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ABSTRACT
We investigated how the knowledge and usage of two languages relate to sociocultural adjustment in bilingual adolescent samples from three ethnic groups in Indonesia (214 Javanese, 108 Toraja, and 195 Chinese adolescents; 272 females; \(M_{\text{age}} = 14.33\) years). We tested a model specifying that the vocabulary knowledge of each language mediates the relation between language usage and sociocultural adjustment (here combining strongly correlated measures of adjustment to the ethnic and national culture). The results revealed the same partial mediation model in all groups; bilingualism is important for sociocultural adjustment in all ethnic groups. There were substantial group differences in ethnic language vocabulary scores, but the correlations between ethnic language usage with sociocultural adjustment were the same across groups. Results also showed that ethnic language usage matters more than ethnic language knowledge, and national language knowledge matters more than ethnic language knowledge for sociocultural adjustment. Moreover, our findings confirm that there is a language shift going on in Indonesia because Bahasa Indonesia as national language, which was the second language in the past, has become the dominant language across ethnic groups in Indonesia.

The current rapid advances in technology increase the frequency of intercultural interactions, and many individuals are exposed to and internalise more than one culture and become bicultural or multicultural (Hong et al. 2000; Nguyen and Benet-Martínez 2007). These individuals are not only immigrants, but also involve, among others, indigenous people and individuals in interethnic relationships (Berry 2006; Padilla 2006). The process of learning and adapting to the new culture is called acculturation (Berry 2003); beyond social affiliation, daily living habits, cultural traditions, cultural identity/pride, perceived discrimination/prejudice, generational status, cultural knowledge, beliefs, or values, it also includes communication style, and language use (Zane and Mak 2003). The outcomes of the acculturation are referred to as psychological adjustment, which includes psychological and emotional well-being, and sociocultural adjustment, which includes behavioural competencies (Ward and Kennedy 1994). Many studies have reported that language proficiency contributes significantly to sociocultural adjustment (i.e. the ability to ‘fit in’) (e.g. Ward and Geeraert 2016;
However, most of those studies were conducted in Western countries, involving adults from immigrant or minority groups (Mustafa and Ilias 2013; Ward and Kennedy 1993), and only around 12% of the research focus on youth and adolescence (Celenk and van de Vijver 2011; Henrich, Heine, and Norenzayan 2010). In the present study, we investigated the role of language for sociocultural adjustment among adolescents from both dominant and non-dominant minority groups who are bilinguals and have a long history of settlement in the context. Acculturation is used here as a conceptual framework to study processes of adjustment to a multicultural context in which ethnic groups, all having their own languages, have been living together for extended periods of time or those who are in interethnic relationships (see Berry 2006; Padilla 2006).

Knowledge of a common language facilitates communication with people from different groups as shown in a U.S. study (Eschback, Parker, and Stoebel 2001). It is therefore not surprising that language ability has been associated with sociocultural adjustment (Selmer 2006). These studies, conducted in western countries and/or immigration contexts, have shown that language usage and proficiency are positively related with sociocultural adjustment. Indonesia is an interesting context to study the link between language skill and sociocultural adjustment as the country has hundreds of ethnic groups, often with their own languages (Suryadinata, Arifin, and Ananta 2003). This multicultural context of Indonesia provides a unique context of intercultural interactions between ethnic groups and most Indonesians speak both their ethnic language and national language (see Abtahian, Cohn, and Pepinsky 2016). Unlike many immigrant contexts where the language of the majority dominant group has the highest status, Bahasa Indonesia as the dominant national language is not associated with the largest dominant ethnic group in Indonesia. In fact, there is no majority group in Indonesia because the largest and dominant group in Indonesia is only around 40% of the population, which is Javanese (Ananta et al. 2015; Suryadinata, Arifin, and Ananta 2003). We set out to establish whether the relations between two aspects of language, namely language usage and vocabulary, and adolescents’ sociocultural adjustment are comparable to those found in immigration contexts. In our study we expand the common definition of sociocultural adjustment by referring not only to the adjustment to the Indonesian culture, but also to the ethnic culture as both cultures are important in the lives of these adolescents.

The sample of this study comprised adolescents from three ethnic groups: Javanese (as the largest minority and dominant group), Toraja (as a small minority but regarded as native descendants), and Chinese (as a small minority and regarded as immigrant descendants). We sought to advance our knowledge on how both the dominant language (Bahasa Indonesia as the lingua franca) and ethnic languages (the heritage language of each ethnic group) relate to adolescents’ sociocultural adjustment. Furthermore, we examined whether the language usage and language knowledge in the largest minority group (i.e. Javanese) play a similar role for adjustment as the languages in the much smaller groups (Toraja and Chinese), and whether language usage and knowledge in Indonesia show similar relations with sociocultural adjustment to the patterns found among immigrant groups in Western countries.

**Indonesian context**

Indonesia is a unique context for studying bilingualism and its relationship to sociocultural adjustment because almost everyone speaks at least two languages and there are hundreds of ethnic groups (Suryadinata, Arifin, and Ananta 2003). The official national language is Bahasa Indonesia and is used broadly in schools, radio and television broadcasts, and offices, yet the Malay language as the origin of Bahasa Indonesia is spoken as ethnic language by only 3.7% of the Indonesian population (Ananta et al. 2015; Suryadinata, Arifin, and Ananta 2003). One basic law in the Indonesian constitution (UUD 1945) is ‘Bhineka tunggal ika’ (‘unity in diversity’), implying that all ethnic groups are expected to maintain their own culture and language, but also to develop a strong national identity and to learn the national language (Nababan 1985; Novitasari 2013; see also Ferguson and Adams 2015, for a similar concept of the ‘rainbow nation’ in South Africa). Hence, by conducting
research in Indonesia, we gain insight in how bilingual adolescents from minority groups (all non-migrants) speak two languages, and how that language use correlates with sociocultural adjustment. Moreover, in our study, the largest group in Indonesia (Javanese) also needs to acquire the second language (national language) like the other two smaller Chinese and Toraja groups. The adolescents in Indonesia become bilingual without migration as bilingualism is essential for effective functioning in the everyday context.

Javanese. Javanese are the biggest ethnic group with around 40% of the Indonesian total population, and most Javanese live in Java which is the most populated island; around 60% of the Indonesian population live in Java (Suryadinata, Arifin, and Ananta 2003). Besides Javanese, there are other smaller ethnic groups in Java, such as Sundanese (West Java), Betawi (Jakarta), Madura (East Java), Banten (West Java), and Cirebon (West Java). Most Javanese live in Central Java and East Java, where we sampled our Javanese participants. The Javanese language is spoken by 70% of the population in Java, and their size dominance in the social and politics arena enables Javanese to maintain their ethnic language from generation to generation (Suryadinata, Arifin, and Ananta 2003). We therefore expect Javanese to score higher in their ethnic language vocabulary than the other groups.

Chinese. The Chinese are a very small ethnic group (1–2% of the population in Java), and Chinese children have only been officially allowed to acquire the Chinese language after the fall of Soeharto in 1998 (see Suryadinata, Arifin, and Ananta 2003). The prohibition may have led to language loss among the Chinese population in Indonesia. Respondents in this study were born in or after 1998, when the ban was abolished. Most of the Chinese respondents did not learn Mandarin at home, but at schools as their third language besides Bahasa Indonesia and English. Therefore, the ethnic language acquisition environment of the Chinese is meaningfully different from Javanese and Toraja who learned their ethnic language at home. Another reason for the ethnic language loss is that in Java, there are more Chinese peranakan (upper class Chinese) who during the period of Dutch colonialism since the nineteenth century had shifted their language used in the private domain to Malay, which later became the national language (Bahasa Indonesia), as a marker of their social class which is higher than Chinese totok (lower class Chinese) (Oetomo 1988). Thus, Chinese are expected to have a lower score on their ethnic language vocabulary compared to Javanese and Toraja, as also found in previous study (Oetomo 1988; Sari et al. 2018a, 2018b; Suryadinata, Arifin, and Ananta 2003).

Toraja. Toraja, who mainly live in the area of Tana Toraja, South Sulawesi, are also a minority group (0.37% of the Indonesian population); however, unlike Chinese, Toraja are regarded native to Indonesia (Suryadinata, Arifin, and Ananta 2003), and they are famous for their unique, well maintained ethnic culture, including the Rambu Solo tradition (Panggara 2015). Rambu Solo is an ancient death ritual that is very important in the Toraja social system until now. Rambu Solo is part of the various practices of Toraja people aimed to maintain their identity, language and culture (Adams 2006; Budiman 2013; Panggara 2015). Considering the well-maintained culture in Tana Toraja, it is interesting to see whether minority Toraja are different from the minority Chinese in Java. Although both groups are much less dominant and much smaller than Javanese, Toraja have a different political and historical background compared to the Chinese. The stronger social position of Toraja presumably makes the Toraja group better able to maintain their ethnic language and culture than Chinese (Panggara 2015; Suryadinata, Arifin, and Ananta 2003).

Bilingualism in Indonesia

Bahasa Indonesia as the national language is not the language of the largest group and the second language for almost all ethnic groups (Suryadinata, Arifin, and Ananta 2003). Bahasa Indonesia and more than 300 ethnic languages coexist. However, it is unclear how sociocultural adjustment among Indonesian adolescents may be influenced by the coexisting languages in Indonesian bilingualism, which comprise both national and ethnic language usage and knowledge. Indonesian
culture may separate from Bahasa Indonesia due to the Indonesian context. For instance, two symbols of Indonesian identity, ‘batik’ and national emblem, are not related to the words in Bahasa Indonesia. ‘Batik’ as national garment, which people must wear for national events or wear as uniform in offices and schools, is originally from Javanese word and art. Another important example is the national emblem which symbolises Indonesian national identity, ‘Garuda Pancasila’, is not related to the origin of Bahasa Indonesia, but is related to Balinese and Javanese tradition. In this study we did not include language usage as a part of sociocultural adjustment, as in Indonesia, language usage can be a predictor of sociocultural adjustment in our view.

In a previous study, it is shown that Chinese in Medan and Chinese in Java differed in how they speak their ethnic language; Chinese in Medan use their ethnic language more than Chinese in Java (Sari et al. 2018a). More generally, the bilingualism pattern in Indonesia might differ between ethnic groups due to that context. The linguistic and cultural context of the family and community may influence the maintenance or loss of the heritage language in the process of sociocultural adjustment to become bicultural (Nesteruk 2010; Zhang and Slaughter-Defoe 2009). Previous studies conducted in Western countries had to take very different contextual backgrounds into consideration. In many Western contexts, the major dominant culture is usually the host culture, whereas in Indonesia most or all groups have to acquire the lingua franca (Bahasa Indonesia) while they also maintain their ethnic language (Suryadinata, Arifin, and Ananta 2003).

Studies on bilingualism among Chinese in Java are rare; yet, given the history of oppression of the Chinese language in the latter half of the previous century and based on the findings of previous study (Sari et al. 2018a, 2018b), we expect that Chinese in Java may be less bilingual than the other groups, and may have Bahasa Indonesia as their dominant language. By studying this unique group in a multicultural country such as Indonesia, we can contribute theoretically to understanding the complexity of the relation between language and cultural adjustment, and the role of language as a mediator, as well as the importance to consider the cultural context in studying different ethnic groups when investigating the relation between language and psychological outcomes.

There are only few studies which have been conducted in Indonesia on bilingualism-related acculturation and they are usually not addressing psychological outcomes (e.g. Barlett 1952; Kurniasih 2006; Nababan 1985). Barlett (1952), studied acculturation, and examined ethnic language maintenance and the spread of Bahasa Indonesia (Nababan 1985). A study by Kurniasih’s (2006) in Jogjakarta (Java) about bilingualism patterns among school age (11 and 14 year old) Javanese children found that middle-class parents and children used Bahasa Indonesia much more than their working-class counterparts. However, there is still a lack of knowledge about bilingualism patterns in many other ethnic groups in Indonesia, and how contextualised bilingualism in Indonesia relates to sociocultural adjustment, regardless of those three studies about bilingualism in Indonesia which have been done before.

Sociocultural adjustment

Previous studies reported that language proficiency contributes significantly to sociocultural adjustment (Mustafa and Ilias 2013). Language proficiency may also signify a propensity to learn about a second culture (i.e. the national culture in the Indonesian context or host culture in an immigration context), enabling one to have a cultural understanding not otherwise possible (Eschback, Parker, and Stoeberl 2001). Moreover, individuals with higher language proficiencies were better adapted, partially because they perceived smaller cultural differences and had more contact with the majority culture or with the other dominant ethnic group as well as with their own ethnic group (Selmer 2006).

Researchers interested in psychological adjustment have examined, mostly among adults, the psychological phases that people go through when dealing with other cultures, the traits that contribute to adjustment in a new culture, and the process of becoming bicultural (Black and Gregersen 1991; Kim and Ruben 1988; Nwanko and Onwumechili 1991; Searle and Ward 1990). In
the process of becoming bicultural, an adult may go through a process of stress and adjustment that leads to growth in intercultural communication skills over time that are important for communicative adjustment (Cai and Rodriguez 1996; Kim and Ruben 1988). In a Dutch study, Turkish–Dutch adults were found to combine the Turkish and the Dutch culture in their own way: they focus more on adaptation in the public domain and more on Turkish cultural maintenance in the private domain, they refer to different aspects of the cultures for the public (functional, utilitarian) and for the private (social emotional, more value-related) domains of life (Arends-Tóth and Van de Vijver 2004). Combining the two acculturation orientations, adopting the mainstream culture and maintaining the ethnic culture, may result in sociocultural competence in the mainstream culture and sociocultural competence in the ethnic culture (Arends-Tóth and Van de Vijver 2004).

Ward and colleagues have argued that adjustment during cross-cultural transitions can be broadly divided into two categories: psychological and sociocultural (Arends-Tóth and Van de Vijver 2004; Searle and Ward 1990; Ward and Kennedy 1996; Ward and Searle 1991). The former refers to feelings of well-being and satisfaction, whereas the latter is concerned with the competencies to fit in or negotiate interactive aspects of the host culture. Sociocultural adjustment is predicted by, among other things, cultural knowledge, cultural distance, quantity of contact with other groups, cultural integration, and language ability (e.g. Ward and Geeraert 2016; Ward and Kennedy 1993, 1996; Yang, Noels, and Saumure 2006). In the present study, sociocultural adjustment comprises cultural knowledge, cultural distance, quantity of contact with other groups, and cultural integration in both the ethnic and Indonesian national culture. It includes social relationships with one’s own ethnic group and with other ethnic Indonesian groups, familiarity with social norms, interaction with and knowledge of both the national culture and ethnic culture (Dimitrova et al. 2013). In the Indonesian context, national culture may relate to ethnic culture, because ethnic culture has influence in Indonesian culture. For instance, the national garment (batik) is originally from the Javanese culture. In other words, the knowledge of both national and ethnic culture may relate to each other. In the proposed model, we present sociocultural adjustment as one, integrated variable and provide the correlation between national and ethnic sociocultural adjustment of the measure we use.

**Present study**

We were interested in (1) mean differences in vocabulary knowledge and language usage in the three Indonesian groups; (2) relationships between these variables.

**Group differences on language vocabulary and usage**

Ethnic groups may differ in how much they use Bahasa Indonesia and their ethnic language. We expect differences on language vocabulary, language usage, and sociocultural adjustment between groups. However, it can be assumed that basic Bahasa Indonesia usage in the public area may be similar across groups, because Bahasa Indonesia is the lingua franca, the main written language (most ethnic languages are not used for writing), and the main language for publications and correspondence in Indonesia (see Abtahian, Cohn, and Pepinsky 2016; Sari et al. 2018a, 2018b). Based on literature discussed above, we tested the following hypotheses:

1. Javanese and Toraja score higher on their ethnic language vocabulary, ethnic language usage at home as well as in public compared to the Chinese.
2. There are no differences in Bahasa Indonesia usage in public, but that there are differences in Bahasa Indonesia usage at home. Chinese are expected to use Bahasa Indonesia at home more than Javanese and Toraja.
**Mediation model: language vocabulary as mediator**

Language skills may influence sociocultural adjustment (Mustafa and Ilias 2013; Ward and Kennedy 1993). In the present study, we took usage as predictor of proficiency, not only because 'practice makes perfect' but also because usage could be a proxy for exposure to the language spoken by others, which in turn could be related to increased proficiency. So, language usage is used here as a background characteristic. A longitudinal study among young children with an average age of 5 years and from Chinese immigrant families in the US showed that parental support of ethnic language usage at home showed positive associations with children’s heritage/ethnic language skill development (Park et al. 2012). A study among immigrants and sojourners has also shown that children internalise both mainstream and ethnic language better when cultural guidelines are given at home (Downie et al. 2007). Hence, language usage at home may predict ethnic language knowledge of adolescents. Based on those previous findings, we investigate whether both language usage and language proficiency, the latter reflected by language vocabulary knowledge of both national and ethnic language, are related to sociocultural adjustment. Moreover, previous study showed that different aspects of languages are relevant in multicultural Indonesia: language usage at home, language usage in public, and language skill (the three aspects involve both the ethnic language and Bahasa Indonesia). These domains may or may not be related to each other (Sari et al. 2018b). How each domain of bilingualism relates to sociocultural adjustment is not known, and therefore needs further investigation. In the present study we propose a mediation model including each domain of bilingualism; language skill which is measured by language vocabulary is predicted by language usage at home and in public, and mediates the relation between language usage and sociocultural adjustment (see Figure 1).

Existing findings lead us to expect that also in the Indonesian context, language ability may mediate the relation between language usage and sociocultural adjustment (Downie et al. 2007; Jia, Aaronson, and Wu 2002; Mustafa and Ilias 2013; Park et al. 2012; Ward and Kennedy 1993). We propose a mediation model with sociocultural adjustment as outcome variable in which the relation between national language (Bahasa Indonesia) usage and sociocultural adjustment is mediated by Bahasa Indonesia vocabulary. Similarly, we test whether the relation of ethnic language usage to sociocultural adjustment is mediated by ethnic language vocabulary (see Figure 1). We expect that the model applies to all groups. We also expect that Bahasa Indonesia usage at home will

![Figure 1. Theoretical model.](image-url)
correlate positively with Bahasa Indonesia usage in the public area, ethnic language usage at home will correlate positively with ethnic language usage in the public area, language vocabulary of Bahasa Indonesia will correlate positively with ethnic language vocabulary, but ethnic language usage at home will correlate negatively with Bahasa Indonesia usage at home across groups (see Figure 1).

Method

Participants

Participants were 517 adolescents: 214 Javanese respondents, 108 Toraja respondents, and 195 Chinese respondents (see Table 1). They attended secondary schools in Toraja Utara (South Sulawesi), Malang (East Java), Semarang, Solo, and Jogjakarta (Central Java). All Toraja respondents lived in Tana Toraja in the north region called Toraja Utara (South Sulawesi), all Javanese respondents lived in Central Java, and Chinese participants were from Central Java, East Java, and Special Province of Jakarta in Java. The age of the respondents was between 12 and 19 years ($M_{age} = 14.33$ years), which means that all participants were born after the Soeharto regime; 46.20% of the respondents were males (see Table 1).

Measures

Demographic characteristics

We asked information about the participant’s age, gender, ethnicity, and parental level of education. Father’s and mother’s level of education were coded into seven scores: 1 for elementary school, 2 for junior high school, 3 for high school, 4 for some college, 5 for college, 6 for some graduate school, and 7 for master degree and above (see Table 1). The median parental educational level was upper secondary/high school (between 9–12 years of education).

Bahasa Indonesia and ethnic language usage at home questionnaire

Regarding the language spoken at home, the information obtained was about the four directions of language interaction between the parents and adolescent: mother’s language when talking with the adolescent, father’s language when talking with the adolescent, adolescent’s language when talking with the mother, and adolescent’s language when talking with the father were assessed (Han

<table>
<thead>
<tr>
<th>Table 1. Sample characteristics.</th>
<th>Javanese ($N = 214$)</th>
<th>Chinese ($N = 195$)</th>
<th>Toraja ($N = 108$)</th>
<th>Total ($N = 517$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (%)</td>
<td>55.14</td>
<td>51.25</td>
<td>25.93</td>
<td>46.20</td>
</tr>
<tr>
<td>Age Mean (SD)</td>
<td>15.26 (1.43)</td>
<td>13.68 (1.32)</td>
<td>13.65 (.77)</td>
<td>14.57 (1.53)</td>
</tr>
<tr>
<td>Father’s education (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = elementary</td>
<td>20.56</td>
<td>1.03</td>
<td>6.48</td>
<td>10.28</td>
</tr>
<tr>
<td>2 = some high school</td>
<td>12.15</td>
<td>6.67</td>
<td>12.04</td>
<td>9.34</td>
</tr>
<tr>
<td>3 = high school</td>
<td>44.86</td>
<td>33.33</td>
<td>42.59</td>
<td>41.46</td>
</tr>
<tr>
<td>4 = college</td>
<td>1.87</td>
<td>5.64</td>
<td>5.56</td>
<td>3.48</td>
</tr>
<tr>
<td>5 = some graduate</td>
<td>11.68</td>
<td>22.05</td>
<td>26.85</td>
<td>16.46</td>
</tr>
<tr>
<td>6 = master</td>
<td>5.14</td>
<td>24.62</td>
<td>6.85</td>
<td>15.03</td>
</tr>
<tr>
<td>7 = Ph.D. and above</td>
<td>3.74</td>
<td>6.67</td>
<td>0</td>
<td>3.95</td>
</tr>
<tr>
<td>Mean level (SD)</td>
<td>3.03 (1.59)</td>
<td>4.43 (1.55)</td>
<td>3.54 (1.35)</td>
<td>3.68 (1.67)</td>
</tr>
<tr>
<td>Mother’s education (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = elementary</td>
<td>23.83</td>
<td>1.54</td>
<td>10.19</td>
<td>12.50</td>
</tr>
<tr>
<td>2 = some high school</td>
<td>17.76</td>
<td>5.13</td>
<td>11.11</td>
<td>11.23</td>
</tr>
<tr>
<td>3 = high school</td>
<td>35.05</td>
<td>26.67</td>
<td>45.37</td>
<td>35.28</td>
</tr>
<tr>
<td>4 = college</td>
<td>7.48</td>
<td>5.64</td>
<td>8.33</td>
<td>5.70</td>
</tr>
<tr>
<td>5 = university</td>
<td>9.35</td>
<td>27.69</td>
<td>22.22</td>
<td>17.25</td>
</tr>
<tr>
<td>6 = master</td>
<td>5.61</td>
<td>30.26</td>
<td>2.78</td>
<td>15.98</td>
</tr>
<tr>
<td>7 = Ph.D. and above</td>
<td>.93</td>
<td>3.07</td>
<td>0</td>
<td>2.06</td>
</tr>
<tr>
<td>Mean level (SD)</td>
<td>2.81 (1.49)</td>
<td>4.56 (1.45)</td>
<td>3.30 (1.29)</td>
<td>3.60 (1.67)</td>
</tr>
</tbody>
</table>
2010; Han and Huang (2010). Sample items are ‘Mother speaks Bahasa Indonesia to you’ and ‘You speak Bahasa Indonesia to your father’. There were one national (Bahasa Indonesia) and three ethnic languages spoken by the three ethnic groups in this study: Javanese, Toraja, and Mandarin (Chinese). Categories of language use frequency were: never, sometimes, often, or very often. Internal consistencies were high, both for Bahasa Indonesia ($\alpha$Javanese = .94, $\alpha$Toraja = .91, $\alpha$Chinese = .88) and the ethnic languages ($\alpha$Javanese = .92, $\alpha$Toraja = .91, $\alpha$Chinese = .89).

**Picture naming test**

The test of vocabulary (Kharkurin 2012) consists of 120 pictures prompting respondents to name each object on the picture (such as ‘chair’, ‘pencil’, and ‘mouse’). A correct answer is scored as 1 and a wrong answer is scored 0, with the highest possible total score being 120. A higher score is interpreted as a better knowledge of the language’s lexicon. The test was administered both in Bahasa Indonesia ($\alpha$Javanese = .93, $\alpha$Toraja = .84, $\alpha$Chinese = .92) and the three ethnic languages ($\alpha$Javanese = .92, $\alpha$Toraja = .97, $\alpha$Chinese = 1.00).

**Sociocultural adjustment**

To measure sociocultural adjustment, a scale by Dimitrova and colleagues (Dimitrova et al. 2013) was adapted. The scale consists of 66 items for the two cultures (33 items per culture). Participants were asked to indicate the degree of difficulty they experience in daily situations. Examples of items are ‘Asking advice of < names of own and other ethnic groups appeared here; one ethnicity per item > friends’, ‘Making yourself understood by < names of own and other ethnic groups appeared here > people’ and ‘Understanding jokes and humor of < names of own and other ethnic groups appeared here>’. Responses were given on a 5-point scale ranging from 1 = *very difficult*, to 5 = *very easy*. Internal consistencies were high ($\alpha$Javanese = .97, $\alpha$Toraja = .92, $\alpha$Chinese = .97).

**Language usage in public area/media**

We prompted participants to report how they used Bahasa Indonesia ($\alpha$Javanese = .80, $\alpha$Toraja = .90, $\alpha$Chinese = .85) and their ethnic language ($\alpha$Javanese = .90, $\alpha$Toraja = .95, $\alpha$Chinese = .95) in such areas as listening to radio, watching TV, and communicating with friends. Sample item such as ‘From scale 1–10 how much Bahasa Indonesia /ethnic language you use daily with your friends’ and ‘From scale 1–10 how much Bahasa Indonesia /ethnic language you use daily for studying/learning’. The 10 items for each language of this questionnaire are part of the Language Experience and Proficiency Questionnaire (LEAP-Q) by Marian, Blumenfeld, and Kaushanskaya (2007).

**Procedure**

The first author, with assistance of Sanata Dharma University (USD) in Jogjakarta (Java), Sekolah Tinggi Theologi (Institute of Theology) Jaffray in Makassar (South Sulawesi) in Toraja, and Sekolah Tinggi Theologi (Institute of Theology) SAAT in Malang (East Java), contacted the schools in Ran-tepao (Toraja Utara), South Sulawesi, and the schools in Malang, Solo, and Jogjakarta (Java). The first author and research assistants came to the schools to get the consents from the schools, teachers, parents, and respondents. Instruments were administered in the class during school hours. All questionnaires were translated from English into Bahasa Indonesia and back translated (Van de Vijver and Leung 1997) with the help of language teachers (English teacher and Bahasa Indonesia teacher) in Indonesia. All instruments were administered in Bahasa Indonesia, with the exception of the ethnic language versions of the picture naming test (PNT). The participants filled in the questionnaires in the class in their school, supervised by the teachers, the first author, and research assistants who were students recruited from the Faculty of Psychology at Sanata Dharma University (USD) and Magister of Applied Psychology Gadjah Mada University in Jogjakarta, and Master of Counseling Program Department of Institute of Theology Jaffray and Institute of Theology SAAT. These eight research assistants received training from the first author. They were native speakers of the
ethnic language and scored the answers of the PNT (Kharkurin 2012). The list of correct answers of the PNT of each language was provided by the help of language teachers (two teachers per ethnic language/Bahasa Indonesia who prepared the list).

Results

We first confirmed that missing scores (less than 9% in all variables) were missing completely at random (MCAR) (MCAR test: $\chi^2(1418) = 1122.05, p = 1.00$). Then, missing scores of the language usage at home, language usage in public, language vocabulary, and sociocultural adjustment were replaced with imputed values using an EM algorithm.

**Group differences in language vocabulary and usage**

As can be seen in Table 2, post hoc tests of a MANOVA showed that Javanese scored higher on ethnic vocabulary, ethnic language usage at home, and ethnic language usage in public area compared to the other two ethnic groups. As expected, Chinese scored lower on ethnic vocabulary, ethnic language usage at home, and ethnic language usage in public than the two other groups ($p < .01$, see Table 2). Javanese used Bahasa Indonesia at home less than the other two groups; there was no difference on Bahasa Indonesia vocabulary between Javanese and Chinese; Chinese spoke Bahasa Indonesia at home the most, and Toraja used Bahasa Indonesia in public the most and scored higher on Bahasa Indonesia vocabulary. Hence, hypotheses 1a and 1b regarding the group differences are partly supported. As expected, Javanese and Toraja scored higher on ethnic language skill and usage than Chinese. Also in line with expectation, Chinese spoke Bahasa Indonesia the most at home. However, contrary to our expectation, Chinese reported that they used Bahasa Indonesia in public less than Toraja and scored lower on Bahasa Indonesia vocabulary than Toraja.

**Multigroup path analysis**

Prior to testing the conceptual model of Figure 1, we examined the link of background variables, notably parental education and participant age, with all variables of the conceptual model. Regression analyses were conducted, using mother’s education level, father’s education level, and age as independent variables for each psychological scale separately, which yielded the following results: there were relations between mother’s education level, father’s education level, and age with Bahasa Indonesia vocabulary ($F(3, 513) = 4.82, p = .003, R^2 = .03$), ethnic language vocabulary ($F(3, 513) = 39.42, p < .001, R^2 = .19$), Bahasa Indonesia usage in public area ($F(3, 513) = .09, p = .97, R^2 = .00$), ethnic language usage in public area ($F(3, 513) = 10.99, p < .001, R^2 = .06$), Bahasa

<table>
<thead>
<tr>
<th>Table 2. Descriptive statistics and post hoc results.</th>
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<tr>
<td>PNT Bahasa</td>
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<td>Bahasa usage at home</td>
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<td>Ethnic language usage at home</td>
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<td>Bahasa daily usage in public life</td>
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<tr>
<td>Ethnic language daily usage in public life</td>
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<tr>
<td>Sociocultural Adjustment</td>
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</table>

Note: Means of scales with a different subscript were significant in a post hoc test (least significant difference), $p < .05$. 
Indonesia usage at home ($F(3, 513) = 59.29, p < .001, R^2 = .26$), ethnic language at home ($F(3, 513) = 40.15, p < .001, R^2 = .19$), and sociocultural adjustment ($F(3, 513) = 7.31, p < .001, R^2 = .04$). Age showed a significant, positive association with ethnic language vocabulary ($\beta = .26, t = 6.38, p < .001$), ethnic language at home ($\beta = .09, t = 2.24, p = .03$), and sociocultural adjustment ($\beta = .16, t = 3.58, p < .001$). Father’s education level showed a positive association with Bahasa Indonesia usage at home ($\beta = .20, t = 3.95, p < .001$), and a negative association with ethnic language usage at home ($\beta = -.12, t = -2.37, p = .02$). Mother’s education level was significantly associated with ethnic language vocabulary ($\beta = -.28, t = -5.35, p < .001$), ethnic language usage in public area ($\beta = -.19, t = -3.32, p < .001$), ethnic language at home ($\beta = -.31, t = -5.97, p < .001$), Bahasa Indonesia usage at home ($\beta = .34, t = 6.81, p < .001$), and sociocultural adjustment ($\beta = .16, t = 2.79, p < .01$). To ensure that means can be compared without confounding background factors, we used the standardised residual scores of language usage, language vocabulary, sociocultural adjustment in the analyses controlling for age as well as father’s and mother’s education level.

In addition, we examined the correlations between the two subscales of sociocultural adjustment scale, national and ethnic culture. The results showed that there were substantial, positive correlations ($r_{Javanese} = .75, p < .001; r_{Toraja} = .59, p < .001; r_{Chinese} = .74, p < .001$). Such a strong, positive correlation is not usual in acculturation research in an immigration context (e.g. Dimitrova et al. 2013). The strong correlation may be due to the Indonesian context where being a member of an ethnic and a national culture is a natural combination and there is no public discourse against combining these identities. Being Javanese automatically means being Indonesian because Javanese is a subgroup of Indonesia, and Indonesia as a group consists of many ethnic groups. This is different from a migration context where sociocultural adjustment to the two cultures often shows a much weaker or even negative association (e.g. Dimitrova et al. 2013). Given the strong correlations between the two subscales of sociocultural adjustment, we did not separate the two subscales in the multigroup path analyses.

In order to test whether relations between variables are similar across Javanese, Toraja, and Chinese, a multigroup path analysis was computed to test the applicability of the theoretical model depicted in Figure 1. We considered relations between variables as well as differences between different ethnic groups. Referring to a previous study (Sari et al. 2018b), the background variables of bilingualism were actually different domains (language vocabulary, self-reported proficiency, and self-reported usage), and each domain may score differently from each other and not necessarily correlated significantly with each other. The correlations between each domain of each language and between two languages were complicated. SEM allows for ease of interpretation and estimation. SEM simplifies testing of mediation hypotheses for multiple groups because it is designed, in part, to test these more complicated mediation models in a single analysis (e.g. Bou and Satorra 2010; Imai, Keele, and Tingley 2010; Preacher, Zyphur, and Zhang 2010). SEM can be used when extending a mediation process to multiple independent variables, mediators, or outcomes. The direct effect is the pathway from the exogenous variable to the outcome while controlling for the mediator. Full mediation (i.e. the intervention has no direct effect on the outcome) corresponds to the null hypothesis. If this null is rejected, it becomes of interest to assess partial mediation via the direct, indirect, and total effects. Inference (standard errors and $p$ values) about such effects is performed using bootstrapping methods. The model in Figure 1 did not show a very good fit (see Table 3 for results). Preliminary analyses revealed the need to make two changes in the model. Bahasa Indonesia vocabulary knowledge was unrelated to any antecedent variable. This absence could suggest that Bahasa Indonesia knowledge is more under the influence of education. The importance of Bahasa Indonesia is so widely shared by these adolescents that it is not strongly related to the antecedents we measured. The other change was that ethnic language vocabulary was influenced by more variables than anticipated. So, we removed the arrows from the exogenous variables to Bahasa Indonesia knowledge and linked all exogenous variables to ethnic language knowledge. The modified model showed that the exogenous variables related more to ethnic language skill, but exogenous variables did not relate to Bahasa Indonesia skill (Figure 2 and Table 3). The modified model of Figure 2 had a better fit and showed
that Bahasa Indonesia usage in public and at home did not relate to Bahasa Indonesia vocabulary, but to vocabulary of ethnic language (see Table 3 and Figure 2).

We tested the invariance of the model across groups. The most restrictive model with a good fit was the structural weights model (with $p > .01$, RMSEAa of 0.6, CFI > .90, AGFI > .90), which is a model with regression weights that are identical across groups. The correlations between Bahasa Indonesia vocabulary and ethnic language vocabulary, between Bahasa Indonesia usage at home and ethnic language usage in public area varied between groups, but the correlations between Bahasa Indonesia usage at home and ethnic language usage at home, between Bahasa Indonesia usage in public area and ethnic language usage in public area, between Bahasa Indonesia usage at home and in public area were similar between groups (see Figure 2). Ethnic language usage at home correlated negatively with Bahasa Indonesia usage at home in all groups, language vocabulary of Bahasa Indonesia and ethnic language were correlated positively among Javanese and Chinese, Bahasa Indonesia usage at home and Bahasa Indonesia usage in public area were correlated positively in all groups, and ethnic language usage in public area correlated positively with Bahasa Indonesia usage in public area in all groups (see Figure 2). Finally, bootstrapping analyses showed that no mediation effects were significant.

Table 3. Fit Indices of Path Model.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>$\chi^2$ (df) / $p$</th>
<th>TLI</th>
<th>CFI</th>
<th>AGFI</th>
<th>RMSEAa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconstrained</td>
<td>42.75 (15) / .00</td>
<td>.67</td>
<td>.92</td>
<td>.88</td>
<td>.06 [.04, .08]</td>
</tr>
<tr>
<td>Structural weights</td>
<td>57.80 (35) / .01</td>
<td>.88</td>
<td>.94</td>
<td>.93</td>
<td>.04 [.02, .05]</td>
</tr>
<tr>
<td>Structural covariances</td>
<td>166.48 (53) / .00</td>
<td>.61</td>
<td>.68</td>
<td>.88</td>
<td>.07 [.05, .08]</td>
</tr>
</tbody>
</table>

Figure 2:

Unconstrained: 30.19 (21) / .09 | .92 | .97 | .94 | .03 [.00, .05] |
Structural weights: 54.46 (39) / .05 | .93 | .96 | .94 | .03 [.00, .04] |
Structural covariances: 204.19 (57) / .00 | .53 | .58 | .86 | .07 [.06, .08] |

Note: Numbers between brackets refer to the 90% confidence interval.

Notes: 1) Javanese, 2) Toraja, 3) Chinese.

*p ≤ .05, **p < .01, ***p < .001.

Figure 2. Structural weights model.

Notes: 1) Javanese, 2) Toraja, 3) Chinese. *$p < .05$, **$p < .01$, ***$p < .001$. 

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To conclude, we found that language-related background variables were positively related to sociocultural adjustment, although the path coefficients tended to be rather weak; vocabulary knowledge showed a link with sociocultural adjustment only for Bahasa Indonesia. It may be caused by the language shift going on in Indonesia, that Bahasa Indonesia has become more dominant than ethnic language for most ethnic groups in Indonesia (Abtahian, Cohn, and Pepinsky 2016; Sari et al. 2018b). Knowledge of the ethnic language is positively predicted by usage of the language at home and in public, but the link of ethnic language knowledge with speaking Bahasa Indonesia at home and in public is complex. If much Bahasa Indonesia is spoken at home, ethnic language knowledge tends to be lower, but when more Bahasa Indonesia is spoken in public, ethnic language knowledge tends to be higher. Such a difference is also found between the background variables; participants who report to speak more Bahasa Indonesia at home report to speak less ethnic language at home. This seemingly obvious pattern of negative correlations is not found for language usage in public; in each group there is a positive association between the two languages spoken in public.

Discussion

Our findings on sociocultural adjustment in sedentary ethnic groups extend previous research in Western immigration contexts, in which the national language is usually the dominant language of the majority group, by confirming associations between language usage and sociocultural adjustment (e.g. Dimitrova et al. 2013; Genesee 1987; Hakuta 1987; Taylor, Meynard, and Rheault 1977). Our results show that in all groups, usage of both languages is important for sociocultural adjustment and skill in the country’s lingua franca is more important than ethnic language skill for sociocultural adjustment among both dominant and non-dominant groups (all of which are minority groups in Indonesia). The result that Bahasa Indonesia as a lingua franca is positively associated with sociocultural adjustment is similar to findings obtained in an immigration context.

However, differently from an immigration context, the correlation between the two subscales of sociocultural adjustment scale, national and ethnic culture, is strong. In the Indonesian context, being Javanese or Toraja also means being Indonesian, which requires everyone to be fluent in Bahasa Indonesia. It is telling that in each group the vocabulary knowledge scores were much higher for the Bahasa Indonesia test than for the ethnic language test. The lingua franca has become the de facto dominant language of the country, showing a language shift going on in Indonesia (see also Abtahian, Cohn, and Pepinsky 2016; Sari et al. 2018b). The strong positive correlation between sociocultural adjustment in the ethnic and national domains is uncommon in acculturation studies (e.g. Dimitrova et al. 2013). The strong correlation may be a consequence of the specific linguistic and cultural situation in Indonesia where all students get a thorough training in the national language and speaking the language is more a necessity than a choice. For these students, adjustment seems to imply adjustment to a context that is inherently bicultural and bilingual. As a consequence, the opposition between the two types of adjustment (national and ethnic) that is sometimes found in acculturation studies among immigrants in Western countries does not seem to exist in these Indonesian adolescents. It is interesting to note that in this Indonesian context ethnic language skill is linked to language-related background factors we measured (usage of the ethnic and national language in private and public spheres), whereas Bahasa Indonesia skill is not so much under control of background factors. This observation confirms previous findings that Bahasa Indonesia is becoming the dominant language for most ethnic groups in Indonesia (Abtahian, Cohn, and Pepinsky 2016; Sari et al. 2018b).

It is noteworthy that the Javanese and Toraja group combined high levels of proficiency in both the ethnic and national language (Javanese scored highest on ethnic language vocabulary, and Toraja scored highest on Bahasa Indonesia vocabulary), and Chinese scored lowest on ethnic language vocabulary and ethnic language usage, but scored highest on Bahasa Indonesia usage at home. Historical considerations may play an important role here. Chinese who are regarded as descendants of migrants (only 1–5% in the whole country) were prohibited from speaking their own ethnic language.
in the latter half of the previous century and started to be able to learn the Chinese language in schools rather recently (Suryadinata, Ariffin, and Ananta 2003). In addition, there is a historical factor that is specific for the Chinese group in Java. In Java (where we sampled our Chinese participants), most Chinese are from the upper class (peranakan). The Toraja make up less than 10% of the population in South Sulawesi, hence, it is necessary to be fluent in Bahasa Indonesia to be able to communicate with the other ethnic groups in the area. Yet, the group also has a strong ethnic orientation. So, it is very important for them to maintain the ethnic heritage language, although their group size is small, which may limit the number of people with whom they can speak their language. That is likely why Toraja have a higher skill in Bahasa Indonesia and a lower skill in ethnic language compared to Javanese, and the minority Toraja ethnic language is still relatively well maintained, whereas maintenance of the ethnic language among the minority Chinese is limited.

Our data tell a novel story about the role of language usage and language proficiency in a multilingual country with a clear, dominant language used in education, media and large parts of public life (Bahasa Indonesia in our study). Similar to previous studies which have shown that language proficiency contributes significantly to sociocultural adjustment (Jia, Aaronson, and Wu 2002; Mustafa and Ilias 2013; Ward and Kennedy 1993), language proficiency, assessed here as vocabulary, is correlated with sociocultural adjustment (see Figure 2), but we add new information that the relationships between language usage at home and in public with language proficiency of two languages are different from what is commonly found in immigration studies. Bilingualism usage and knowledge is contextualised depending on the cultural context (group size, political background, and geographical area). Our study also confirms that there is a language shift going on in Indonesia across different ethnic groups, that Bahasa Indonesia as national language has become the dominant language (see Abtahian, Cohn, and Pepinsky 2016).

Limitations

We showed that the usage and performance of Bahasa Indonesia and ethnic language usage relate to sociocultural adjustment, but it is important to note that this study is correlational and cross-sectional, and that we cannot demonstrate causality. Another limitation is that it is possible that social desirability or other response styles influenced the scores. Further, we only studied a selection of languages, although we chose languages and ethnic groups such as dominant Javanese, non-dominant Toraja and Chinese, that differed in meaningful ways in terms of their status in Indonesia and their history. It is also important to note that not all ethnic languages are taught in schools which made it difficult to find experts and teachers in the respective language, especially regarding the Toraja language in South Sulawesi (South Sulawesi is a less developed island compared to Java). Since there are only few studies done in the Indonesian context, a replication with different ethnic groups in Indonesia is needed, especially to examine the correlation pattern between Bahasa Indonesia and the background factors. Finally, while the PNT can be expected to provide some insight into language knowledge, actual language use has more components, such as speaking and grammar. More studies are needed to provide information about how the PNT relates to more objective language tests, and more diverse assessments of daily language use (e.g. via experience sampling methods, or ratings of others) that would allow for a triangulation of the data obtained via different avenues.

Conclusion

Our study goes beyond findings of sociocultural adjustment among adults in immigration Western context (Cai and Rodriguez 1996; Dimitrova et al. 2013; Genesee 1987; Hakuta 1987; Jia, Aaronson, and Wu 2002; Mustafa and Ilias 2013; Taylor, Meynard, and Rheault 1977; Ward and Kennedy 1993). The novel findings of this study show that regardless the differences on language knowledge and usage between three ethnic groups in Indonesia; both national language and ethnic language
usage and knowledge are associated with sociocultural adjustment in all groups in the same manner, but the relationships between usage and knowledge of two languages differ suggesting that language usage and language knowledge are different facets of bilingualism. It is remarkable that even though we found substantial group differences in ethnic language vocabulary, the correlations between both ethnic language usage at home and in public with sociocultural adjustment are the same across groups. Bahasa Indonesia is not only the lingua franca and the dominant language which confirms that there is language shift going on in Indonesia with Bahasa Indonesia becomes more dominant across ethnic groups (Abtahian, Cohn, and Pepinsky 2016; Sari et al. 2018b). Whereas Bahasa Indonesia was actually the second language for all groups, including the dominant group in the past. This differs markedly from Western immigration contexts, where the ethnic language of the majority group is typically the lingua franca. More studies on the relation between language vocabulary and sociocultural adjustment in different multicultural countries are needed to understand how bilingualism is contextualised and whether the differences on bilingualism among groups are caused by factors like generational differences and ethnic hierarchy (e.g. Chinese of different generations with generations of other ethnic groups). The findings showed that the same relation between language usage and sociocultural adjustment is found across contexts, but the relation between language knowledge and sociocultural adjustment, and the relation between language usage in public, language usage at home, and language knowledge may show cultural specificity.

Disclosure statement

No potential conflict of interest was reported by the authors.

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