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Children and Adults Use Linguistic Cues To Inform Pedagogical Preferences

By

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Abstract

The present research looked at Indian adults and children's pedagogical preferences based on the language of the speaker (i.e., *Telugu*, *British-English*, *Indian-English*) and whether the preferences for a language varied with the content of the learning (i.e., learning how to use a music instrument vs. a machine) and context of the learning (i.e., learning to score well on a test vs. learning for fun). In Study 1, adults chose which of two speakers they would want to learn from. There was an overall preference for *Indian-English* across all the trials. In addition, the type of information taught and the context of learning influenced adults' pedagogical choices. While participants with Telugu as their native language still preferred *Indian-English, Telugu* was chosen over *British-English* in the context of learning for fun and learning about cultural instruments. In Study 2, we used the same procedure to examine 5-7-year-old children. Like adults, children exhibited an overall bias for *Indian-English*. Exploratory analyses revealed that children for whom *Telugu* was their native language, were more likely to select *Telugu* over *English* to learn about novel cultural objects and in the context of learning for fun. Although it is difficult to draw inferences from these trends (due to a small sample size), these results indicate that children may show a stronger native-language bias than adults. The results of this project provide new light into the development of linguistic bias in non-WEIRD populations. Overall, they show that both adults' and children's pedagogical preferences are influenced by the familiarity and status of others' language and may vary depending on the content and context of learning.

Word count: 260 words

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Introduction

Language serves more purpose than a means of communication. People make inferences and judgments about others based on their language or their accent. These linguistic cues convey information about an individual's social group, their geographical origins, and even information about their social status (Giles & Billings, 2004; Gluszek & Dovidio, 2010; Labov, 2006). People, in general, prefer individuals who speak their native language (Bresnahan, Ohashi, Nebashi, Liu, & Shearman, 2002) and may even associate negative stereotypes with non-native speakers (Carlson & McHenry, 2002). While this has been routinely documented in Western monolingual populations, less is known about the role of linguistic cues in samples living in multilingual environments. This study, conducted in the multilingual context of India, examined how language-based social judgments affect children and adults' motivation to learn from others, and whether these linguistic preferences are dependent on the content of the information being learned.

Language-based preferences

Research shows that a preference for native language speakers emerges relatively early in development. It has been theorized that children's preference for native language speakers is due to their preference for familiarity (Kinzler, Dupoux & Spelke, 2007). Previous studies indicate that even infants begin to show preferences towards native language speakers (Byers-Heinlein, Burns & Werker, 2010; Moon, Cooper & Fifer, 1993). For example, Kinzler, Dupoux & Spelke (2007) found that 5-month-old infants preferentially looked at speakers with the same native language and accent as the infant (versus speakers with a different language or accent as the infant). Evidence from older infants reveals a selectivity for imitating actions (Buttelman, Zmyj, Daum & Carpenter, 2013; Howard, Henderson, Carrazza & Woodward, 2015) and choosing food as a function of the language people speak (Shutts, Kinzler, McKee & Spelke, 2009), with a

preference for native language speakers. In addition to their preferences, young children (preschoolers) also make inferences about people based on their language. For example, individuals who speak a language that is close to the child's native language are assumed to live in familiar houses and be part of a familiar racial group **(**Hirschfeld & Gelman, 1997; Wagner, Greene-Havas, & Gillespie, 2010). Children continue to show a native language (and accent) bias across childhood. For example, a study by Kinzler et al., (2009) showed that when given a choice, ingroup accent trumped ingroup race in children's friendship choices. White English monolingual children preferred to be friends with children who had a similar accent, even when they were not of the same race. In some cases, however, a preference for higher status groups may supersede children's ingroup bias. For example, native Xhosa-speaking children from South Africa preferred English speakers over Xhosa speakers (Kinzler, Shutts, and Spelke, 2012).

Early social preferences based on linguistic status and membership have been well documented (in WEIRD populations), but less is known about the consequences of these preferences, particularly in the highly consequential domain of pedagogy and learning. Social learning is a critical process through which children gain new information from their environment, and it depends largely on language as a guiding force. Therefore, understanding these early-emerging linguistic preferences can aid in understanding the role of language on children's approach to learning.

Language and learning

Children rely on social agents to learn, and are highly sensitive to verbal cues (Tomasello, Carpenter, Call, Behne, & Moll, 2005). Importantly, these linguistic cues guide children's pedagogical preferences. For example, when provided with conflicting information, children prefer adults who are knowledgeable (Koenig & Harris, 2005; Sabbagh & Baldwin,

2001), reliable (Birch, Vauthier & Bloom, 2008; Clément, Koenig & Harris, 2004; Koenig, & Harris, 2007), and those who appear confident (Birch, Akmal & Frampton, 2010; Matsui, Yamamoto, & McCagg, 2006). Studies have also shown that children prefer learning culturally relevant information from members of the same cultural group as them (Tomasello, 2008), indicating an ingroup bias for culturally relevant knowledge.

Children generally show a preference to learn from native language speakers, particularly for culturally relevant knowledge. Shared language is often perceived as a signal of shared culture (Zmyj et al., 2010). Four-to-five-year-old children prefer to learn and endorse information they learned from individuals who spoke in a similar accent (Kinzler et al., 2011), once again indicating a preference towards people from the same cultural background. Begus, Gliga, & Southgate (2016) proposed that infants are willing to learn more from native language speakers because they perceive them to be reliable sources of information as compared to foreign language speakers. This preference may exist simply because native language speakers show familiar characteristics (Kinzler, Dupoux & Spelke, 2007). Familiarity indicates a shared environment, therefore more likely that the behaviors displayed would be similar to the child's culture and hence the preference to learn from them (Wood, Kendall & Flynn, 2013). At the same time, studies have shown an interesting dissociation between children's native-language preference and their preference for high status languages (Kinzler, Shutts & Spelke, 2012). Such a dissociation may similarly be evident in a multilingual environment like India, where the languages children are exposed to at home are not necessarily the languages associated with higher status. In such a context, children's motivation to learn novel information may not merely be guided by the preference of a native language speaker, but also by the status associated with the language of the speaker.

India

Most of the research described above has been conducted with monolingual speakers from WEIRD (Western, Educated, Industrialised, Rich, and Democratic) populations. Despite being largely represented in research, WEIRD samples represent only 12% of the world's population (Henrich, Heine, & Norenzayan, 2010). As a result, open questions concern what kind of biases exist based on the language that people speak, particularly in a rich multilingual environment where status and familiarity of language interact. India offers a rich linguistic environment where people are exposed to different languages from a young age. India is a multilingual country with a total of 22 official languages with more than 1000 languages spoken throughout. Each of the 29 states in the country is multilingual. There are 33 languages for the purpose of education in India (one of them being English) and 41 languages can be studied in school (NCERT, 1991). English is commonly associated with higher status in urban society with the middle and upper classes (LaDousa, 2005; Ramanathan, 2016; Roy, 2014; Proctor, 2015). With the increasing importance of knowing English to survive in the global economy, English is seen as a requisite to climb up the social ladder (Faust and Nagar, 2001; LaDousa, 2005; Proctor 2015; Roy 2014; Vulli 2014). The role of English as a way to access higher education and higher-paying jobs is recognised and used especially by disadvantageous communities to climb the social ladder (Hornberger & Vaish, 2009; Kam et al. 2009).

Given that people in India generally speak multiple languages, an individual speaking a different language may not necessarily be perceived as being from an outgroup. For example, in the capital city of Telangana, Hyderabad, people communicate in multiple languages including *Telugu*, Hindi, Urdu, and English. In schools of Hyderabad and other educational settings with English as the official mode of instruction, children are exposed to or have knowledge of four languages (and maybe more): *Telugu* (a language spoken in the state of Telangana, of which

Hyderabad is the capital), Urdu (another language spoken in Hyderabad), Hindi (a language common among individuals across the country, in urban settings) and English (medium of instruction in schools). Therefore, children may not necessarily represent speakers of different languages as belonging to different groups, but the language others speak could influence the type of inferences children make about others, such as how Indian, friendly, intelligent or high in status they are.

In fact, a previous study by Santhanagopalan, DeJesus, Moorthy & Kinzler (2021) conducted in Chennai, India, found that the language people speak influences 5-10-year-old children's inferences about nationality, as well as their social attitudes. Among Tamil (local state language), Hindi, Indian-accented English and British-accented English speakers, Tamil speakers were chosen as more Indian, indicating children's preference for their local language. Importantly, this native language bias did not extend to all traits, for example, British-accented English speakers were chosen as better leaders. Children's language-based social inferences suggests that they may similarly exhibit pedagogical inferences and preferences on the basis of language.

Present Study

The present study looked to understand the role of linguistic status in Indian adults' (Study 1) and Indian children's (Study 2) pedagogical intuitions and preferences. Participants were presented with three linguistic conditions: *Indian-English*, *British-English* and *Telugu*. Telugu is the official language of the state of Telangana and Andhra Pradesh (Krishnamurti, 2019), and therefore likely to be a native language for a majority of our participants. Even if not, it is a language that people from Hyderabad have been exposed to and are familiar with. English is the medium of instruction in majority of educational institutions and workplaces and is

associated with a higher status. The accent of English was manipulated in order to distinguish between language status and accent familiarity. Thus, by presenting these three linguistic conditions we aimed to test the influence of familiarity and status in adult and children's pedagogical preferences.

Across both studies, we presented participants with pictures of novel objects (a machine or a musical instrument) and asked them to indicate which speaker they would want to learn from for fun and to get good marks on a test. By doing this, we wanted to test if the content of information or the context in which the learning would occur, could alter the participant's preferences.

Study 1

In Study 1, adults in Hyderabad, India were asked to decide from which speaker they would want to learn from. In this 2x2 within-subjects factorial design, we manipulated the learning content and the learning context. One possibility is that when seeking cultural knowledge (i.e., learning about a local musical instrument), participants may prefer to learn from a local language speaker (e.g., Telugu or Indian-English), since a speaker of a local language is likely to possess relevant knowledge of the local culture (Tomasello, 2008). Second, when seeking knowledge about a novel machine, they may prefer to learn from individuals perceived as smarter, or individuals associated with leadership and high-status (e.g., British-English). Given that the children in this sample came from English-medium schools, it is possible that participants prefer to learn from an *English* language speaker to score well on a test but prefer to learn from a Telugu speaker to learn for fun.

Methods

Participants. We tested 115 adult participants residing in Hyderabad, India. Participants were recruited online by distributing the survey link through different social media platforms. We obtained demographic information from around 47% of the participants (25 males, 29 females; M_{age} = 34.7 years; range = 18 to 65 years; *SD* = 11.68 years). All the participants identified as bilingual or multilingual. Most of the participants (84%) had graduate level education (a Masters' degree of higher), 13.4% had undergraduate level education and 0.02% participants were high-school graduates. An additional 233 adults opened the survey but did not answer all the questions and were excluded from the analysis.

Materials. The auditory stimuli were recorded by two different native speakers for each of the three linguistic conditions (*Telugu*, *Indian-English* and *British-English*). Audio clips consisted of a simple sentence which was neutral in content. Table 1 contains the sentences used as stimuli. For the *Telugu* audio stimuli, the sentences were translated from English by two native speakers to ensure reliability. The translated sentences were then recorded from two different native speakers from the region of Hyderabad.

The visual stimuli consisted of six photographs of South Asian women selected from the internet. These pictures were chosen from a set of 42 pictures in which 40 adult participants in MTurk were asked to rate the attractiveness of the faces on a scale of 1 to 5 (where 5 meant maximum attractiveness) and also rate their ages (between 20 to 50 years, with five-year increments). The faces included in the experimental design were selected randomly from a subgroup of faces that were within the interquartile range for attractiveness and within interquartile range for age ($M_{attractiveness}$ = 3.38, range = 2.92-3.8; M_{age} = 28.5, range = 26-30.1).

Additionally, the stimuli included pictures of objects of two types: an obscure machine and an obscure musical instrument. These objects were intentionally selected to be unfamiliar to the participants. Each object was given a novel name and description. Table 2 lists the names of the objects along with their descriptions.

	Sentence
1	**The Pacific Ocean is very deep**
2	**Plants need sunlight to grow**
3	**There are many different kinds of animals at the zoo**
4	**Ice cream is a food that is very sweet**
5	**There is a full moon every thirty days**
6	**Sometimes there is a seesaw at the park**

Table 1: Table showing sentences used as stimuli

Object	**Name**	**Description**
	Boskot	A Boskot is a musical instrument which makes sounds like clapping hands

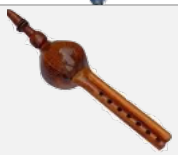
	Fiffin	A Fiffin is a machine that keeps things warm
	Toma	A Toma is a musical instrument which sounds like a motorcycle
	Chatten	A Chatten is a machine that is used to solve math problems
	Doopy	A Doopy is a machine used to open doors
	Kita	A Kita is a musical instrument that makes loud sounds like thunder

Table 2: Table showing description of objects used in the study

Procedure. The entire study was conducted online. After consenting to participate in the study, adults completed a survey via Qualtrics. First, to familiarize them with our questions, participants engaged in a warm-up exercise, in which they were asked to give examples of something that they learnt for fun versus something that they learnt to do well on a test. The purpose of this exercise was to introduce the participant to the two kinds of learning that we were interested in testing. Following this exercise, the main instructions of the study indicated to participants that they would be presented with people who speak in different ways.

The order of presentation of the stimuli was as follows. First, the object (either cultural instrument or machine) was presented along with a description. Next, two faces appeared, and participants were asked to play the sound associated with each of them. The sounds were the recorded stimuli, and the same sentence was played for both faces in the corresponding language/accent (see Figure 1). After this, the object reappeared and was followed by the two questions of interest:

1) Imagine you're going to take a test on how to play this instrument. Who would you learn from to get better marks?
2) Imagine you want to learn how to play this instrument to have a good time. Who would you want to learn from to have more fun?

For each question, participants could select the face of the person they would want to learn from. This constituted one trial. There were two kinds of trials used. For the second trial, the same stimuli was repeated again, except with a different object than that used previously (cultural instrument or machine). Two trials as described (for the same language contrast) constituted one block. Each participant was presented with a total of 6 trials, organised within three blocks (for the three different language contrasts). The order of presentation of the objects, the side in which

the targets appeared, and the language-face pairings were all counterbalanced across participants, Figure 1 shows a sample of a trial with the *Telugu* - British Accented English contrast.

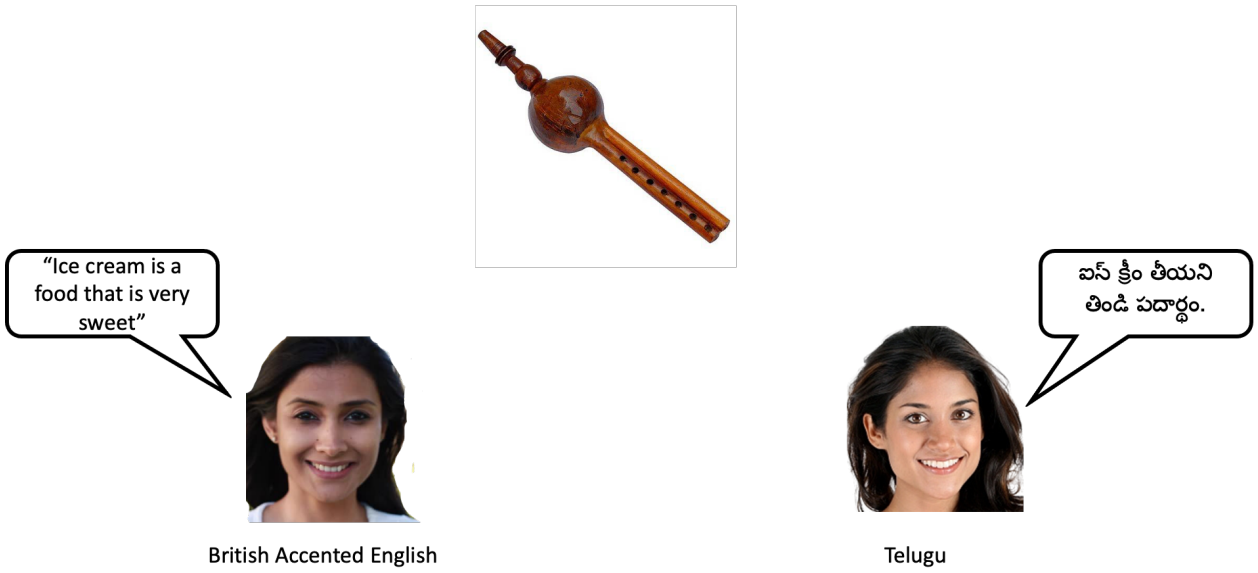


Figure 1. Figure showing a sample trial

Results

Analysis Plan. First, we calculated the percentage of times participants chose *Indian-English*, *British-English* and *Telugu* across all possible contrasts. Next, for each contrast we performed binomial exact tests and reported the percentage of times each language was chosen (e.g., the percentage of times *Indian-English* was chosen in the *Indian-English vs. Telugu* contrast). Next, to assess the role of question and object type on the responses, we constructed a binomial regression model for each language contrast, followed by post hoc analyses. Finally, as part of an exploratory analysis, we examined the role of native language on the response choice.

Across all the trials, *Indian-English* was chosen 46% of the time, *British-English* was chosen 34% of the time, and *Telugu* was chosen 19% of the time. In the *British-English vs.*

Telugu contrast, *British-English* was chosen 68% of the time. For the *Indian-English vs. Telugu* contrast, *Indian-English* was selected 74% of the time. Finally, for the *British-English vs. Indian-English* contrast, *Indian-English* was chosen 64% of the time. Binomial exact tests confirmed that participants chose *British-English* against 50% chance as compared to *Telugu* ($p < 0.001$). *Indian-English* was chosen more against 50% chance as compared to *British-English* ($p < 0.001$). Similarly, *Indian-English* was chosen more against 50% chance as compared to *Telugu* ($p < 0.001$).

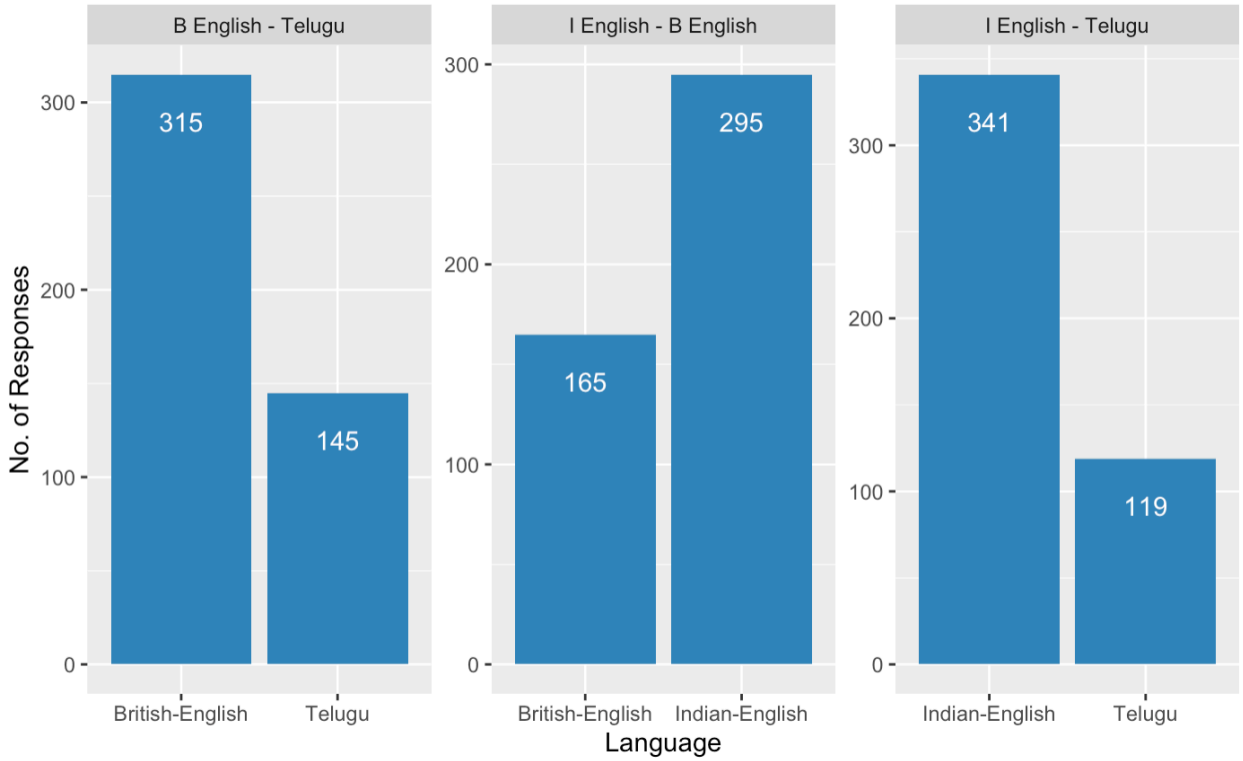


Figure 2: Graph showing number of times adults chose each language overall across all trials for each language contrast

To further observe the effect of the type of object (machine vs. musical instrument) and type of learning (learning to get good marks vs. learning for fun) we constructed binomial regression models for each contrast. The independent variables were question type (categorical,

with two levels) and object type (categorical with two levels). The binomial regression model for the *Indian-English vs. Telugu* contrast showed that there was a significant effect of question type ($p = 0.001$) and a marginal significance of object type $(p = 0.05)$. As a post hoc test, we conducted a binomial test to see if the preference changed based on either of the two object types (machine or musical instrument) or question types (learn for fun or learn for marks). Both tests showed that *Indian-English* was chosen more than chance. While there was an overall preference for *Indian-English,* participants tended to choose *Telugu* speakers more often when choosing to learn for fun (number of responses = 72) than when choosing to learn to score good marks on a test (number of responses = 47), and also when choosing to learn about musical instruments (number of responses = 68) as compared to when learning about machines (number of responses = 51). For the *British-English vs. Telugu* contrast, a significant effect of object type ($p = 0.01$) and a marginal significance of question type ($p = 0.1$) was found. Post hoc test once again revealed no difference between the two object types. Both tests showed that *British-English* was chosen more than chance. While there was an overall preference for *British-English,* participants tended to choose *Telugu* speakers more often when choosing to learn for fun (number of responses = 82) than when choosing to learn to score good marks on a test (number of responses = 63), and also when choosing to learn about musical instruments (number of responses = 83) as compared to when learning about machines (number of responses = 62). Finally, for the *Indian-English vs. British-English* contrast, there was a significant effect of question type ($p < 0.05$). Post hoc tests once again revealed no significant difference between the two question types. Both tests showed that *Indian-English* was chosen more than chance. While there was an overall preference for *Indian-English,* participants tended to choose *British-English* speakers more often

when choosing to score good marks on a test (number of responses = 93) than when choosing to learn for fun (number of responses = 72).

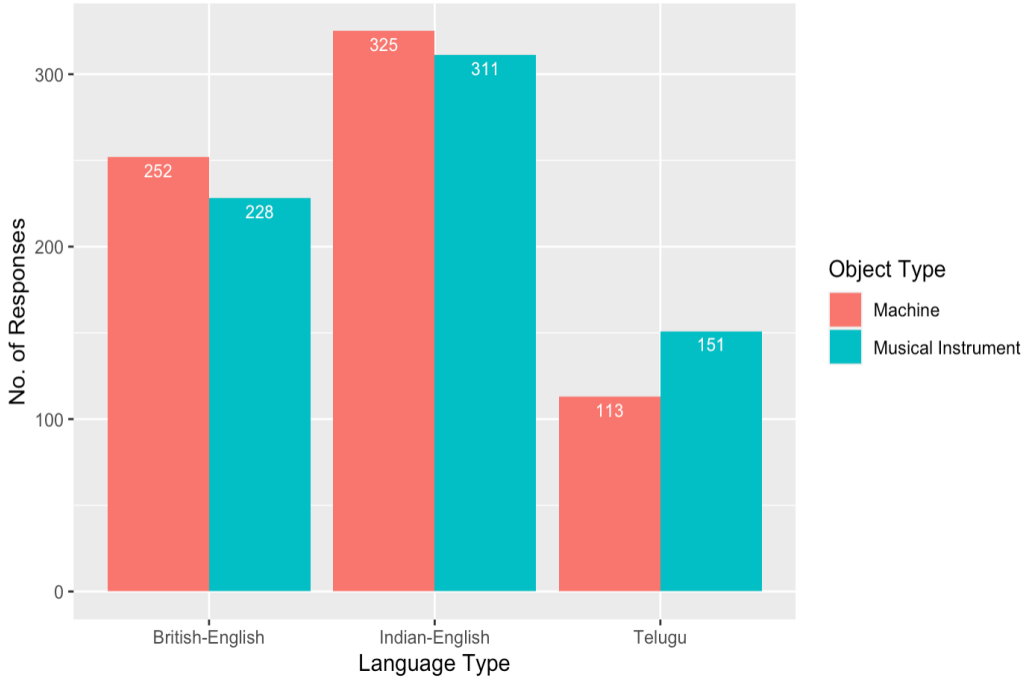


Figure 3. Graph showing number of times adults chose each language based on Object Type (either machine or musical instrument)

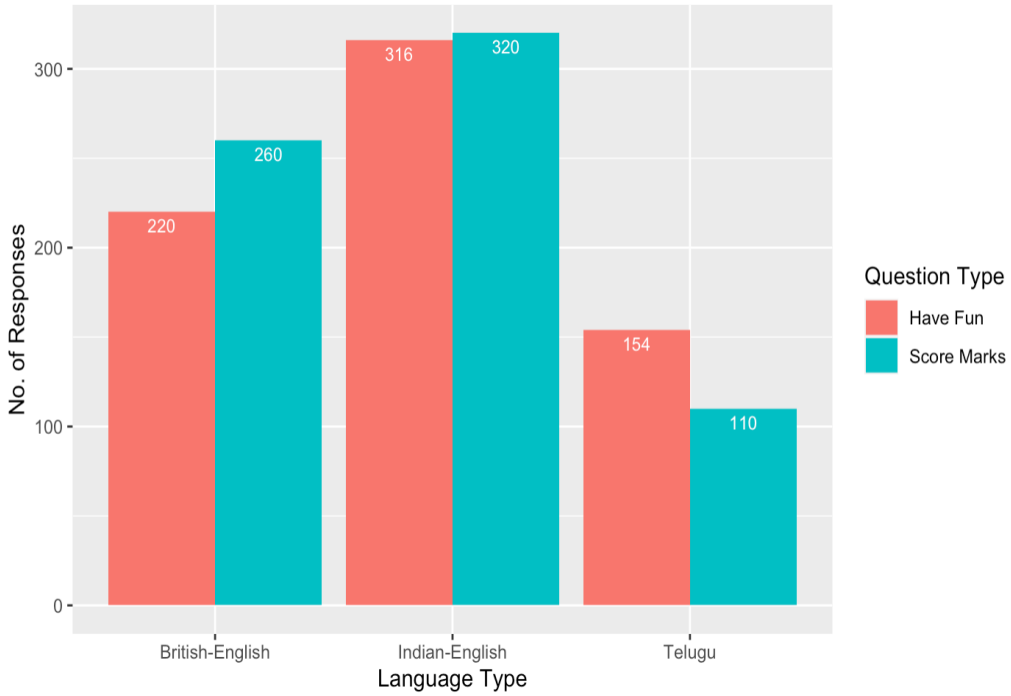


Figure 4. Graph showing responses in each language based on Question Type (learn to have fun or score marks)

Exploratory analyses revealed that *Telugu* was a major native language among the participants. For the purpose of analyses, we grouped participants into two groups, those with *Telugu* as their native language (N=21), and those with other native languages (N=33). Participants with *Telugu* as their native language chose *Indian-English* for a majority of their responses (43%), followed by *British-English* (29%) and *Telugu* (27%). However, a different pattern was observed depending on the question type. The preference for *Indian-English* was followed by *British-English* (34%) and *Telugu* (26%) when asked which speaker participants preferred to learn from to score better marks, but *Telugu* (30%) was chosen more than *British-English* (26%) in the learning for fun condition. There was a difference in the pattern responses based on objects as well. For machines, *Indian-English* was chosen 48% of the time, followed by *British-English* which was chosen 30% of the time and *Telugu* which was chosen the least (21%). Instead, for musical instruments Indian English (38%) was closely followed by *Telugu* (33%) and British English was chosen the least (28%).

Participants with native languages other than *Telugu* chose *Indian-English* for most of their responses (48%), followed by *British-English* (40%) and finally *Telugu* (12%). The responses did not vary with question type or object type (see Figure 4).

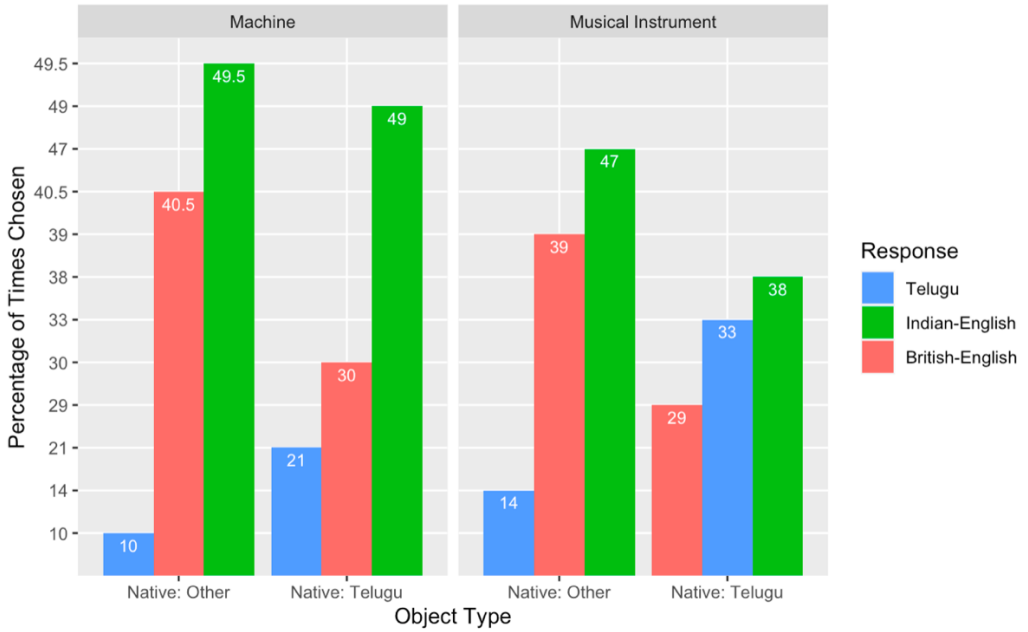


Figure 5. Graph showing responses based on Object Type for participants with Telugu as their native language and participants with Other native languages.

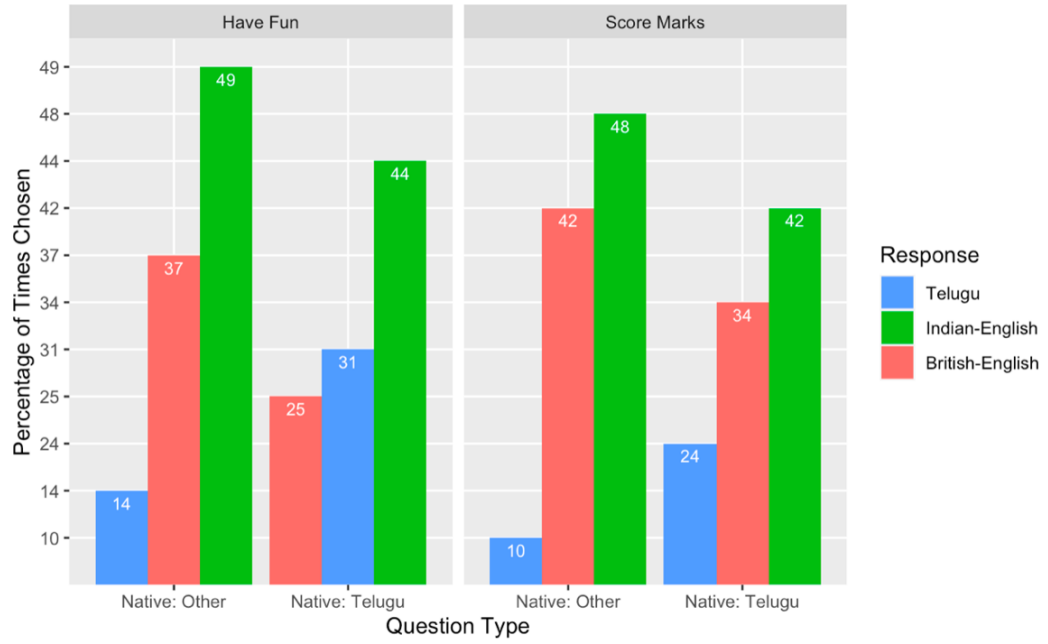


Figure 6. Graph showing responses based on Object Type for participants with Telugu as their native language and participants with other native languages.

Discussion

Study 1 looked at the pedagogical preferences of 115 adults from Hyderabad, India based on the language of the speaker. When making pedagogical decisions, adult participants exhibited language-based selectivity. There was an overall preference for *Indian-English,* over both *Telugu* and *British-English.* There could be multiple reasons for the same. Firstly, *Indian-English* presents a unique combination of the high-status language (English) with the familiar/native accent and therefore may be preferred more than the local language (*Telugu*) and the foreign accent, *British-English* (Santhanagopalan, DeJesus, Moorthy & Kinzler, 2021). Secondly, *Indian-English* is the most familiar language that the majority of communication occurs in work related environments. Finally, English has a higher status and education in English is considered to help people move higher on the social ladder, hence an increase in demand for the language (Agnihotri, 2007). Therefore English, specifically *Indian-English* is likely to be preferred for learning. As predicted, we found variation in responses based on the object type and question type. On examining responses based on question type, we found that the type of question significantly predicted participants' responses in the *Indian-English vs. Telugu* contrast and *British-English vs. Telugu* contrast, and a marginal significance was found also for the *British-English vs. Telugu* contrast. As predicted, adults chose more often languages associated with more familiarity in the "learning for fun" rather than "learning to get better marks" condition. However, unlike our hypothesis, they showed a preference for *Englis*h speakers over *Telugu* across all conditions.

Based on object type, we found that the type of object predicted the responses in the *British-English vs. Telugu* contrast and a marginal significance in the *Indian-English vs. Telugu* contrast. There was an increase in the responses for *Telugu* responses for learning cultural

objects as compared to machines. This preference for *Telugu* with cultural objects might be due to the tendency of adults and children attributing cultural knowledge with the native language speaker (Soley & Aldan, 2020). Language is often considered as a barrier between different cultures (Zmyj et al., 2010) and therefore it was predicted that more individuals would choose a *Telugu* speaker for learning about a cultural object. However, unlike our hypothesis, *Indian-English* was still the most chosen language for both object types. Thus, despite the content of the information and the learning context influenced participants' responses, we found an overall English-bias that hindered the effects of object type and question type.

The exploratory analysis revealed interesting patterns. On grouping participants based on their native language (*Telugu* and Other), we found that both had different trends. While Indian English speakers were always the most chosen, *Telugu* speakers were picked more than *British-English speakers* in the context of learning for fun and for learning about musical instruments for those with *Telugu* as their native language. Language has shown to be a marker between communities (Soley & Spelke, 2016), explaining why cultural knowledge is preferred to be sought from members of the same community. It is however, difficult to draw any conclusions from this data because of our limited sample size. There were no such patterns observed for the group of participants with other native languages, though this is likely since they belonged to diverse language backgrounds.

Based on the results of this study, we can conclude that there exists a strong *Indian-English* bias in adults. While this may be the result over years of socialization, at what stage of life do these preferences emerge? Examining a time in development where majority of important learning takes place (ages 5 to 7), might be a good place to start. Previous studies have found that the preference for speakers of a native-language or a language associated with higher-status

emerges early in life (references). In the context of India, Santhanagopalan et al. (2021) found that children showed some positivity bias towards speakers of their local and familiar language. Based on these findings, we hypothesized that the language that others speak would inform 5-to-7 children's pedagogical preferences. Santhanagopalan et al. (2021) found a bias towards the local language when asked about who is more "Indian" and more "kind". Thus, unlike to adults, children who have Telugu as a native-language may prefer Telugu-speakers as compared to speakers of English, particularly in the context of learning for fun and when the content is about cultural objects (musical instruments).

Study 2

In Study 2, children (ages from 5 to 7) from English-medium schools in Hyderabad, India were asked to decide from which speaker they would want to learn from. The Study followed a similar design as Study 1.

Methods

Participants. We tested 36 children between the ages of 5 to 7. The children were recruited from three different schools located in Hyderabad. The process of recruitment of participants and getting their consent consisted of three steps. First, we contacted the school and obtained their consent. Once they agreed, the school contacted parents, and the contact information of only those who were willing to participate in the study were given to us. We then contacted the parents individually and asked them to fill in an online consent form as part of the second step. The parents were also asked to schedule a time according to their convenience when they could be contacted to conduct the study. Thirdly, right before beginning the study, the consent of the child was asked.

Materials. The materials used for this study were identical to Study 1.

Procedure. The procedure for this study was identical to Study 1, with a few exceptions. The study was conducted in real-time with an experimenter via Zoom. Unlike in Study 1 where adult participants chose from whom they would learn, children were given three options: Target A, Target B, or both speakers. In the warm-up exercises for child participants, they were asked to provide examples of something that they would learn for fun and something they would learn for marks. After this they were shown pictures of two animals in different colours and asked which of the animals were blue in colour. This was done to familiarise them with the procedure. Children were also asked which language they would prefer to take the survey in (*English*, *Telugu* or *Hindi*).

Results

For the purposes of analyses, participants of different age groups were grouped together due to a small sample size. Across all the trials (excluding the choice of "both the same"), *Indian-English* was chosen 42% of the time, followed by *British-English* which was chosen 34% of the time. *Telugu* was chosen the least number of times (24%).

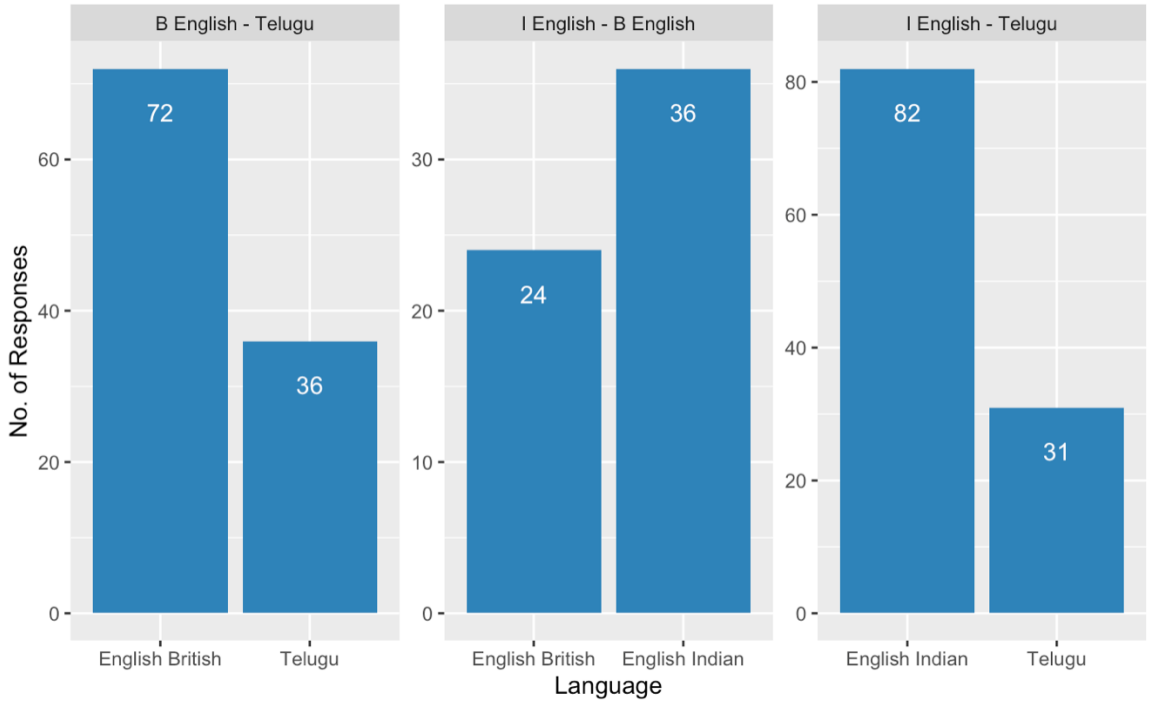


Figure 7: Graph showing number of times participants chose each language overall across all trials for each language contrast

We then observed choices based on the language contrasts. In the *British-English vs. Telugu* contrast, *British-English* was chosen 66.7% of the time. For the *Indian-English vs. Telugu* contrast, *Indian-English* was selected 73% of the time. Finally, for the *British-English vs. Indian-English* contrast, *Indian-English* was chosen 60% of the time. Using binomial exact tests against 50% chance (excluding the both the same response), we could confirm that participants chose *British-English* above chance as compared to *Telugu* ($p = 0.006$) but chose *Indian-English* more than chance as compared to *British-English* ($p < 0.001$) and *Telugu* ($p = 0.0033$). Participants in this study were also given the option to choose "both the same" and among all the other responses, this was chosen the most (35%). Within contrasts, this option was chosen the

most for the *British-English vs. Indian-English* contrast (58%), followed by the *British-English vs. Telugu* contrast (25 %) and finally the *Indian-English vs. Telugu* contrast (21%).

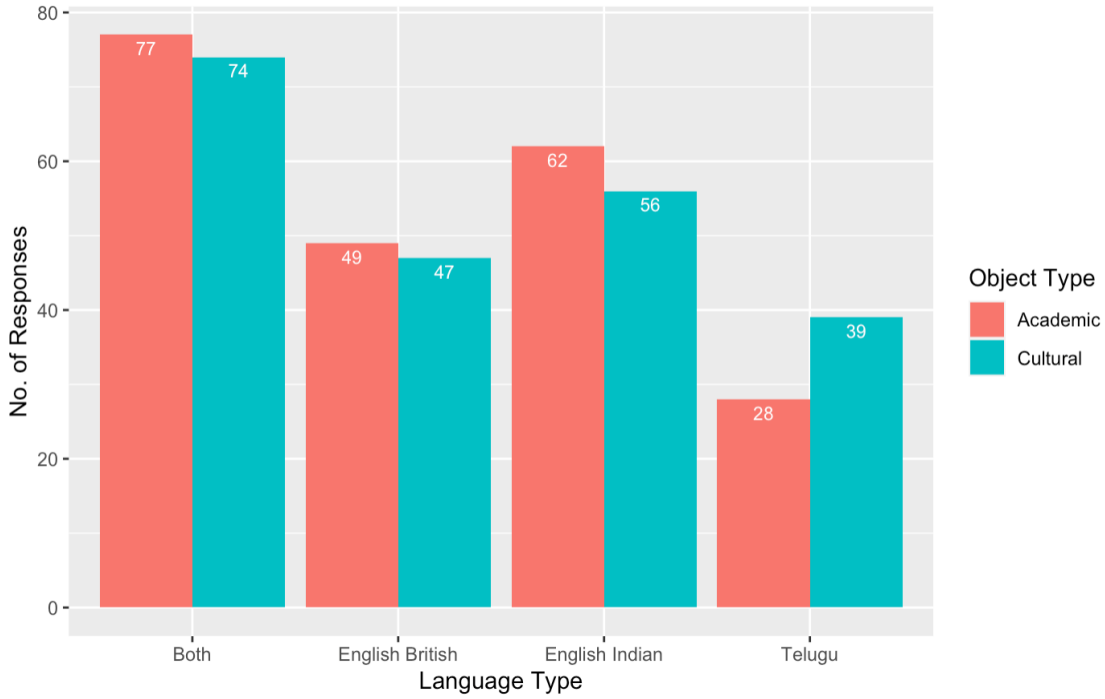


Figure 8. Graph showing total number of responses based on Object type

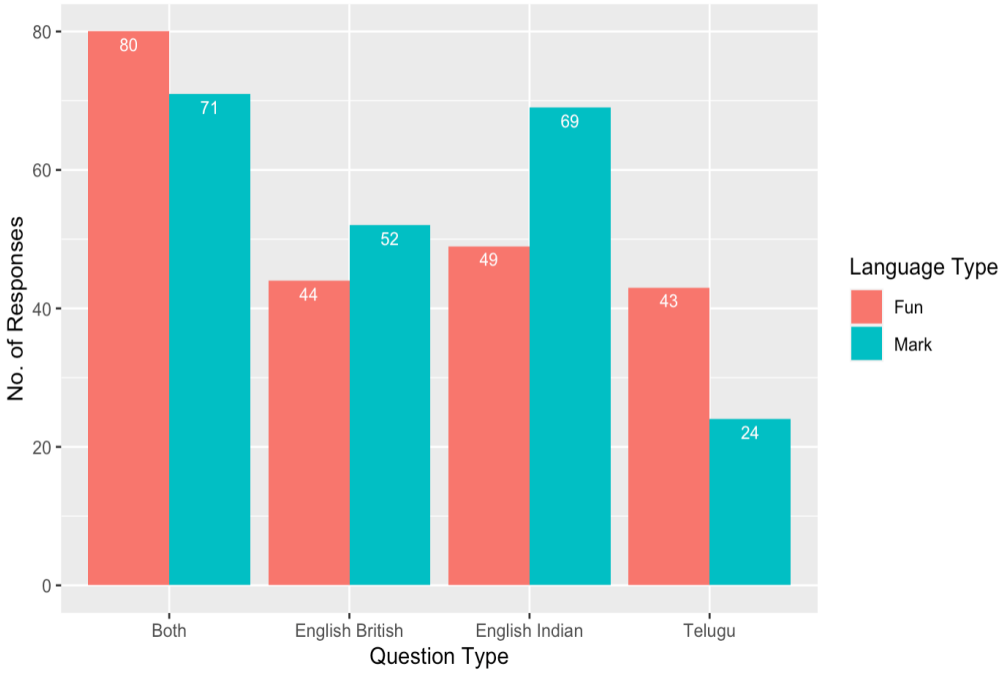


Figure 9. Graph showing total number of responses based on Question Type

To further observe the effect of the type of object (machine or musical instrument) and type of learning we constructed bimodal regression models for each contrast. The binomial regression model showed that there was no significant effect of question type or object type on any of the three contrasts.

Exploratory analyses revealed that *Telugu* was a major native language among the participants. For the purpose of analyses, we grouped participants (who had provided information about their native language, N=24) into two groups, those with *Telugu* as their native language (N=19), and those with other languages (N=5). Participants with *Telugu* as their native language chose *Indian-English* for a majority of their responses (19.5%), closely followed by *Telugu* (18.5%) and *British-English* (18%). The choice "both the same" was chosen 44% of the time. A different pattern of observations was observed depending on object type. The choice "both the same" was chosen 47% of the time for machines and 43% of the time for instruments. The preference for *Indian-English* (37%) was followed by *British-English* (32%) and *Telugu* (30%) when asked which speaker participants preferred to learn about the machine, but *Telugu* (35%) was chosen the most in selecting speakers for learning musical instruments, followed by Indian and British- English (both at 32.5%). There was a difference in responses based on question type as well. To learn for marks, *Indian-English* was chosen 39% of the time, followed by *British-English* which was chosen 37% of the time and *Telugu* which was chosen the least (24%). Instead for learning for fun, *Telugu* (42%) was followed by *Indian-English* (30%) and *British-English* (28%). "Both the same" was chosen 44% of the time for learning for fun and 45% of the time for learning for marks.

Participants with native languages other than *Telugu* chose *Indian-English* for most of their responses (45%), followed by *British-English* (42%) and finally *Telugu* (12%). The choice "both the same" was chosen 33% of the time. When asked which speaker they preferred to learn from to score marks, these participants were most likely to select *Indian-English* (59%), followed by *British-English* (32%) and *Telugu* (9%). For learning for fun, *British-English* was the most chosen response (55%), followed by *Indian-English* (28%) and *Telugu* (16%). "Both the same" was chosen 40% of the time for learning for fun and 26% of the time for learning for marks. *British-English* was chosen 45% of the time for machines, followed by *Indian-English* (40%) of the time and *Telugu* which was chosen the least (14%). For the musical instruments, *Indian-English* was selected the most (50%), followed by *British-English* (39%).

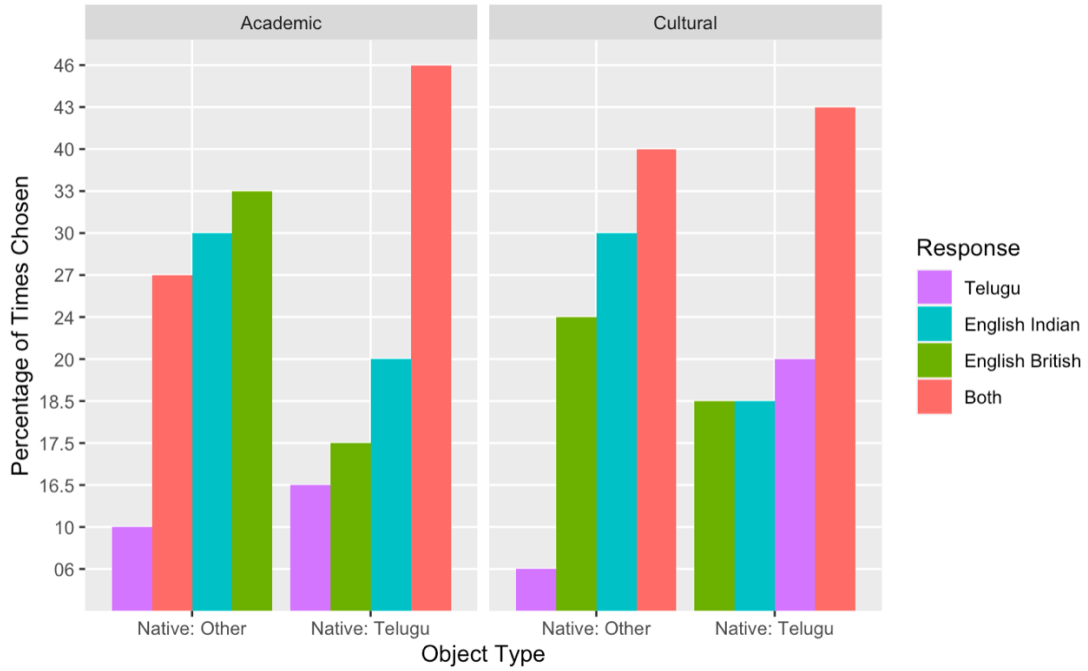


Figure 10. Graph showing responses based on Object Type for participants with Telugu as their native language and participants with other native languages.

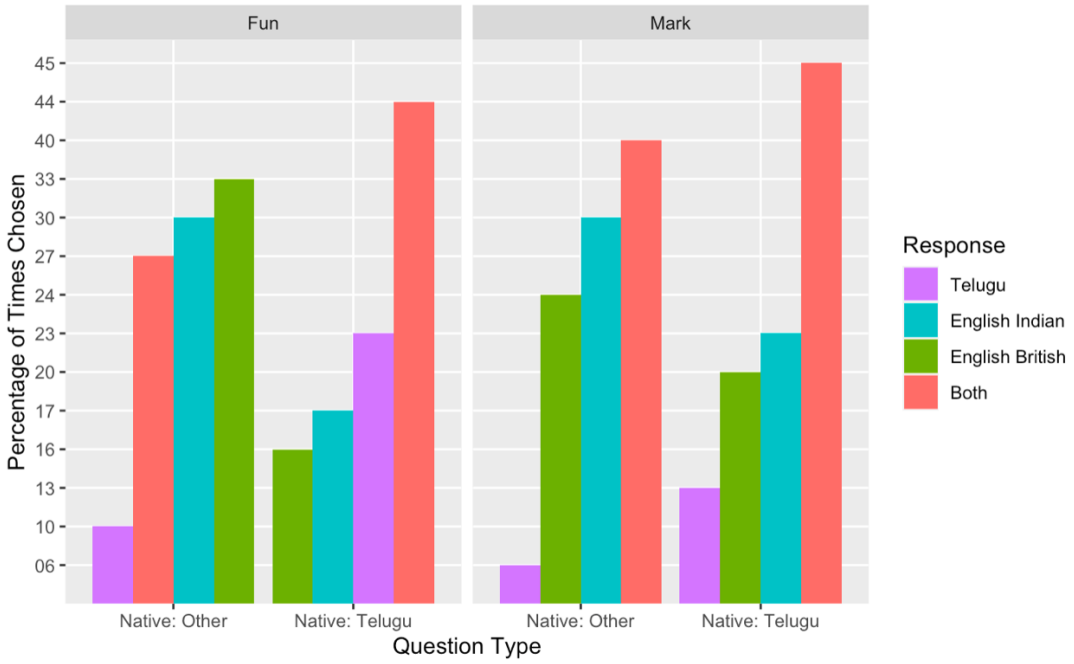


Figure 11. Graph showing responses based on Object Type for participants with Telugu as their native language and participants with other native languages.

Discussion

When making language-based pedagogical decisions (excluding the option of both the same), children overall had a preference for *Indian-English* over *British-English* and *Telugu* speakers. Similar to what we found in adults, across trials, learning contexts and content, *Indian-English* was preferred over *British-English* and *Telugu*. This could indicate that the preference for *Indian-English*, does not develop in later stages of life but is prevalent since childhood. Children seem to be aware about the relative status of languages in the environment around them and that alters their preferences.

Factors such as the object children were asked to learn from, the context of learning and the native language of participants, showed some interesting patterns. Although no significant

effects were found, these data provide some hints about children's pedagogical preferences based on the language others speak.

Though the bimodal regression models showed no significance effect of question type or object type, some trends were observed from the responses. Unlike Study 1, the responses for learning content (academic and cultural) and contexts (for fun and for marks) followed similar trends – *Indian-English*, *British-English* and *Telugu*. The *Indian-English* preference could be attributed the same reasoning as stated in Study 1. *Indian-English* presents a unique combination of the high-status language (English) with the familiar/native accent and therefore may be preferred more than the local language (*Telugu*) and the foreign accent, *British-English* (Santhanagopalan, DeJesus, Moorthy & Kinzler, 2021). Secondly, *Indian-English* is the most familiar language that the majority of communication occurs in work related environments. Finally, English has a higher status and education in English is considered to help people move higher on the social ladder, hence an increase in demand for the language (Agnihotri, 2007). Therefore English, specifically *Indian-English* is likely to be preferred for learning. What is interesting is that the effect of status of language seems to be visible in children as young as 5-year-old.

However, when we grouped the participants based on whether their native language was *Telugu* (*Telugu*) or not (Other) the trends changed. For learning machines, participants from the *Telugu* group selected both the same option the most whereas participants from Other group, selected *British-English* the most. For cultural objects, both the groups chose both the same option the most, but *Telugu* was the second most chosen option for the *Telugu* group. Contrastingly, *Telugu* was the least chosen option for the Other group. For responses based on question type, learning for marks had a similar pattern of responses for both groups (*Indian-*

English, *British-English* and *Telugu*). Excluding the responses of both the same, for learning for fun, the *Telugu* Group were most likely to select *Telugu*. The preference for *Telugu* with cultural objects could be attributed to the tendency of individuals attributing cultural knowledge with the native language speaker (Soley & Aldan, 2020; Tomasello, 2008). Preference for *Englis*h when learning content and in a context associated with academic knowledge (i.e., learning about machines and to get good marks on a test), remains the same in both adults and children. This preference can be attributed to children exclusively receiving their education in English, and thus them relating the language with academic learning. Whether this bias would remain for children from lower SES who are not exposed as much to English and study majorly in their native language, remains as an open question.

While this sample shows us interesting trends, it is not of a large enough size for us to draw strong conclusions from it. We are currently in the process of conducting this study with a larger size of participants to understand these patterns further.

General Discussion

Across two studies, we examined language-based pedagogical preferences in adults and children in India. In both studies, adult and child participants revealed a strong preference for *Indian-English* to learn about novel objects (i.e., machine or a musical instrument) and regardless of the kind of learning involved (i.e., to learn for fun vs to get marks on a test). This pattern remained among adult participants for whom *Telugu* was their native language, but not among kids for whom *Telugu* was their native language.

Adults' and children's *Indian-English* bias was robust across all objects and learning contexts. One possibility is that *Indian-English* was seen as both high status and familiar. The

language-based biases for bilinguals and multilinguals are therefore nuanced. However, in this case the preference is towards one particular accent of *English*, more specifically, the native accent (*Indian-English* over *British-English*). This could indicate that the bias is not just towards English, but a more familiar form of *English*, one which is used in both academic and work environments in Urban India. The general preference for *Indian-English* seems to be similar to a native language bias, seen in monolinguals (Kinzler et al., 2007). However, in the case of monolinguals, status and familiarity of a language overlap. Studying these preferences in the context of India, where these factors individually affect the preferences that adults and children make could be helpful in unpacking their effects more.

We observed an interesting difference between adults and children, whose native language was Telugu. Unlike adults, children with *Telugu* as their native language, chose it over *British-English* and *Indian-English* for learning about cultural objects. As studies have previously shown (Tomasello, 2008), children prefer to learn cultural knowledge from native language speakers. This could explain their choice. Though we need to interpret the results of Study 2 with caution, the patterns may be showing that for children, the preference for a native language could be stronger as compared to adults. With a larger sample size, we will also be able to examine these preferences and how they develop or change over the years.

One difference between both the studies, was that children were offered the choice of "both the same" on every trial. We did not include this option in adults since we could get their direct preferences using the forced choice paradigm. On closer examination of the small sample that we currently have from children, it seems like this option was selected most in the *Indian-English* vs. *British-English* contrast. This may be because children were unable to distinguish between both the accents and treated them as one language (i.e., *English*). It could also be likely

that they were able to distinguish between the accents, but attributed them both to similar high status. While it has been shown that in adults accent influences their perceptions of competence, social status, intelligence, confidence, guilt, success, and fluency (Ryan and Giles, 1982), this is an interesting trend, which could be because children have not yet learnt to distinguish the social position of the accent.

A limitation of the study is that the entire survey was conducted in *English*. This might lead to some bias in the participants. Conducting the survey in *English*, could introduce a preference towards the language. Children were given the option to pick a language they were comfortable in for the survey, however for adults, it was entirely in English. Additionally, the forced choice paradigm in adults may obscure nuanced inferences. For example, would adults also tend to prefer both *British* and *Indian-English* in the *British English – Indian English* contrast? Finally, the sample for Study 2 was small (N=36), and therefore no strong conclusions can be drawn. To understand them more and study the emerging patterns, a larger sample size is required. Currently, we are in the process of recruiting and interviewing more child participants.

Open questions concerning the role of native language in children's pedagogical preferences remain and we hope to understand more when we have a larger sample size. Familiar language bias in children may transition towards high-status language. Through our study, we found that children and adults have an overall preference for *Indian-English* across different learning contents and contexts. Participants with Telugu as their native language, were more likely to select Telugu speakers for learning about cultural objects or when learning for fun, as compared to those who had other native languages. For these particular situations, child participants chose *Telugu* over both *British* and *Indian English.* Future studies could look at the effect of native language on children's preferences and how it changes across different ages.

Little work has examined children's language-based attitudes in consequential domains such as pedagogy. Our study shows that children are sensitive to status and familiarity, and contributes to better understand the development of linguistic bias in multilingual and non-WEIRD populations.

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