal was therefore to answer the same questions that form the basis of the study in the first place; that is, 1) to determine which Temiar phonemes are \textit{not} adequately represented by Malay graphemes, and 2) to choose new graphemes that could accurately distinguish those unique Temiar phonemes in a way they deemed acceptable to the Temiar community. The following is a description of the process by which those decisions were made, including data samples and the reasoning behind each decision.

The first point of discussion was the representation of voiceless plosives /p/, /t/, /k/ as opposed to their voiced counterparts, /b/, /d/, and /g/. Participants unanimously agreed on how to write all of these sounds word-initially and word-
medially, when they are fully and clearly pronounced. However, sample words containing these plosives word-finally were written with a mixture of voiced and voiceless consonants. For example, upon hearing the word-final consonant in [ci:b] ‘to walk’, participant responses were written using a mixture of p and b.

Some instances of this transcriptional variation based on voicing are provided below:

<table>
<thead>
<tr>
<th>(4.1) Phoneme</th>
<th>Phonetic</th>
<th>Transcriptions</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/, /b/</td>
<td>[ciːb]</td>
<td>1) chip</td>
<td>‘to go’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) cib</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) chib</td>
<td></td>
</tr>
<tr>
<td>/t/, /d/</td>
<td>[maːt̚]</td>
<td>1) mad</td>
<td>‘eye’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) mat</td>
<td></td>
</tr>
<tr>
<td>/k/, /g/</td>
<td>[deːk̚]</td>
<td>1) dek</td>
<td>‘house’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) deg</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) deq</td>
<td></td>
</tr>
</tbody>
</table>

As demonstrated by example 4.1 above, the word [maːt̚] ‘eye’ was written by some groups as mad and by others as mat, and the word [deːk̚] ‘house’ was written with a mixture of k, g, and even q. For nearly every sample word ending with a plosive, the responses varied in this way.

Upon encountering this variation, the first and most obvious inclination was to defer to Benjamin (2016), who concludes that between the two major Temiar dialects there exists a swapping of voiced and voiceless stops:

Words that in Northern Temiar (NT) end in a voiceless stop, end in Southern Temiar (ST) in the equivalent voiced stop: NT bɔt ‘to suckle’ = ST bɔd; NT bcuuc ‘sour’ = ST bcuuj.

Words that in Northern Temiar end in a voiced stop, end in Southern Temiar in the equivalent voiceless stop: NT bɔd ‘to wear in belt’ = ST bɔt; NT gabag ‘to sing’ = ST gabak (Benjamin 2016:15).
Indeed, participants for this study had been carefully chosen to represent both of the dialects Benjamin mentions. Had the study participants been clearly divided in their written answers along the lines of their region or dialect, this explanation would therefore have sufficed, and the group could have simply proceeded with two different spellings for the two different dialects. However, there was no such clear distinction, nor was there evidence that participant responses in these cases were influenced by their place of residence or dialect spoken, making the phenomenon more complicated than initially expected.

A likely explanation is that Temiar plosives, regardless of dialect, are generally realized as unreleased plosives – [p’], [b’], [t’], [d’], [c’], [y’], [k’], and [g’] – when occurring in a word-final or syllable-final environment. Thus, unless enunciated carefully by the speaker, it is not necessarily clear to the listener whether the sound in question is voiced or voiceless. Moreover, Temiars are not accustomed to writing their spoken language in the first place; as a result, there is no standard to guide the listener in making such a determination. It was therefore suggested that in instances where the sound in question seemed ambiguous, participants could try make the distinction by adding the borrowed Malay clitic “-lah” after the word in question: [citib’] ‘to walk’ → [citib’.lah] ‘(you) walk!’ When the Temiar facilitator repeated the words with this addition, it became clear to listeners which plosive – voiced or voiceless – she had pronounced. After that, all agreed on the same graphemes to represent the plosives. It may yet remain the case that Temiars from different dialects will proceed to spell certain words differently due to the phonological variation reported by Benjamin (above), but that poses no major problem for the orthography. Upon hearing the distinction between voiced and
voiceless plosives enunciated clearly, all participants were able to agree on the same graphemes without further issue.

The process became more complex upon reaching sounds which Temiars tend to write differently from Malay and, of course, the few Temiar consonant phonemes that do not easily correspond to Malay orthographic symbols. Although already familiar with using the Malay letter *c* to represent the palatal plosive [c], a majority of participants expressed a preference for the digraph *ch*, as evidenced by example 4.2 below:

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Phonetic</th>
<th>Transcriptions</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/c/</td>
<td>[ciːb]</td>
<td>1) chip</td>
<td>‘to go’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) cib</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) chib</td>
<td></td>
</tr>
<tr>
<td>[caːl]</td>
<td></td>
<td>1) chal</td>
<td>‘to speak’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) cal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) chal</td>
<td></td>
</tr>
<tr>
<td>[coːʔ]</td>
<td></td>
<td>1) chok</td>
<td>‘who’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) cok</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) choq</td>
<td></td>
</tr>
</tbody>
</table>

While the second group did write the Malay *c* for all instances of the sound, they were ultimately convinced by the majority to adopt *ch* as well. This superfluous addition of the *h* is likely a result of influence from English, but also among the reasons given for the choice was a desire to differentiate their new orthography, albeit in a minor way, from that of Malay. This was the first of several instances in which participants, especially older ones, emphasised the perceived importance of maintaining their linguistic identity by including at least some unique graphemes – that is, graphemes that do not conform to the Malay orthography.

For palatal nasal [ɲ] and velar nasal [ŋ], the group chose to represent [ɲ] and [ŋ] orthographically with digraphs *ny* and *ng* respectively. While this seems like an obvious choice for participants already familiar with Malay, the decision required
further consideration due to occurrences of [ɲ] word-finally in Temiar words, as in example 4.3 below:

<table>
<thead>
<tr>
<th></th>
<th>Phoneme</th>
<th>Phonetic</th>
<th>Transcriptions</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4.3)</td>
<td>Phoneme</td>
<td>/ɲ/</td>
<td>[mɔɲ]</td>
<td>1) moin 2) moyn 3) mony</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[sə.mɔɲ]</td>
<td>1) semain 2) semayn 3) semany</td>
</tr>
</tbody>
</table>

Due to the transcriptional variation observable in these examples, the group initially discussed choosing a different grapheme for [ɲ] in word-final environments, as some participants felt a word-final ny might confuse readers. However, after further discussion, and based on a desire to adhere as closely as possible to their previously agreed orthographic principles, they decided to maintain the same digraph in all occurrences of the phoneme. Thus, in their chosen orthography, the word [mɔɲ] ‘teeth’ follows the third transcription in example 4.3 above and is now written as mòny. Of course, a non-Temiar reader will not be aware that the sound is not fully realised in its pronunciation; however, as in the case of unreleased plosives earlier, the group decided the distinction was clear enough for Temiars to learn and read without confusion.

The approximants [w] and [j], represented by graphemes w and y respectively, need further explanation, as the decision was taken to also represent these consistently in all phonological environments, and their spelling therefore deviates from the Malay orthography in many instances. This decision was partially informed by Benjamin (2016:10), who emphasizes the distinction between Temiar and Malay and clarifies that a) diphthongs are not phonemic in Temiar, and b) Temiar words always end in a closed syllable. Further, he records examples wherein Temiars “emphasize the diphthongs of Malay loanwords by interposing w or
y...[Malay] kalau → [Temiar] kalɔw ‘if’ (19). This is certainly not always the case; indeed, due to increased access to public education over the past two decades, Temiars now can more often be observed writing au, ai, and oi after the Malay conventions, naturally unaware of such linguistic distinctions and simply following what they learn in school when reading and writing Malay. However, in this study participants did ultimately agree that graphemes w and y more accurately represent those phonemes, and they thought it best to make that representation consistent in all contexts. The distinction is especially evident in word-final occurrences of these consonants; for example, [sɛnɔɔj] ‘person’ is now represented in writing not as senoi (as Malays and Malay-educated Temiars have often written it) but as sèn ‘ɔy.

The final hurdle in choosing consonant graphemes was the heavily ingrained use of k to represent word-final [ʔ], as is common in written Malay. The Malay orthography rarely encounters an issue with this usage because, at least in Peninsular Malaysia, the voiceless velar stop [k] does not occur word-finally. The same grapheme can therefore be used to represent two contrasting phonemes without causing any significant conflict. Temiar has the additional challenge, however, of both sounds occurring regularly – and contrastively – in the same phonological environments, as demonstrated by example 4.4 below:

<table>
<thead>
<tr>
<th>(4.4)</th>
<th>Phoneme</th>
<th>Phonetic</th>
<th>Transcriptions</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/k/</td>
<td>[pɔk]</td>
<td>1) pox</td>
<td>‘to chop’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) poq</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) pok</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ʔ/</td>
<td>[pɔʔ]</td>
<td>1) pok</td>
<td>‘dream’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) pouk</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) pok</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This distinction is not always immediately apparent to the non-Temiar listener, as Benjamin notes: “Word-finally after non-front vowels, k is a barely audible, almost uvular, stop [q‘]: laak ‘side’. This is usually wrongly interpreted as a glottal stop by
unpractised non-Aslian listeners, an error influenced by the regular pronunciation of the post-vocalic \( k \) of written Peninsular Malay as a glottal stop” (Benjamin 2016:12). Again, word-final plosives are also typically unreleased, which only adds to the difficulty. However difficult to hear, however, [k] does often occur word-finally in Temiar and therefore must be addressed adequately in the orthography.

After the initial exercise of writing sample words containing both phonemes, including [k] following front vowels as well as some minimal pairs distinctly showing the contrast, the need to distinguish [k] and [ʔ] in the orthography was clear. Having consistently adhered to their orthographic principles in their other choices, maintaining one-to-one sound-symbol correspondence, the group’s initial inclination was to keep the grapheme \( k \) for [k] in all contexts. The earlier writing exercise had shown most participants writing [ʔ] with the straight apostrophe (’) in word-medial occurrences, so the group made the tentative decision to use that symbol to represent [ʔ] in all environments. Unfortunately, after these tentative grapheme choices had been made, further writing exercises demonstrated a continued confusion around -\( k \), undoubtedly due to the prevalent influence of Malay on their writing habits. As mentioned briefly in the earlier summary of the workshop procedure, the result of this seemingly insurmountable confusion was that the group ultimately decided to revert to using \( k \) to represent word-final [ʔ].

Their primary reason for making this decision was essentially conformity with the Malay convention with which they were already comfortable. Aligning this choice in particular with the Malay grapheme was a decision the group deemed important for the ultimate acceptability of their new orthography. Having done so, however, the next step was to consider the best grapheme to represent word-final [k]. Various suggestions were put forth, including \( g, x \), and \( kh \) – of which the latter two
are suggested by Means (1998). Ultimately, the digraph \textit{kh} was chosen as the best grapheme to represent word-final [k] because it still maintains some level of consistency with the use of \textit{k}, which is still used for word-initial and word-medial occurrences of [k], yet with the added \textit{h} remains easily distinguishable from the \textit{k} representing word-final [ʔ]. Thus, [wa:k] ‘waist’ is written \textit{wakh}. Although these choices are not necessarily linguistically or orthographically ideal, they are owned by the Temiars. Throughout these discussions, the group was informed by sound linguistic analyses and orthographic principles. However, it was also emphasised from the beginning that the choices were theirs to make in view of what would be most acceptable – and therefore likely to be used – in the Temiar community.

4.2.2 Vowels

The following is a summary of all Temiar vowel phonemes considered during the workshop, along with the corresponding grapheme choices made by study participants for inclusion in their preliminary orthography. For each Temiar phoneme described, the phoneme in question is written in forward slashes, /a/, and phonetic realisations are written in square brackets, [a], according to standard conventions. The grapheme associated with each phoneme is written in \textbf{bold}. Unless otherwise stated, each grapheme is used to represent its respective phoneme in all contexts. All choices remain subject to further revision after testing and feedback from the wider Temiar community.

\textbf{Table 2 – Temiar Vowel Graphemes}

<table>
<thead>
<tr>
<th>Vowel</th>
<th>Grapheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>/a/</td>
<td>[a]</td>
</tr>
<tr>
<td></td>
<td>open back unrounded vowel</td>
</tr>
<tr>
<td>/u/</td>
<td>[u]</td>
</tr>
<tr>
<td></td>
<td>close back unrounded vowel</td>
</tr>
<tr>
<td>/i/</td>
<td>[i]</td>
</tr>
<tr>
<td></td>
<td>close front unrounded vowel</td>
</tr>
<tr>
<td>/ɪ/</td>
<td>[ɪ]</td>
</tr>
<tr>
<td></td>
<td>near-close front unrounded vowel</td>
</tr>
</tbody>
</table>
/o/  [ɔ]  close-mid back rounded vowel  \( o \)
/ɔ/  [ɔ]  open-mid back rounded vowel  \( ò \)
/ʊ/  [u]  close central half-rounded vowel  \( è \)
/e/  [ɛ]  close-mid front unrounded vowel  \( é \)
/e/  [ə]  mid central unrounded vowel  \( è \)
/e/  [ɛ]  open-mid front unrounded vowel

**Process and Rationale**

Undoubtedly, the first question any reader familiar with Aslian languages will ask is, “Why are there only 10 vowels?” Indeed, as discussed in Chapter 2, Benjamin (2016) reports 9 basic vowel phonemes, all of which have contrastive long and short versions and 6 of which also have contrastive long and short nasal versions, making a total of 30 phonemic vowels altogether in Temiar. Then, even leaving aside vowel length and nasal vowel contrasts, why are there 10 basic vowel phonemes listed here instead of 9? This section will attempt to answer these questions and provide a description of the process by which those decisions were made, including data samples and the reasoning behind each decision. Again, the goals of the group were 1) to determine which Temiar vowel phonemes are not adequately represented by Malay graphemes, and 2) to choose new graphemes that could accurately distinguish those unique Temiar vowel phonemes in a way they deemed acceptable to the Temiar community.

Firstly, it is important to clarify that this study did not willfully ignore or neglect the significant issues of vowel length and nasal vowels. Both are vital to a proper understanding of Temiar phonology, and they deserve a great deal more investigation and discussion. For the purposes of orthography development, however, they are arguably secondary issues. This is because only the basic vowels need distinct graphemes in the orthography. Their lengthened and/or nasalized
counters should also be represented accurately in the orthography, but this would be done by simply making additions to the basic vowel graphemes. Long vowels can be written geminate, *aa*, or with the addition of a colon, *aː*, according to standard IPA convention. Similarly, nasal vowels can be represented orthographically by the addition of diacritics, *ã* or *ãã*, or other such additions to the basic vowel graphemes. This workshop did include some preliminary discussion of vowel length and nasality; however, those basic graphemes were the primary focus, and the process of their selection is the primary focus of this discussion.

To begin with, the example words dictated to the group (cf. Appendix A, Wordlist A.2) were aimed at examining the 9 basic vowel phonemes described by Benjamin (2016:10). Again, the purpose was to determine for which Temiar sounds the Malay orthography is insufficient for accurate orthographic representation and/or undesirable to the Temiar language community. The 9 vowel phonemes documented by Benjamin include: *[i]*, *[u]*, *[u]*, *[ɛ]*, *[e]*, *[ə]*, *[o]*, *[ɔ]*, and *[a]*. For each phoneme, the various possible representations (spellings) suggested by the different groups were written on the whiteboard, then supplemented with additional options suggested by the researcher based on how those sounds have been represented in other languages. The Temiar facilitator was instructed to begin the exercise with examples containing “target” phonemes /a/, /u/, and /i/, which are already reflected in the Malay orthography and for which it was anticipated that the group would most easily agree on graphemes. This expectation was corroborated by the uniformity of participants’ transcriptions of those sounds, and participants readily agreed that the standard Malay graphemes corresponding to those vowels, *a*, *u*, *i*, were already sufficient to represent those sounds for Temiar as well.
However, subsequent vowel phonemes required more examination. The
groups wrote vowels [o] and [ɔ] both as o, as in example 4.5 below:

(4.5) | Phoneme | Phonetic | Transcriptions | Gloss |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/o/</td>
<td>[pɔːɡ]</td>
<td>1) pog</td>
<td>‘to open’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) poog</td>
<td></td>
</tr>
<tr>
<td>/ɔ/</td>
<td>[pɔʿɡ]</td>
<td>1) pog</td>
<td>‘arm’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) poog</td>
<td></td>
</tr>
</tbody>
</table>

Despite this, participants were clearly aware that they were writing two contrastive
phonemes – minimal pairs like the above were given as examples during the exercise
– but they had little idea how to differentiate the two in their writing.

After several more examples, it became evident to all that many Temiars also
tend to write 5, or even 6, contrastive vowel phonemes using the letter e: that is, e
was in various instances being used to represent [e], [ɛ], [ə], [ʉ], [i], and [ɪ]ǃ Some
consequences of this underrepresentation are observable in example 4.6 below:

(4.6) | Phoneme | Phonetic | Transcription | Gloss |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/ə/   vs /ɛ/</td>
<td>[wəːl]</td>
<td>wel</td>
<td>‘to forget’</td>
</tr>
<tr>
<td>vs /ɛ/</td>
<td>[weːl]</td>
<td>wel</td>
<td>‘more, again’</td>
</tr>
<tr>
<td>/ɔ/   vs /e/</td>
<td>[təːh]</td>
<td>teh</td>
<td>‘rain’</td>
</tr>
<tr>
<td>vs /e/</td>
<td>[teːh]</td>
<td>teh</td>
<td>‘up there’</td>
</tr>
<tr>
<td>/ɛ/   vs /u/</td>
<td>[bɛd.ʉd]</td>
<td>bedbed</td>
<td>‘hottest part of’</td>
</tr>
<tr>
<td>vs /u/</td>
<td></td>
<td></td>
<td>the day’</td>
</tr>
<tr>
<td>/ɪ/   vs /ə/</td>
<td>[tɾɛd]</td>
<td>ted</td>
<td>‘to go and take’</td>
</tr>
<tr>
<td>vs /ə/</td>
<td>[tɔd]</td>
<td>ted</td>
<td>‘to stand’</td>
</tr>
</tbody>
</table>

Having already considered at length the advantages of adhering to a single symbol
for each phoneme, participants recognised the confusion caused by this drastic
underrepresentation and the consequent need to distinguish all of these phonemes;
again, however, they were unsure how to do so adequately for all of these contrasting
sounds.
With little previous exposure to other written Mon-Khmer languages, most of the Temiars’ experience with written language is with Malay and, to a lesser extent, English. They had therefore never considered the use of diacritics. However, upon being introduced to other languages more closely related to their own, such as Vietnamese, the Temiar participants expressed a willingness to experiment with diacritics as well. The major advantage they perceived was that they would not have to learn altogether new symbols as in Benjamin’s (2016) phonemic spelling; they could still use the familiar letters of the Latin script, simply distinguishing different pronunciations by adding diacritics. After further discussion, they made the tentative decision to add specific diacritics to the letters i, e, and o to maintain familiarity and transferability to/from Malay while simultaneously attempting to reflect the greater number of contrastive vowel phonemes present in Temiar.

Before getting into the details of how and why specific diacritics were chosen, it is important to note the presence in this account of one extra vowel, [ɪ], which was not reported in prior analyses. During this study the vowel was encountered in at least two examples: [tɪːd] ‘to go and take’ and [sᵊlɪɟ] ‘slippery’. This was at first assumed to be non-phonemic; a variant pronunciation of /i/. Further investigation shows, however, that Temiar speakers do distinguish contrast between [ɪ] and other vowels, including all participants in the present study. The second example given above, [sᵊlɪɟ] ‘slippery’, is documented by Benjamin (2016:11) as sləəd. However, attempts to pronounce the word with [ə] or [əː] were met with confusion, and upon realising the word under discussion, participants consistently pronounced [ɪ] or [ɪː] instead. The vowel was tested further in comparison with other similar vowel phonemes, especially [i] and [u], but participants insisted the distinction is clear. Thus, it appears [i] and [ɪ] are not merely allophones of the same
vowel phoneme but are demonstrably contrastive, and /i/ is a Temiar phoneme in its own right. This was not anticipated based on prior research, nor was in-depth investigation of this issue within the scope of the current study, but the possibility of a hitherto undiscovered vowel in Temiar merits further study in the future.

After being introduced to diacritics and the wealth of orthographic possibilities made possible by their use, the group needed to decide which, if any, would be best suited to represent their complex vowel system. The researcher offered several considerations to guide the participants in their discussion of the issue, including:

- Is it easy to read and learn?
- Is it easy to write? To type in a smartphone or computer?
- Will it be acceptable to the users (Temiars)?

Participants were also introduced to the various options that are available for entering special characters on digital devices, in hopes that they would not feel limited by the apparent lack of such symbols on their personal devices. These options range from making simple changes to a device’s existing keyboard settings to creating a custom Temiar (or, more generally, Aslian) keyboard that can easily be downloaded or distributed within their communities. The phonemic way in which Benjamin (2016) writes Temiar in his many accounts would, for example, require such a solution in order to represent the several IPA symbols and the nasal diacritics that he uses. After considering various options, the Temiar participants decided to make learning and using their orthography as simple as possible by basing their grapheme choices on symbols already available in standard Android smartphones.

Since /a/, /i/, and /u/ were already decided, the discussion of diacritics began with phonemes /o/ and /ɔ/. Since Malay shares the phoneme /o/, participants’ natural
inclination was to attribute the regular, unmarked o to that phoneme, using a diacritic to differentiate /ə/. Based on simplicity and availability, the group agreed on the addition of a downward-slaing diacritic over the letter, ò, to form the grapheme representing /ɔ/ in their orthography. This was also deemed a suitable choice because the diacritic pointing downward is consistent with the lower height of the vowel in question relative to /o/; it thus provides an additional level of visual representation to the distinction between the two vowels.

As mentioned previously, the initial word-writing exercise corroborated prior observations, demonstrating a significant amount of underrepresentation among the remaining vowels when trying to use Malay conventions. Again, there were many examples of the letter e being written for [ɛ], [ε], [ə], [u], [i], and [ɪ]. It remains unclear exactly how or why e has become the “catch-all” vowel symbol among Temiars trying to write their language, but what was clear to participants by this point was the need to represent those contrasts more accurately in their orthography. The reader will notice that the final choices made in this preliminary orthography still include 4 phonemes represented by variations of e:

- /ə/  [ə] mid central unrounded vowel  e
- /ɛ/  [ɛ] open-mid front unrounded vowel  è
- /e/  [ɛ] close-mid front unrounded vowel  é
- /u/  [u] close central half-rounded vowel  ê

Again, the addition of diacritics was seen as preferable to choosing entirely new special characters like ε or u, which were perceived as “too strange” and would potentially hinder Temiar learners accustomed to Malay. Moreover, the participants still wanted to make it as easy as possible for Temiar readers to transfer to and from Malay, and that transferability would decrease with the addition of altogether new characters. Finally, they felt that the addition of diacritics already made their
orthography sufficiently distinct from Malay, thus maintaining something “unique” for written Temiar.

In addition to the criteria of ease of learning, ease of writing/typing, and ease of transfer, the diacritics for è and é were chosen in a manner consistent with the choice of ò in that they were perceived to reflect the height of the vowel in question. The third diacritic chosen – the umlaut added over e to represent [u], ū – was not overtly supported by any linguistic rationale, but chosen primarily for aesthetic reasons. Of the remaining symbols easily accessible in a normal smartphone, ē was the clear preference of the Temiar participants. Participants were also encouraged to consider attributing an altogether different grapheme to that phoneme; namely, a variation of u consistent with their other diacritic choices: ũ or ũ. Despite acknowledging the need to distinguish phonemic contrast, however, the use of e to represent that sound was already so ingrained that the participants felt they and other Temiars would prefer to keep it.

The group did agree that [i] would no longer be written with the letter e, since they had already attributed the grapheme i to that phoneme and desired to maintain consistency. Upon further consideration, they decided to represent [i] by adding a diacritic similar to the others, resulting in the grapheme ì for that phoneme. This helped to lighten the already considerable load of vowel sounds being borne by e and to maintain the consistency of the diacritics used. With that, the group had successfully chosen graphemes to represent all of their consonants and the 10 basic vowels in their new, preliminary orthography.

For vowels, two major issues remained unresolved: contrastive vowel length and contrastive nasalization. Having chosen basic vowel graphemes, it seemed the most obvious option would be to simply distinguish vowel length by writing long
vowels geminate: thus, *ted* ‘to kick’ is distinct from *teed* ‘to stand’. The question of whether vowel length will commonly be written is yet to be resolved; an apparently increasing number of Temiars rarely, if ever, distinguish between long and short vowels. Examples of contrastive vowel length are rare and thus difficult to find when eliciting lexical data. Benjamin (1976a, 2016) documents, with examples, a significant amount of contrastive vowel length, and that account played a major role in informing the preparations for this study. It may be, however, that over the past 5 decades a shift has taken place wherein the importance of contrastive vowel length has decreased. It has been reported that many speakers of Temiar and other Central Aslian languages have lost, or are in the process of losing, this contrastive vowel length (Phillips 2012:93). In any case, whether Temiar writers wish to represent vowel length or not, according to their dialect, their new orthography gives them the basic tools they need to do so.

The orthographic representation of nasal vowels presents a more challenging issue – one that could not be wholly resolved in this preliminary study. Whereas a tilde is often used above a given letter to indicate a nasal sound, ̃, that convention is incompatible with the system of diacritics chosen for many of the Temiar vowel graphemes. Stacking diacritics also becomes difficult and messy. The discussion of nasal vowels was revisited several times over the course of the workshop, and a variety of other options were considered, including:

- A tilde *beside* the vowel, è~
- Underlining the vowel, è
e- Italicizing nasal vowels, è
- Incorporating a new symbol, e.g. ŋ, to coincide with nasal vowels, èŋ

Of the options discussed, participants expressed a preference for underlining nasal vowels. Naturally, this has the potential to cause problems in digital publications,
conflicting with any other underlined text. Even for text written on normal lined paper, the reader may encounter difficulties seeing which vowels are marked as nasals.

These challenges eventually prompted a new question: do nasal vowels really need to be marked differently in a Temiar orthography? The neighbouring Semai language, for example, has a similar contrast between oral and nasal vowels, but their orthography does not mark that contrast (cf. Basrim Ngah Aching 2008). Some Temiar participants were of a similar opinion, claiming that a Temiar reader would be able to tell if a vowel is nasal based on the context. If minimal pairs with contrastive oral and nasal vowels occur only rarely in Temiar, perhaps inferring the intended phoneme from its context is indeed already simple enough for the reader. This is an issue that merits further investigation, including data collection and discussion with other Temiars, to determine a) whether nasal vowels should be represented orthographically and, if so, b) the best way to do so.

4.3 Conclusion

As documented in this chapter, the study was successful in facilitating the participatory discussion and workshop procedures, such that Temiar participants were able to make informed decisions and choose suitable graphemes for all of the basic phonemes of their language. Although informed by prior linguistic analysis, the Temiars made different decisions in many cases than might have been anticipated by an outside linguist – proving the importance of the participatory method in ensuring that the results of a study like this are acceptable to the language community.
CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

The overarching aim of this study was to facilitate the first community-based, participatory orthography development initiative for the Temiar language, resulting in a preliminary orthography for testing and long-term use in the Temiar community. The results described in the previous chapter demonstrate the success of the study in achieving that goal. Informed by thorough prior analyses of their phonology and by sound orthographic principles, the Temiar participants in attendance were able to make a significant start toward the development of their written language. By choosing new graphemes to distinguish contrastive phonemes, they made their preliminary orthography consistent and therefore easy to learn, read and write. By generally aligning their grapheme choices with the existing Malay orthography where suitable, they endeavoured to maintain familiarity and transferability to and from the national language, thus increasing the level of acceptability to the wider, diglossic Temiar community.

5.2 Study outcomes

To achieve the research objectives, the study aimed to answer two key research questions. These are reiterated in this section, detailing how the results of this study help to address those questions and to what extent they are now resolved.

Question 1: In which instances is the standard Malay orthography insufficient to represent Temiar phonemes?

As discussed previously (cf. Section 1.3), one of the guiding orthographic principles the Temiars had agreed on from the beginning was that they would generally try to maintain transferability to and from Malay, mapping existing Malay graphemes onto
Temiar phonemes where possible. Consequently, nearly all Temiar consonants in the new orthography use the same graphemes as Malay, as do the 5 Temiar vowel phonemes that overlap with Malay vowels.

The resulting answer to the first research question is that existing Malay graphemes, at least as they are used in Malay, are deemed insufficient to represent at least 9 Temiar phonemes. These include 4 “basic” vowel phonemes and 5 consonant phonemes. It may in fact be many more than 9, but the issue of whether nasal vowels will be represented orthographically remains unresolved. Of the Temiar consonant phonemes, 3 are represented by standard Malay graphemes, but applying them consistently in Temiar makes their use different from their use in Malay (or they occur in different contexts). These are /ny/, /w/, and /y/- all of which are used post-vocalically and word-finally in Temiar. The first, -ny, simply doesn’t occur in that context in Malay. Meanwhile, -w and -y are used to close syllables in a manner counterintuitive to the Malay speaker accustomed to -u and -i in those same post-vocalic contexts (which in Malay are considered diphthongs). The fourth case, word-final [k], does not occur in Malay but, as discussed earlier, the use of k to represent word-final [ʔ] in both Malay and Temiar necessitates a new representation for word-final [k]; thus, the digraph kh. Finally, the grapheme for /c/ differs for aesthetic reasons; for whatever reason, even though Malay has an existing grapheme, c, the Temiars prefer the digraph ch.

Of the 10 “basic” vowel graphemes chosen during this study, 5 could be sufficiently represented by existing Malay graphemes: /a/, /ʌ/, /i/, /o/, and /u/. The remaining 5 vowels – /æ/, /ɛ/, /ɬ/, /ɔ/, and /ɪ/ – could not be adequately represented by existing Malay graphemes. However, the Temiar participants did not choose entirely new graphemes for those vowel sounds either. Instead, they clearly preferred to make
modifications to already familiar graphemes, resulting in the choice to add different
diacritics over the standard Latin vowel symbols to differentiate those remaining
phonemes. The result is 5 similar, yet still distinct vowel graphemes: é, è, ë, ò, and ì.
Naturally, the Malay orthography would also be insufficient to adequately represent
Temiar’s many nasal vowels, if further investigation shows definitively that those
should be marked orthographically.

**Question 2: Based on prior linguistic analysis as well as current sociolinguistic
considerations, what are the most appropriate written representations of
those phonemes?**

This second question expands on the previous one based on the notion that a
successful orthography not only represents all phonemes accurately from a linguistic
perspective, but also does so in a manner appropriate to the local context. This
requires accounting for any number of sociolinguistic and non-linguistic factors that
may influence the situation of the language community (cf. Section 2.6.2). Again,
questions of what is most appropriate and which of these factors are relevant to the
Temiar community can be discussed and hypothesized from an outsider’s
perspective. The participatory orthography workshop, however, provided unique
insights into the perspective of the Temiars themselves. The study did not overtly
seek to determine or deal with all of the aforementioned factors; however, by
addressing orthographic issues together and making decisions with a participatory
approach, the Temiar participants were able to bring up those factors they felt were
relevant during the course of the workshop procedures.

This research was informed by prior linguistic analysis, including accounts by
Benjamin (1976a, 2016) and corroborated by data collected personally over the
preceding months. The Temiar participants were similarly informed in their decision
making by examples drawn from this prior analysis, ensuring they had sufficient phonemic awareness to understand the importance of accurately representing the contrasting sounds of their language. Moreover, beyond addressing the linguistic issues, the Temiar participants were uniquely positioned to determine the suitability of potential orthographic representations from the perspective of community acceptability. The answer to the second question is therefore straightforward. Based on prior linguistic analysis, and taking into account the current sociolinguistic situation, the graphemes chosen in the participatory orthography development workshop (as in Appendix B) were determined to be: a) accurate representations of contrastive phonemes, and b) the most appropriate such representations for use in the Temiar community.

Going back to Kutsch-Lojenga (1996), recognising the inherent capacity of the language community to take ownership of its own language development is what sets apart participatory ideology, and it is what makes a participatory approach the most effective means to developing an orthography that is not only linguistically usable but also socially acceptable – and therefore sustainable – within the Temiar community. Through participation in this study, the Temiars have now taken a fundamental first step toward establishing such an orthography. They have successfully agreed on a written standard that they believe to be usable and acceptable in their sociolinguistic context. As their new trial orthography undergoes further testing in their communities, the entire language community will eventually have opportunities to take ownership of their unique writing system, giving feedback and, if necessary, making revisions. The result, if they remain motivated to attain it, will be an orthography that is uniquely Temiar from start to finish. As word spreads
and their new conventions catch on in the wider community, the Temiars will have the basic tools they need to achieve their long-term language maintenance goals.

5.3 Recommendations for further research

The findings of this study therefore successfully answer the questions it set out to investigate, and the research objectives on which it was based have been achieved. However, its preliminary nature and short timeframe come with inevitable limitations. There are still orthographic issues that remain unresolved. Moreover, the process of orthography development has only just begun; further issues may be revealed as the new orthography is tested and applied by others in real-life, community contexts. Besides that, determining the most effective and appropriate methods for orthographic testing and application in the language community would also require further research. Finally, there remains much room for further study as to what types of language maintenance initiatives would most benefit the Temiar community in terms of sustaining their heritage language use.

5.3.1 Further study of orthographic issues

Firstly, outstanding orthographic issues that could be resolved with further investigation include contrastive vowel length and nasal vowels. Assuming no significant change since the time of the existing accounts, these two phenomena together account for over two-thirds of contrastive vowel phonemes in Temiar, making them significant issues to address in further studies. The first, vowel length, merits further investigation because the findings of this study and others (Phillips 2012) demonstrate that phonemic vowel length may no longer be as significant as it was at the time of the original account (Benjamin 1976a). Many Temiars are no longer able to distinguish the contrast, saying, “that is the same word; it just has two different meanings.” It is possible that the Temiar language, at least in some
varieties, has experienced a reduction in vowel length contrasts over the past 5 decades, as has been reported in other Aslian languages (Phillips 2012:93). This has significant implications for orthographic representation, as it reduces the total number of Temiar vowel phonemes. The issue is further complicated if those length contrasts remain only for some Temiars and not for others, as those trying to write their language would then need to decide if that phenomenon can be marked orthographically in a way that works for all Temiars. More broadly, an updated understanding of this phenomenon based on new research – whether on Temiar specifically or on Aslian vowel length in general – would also be a significant contribution to the existing literature on Aslian linguistics.

The outstanding issue of nasal vowels also comes with complications. These vowels are less controversial from a linguistic standpoint; the oral/nasal contrast appears to be universally recognised. Unlike vowel length, then, no one disputes that nasality is phonemic in Temiar vowels. However, the question of whether to write them – and if so, how – remains difficult for the Temiars to resolve. The first question could be addressed through further study, specifically by investigating a) the frequency of nasal vowel occurrences and b) instances of direct contrast (i.e. minimal pairs) between oral and nasal vowel phonemes. Data like this would help to inform the Temiar community in their decisions regarding this outstanding orthographic issue, potentially demonstrating the advantages of marking those contrasts orthographically.

The above suggestions are just the beginning; the fundamental questions needing to be addressed. Orthography development is a process (Karan 2006), and representing the phonemics of a language is often only the first step of many. Future work on the Temiar orthography will take into account Benjamin’s (2016:5)
suggestions for orthographic considerations that go beyond the level of phonemics, including: sesquisyllabic sequences, morphophonemics, and other phonological processes that occur beyond the lexical level. Such investigation would benefit greatly from Snider’s (2011) discussion regarding what level of phonological depth should be represented in an orthography, which provides both a strong theoretical argument as well as practical insights for determining which phonological processes should be marked orthographically.

Aside from unresolved orthographic issues, follow-up research that would be beneficial to the Temiar community in the orthography development process could include survey, testing, and revision. A qualitative, survey-type study could help the Temiar community to gauge the success of their new orthography in terms of acceptability, ease of learning, motivation (level of engagement/use of new writing system), and more. Follow-up research concentrated on collecting this type of data would allow those Temiars encouraging language maintenance in their communities to evaluate the success of their efforts and to reassess their plans accordingly in order to more effectively achieve their goals. Similarly, research designed specifically to test the use of the orthography in Temiar communities could provide concrete data regarding outstanding issues or areas of difficulty, which could then be used to determine if further revision is necessary.

5.3.2 Further language maintenance research

Finally, there are many topics of research related to language maintenance that could benefit the Temiar and other Orang Asli communities, informing researchers, policymakers, and minority language communities themselves about the issues these languages face. Further research could focus on determining the best ways for these minority language communities to sustain their L1 use, even as they become
increasingly integrated with mainstream society. For the Temiars, there are several examples of such language maintenance initiatives already happening in other minority language communities in Malaysia, and their existing research could provide a good starting point for future study with the Temiars as well.

Perhaps the first key step toward maintaining Temiar or the other Aslian languages for generations to come is to encourage more study of Aslian linguistics, especially among Malaysian scholars, emphasising research on practical topics that can be applied and implemented within language communities. It is encouraging to note that at least some have taken on such research in recent years, and this has led to an increased awareness of Orang Asli languages in general among Malaysian scholars (cf. Haja Mohideen 2016). However, local interest in, or even awareness of, the Aslian languages, remains surprisingly low.

The next crucial step is to connect that research to real-life language use, in cooperation with local language communities, by involving language speakers themselves in language documentation and language development initiatives. Very small language communities which find their heritage languages highly endangered already, such as the Kintaq or Lanoh, can still benefit from oral documentation of their languages via audiovisual media. For the larger Aslian languages, like Semai and Temiar, there remain many possibilities for language maintenance and language development, including: wordlists and dictionaries, literacy materials, educational curriculum, print and digital reading materials, radio programs, websites, audiovisual media, and more. As mentioned, some of these kinds of initiatives are already being used, particularly in the case of the Semai language, which has received government backing for promoting heritage language use.
These types of resources may also be incorporated into education programmes designed to teach heritage languages in schools, as a class subject or even as the medium of class instruction. Many of these minority language communities may remain unaware that the Malaysian government’s National Language Policy, which established Bahasa Malaysia as the official national language after Malaysian independence in 1957, also includes a provision for mother tongue education in other languages. This provision states that students’ heritage languages can be taught in public schools, if parents request it and if there are a minimum of 15 students who wish to be taught in the language (Smith 2003:53-54). While historically Tamil and Mandarin students were the only ones to take advantage of this, interest in mother-tongue and multi-lingual education programs has grown significantly in recent years among Malaysia’s indigenous language communities in Sabah and Sarawak. One example is the Bidayuh language community, representing one of the largest indigenous populations in Sarawak, which has worked in partnership with linguists and the University of Malaysia Sarawak to develop an Ethnic Language Curriculum (Kayad & Arritt 2017) that is not only experiencing great success among Bidayuh communities, but is also designed in such a way as to be easily transferable to other ethnic language communities desiring to establish similar mother-tongue or multilingual education programmes in their children’s schools.

The Temiar community could therefore learn much from the example of larger, more established heritage language communities in Malaysia which have already taken steps toward language maintenance. Perhaps in some cases existing resources, such as ethnic language curriculum for schools, could even be adapted and translated for use in Temiar, utilising their newly developed orthography. The main
questions for further research related to language maintenance are a) what kinds of written Temiar materials are helpful, appropriate, and desirable to the Temiar community, and b) how those materials can best be developed and promoted. With a new orthography already undergoing community testing, the Temiars are well on their way with the foundation they need to address those questions.

5.4 Conclusion

Malaysia’s indigenous minority languages represent a largely untapped reservoir of research potential. There remain many opportunities for fruitful study among these language communities, some of which have scarcely begun to be documented. Research focused on documenting and better understanding languages like Temiar may well make significant linguistic discoveries, with potential to deepen our understanding of Aslian languages and perhaps even to inform new contributions to linguistics in general. More importantly, when such research is done by – or at least in consultation with – members of the language community themselves, it can further help to develop the capacity of these minority language communities to sustain their language use, maintaining their linguistic and cultural identity.
CONCLUSION

It is well established that the issue of language shift has global implications, and the Aslian languages in Peninsular Malaysia are vulnerable. This study is therefore pertinent not only to the participants involved, but to the entire Temiar community. Its findings have the potential to initiate new dialogue among academics, certainly, but more importantly, it will involve the Temiars themselves in that dialogue. The oncoming tide of language shift continues to encroach upon countless minority communities globally, and invaluable linguistic and cultural information is lost with the passing of each language. Fortunately, an increasing awareness of these issues in the Temiar community, combined with a strong desire to maintain their heritage language, provide a strong basis for a community-owned process of participatory orthography development which will help to sustain language use and to create new opportunities for language development in the future.
REFERENCES


# Appendix A: Workshop Wordlists

## A.1 Dictation Wordlist for Consonant Phonemes

The following is the list of sample words used in the dictation exercises (described on pages 52-54) to demonstrate Temiar consonant phonemes.

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Sample word(s)</th>
<th>Gloss</th>
<th>Phoneme</th>
<th>Sample word(s)</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/ (word-initial)</td>
<td>[pɔɟ]</td>
<td>to wait</td>
<td>/p/ (word-final)</td>
<td>[cap´]</td>
<td>to put in</td>
</tr>
<tr>
<td></td>
<td>[pɔk´]</td>
<td>to chop</td>
<td></td>
<td>[yaːp´]</td>
<td>to cry</td>
</tr>
<tr>
<td></td>
<td>[poːg]</td>
<td>arm</td>
<td></td>
<td>[ha.tɔp´]</td>
<td>yesterday</td>
</tr>
<tr>
<td></td>
<td>[pɔj]</td>
<td>new</td>
<td></td>
<td>[tɔp´]</td>
<td>to plant</td>
</tr>
<tr>
<td>/b/ (word-initial)</td>
<td>[beg]</td>
<td>jungle</td>
<td>/b/ (word-final)</td>
<td>[caːb]</td>
<td>to go</td>
</tr>
<tr>
<td></td>
<td>[ba.lig]</td>
<td>up</td>
<td></td>
<td>[caːb]</td>
<td>to hold</td>
</tr>
<tr>
<td></td>
<td>[ba.boʔ]</td>
<td>female</td>
<td></td>
<td>[tɔːb]</td>
<td>egg</td>
</tr>
<tr>
<td></td>
<td>[bɔːr]</td>
<td>vegetable</td>
<td></td>
<td>[gɔːb]</td>
<td>very</td>
</tr>
<tr>
<td>/t/ (word-initial)</td>
<td>[tiːk´]</td>
<td>hand</td>
<td>/t/ (word-final)</td>
<td>[mat´]</td>
<td>eye</td>
</tr>
<tr>
<td></td>
<td>[tɾːd]</td>
<td>to go</td>
<td></td>
<td>[si.pet´]</td>
<td>narrow</td>
</tr>
<tr>
<td></td>
<td>[tɔːw]</td>
<td>husband</td>
<td></td>
<td>[ʔa.pet´]</td>
<td>short</td>
</tr>
<tr>
<td></td>
<td>[tɔːd]</td>
<td>stand</td>
<td></td>
<td>[ba.kat´]</td>
<td>wound</td>
</tr>
<tr>
<td>/d/ (word-initial)</td>
<td>[deːg]</td>
<td>house</td>
<td>/d/ (word-final)</td>
<td>[kɔːd]</td>
<td>to take</td>
</tr>
<tr>
<td></td>
<td>[doh]</td>
<td>this</td>
<td></td>
<td>[rɔːd]</td>
<td>to catch</td>
</tr>
<tr>
<td></td>
<td>[da.doːʔ]</td>
<td>to run</td>
<td></td>
<td>[bɔːd]</td>
<td>hot</td>
</tr>
<tr>
<td></td>
<td>[dɔl]</td>
<td>to keep</td>
<td></td>
<td>[ʔa.bad]</td>
<td>cloth</td>
</tr>
<tr>
<td>/k/ (word-initial)</td>
<td>[kaːʔ]</td>
<td>fish</td>
<td>/k/ (word-final)</td>
<td>[lɛŋ.k]</td>
<td>to know</td>
</tr>
<tr>
<td></td>
<td>[kan.deʔ]</td>
<td>we (excl.)</td>
<td></td>
<td>[pɔːk´]</td>
<td>to chop</td>
</tr>
<tr>
<td></td>
<td>[kə.loʔ]</td>
<td>elder</td>
<td></td>
<td>[cok´]</td>
<td>to cut</td>
</tr>
<tr>
<td></td>
<td>[kɔːd]</td>
<td>sibling</td>
<td></td>
<td>[lɛŋ.ak´]</td>
<td>afternoon</td>
</tr>
<tr>
<td>/ɡ/ (word-initial)</td>
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<td>to sit</td>
<td>/ɡ/ (word-final)</td>
<td>[deːɡ]</td>
<td>house</td>
</tr>
<tr>
<td></td>
<td>[ɡeːj]</td>
<td>to eat</td>
<td></td>
<td>[beg]</td>
<td>jungle</td>
</tr>
<tr>
<td></td>
<td>[ɡah]</td>
<td>news</td>
<td></td>
<td>[ba.lig]</td>
<td>up</td>
</tr>
<tr>
<td></td>
<td>[ɡəːb]</td>
<td>very</td>
<td></td>
<td>[la.jeg]</td>
<td>night</td>
</tr>
<tr>
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<td>Phoneme</td>
<td>Sample word(s)</td>
<td>Gloss</td>
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<td>----------------</td>
<td>-------</td>
<td>---------</td>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td>/m/</td>
<td>/mat/</td>
<td>eye</td>
<td>/m/</td>
<td>/nom/</td>
<td>from</td>
</tr>
<tr>
<td></td>
<td>/mo:m/</td>
<td>teeth</td>
<td>(word-final)</td>
<td>/hɔ.num/</td>
<td>heart</td>
</tr>
<tr>
<td></td>
<td>/mak/</td>
<td>to return</td>
<td></td>
<td>/hæm.hum/</td>
<td>breathe</td>
</tr>
<tr>
<td>/n/</td>
<td>/neh/</td>
<td>look</td>
<td>/n/</td>
<td>/ʔen/</td>
<td>to bring</td>
</tr>
<tr>
<td></td>
<td>/nej/</td>
<td>one</td>
<td>(word-final)</td>
<td>/kaʔan/</td>
<td>2.DUAL</td>
</tr>
<tr>
<td></td>
<td>/nom/</td>
<td>from</td>
<td></td>
<td>/ʔa.nisn/</td>
<td>long ago</td>
</tr>
<tr>
<td>/ŋ/</td>
<td>/ŋaːq/</td>
<td>mouth</td>
<td>/ŋ/</td>
<td>/məŋ/</td>
<td>teeth</td>
</tr>
<tr>
<td></td>
<td>/nɔ:b/</td>
<td>2.PL</td>
<td></td>
<td>/ʃə.maːŋ/</td>
<td>to request</td>
</tr>
<tr>
<td>/ŋ/</td>
<td>/ŋem.ŋem/</td>
<td>morose</td>
<td>/ŋ/</td>
<td>/ʔəŋ/</td>
<td>path</td>
</tr>
<tr>
<td></td>
<td>/ŋɔj/</td>
<td>smell</td>
<td>(word-final)</td>
<td>/ʔəŋ/</td>
<td>water</td>
</tr>
<tr>
<td></td>
<td>/ŋaːw/</td>
<td>stupid</td>
<td></td>
<td>/luŋ/</td>
<td>firstborn</td>
</tr>
<tr>
<td>/c/</td>
<td>/caʔ/</td>
<td>to eat</td>
<td>/c/</td>
<td>/ciːb/</td>
<td>to go</td>
</tr>
<tr>
<td></td>
<td>/coʔ/</td>
<td>to go</td>
<td></td>
<td>/caːl/</td>
<td>who</td>
</tr>
<tr>
<td></td>
<td>/caːl/</td>
<td>to speak</td>
<td></td>
<td></td>
<td>to speak</td>
</tr>
<tr>
<td>/ʃ/</td>
<td>/ʃa.ʃeθ/</td>
<td>many</td>
<td>/ʃ/</td>
<td>/meθ/</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>/ʃuːɡ/</td>
<td>foot</td>
<td>(word-final)</td>
<td>/suːj/</td>
<td>to wash</td>
</tr>
<tr>
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<td></td>
<td>/ba.waːj/</td>
<td>monkey</td>
</tr>
<tr>
<td></td>
<td>/ʃa.roʔ/</td>
<td>long</td>
<td></td>
<td>/ʔa.luŋ/</td>
<td>God</td>
</tr>
<tr>
<td>/w/</td>
<td>/weʔ/</td>
<td>to go</td>
<td>/w/</td>
<td>/toːw/</td>
<td>husband</td>
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<tr>
<td></td>
<td>/wɔːɡ/</td>
<td>to get up</td>
<td>(word-final)</td>
<td>/kɔːw/</td>
<td>to call</td>
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<tr>
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<td>/wɔːk/</td>
<td>waist</td>
<td></td>
<td>/taːw/</td>
<td>to descend</td>
</tr>
<tr>
<td></td>
<td>/wɔːl/</td>
<td>to forget</td>
<td></td>
<td>/jeːw/</td>
<td>awake</td>
</tr>
<tr>
<td>/y/</td>
<td>/jeθ/</td>
<td>left</td>
<td>/y/</td>
<td>/pəj/</td>
<td>new</td>
</tr>
<tr>
<td></td>
<td>/jɛʔ/</td>
<td>1.SG</td>
<td>(word-final)</td>
<td>/sɛn.ɔj/</td>
<td>person</td>
</tr>
<tr>
<td></td>
<td>/jɔh/</td>
<td>to shake</td>
<td></td>
<td>/ŋəj/</td>
<td>smell</td>
</tr>
<tr>
<td></td>
<td>/jəːp/</td>
<td>to cry</td>
<td></td>
<td>/ɡɛj/</td>
<td>to eat</td>
</tr>
<tr>
<td>Phoneme</td>
<td>Sample word(s)</td>
<td>Gloss</td>
<td>Phoneme</td>
<td>Sample word(s)</td>
<td>Gloss</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
<td>-----------</td>
<td>-----------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>/s/</td>
<td>[suːʒ]</td>
<td>to wash</td>
<td>/s/</td>
<td>[kas]</td>
<td>to scrape</td>
</tr>
<tr>
<td>(word-initial)</td>
<td>[sed.ʃiːd]</td>
<td>child(ren)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[sə.ʃeŋ]</td>
<td>to request</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ʃə.jeŋ]</td>
<td>to steal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/h/</td>
<td>[hůʔ]</td>
<td>2.SG</td>
<td>/h/</td>
<td>[hoː]</td>
<td>to follow</td>
</tr>
<tr>
<td>(word-initial)</td>
<td>[ha.tɔp']</td>
<td>past</td>
<td>(word-final)</td>
<td>[leː]</td>
<td>wife</td>
</tr>
<tr>
<td></td>
<td>[hɑs]</td>
<td>to smoke</td>
<td></td>
<td>[mɑː]</td>
<td>nose</td>
</tr>
<tr>
<td></td>
<td>[hoː]</td>
<td>to follow</td>
<td></td>
<td>[təh]</td>
<td>rain</td>
</tr>
<tr>
<td>/l/</td>
<td>[lɛŋʔaːʔ]</td>
<td>afternoon</td>
<td>/l/</td>
<td>[caːl]</td>
<td>to speak</td>
</tr>
<tr>
<td>(word-initial)</td>
<td>[leː]</td>
<td>wife</td>
<td>(word-final)</td>
<td>[jeːl]</td>
<td>left</td>
</tr>
<tr>
<td></td>
<td>[lɔg]</td>
<td>to wear</td>
<td></td>
<td>[weːl]</td>
<td>more</td>
</tr>
<tr>
<td></td>
<td>[luːg]</td>
<td>to laugh</td>
<td></td>
<td>[gəːl]</td>
<td>to sit</td>
</tr>
<tr>
<td>/ɾ/</td>
<td>[ɾɔd]</td>
<td>to catch</td>
<td>/ɾ/</td>
<td>[naːɾ]</td>
<td>two</td>
</tr>
<tr>
<td>(word-initial)</td>
<td>[ɾeː.ŋaʔ]</td>
<td>black</td>
<td>(word-final)</td>
<td>[yaːɾ]</td>
<td>2.DU</td>
</tr>
<tr>
<td></td>
<td>[ɾeːh]</td>
<td>down below</td>
<td></td>
<td>[coːr]</td>
<td>spicy</td>
</tr>
<tr>
<td></td>
<td>[ɾeŋ.kaʔ]</td>
<td>door</td>
<td></td>
<td>[bəɾ]</td>
<td>vegetable</td>
</tr>
<tr>
<td>/ʔ/</td>
<td>[tɔʔeːl]</td>
<td>to make</td>
<td>/ʔ/</td>
<td>[pɔːʔ]</td>
<td>dream</td>
</tr>
<tr>
<td>(word-medial)</td>
<td>[təʔoŋ]</td>
<td>pig</td>
<td>(word-final)</td>
<td>[caːʔ]</td>
<td>to eat</td>
</tr>
<tr>
<td></td>
<td>[lɛŋʔaːʔ]</td>
<td>afternoon</td>
<td></td>
<td>[ba.boːʔ]</td>
<td>female</td>
</tr>
</tbody>
</table>
A.2 Dictation Wordlist for Vowel Phonemes

The following is the list of sample words used in the dictation exercises (pp. 52-54) to demonstrate Temiar vowel phonemes. Sample words for the 9 basic vowel phonemes as described by Benjamin are listed in the left-hand column in the order addressed in the workshop. The right-hand column contains miscellaneous sample words used to demonstrate and discuss oral/nasal contrast, contrastive vowel length, and the vowel [ɪ].

<table>
<thead>
<tr>
<th>9 Basic Vowel Phonemes</th>
<th>Other examples discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phoneme</strong></td>
<td><strong>Sample word(s)</strong></td>
</tr>
<tr>
<td>/a/</td>
<td>[ʔa.kə:l] later</td>
</tr>
<tr>
<td></td>
<td>[ʔa.te:ʔ] earlier</td>
</tr>
<tr>
<td></td>
<td>[ʔa.pə:ʔ] father</td>
</tr>
<tr>
<td></td>
<td>[tə:b] egg</td>
</tr>
<tr>
<td>/u/</td>
<td>[cus] to burn</td>
</tr>
<tr>
<td></td>
<td>[jug] foot</td>
</tr>
<tr>
<td></td>
<td>[suːʒ] to wash</td>
</tr>
<tr>
<td></td>
<td>[bə.cuː] salty</td>
</tr>
<tr>
<td>/i/</td>
<td>[ʔi.loʔ?] what</td>
</tr>
<tr>
<td></td>
<td>[tiːk̚] hand</td>
</tr>
<tr>
<td></td>
<td>[ʔiːs] day</td>
</tr>
<tr>
<td></td>
<td>[bə.hiːʔ?] satisfied</td>
</tr>
<tr>
<td>/o/</td>
<td>[poːg] to open</td>
</tr>
<tr>
<td></td>
<td>[ʔoːg] to give</td>
</tr>
<tr>
<td>/ɔ/</td>
<td>[pɔːɡ] arm</td>
</tr>
<tr>
<td></td>
<td>[pɔːk̚] to chop</td>
</tr>
<tr>
<td></td>
<td>[hɔː] already</td>
</tr>
<tr>
<td></td>
<td>[ʔɔːŋ] water</td>
</tr>
<tr>
<td>/ə/</td>
<td>[wə:l] to forget</td>
</tr>
<tr>
<td></td>
<td>[tə:d] to stand</td>
</tr>
<tr>
<td></td>
<td>[həʔ?] yes</td>
</tr>
<tr>
<td></td>
<td>[tə:h] rain</td>
</tr>
<tr>
<td>Phoneme</td>
<td>Sample word(s)</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
</tr>
<tr>
<td>/ɛ/</td>
<td>[gei:l]</td>
</tr>
<tr>
<td></td>
<td>[teʔ]</td>
</tr>
<tr>
<td></td>
<td>[pa.jet]</td>
</tr>
<tr>
<td></td>
<td>[ʔeːn]</td>
</tr>
<tr>
<td>/e/</td>
<td>[neh]</td>
</tr>
<tr>
<td></td>
<td>[ne:j]</td>
</tr>
<tr>
<td></td>
<td>[tuːh]</td>
</tr>
<tr>
<td></td>
<td>[ʔeːn]</td>
</tr>
<tr>
<td></td>
<td>[ja.jeh]</td>
</tr>
<tr>
<td></td>
<td>[ne:j]</td>
</tr>
<tr>
<td></td>
<td>[təh]</td>
</tr>
</tbody>
</table>
## Appendix B: Temiar Alphabet Chart

### Panduwan Éja'an Nèhtuh Temèèr

**Panduan Ejaan Bahasa Temiar**

<table>
<thead>
<tr>
<th>Aa</th>
<th>awèn</th>
<th>Gg</th>
<th>gechèk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bb</td>
<td>belaw</td>
<td>Hh</td>
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**Huruf pinjaman:**
Ff Qq Vv Xx Zz

-k jehuk
Appendix C: Orthography Sample Texts

The following texts are transcribed from digitally scanned copies of handwritten texts, written by Temiar participants after two days of practice with the new orthography. All texts are typed here as they were written. Note: these texts are among the earliest attempts at writing with new spelling conventions; as such, some inconsistencies may remain.

C.1 Gah Sèn'øy Anin

Sèn'øy nèng-nèng tòp tok umlènglèkh ma gah duniak anin. Sèn'øy tik gèlgel èn seròkh, chèbchib ma téh ma réh. Bil hòj nalòy is akal umjug ma nèy perchè, umkèk nèy tèk nak mèj umnéh èn anak akal umbaroh kenèmbek um samak babeh babok. Lok cerik wèk-wèk ma jenalòk, lok cerik wèk-wèk ma sènluh. Pas nak rik um'èn dèg àtèk kelabuy ma téh ma réh, ma os lah, ma dèg lah, ma awèn lah, ma nèbcheb dèg lah. Hòj sòj umte'èl dèg tèk, ma layég eh umte'èl nèhpoh, bepapoh samak jèkjak, tèktak, léwtow, bèhléh rob sèdyèd.

C.2 Kimkèk tèngtég manaw

Yèk sèryèh ma Atak, Akòj, Abèk, kimwèk ma bèg kimkèk tèngtég manaw. Bok yèk sèryèh ma Amòk, Awak bok bèhléh, mepeg ayu ma nèng-nèng dèmdep kandék jakal ma bèg ma is akal, kandék wog yéhyah, kisèbyap, kimwèk ma bèg bechachòk tèngtég manaw kimjuwal jakal. Kandek ki'èl'öl balig hòj namréhngah, hòj kandék loy ma legep, balig hòj nateh. Kandék kichòkh jehuk, kimte'èl dèg dèngrep. Hòj sòj, kandék te'èl dèg yèk sèryèh ma wag èmka'kèk palok os kimpèrpir, bor menasak, yèk or ma Atak, “hamséhluh nyam kimchèkchak layég kal, ma yéhyah anak kimsèbyap wèk chachòk tèngtég manaw kandék chib kè'kèk ma bèg nak.
C.3 Umdadep ma Pang

Mok néy arik nak umwèk ma pang umdadep umdadeg jaring bok umsayèk anak mok néy tataak nachal ma um nak, “Nyob wèk ma seròkh nyob sèhluh lawk, èmpego kal èmgéy tok besok èdoh dak èn anak rik umsayèk hèk hòj umwèk wag dak hòj ah che'ar amdég jaring natèk. Dak anak wèh nar nak wèk òg ma perahu Dak wèk-wèk wèh dadey.

Jaring is eh hòj layég rik umséhluh tèk hòj ummak umpegoh dak. Hòj sòj, umgéy nak dak umgéy umbecharak dak nom kerek na umseg ma wenar rik dadeg jaring tèk, tik tok mè'mak dak anak is eh nateh ibuk geb rob nateh hor këlibuy rob umbak këlkël sampéy wèh nar nak tok boléh wèm èn ènjin perahuk wèh hòj narosak. Dak anak wèh nar nak wèhtuk bok wèh'id. Kah ya gos kah ya kebes ceyar wèhyap nom kerek nak hòj lemad, bok tok-tok nalaj néy bod, bod mèn wag tèk, èn anak atèk um'òg mèn wag bod umnak ma kandék, bok ma yéhyah eh nak kiparlah jaring kitèk, naseg kak ibuk, èn anak kisèrlak kak atèk samak rarèk. Pas nak èn anak kima'mak lah ma dèg kandéh pamoy.
C.4 Ipòj

Èn anuh yèk ipòj
Naey hak, naey hak tok habetibak
Ingèmngòm de'rik yèk
Ipènpòj tenibak hak
Yèk tok ilekh naey
Ilok kah terjadik eh
Ilok kah idos yèk
Ilok kah dosak yèk
Oh babeh yèk
Tibaklah, hak tibaklah
Yèk èn anuh ipòj ma hak
Bèjbehèj nèghog yèk ma hak kal
Yèk i'as nènchèn doh kasih senayèg nom hak
Perlukah yèk ipènpòj ma hak
Sedangkan tok mèk mok gah nom hak
Rédha yèk ikòd semuak doh
Bok rèk nok lah nènchèn nom hak
Appendix D: JAKOA Approval Letter

Ruj. Kami : JAKOA/PP.30.032/Jld 46 (SO)
Tarih : || November 2019

Jonathan Graydon Lublinkhof
B-17-1 Surin
1 Solok Tanjung Bungah
11200 Tanjung Bungah
Pulau Pinang.

Tuan,

KEBENARAN MENJALANKAN KAJIAN/PENYELIDIKAN DI PERKAMPUNGAN ORANG ASLI

Dengan hormatnya saya diarah merujuk kepada perkara tersebut di atas.

2. Jabatan ini telah meneliti permohonan tuan dan sukacita dimaklumkan bahawa permohonan untuk menjalankan kajian yang bertajuk “Participatory Orthography Development As A Basic For Language Maintenance Initiatives In Temiar” telah diluluskan. Pihak tuan dibenar untuk menjalankan penyelidikan tersebut mengikut ketetapan seperti berikut:-

   Tajuk : Participatory Orthography Development As A Basic For Language Maintenance Initiatives In Temiar

   Tempat : Perkampungan Orang Asli Daerah Hulu Perak, Perak

   Tarih : 11 November 2019 - 15 Disember 2019


4. Disarankan agar pihak tuan berhubung terus dengan Pegawai Jabatan Kemajuan Orang Asli yang berkenna untuk mendapatkan maklumat lanjut mengenai
lokasi kajian dan sebagainya. Kerjasama pihak tuan berhubung perkara di atas amat dihargai dan diucapkan ribuan terima kasih.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(FAIRUS BINTI YAHAYA)
Bahagian Perancangan dan Penyelidikan
b.p Ketua Pengarah
Jabatan Kemajuan Orang Asli Malaysia

s.k

- Pengarah JAKOA Negeri Perak Dan Kedah (05-2540009)
- Pegawai Kemajuan Orang Asli Daerah Hulu Perak Dan Baling(05-7912268)