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**Cognition toward the Mother Tongue, Attitude toward English, Chavacano,  
and Filipino: A Structural Equation Modeling Approach with  
Bootstrap Analysis**

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## **Abstract**

This quantitative investigation involved 1,054 pre-service teacher respondents with mean age = 20.21 (SD=3.124). This cross-sectional study gathered data through the creation of four research tools validated and pilot tested. Moreover, three of the research tools (AChavQ, AFilQ, AEngQ) were determined to be of ‘excellent’ reliability, while one is of ‘acceptable’ reliability (CogMT). The study purposed to derive a model explaining the possible relationships, mediation or moderation, of language attitude towards Chavacano with ethnicity, cognition towards mother tongue and language attitude toward Filipino and English. The model with “best fit” showed that that language attitude toward Filipino and English has a direct influence on cognition in the mother tongue. In contrast, ethnicity’s influence is mediated by language attitude toward Chavacano. The results and findings of this study provide vital information and insights in the implementation of the Mother Tongue Based Education in a multilingual context.

**Keywords:** *Language Attitude, English, Filipino, Mother Tongue, Structural Equations Modelling*

## **Introduction**

In the realization of formal education, the role of language can never be overemphasized as education takes place when a language is and spanned to a greater portion to educate. In addition, Devanadera and Alieto (2019) maintained that a language is a potent tool used for the success of education. Therefore, the teaching and learning process cannot be divorced from the utilization of a language or languages. In this regard, Perez and Alieto (2018) and Alieto (2018) maintained that the success and failure of educational systems mainly rely on decisions determining which language or languages are welcomed in schools. Hence, it is inferred that language policy and planning is a process both crucial and essential (Ejeh, 2004). If wrongly done, it leads to dire consequences; however, if otherwise, it would significantly contribute not only to the success of the learners but also redounds to nation-building.

Moreover, attitude is an essential need to be well-considered in language-in-education policy planning. Baker (1992) explained that attitude is a vital and primary consideration in language planning. This is because the attitude of the stakeholders and implementers of language policies is a determinant of whether successful implementation follows suit after policy formulation or not,

and that if there is positive, then, motivation to learn is also relatively high. He further claimed that language attitude resembles a double-edged sword – it may enable or disable people’s utilization of a language and support toward it.

On another note, cognition (used to mean belief in this study and used interchangeably without a semantic difference) is another quintessential factor to account in language planning (Griva & Chostelidou, 2012). Beliefs towards a language used as a medium of instruction shape people’s acceptance of that language.

The importance of attitude and cognition as constructs influencing language use, acceptance, and support has become the rationale behind contextualized investigations. Numerous studies were conducted to explore attitude towards different languages – English (Somblingo & Alieto, 2019; Berowa, Devanadera & David, 2018), Filipino and English (Sicam & Lucas, 2016; Ricohermoso, Abequibel and Alieto, 2019), Arabic (Ajape, Mamat & Abdul Azeez, 2015), Putonghua and Cantones (Wang & Ladegaard, 2008), and Mandarin-English bilingualism (Xie & Cavallaro, 2016). From the given enumeration, it could be noted that all language attitude studies were directed towards major languages, and none investigated local languages with the study of Alieto (2018) which explored the attitude of pre-service teachers toward Zamboanga Chavacano as an exception. On another note, studies accounting belief as a variable are only a handful. Limited examples include the investigation of Alieto, Devanadera, and Buslon (2019) which explored teachers’ belief towards mother tongue in early education. Another is the research of Alieto (2019) which explored the cognition of would-be teachers as a predictor of willingness to teach using mother tongue as medium of instruction and to teach the mother tongue as a subject. From the given listing, it noticeable that none of the research works investigated language attitude and cognition together – an exception is a study of Ricohermoso et al. (2019), which explored the attitude of their respondents toward Filipino and English language correlated with cognition toward mother tongue. Along this line, it is argued that as successful language policy implementation is impacted by language attitude (Youssef, 2002) and cognition or belief (Griva & Chostelidou, 2012), research works must explore both variables. Additionally, the investigations on the variables remain limited in exploring only the impact one has with the other (e.g., Ricohermoso et al., 2019), and none has purposed to develop a model.

Against this, the present study investigated the interplay of the attitude towards three languages (English, Filipino, and Chavacano), cognition towards mother tongue and ethnicity. The end goal of the study, with the use of structural equation modeling, is to develop a mediation model.

### **Review of related literature On Language Attitude**

Attitude is defined as a form of evaluation toward either an object or idea which, is determined as the attitudinal object (Bohner & Wanke, 2002). Therefore, attitude is claimed to be a hypothetical construct that relates to the act of appraising an object, idea, person, events, among others (Eagly & Chaiken, 1993). Withal, as attitude is a form of an evaluation of sort, it may be either positive or negative (González-Riancho, 2002).

Studies on attitude as a construct have initially been in the fields of Psychology, but later on, the construct was investigated in different disciplines (Navarro-Villaruel, 2011). Also, language attitude investigation as a research topic has once more gained renewed recency and relevance in the context of the Philippines as a result of language policy change under the K to 12 law (Ricohermoso et al., 2019). Moreover, knowledge of language attitude, especially in multilingual contexts like the Philippines with 181 languages spoken (Lewis, Simons, & Fennig, 2013), provides essential information to issues relating to language choice and appropriation practices. Supporting this is the claim of Liddicoat and Taylor-Leech (2013), who discussed that attitude, a complex construct, shapes the possibility of multilingual education in society.

### **On Cognition**

Cognition, as claimed by Borg (2003) is a latent construct that relates to the mental faculty. Further, it refers to the dimension that relates to what one thinks, knows, and believes, which impacts what one does ( Borg, 2003). This means that person's perception toward an object or idea is influenced by his or her dealings with them. Thus, Borg (2001) maintained that beliefs or cognitions teachers hold significantly influence and affect practices and actions. Hence, the need to determine teachers' beliefs towards mother tongue use as a medium of instruction is of great importance as these beliefs play essential roles not only in classroom practices but also, and more importantly, in the implementation of language policies (Cummins, 2000).

## **On Ethnicity**

Ethnicity is an index of identity. Moreover, Phinney (1996) maintained that ethnicity forms part of one's self-concept. The term is usually used to mean the race to which one belongs to (Adams, 2018). This means that this is a grouping made by people sharing common characteristics; thus, ethnicity is a social construct (Markus, 2008). Each ethnic group has its own culture and language, which demarcates one from the other. Along this line, Kosonen (2005) expressed concern regarding the act of choosing a language to be used in schools. The author claimed that, in multilingual and multiethnic societies, the act of selecting one language among many others is seen as an act of discrimination. This is so because when the language of an ethnic group is chosen, that grouping is, to an extent, empowered while others are weakened (Mohanty, 1990). This reflects the fear of Waiko (1997), who reported that choosing a language to serve as a medium of instruction may lead to a kind of social divide. Thus, the investigation of language attitude and cognition towards a language in education must account for the construct of ethnicity.

## **Mother Tongue Education in the Philippines**

The Department of Education (DepEd), as claimed by Metila, Pradilla, and Williams (2016), utilized two models to attain the objective of realizing basic education in the mother tongue across the countries, the Multiple Monolingual Model (MMM) and the Lingua Franca Model (LFM). In the MMM, students are grouped according to their mother tongue or first language. The learners are then taught with their mother tongue as the language of instruction. On the other hand, in communities that are highly culturally diverse, where students come from different linguistic backgrounds, a language is nominated to serve as the 'mother tongue.' The language chosen is usually the language of wider communication (UNESCO, 2011), a regional lingua franca. The trouble seems to arise from the LFM because students coming from different ethnic groupings are taught using a local language which they are not fluent yet. In the LFM, students do not attain the promise benefits of 'mother tongue' instruction.

## **Research question**

This study is part of a research project which aims to establish answer to this research question:



*What model may be derived to explain possible relationships, mediation or moderation, of language attitude towards Chavacano with ethnicity, cognition towards mother tongue and language attitude toward Filipino and English?*

### **Methodology Research design**

This study primarily employed a cross-sectional explanatory design based on a new classification of non-experimental quantitative research by Johnson (2001). The cross-sectional method allowed for one-time data collection using a self-report instrument. A hypothesized explanatory model involving attitude towards three languages (English, Filipino, and Chavacano) and ethnicity, and their influence on cognition towards mother tongue, was tested for model fit and was modified based on the results of the analysis to obtain a “best-fitting” model. Structural equation modeling served as the main method of analysis.

### **Respondents of the study**

This study enlisted 1,054 elementary education students in their penultimate year from four (4) academic institutions. To qualify as a participant of the study, the following inclusion criteria were set: the pre-service teacher must have (1) least one month of practice teaching exposure; (2) teaching assignments in the grades level one to three, and (3) practice teaching experience using *Chavacano* as medium of instruction for at least one month.

The following would consider the student ineligible to be included as participants of the study if: (1) the student is graduating but had taken his/her practice teaching a year ago for one reason or another, and (2) if the student had less than 20 contact times, by the time the study is conducted, teaching in *Chavacano* or teaching *Chavacano* as an MT course. The rationale for the criteria is to make the experiences of the respondents comparable. Three main ethnic groupings were initially identified, namely: *Chavacano*, *Tausug*, and *Bisaya*. There are other ethnic groupings but of limited numbers such as *Samal*, *Yakan*, *Ilonggo*, *Maranao* and others. Equal distribution of the respondents will be considered in the sampling across the ethnic groups with the fourth category labeled as ‘*others*’ in which the rest of the ethnic groupings with few numbers of respondents are clustered.

To provide a clear perspective and bird’s eye view about the demographic characteristics of the sample size, descriptive statistics (mean, standard deviation, and percentage) were employed to detail the profile of the respondents. Relative to respondents’ distribution according to ethnicity, Table 1 presents the composition of the respondents. Note that the code for ethnic grouping is as follows: 1 for *Chavacano*, 2 for *Bisaya*, 3 for *Tausug*, and 4 for *others*.

Table 1

*Respondents Ethnic Grouping distribution*

Ethnic Groupings	Frequency	Percent (%)	Cumulative Percentage
Chavacano (1)	376	35.7	35.7
Bisaya (2)	352	33.4	69.1
Tausug (3)	153	14.5	83.6
Others (4)	173	16.4	100

Table 1 on the ethnic distribution of the respondents shows that the majority belong to the ethnicity *Chavacano* which was expected as the research sites from which the data were collected were home to *Chavacano* people. However, it is interesting to note that the number of respondents who identified themselves as *Bisaya* is only a little less than 3% of the *Chavacano* respondents. This is attributed to students coming from neighboring municipalities and provinces who studied in the universities and colleges in Zamboanga City.

Places such as Ipil, Diplahan, Imelda, Malanggas, Buug, among others, are known places for *Bisaya* people. Moreover, the *Tausug* respondents constitute less than a quarter of the total sampling size, and much lesser are the respondents who did not belong to the three identified main ethnic groupings. Some of the prospective teachers identified themselves as *Samal*, *Yakan*, *Ilonggo*, *Maranao*, and *Tagalog*. These ethnic classifications were clumped together under the category, *others*. Although there was an effort to equally represent the different ethnic groupings in the sample collected, the total enumeration employed as sampling technique, made to no avail such intention.

For the demographic profile age, the range is 18-39, and the weighted mean age of the respondents is 20.21 (SD=3.124). Table 2 presents the visual representation of the respondents’ distribution by

age. Moreover, regarding gender as a demographic profile, 802 or 76.1% are females. Efforts were made to proportionally represent the number of males and females in the study. However, to no avail was the intention of equally representing the male and females in the study possible as most of the respondents from the different research sites were females. This, however, provides essential information that the teacher education program is one that is popular with females. The profile gender is cross-tabulated with ethnicity to give a better perspective about the data and is presented in Table 2.

Table 2  
*Respondents' gender distribution cross-tabulated with ethnicity*

Profile	Ethnic Groupings				Total	
	Chavacano	Bisaya	Tausug	Others		
Gender	Male	80	87	39	46	252
	Females	296	265	114	127	802
	Total	376	352	153	173	1054

This can be gleaned in Table 2 where females outnumbered the males across ethnic categories. The number of female *Chavacano* respondents is almost 300% more than their male counterparts. The same holds in the case of *Bisaya* females. Further, the number of female *Tausugs* and those coming from other ethnic groupings are more than doubled in comparison to their male counterparts in respective groupings.

### **Research tools**

Four research tools were utilized in the gathering of data in this study. For the determination of the respondents' attitude toward the Chavacano, the attitude toward Chavacano questionnaire (AChavQ) was used. For the identification of the respondents' attitude toward Filipino, the language attitudes toward Filipino Questionnaire (AFilQ) questionnaire was employed. Moreover, to identify the respondents' attitudes toward English, the attitude toward the English questionnaire (AEngQ) was utilized. The three research tools were validated, and pilot tested. The tools were

subjected to a reliability test using Cronbach's Alpha with the value of: AChavQ (0.91), AFilQ (0.92), and LAEQ (0.94).

The AChavQ, AFilQ, and AEngQ are all composed of a total of 36 items answerable with a sixpoint likert scale ranging from strongly agree to strongly disagree. The questionnaires contain positive and negative statements which are alternately placed in the questionnaires with odd numbers containing negative ones and even number containing positive statements. Moreover, the 36 statements are divided across the three dimensions of attitude, as informed by the underpinned theory of the study. Meaning, for each dimension (as there are three), there are 12 statements. On another note, to identify the cognition toward Mother Tongue, the Cognition toward Mother Tongue questionnaire (CogMTQ) was used and was also determined to be of 0.789 reliability. The same tool is composed of twenty-two (22) statements answerable with a six-point likert scale.

### **Data gathering procedure**

Before data gathering, the determination of research sites was first realized. A list of possible schools was produced. Afterward, possible research sites were shortlisted. After determining the final list, letters addressed to the heads of institutions were composed and sent to seek access to the respondents of this study. A schedule was later on decided based on the suggestion of the different coordinators assigned by the school administrators to facilitate the researchers. Gathering in different sites was scheduled on different dates with a day in between as a break to allow the production of needed instruments in consideration with the number of respondents.

In each school on the appointed dates, respondents were convened in a hall. Orientation was given before the administration of the research tool. However, the orientation was limited to discussions that the participation in the study is voluntary and that respondents are not compelled to participate. Moreover, it was also discussed that the respondents may withdraw from participation even after having started with the questionnaire and that they need not provide any explanation for doing so. This protocol was inspired by the procedure employed by Buslon and Alieto (2019). Moreover, the directions on how to answer the questionnaires were also explained.

The orientation lasted for about 15 minutes. Before the respondents were allowed to answer the questionnaire, a letter of consent was requested from them to be filled out and signed as informed by the approach utilized by Torres and Alieto (2019). Afterwards, the research tools, all three,

were given to respondents at the same time, and they were asked to submit the research tools at will. Upon submission of the questionnaires, the researchers checked for missed numbers and double entry. Upon determination that the responses are in order, the tools are accepted for analyses to be done. No token was given to the respondents; however, a snack was provided for each participant.

### **Method of analysis**

Structural Equation Modeling (SEM) served as the primary method of analysis of this study. This study used a four-step process in SEM, namely: (1) model specification, (2) model identification, (3) model estimation, and (4) model fit (Recker, 2011; Wang & Wang, 2019). Model specification involved the formulation of a hypothetical explanatory model of the factors considered in this study based on the theories, models, and related literature.

Model identification involved the coding of the initial path diagram using specialized software for the purpose, in this case, SPSS AMOS v.22, where the observed variables, latent variables, and the corresponding paths and relationships were identified.

The identified model was then estimated using the corresponding data for each observed variable using Maximum Likelihood (ML) estimation. The results of the analysis were then compared with the indices of fit to determine the model that “explained” the relationship among the factors and the dependent variable. In instances where the model was found to have a poor fit, the model is respecified based on the results of the analysis, like parameters and covariance.

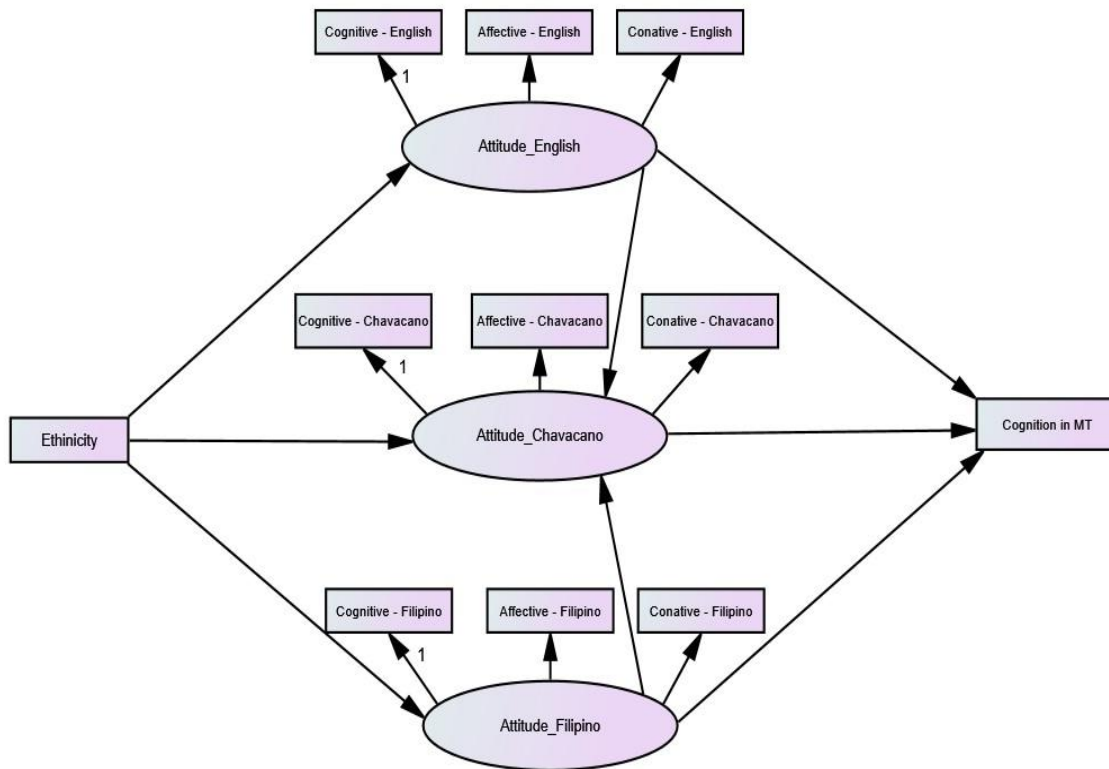
After re-specification, the entire cycle was repeated until a best-fitting model was obtained. Additionally, this study utilized the bootstrap method using the bias-corrected and accelerated method (BCa) with a 95% confidence interval to determine the effect size of the parameters estimated.

### **Results**

#### ***The hypothesized model***

The hypothesized model was theoretically founded on the Tripartite Model on Language Attitude by Rosenberg and Hoaland (1960). The theory claimed that attitude formation towards a language involves three aspects: the cognitive (mental activity), affective (emotional response), and conative

components (behavioral predisposition). This tripartite model of attitude formation defines the attitude that an individual would have towards a specific language or dialect. In this study, Chavacano as Lingua Franca. Based on the underlying theory, LACHav may be influenced by an individual's ethnicity, language attitude toward Filipino (LAFil), and language attitude toward English (LAEng). To establish the inter-relationships of the said variables, the researchers employ structural equation modelling (SEM) to determine the best-fitting model. Figure 1 shows the hypothesized model.



**Figure 1.** The Initial Path Model specification (Model A)

LACHav is the main dependent variable (DV) which may serve as a mediator between ethnicity, LAFil, LAEng, and an implied outcome variable, cognition in mother tongue (CogMT). Based on the Lingua Franca Model (LMF), Chavacano is the lingua franca used on teaching mother tongue in the locale of the study, hence LACHav as the main DV.

### ***Path analysis of the hypothesized model and re-specification***

To establish the significance and validity of the initial path specification (Figure 1) and the succeeding respecified models, the researchers subjected the models to a path analysis using SPSS Amos 22. Bootstraps using bias-correction acceleration (BCa) at 95% confidence interval was specified in the analysis of the model to enhance the generalizability of findings. Goodness-of-fit indices were determined as recommended by Byrne, BM (2010), Schumacker and Lomax (2010), and Arbuckle (2013). These indices were GFI – goodness-of-fit index; AGFI – adjusted GFI; NFI – normed fit index; TLI – Tucker-Lewis index; CFI – comparative fit index; RMSEA – root-meansquare error of approximation.

Initial path analyses showed an inadequate fit, based on the fit indices resulting from the analysis, namely - GFI = 0.932; AGFI = 0.882; NFI = 0.958; TLI = 0.944; CFI = 0.961; RMSEA = 0.101. Adequate fit is indicated by GFI, AGFI, NFI, TLI and, CFI values greater than 0.90 (> 0.90) and RMSEA value of less than 1 (preferably < 0.08 and ideally < 0.05). Standardized regression weights (also known as path coefficients) showed that some paths have either negligible coefficients or statistically not significant coefficients. The path coefficients provided a numerical basis (based on standard units) on the supposed influence or effect of a predictor variable (IV) to an outcome variable (DV). Table 1 shows the path coefficients of the hypothesized model.

**Table 3.**

*Standardized regression weights of the initial path specification.*

Parameters	Estimate	P
Attitude_English <--- ethnic	.023	.173
Attitude_Chavacano <--- Attitude_English	.099	.061
Attitude_Chavacano <--- Attitude_Filipino	.055	.275

*Note: All other path parameter estimates statistically significant ( $p < 0.05$ )*

Table 3 showed that the three paths were not statistically significant. These are ethnicity to LAEng, LAEng to LChav, and LAFil to LChav. These findings indicate that data failed to show significant influence or effect between these variable pairs or paths. Hooper, Coughlan, and Mullen

(2008) suggest that in order to improve the model fit, parameter estimates which are not significant or have low multiple  $r^2$  (less than .20) should be removed from the analysis. Based on this, the respecification of the hypothesized model was made.

Respecification was made through the removal of the statistically insignificant paths; however, it only showed slightly better fit indices that are too small to be considered significant. Practically, the quality of the model did not improve. Thus, the standardized residual covariances were examined. Standardized residual covariances (discrepancy between implied and observed covariance) were determined and presented in Table 4. According to Byrne (2010), the magnitude of the standardized residual covariances could be used by the researcher to identify possible areas of a model misfit. Absolute values of the standardized residuals greater than 2.58, as specified by Jöreskog and Sörbom (1993, in Byrne, 2010), indicates sources of poor fit.

#### ***Re-specification to a mediation model***

Re-inspection of standardized residual covariances, however, revealed that large discrepancy (12.146) still exists between LAEng and LAFil. This indicates that LAEng and LAFil could be covariates, that is, LAEng changes with LAFil. As such, the covariance relation between LAEng and LAFil was further indicated in the model. Also, ethnicity was included in the covariance path. The new standardized residual covariances show better values with only the affective and cognitive component of LACHav against LAFil have values greater than 2.0; that is, 2.379 and 2.252, respectively.

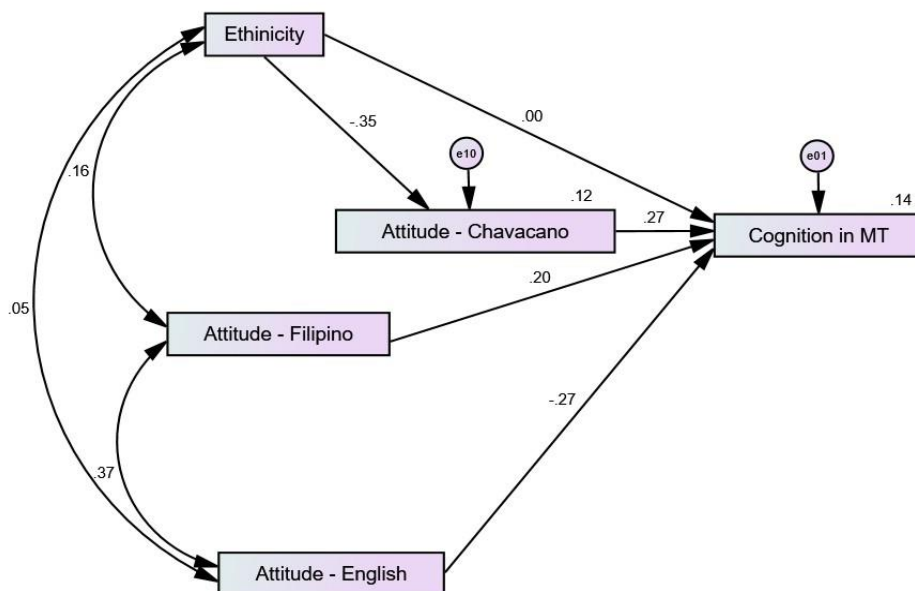


**Table 4.***Standardized residual covariances for Model B*

	ethnic	CogMT	ConFil	AffFil		ConCha CogFil v	AffCha v	CogCha v	ConEng	AffEng	CogEng
ethnic	.000										
CogMT	-.271	-.865									
ConFil	-.573	-2.686	.000								
AffFil	-.131	-2.376	.014	.000							
CogFil	1.009	-2.468	.003	-.024	.000						
ConChav	-.659	-1.388	1.042	.781	-.398	.000					
AffChav	.103	.663	2.589	2.788	1.376	-.003	.000				
CogChav	1.086	1.273	2.643	2.092	1.647	.010	-.007	.000			
ConEng	1.149	2.840	10.733	10.412	9.320	2.245	1.737	2.164	.000		
AffEng	.872	2.959	10.542	12.032	10.756	.879	1.542	1.130	.034	.000	
CogEng	2.273	.720	10.917	11.987	11.477	.950	.602	.645	-.031	-.036	.000

As seen in Table 4, data exhibited very large discrepancies (covariance residuals) between the indicators of LAEng and LAFil, that is, the cognitive, affective, and conative components of the said constructs. Covariance residuals for these indicators ranged from 9.32 to 12.03. This indicates that the cognitive, affective, and conative components between LaEng and LaFil caused the model misfit. To improve the fit indices of the model, it was suggested to remove the components, LAEng and LAFil, from the model to correct the misspecification. However, since LAEng and LAFil are main independent variables, they cannot be removed entirely from the model. Hence, instead of defining language attitude toward English and Filipino as latent constructs, they were replaced with the observed value or the combined value of the three indicators of the cognitive, affective, and conative components.

Language attitude toward Chavacano (LACHav) was re-specified as an observed variable, instead of specifying it as a latent construct, to improve the model fit further. Besides, a direct path from ethnicity to cognition in the mother tongue was added. This re-specification is shown in Figure 2, containing the adjustments made.



**Figure 2.** The final re-specified model with corresponding path coefficients

Some respecifications were made on the hypothesized model. Of all the model respecifications (most of which were not shown anymore to highlight the major adjustments and improvement in the fit indices), the model in Figure 2 showed the “best fit” in terms of goodness-of-fit indices (GFI = 0.998; AGFI = 0.983; NFI = 0.988; TLI

= 0.960; CFI = 0.992; RMSEA = 0.043) and has the best standardized residual covariances (all of which are less than the absolute value of 2.0).

***Effect size of mediation***

The effect size of mediation was determined through the bootstrap method using the biascorrected method with a 95% confidence interval to overcome any possible problems with the normality of the data and enhance generalizability. Table 5 shows the parameter estimates (path coefficients) of the final re-specified model.

**Table 5**

*Parameter estimates for the final re-specified model (Model E)*

Parameter	Estimate	95% CI (BCa)	
		Lower	Upper
Ethnicity → LACHav	-.352**	-.401	-.300
LACHav → CogMT	.266**	.203	.322
Ethnicity → CogMT	.002	-.059	.065
LAFil → CogMT	.198**	.137	.259
LAEng → CogMT	-.274**	-.333	-.213

\*\* - significant at  $\alpha < 0.01$

Hair, Black, Babin, and Anderson (2014) specify the conditions in establishing mediation effect. Table 5 reveals that mediation exists if any of the following is established after the mediator is included in the model: (1) the relationship between the predictor and outcome variable is reduced but remains significant or (2) the relationship between the predictor and outcome variable is reduced to the point where it becomes not significant. Condition 1 is known as partial mediation, while Condition 2 is known as full mediation. Parameter estimates satisfy these conditions for ethnicity (predictor), CogMT (outcome), and LACHav (mediator), indicating full mediation by LACHav. Thus, language attitude toward Chavacano mediates the effect of ethnicity on one’s cognition in the mother tongue (CogMT). Furthermore, calculating the indirect effect of the predictor to the outcome variable showed the magnitude of mediation to be -0.094 (BCa 95% CI = [-0.12, -0.07],  $p < 0.01$ ), a significant negative mediation effect. This

means that cognition in MT (CogMT) decreases by 0.09 standard deviations for every one standard deviation increase in ethnicity. This implies that as one's ethnicity moves toward *Cebuano* (the indicator of *ethnicity* coded highest), cognition in mother tongue using Chavacano as lingua franca decreases.

The path coefficients shown in Figure 2 could now be used to describe an equation to predict cognition in the mother tongue as an outcome of language attitude toward English and Filipino, and ethnicity mediated by language attitude toward Chavacano. Putting altogether the results of the parameter estimates, the following equation (Eq. 1) may be used to closely estimate cognition in mother tongue with Chavacano as lingua franca:

$$\text{CogMT} = .198*\text{LAFil} - .274*\text{LAEng} - .094*\text{ethnicity} + \text{error} \quad (\text{eq. 1})$$

Equation 1 describes empirically the direct role that language attitude toward Filipino and English as well as the indirect effect of ethnicity, mediated by language attitude toward Chavacano, have on cognition in the mother tongue.

## **Discussion**

The final model showed that there was a significant relationship among the variables – ethnicity, language attitude toward Chavacano, language attitude toward Filipino, language attitude toward English, and cognition toward the mother tongue. Moreover, this was summarized by Equation 1. This finding did not only validate the hypothesized relationship but also indicated a mediation effect of respondents' language attitude toward Chavacano and respondents' ethnicity on respondents' cognition on the Mother Tongue. In contrast, the respondents' language attitude toward English and Filipino has a direct effect on their cognition on the Mother Tongue. The mediation model does not highlight the proximity or similarity of one's language to another; instead, one's familiarity with the language used as a medium of instruction. Familiarity, in this case, stems from the frequency of exposure to languages, other than their own, and actual usage of that language. Thus, one's attitude toward the language used as a medium of instruction (i.e., the lingua franca) influences one's cognition on that language. Hence, one's cognition on Chavacano can be attributed not only to one's familiarity of Chavacano but also to one's attitude toward Chavacano. The construct of familiarity of language, in this sense, can then be extended to include one's "like" or "dislike" and willingness to learn or familiarize oneself with another dialect. Meanwhile, this construct of

“familiarity” was not found to intervene on the influence of attitude toward English and Filipino to one’s cognition in the mother-tongue. A more positive attitude toward Filipino results to better cognition in the mother tongue, while a negative attitude toward English results in better cognition in mother tongue. Moreover, those who have a more positive attitude toward English may find it difficult to learn in the mother tongue regardless of their ethnicity.

### **Mediation effect of the lingua franca**

The model has significant implications for the implementation of teaching in the mother tongue using the lingua franca model. Evidence has shown that the lingua franca used (Chavacano, in this case) has a mediating effect on the cognition in the mother tongue. Attitudes toward English and Filipino, however, are not affected by the mediating effect of the lingua franca, but directly influence cognition in the mother tongue. Thus, as one’s familiarity of Chavacano decreases, cognition in the mother tongue using Chavacano as lingua franca decreases. Also, the more positive is the attitude toward Filipino results in better cognition in the mother tongue. The reverse is the case for attitude toward English and cognition in mother tongue. Stated differently, teaching in mother tongue using the lingua franca model does not affect the transition to learning a second (L2) or third (L3) language but could greatly affect one’s cognition using the lingua franca depending on the proximity of the learner’s ethnolinguistic characteristic or dialect (L1) to the lingua franca. This would be the case in the Philippines, as the Department of Education uses the Lingua Franca Model. Subjects in the primary grades are usually taught using mother tongue, like mathematics, reading, science, social studies, and civics, and others. These then could pose problems, both in learning subject-specific concepts and the lingua franca itself. In most cases, competencies in the subject could not be covered or achieved as intended for those learners whose dialect is different or distant from the lingua franca. Thus, for these learners, the lingua franca, which is supposed to be the mother tongue (L1), becomes a second language.

The foregoing validates the present conditions encountered by teachers and learners of mothertongue-based multi-lingual education (MTB-MLE) in the Philippines. This situation is contradictory to the supposed purpose or benefits of teaching in the mother tongue, that is, teaching students in their mother tongue (L1) are, but not limited to, the facilitating of understanding about the topics presented, better articulation in the discussions taking place inside the classroom and the founding of L1 for the smooth

development of proficiency in the L2 which is supposedly and in most cases the English language (Ejeh, 2004; MacKenzie, 2009; Cummins, 2000). Instead, what is happening is that learners need to learn the lingua franca as L2 and learn English as L3 in addition to achieving a conceptual understanding of the courses taught in the lingua franca.

It is recommended that the Department of Education takes a different perspective with its implementation of teaching in the mother tongue to address multilingualism. It may be a bold course of action, but if it wants reforms resulting in positive outcomes, it is a course worth taking. Research has already provided the evidence; what remains to be done is to make the decision. Ngunga (2011) recommended that language policies must be reflective of the language situation of the country. In fact, he discussed that choosing only one language for a community that speaks multiple ones is never beneficial for society at large. Moreover, he claimed that such practice is significantly disadvantageous for those born or are studying in the “wrong” place where the lingua franca is not their language. Moreover, Tupas (2015) warned about the need to become critical as multilingualism is not merely the presence of two or more languages, but the presence of languages of varying values. This points to the inequalities in multilingualism as some local languages are dominant, and some, sadly, are non-dominant languages.

### **Limitations and future research directions**

It should be noted, however, that the focus of this study is only one lingua franca, that is, Chavacano. Further research may be undertaken in the same context but using other lingua francas. The factor structure of the language attitude constructs as a latent variable defined by cognitive, affective, and conative components is worth investigating. Path analysis has shown that these components do not show significant distinction as indicators of the construct of language attitude. Investigation of the construct validity of language attitude to further validate whether the factors truly define the latent construct they purport to represent is recommended. It is also worthy of looking into the impact of bilingualism as a method of instruction on learners’ cognition in elementary school courses.

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