

Psychology of Bilingualism and Multilingualism
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Hello and welcome to the course Introduction to The Psychology of Bilingualism and Multilingualism. I am Dr. Ark Verma from the Department of Cognitive Sciences at IIT Kanpur and this is the final week of this course. In this week I am going to talk to you about some of the miscellaneous topics about bilingualism and multilingualism and cover a bunch of things that we have not already covered before. We have talked so far about acquisition of bilingualism, multilingualism, usage of bilingualism, multilingualism, we have talked about cognitive consequences, we have talked about control issues, we have talked about many different things. But in this week I will try to basically talk about aspects that talk about how bilingualism touches our lives in different ways, what kind of social and practical consequences it may have for bi and multilinguals.

Let's go ahead. Now while the phenomena of bilingualism is itself intriguing, it is fascinating that it has become more of a norm than an exception in the past few decades. Where anywhere across the world if you go and more so in India, it is fascinating that bilingualism and multilingual individuals basically, you know, everybody knows more than one language and their knowledge of more than one language actually affects different areas of their life. For example, their communicative efficiency, their academic achievement, their ability to learn to read and write, their job prospects and so many other things.

So in this last series of lectures I will actually focus on some of these interesting aspects of how bi or multilingualism may actually affect, you know, different walks of our lives and we will try and understand or explain the same. Now it is fascinating that a large proportion of students in the world and especially in India actually enter a school without speaking the language of instruction. And this is interesting because while there are obviously regional language schools in all parts of India, say for example, there are Hindi medium schools in UP, there are Tamil medium schools in Tamil Nadu, Marathi medium schools in Maharashtra, but a lot of us, a large proportion of school going students actually attend school, you know, which follows a medium of instruction that is not their native language. Basically a lot of us attend English medium schools. English is the second language that we learn probably, you know, first in school and then later because for probably, you know, almost all of us, English is not spoken at home as much

as, you know, our native language.

So although, you know, people, students sort of cope up with this and they, you know, do well for the most part, the instruction and education in second language has consequences for literacy. And it is interesting that this is one of the aspects in bilingualism that has been rather understudied. And moreover, researchers from different fields of inquiry, be it language acquisition, cognitive development and education, and have basically, you know, developed their explanatory models about various phenomena in their fields with the underlying assumption that children have a single mind that deals with a single conceptual system with a single language. Now it is interesting while bilingualism and multilingualism has actually become a norm and everybody almost, you know, you look around speaks at least two, if not more languages, the theoretical explanations of the phenomena, you know, psychological phenomena and individuals actually go with the assumption, a slightly simplified assumption that people have a single unitary conceptual system and they basically interact with using a single language. So it is therefore not difficult to see the fault in this approach if one were to observe the effects of, you know, interaction between language and thought and that would probably apply to all aspects of cognition.

Now moving on, interestingly, although the potential impact of language on all aspects of cognition should be obvious, most early theorists, for example, Jean Piaget, who was one of the most preeminent developmental psychologists has essentially ignored the role of language while theorizing about, you know, aspects like cognitive development. Interestingly, even Noam Chomsky was one of the, who is one of the greatest linguists of our time, has postulated a view of language where basically talks about language as a self-encapsulated module which does not interact or impact other cognitive processes. Now these views have basically contributed in, you know, having a very separate and having a very fractured, if I may use the word, view of language and cognition and has made it difficult for researchers to look at the bigger picture and the system as a whole and examine, you know, the interactions between language and other aspects of cognition. Now also when it comes to, you know, the contribution of bio or multilingualism to different aspects of cognition, the field is inherently plagued with a bunch of fundamental questions. For example, who are bilingual children? What are the essential criteria for them to be deemed as bilingual? What are the causes behind them becoming bio or multilingual? And what is the minimum level of proficiency in both or more of their languages basically for them to be categorized as a bilingual? And are there any consequences, cognitive consequences for them gaining proficiencies in two or more languages? Now if you follow this course, you know, sincerely for the last seven weeks, you will see that we've sort of, you know, had an answer to all of these questions so far.

But in today's lecture, I basically don't want to go back and revisit these questions. Let us try and move ahead and see how does bilingualism basically, you know, impact cognitive development and acquisition of literacy and so on. So despite the challenges that bilingualism and the associated questions bring along, actually few researchers have been able to, you know, venture into these waters. For instance, Lev Vygotsky, who was a Russian psychologist, commented about the possible usefulness of bilingualism in expanding a child's conceptual world. So he says, the child learns to see his language as one particular system among many to view its phenomena under the more general categories.

And this leads to awareness of his linguistic operations. This is interesting because what Vygotsky is talking about is that children when they know more than one language are able to actually see the structure of the language from a distance. They are able to look at the, you know, patterns in language, they are able to discover, say, for example, that there are characteristics of languages that are common across different languages and those characteristics may not have, you know, an all or none kind of view. There are variations between those characteristics and so on and so forth. So the idea is that childhood become much more conscious of the linguistic operations and by virtue of being more conscious of linguistic operations, it become more and more comfortable with using those languages, you know, with respect to other cognitive functions.

Also we've discussed the seminal study of Peal and Lambert several times and they also while summarizing their study actually noted that bilingualism and the use of two languages actually provided their participants who were young children, if you remember, with a more flexible perspective of looking at the world and they allowed them to perceive and understand the world in different ways. In other words, it did enhance their cognition generally. So let us look at some of the, you know, abilities, you know, which are enhanced by people being bilinguals and how these abilities may eventually lead into, you know, better acquisition of literacy and so on. Let's dive deep in. Now one of the most obvious advantages of being a bilingual could actually be the domain of metalinguistic awareness that we've discussed in the previous lectures as well.

And also it follows from what Vygotsky was saying in the quote that I just mentioned. Now for instance, we've discussed that when people have two different language systems, it actually allows the children to look at, you know, and appreciate the structural patterns and the systematic features of their language. For example, Tunmer and Mihail actually proposed that fully fluent bilingualism may actually lead to increased metalinguistic awareness and consequently faster reading acquisition and higher academic achievement. So while we've talked about the first part of the statement already in

previous lectures, let us try and see how it sort of, you know, leads to faster reading acquisition and higher academic achievement. Now one of the critical factors in reading, in learning to read or acquiring the ability to become literate and eventually, you know, achieve highly in your academics is this ability of learning about words.

Leopold suggested that bilingual children actually have a better grasp of, you know, characteristics of words and these as a systematic feature of language, which is arbitrariness. So children, bilingual children actually have a better grasp of the arbitrary relationship between words and their meaning and that this enables them to have better insights into both of their languages. More specifically, it has been proposed that as bilingual children have a better grasp of what is called referential arbitrariness, that is the function of words, they're actually better at identifying or segmenting words from a speech stream and therefore follow conversations better, follow instructions better and so on. However, since the issue of form and meaning are so intertwined with each other, most of the experimental studies have actually looked at them together rather than separately. So it sometimes becomes difficult for us to sort of, you know, tease apart the effects of whether, you know, we're talking about meaning combination or whether we are talking about appreciation of form and understanding the regularities in that respect and so on.

Interestingly, the notion of word form and meaning can be different for different languages. For instance, in Chinese, the notion of word boundaries is rather difficult to define because, you know, it is, you know, the meaning is actually reflected through this concatenation of characters, which are actually arranged around more thematic lines rather than word lines. Similarly, Bialystok in 1986 actually compared monolingual and bilingual first graders knowledge for, you know, word boundaries in French, which was their language, you know, which was their school language. Now, these children actually had been studying French for at least two years and the medium of instruction in their schools was also French. The children were trained to count the number of words in a sentence while listening to the sentence and moving a marker to, you know, a new pile for each word and then eventually counting the number of markers.

Now an interesting aspect of this challenge is basically that if children are actually, you know, supposed to do well in this task and they actually want to count the words, they would need to be able to ignore the meaning part because it is quite possible that when somebody is saying something to you, you would get carried away and you will basically trying to understand them. So you're going to be more engaged in the meaning rather than a form task like counting the words. So the sentences to these children were actually presented in two conditions. One where they were presented as normal utterances, where the meaning was as in a canonical form and other where in these

sentences were present as scrambled words. So in this case, it would probably be easier for children to follow the word count rather than get lost in the meaning of these sentences, get lost in the semantic sense that they are making.

Also the sentences actually varied in the complexity of their constitution. Say for example, they use monosyllabic words, disyllabic words and also polysyllabic words. Now both groups of children actually performed equally well with this scrambled string of words, which is expected because here they don't have the additional burden of comprehending the meaning of these utterances. However, it was apparent that bilingual children were actually much better in isolating the words from meaningful sentences, hence being able to show that they have this ability to ignore the semantic part and just focus on the form part. So it is apparent that while these children were just starting their journey towards bilingualism, because these people have just, you know, these are first graders, early bilingualists, so to speak, mere exposure to another language by means of medium of instruction at school was sufficient to actually enhance their awareness of words and meanings in comparison to their monolingual counterparts.

So in a sense we can see that it is actually, you know, you don't really need to be bilingual from, you know, the time you start acquiring the two languages, even if you've been in school, say for example, a lot of children actually go to school at around three, three and a half, four years of age. And if they've been in school for two years, they are already becoming bilingualists and the benefits therein of bilingualism are sort of rubbing onto them. And basically they might feed into their academic achievement and word learning capabilities and so on. Also researchers have explored children's understanding of the nature of preference, you know, words refer to something. So if I say, you know, if I take a word apple, it refers to the, you know, the actual fruit apple.

So some researchers have actually tried to look at children's, you know, understanding of the nature of how words refer to certain things in the real world. For example, Cummins in 1978 used four different kinds of metalinguistic tasks with monolinguals and bilinguals and reported that bilinguals displayed greater linguistic flexibility when it came to understanding the reference of the word. Say for example, you know, when I use the word cat, you know that the word cat refers to the object, you know, refers to this animal, you know, cat. But I could also use the term catwalk in reference to the kind of walk models do on the ramp. But catwalk does not have to do with the animal cat's walk at all.

So in this sense, children will need to be flexible in order to understand in what reference a particular word has been used. And in this specific capability, bilinguals were found to be much better than their monolingual counterparts. Finally, another

illustration of the same comes from Piaget's Sun-Moon task. For example, here, children were actually asked that if it would be possible to exchange the names of the Sun and Moon. And if so, what would be up in the sky at night? Say for example, if you call the Sun as Moon and if you call the Moon as Sun, what is going to rise up in the night or what is going to set by the evening? So if you ask these questions, you will basically, you know, the children, if they need to answer these questions quickly and correctly, they will need to be able to distinguish themselves from the words Sun and Moon and the references that are, you know, the planetary, you know, the objects Sun and Moon, you know, that we're talking about.

Another interesting aspect of this task was the final question, which is probably the most difficult, which was, oh, what would the sky look like at night? The thing is, if you do the first order task and if you say, okay, it is possible to exchange the names of Sun and Moon and maybe you're also able to answer that, okay, the Sun will be up at night, conceptually, you have to create that difference in order to understand it. Oh, you know, while I'm saying the Sun is going to be up at night, I'm actually talking about the Moon and the sky would still look dark. It will not look bright and sunny like, you know, if the actual Sun, you know, in an, un-exchange condition was on the top. So there are several studies that have actually used this task from Piaget and they have actually shown that bilinguals are able to solve this problem earlier than monolinguals in terms of age and also faster. A last study that I would want to mention in terms of word awareness would be Ben Zeev's study where he actually developed an interesting symbol substitution task to assess children's awareness of the grammatical properties of words.

So here in basically what the children were needed to do was that they needed to substitute the word we with the word spaghetti. Now and then, you know, the experimental wrote asked them, okay, how do you say we are good children? Interestingly here, children actually should say spaghetti are good children, but saying spaghetti are good children also requires that same kind of disengagement between form and meaning that we've been talking about. More importantly, it will also require to say, you know, some kind of disengagement in terms of understanding that the syntactic rules are also getting violated. So when you say we are good children, you know that R goes with V, but spaghetti R does not go with spaghetti typically, you know, spaghetti typically, if you're using, if you are using the word spaghetti in the beginning of the sentence, you might be using it. Oh, that spaghetti is very nice or spaghetti is my favorite food, something like that.

But here both, you know, a disengagement between form and meaning, and also an appreciation about, okay, what kind of, you know, why the particular word R is being used because you've made this exchange between V and spaghetti. So Ben-Zeev

actually found that bilingual children were significantly better and more reliable at performing this task. Whereas their monolingual counterparts could not easily separate themselves with the meanings of individual words, V and spaghetti. And thus they actually found it very difficult to, you know, make this request at substitution. So we saw that word awareness is a critical skill in learning, acquiring the ability to read and eventually, you know, become literate and have higher academic achievement.

And you can see here that almost, you know, certainly bilinguals have a bit of an edge over their monolingual counterparts in this ability. Again, remember that I'm not really implying that monolinguals are poor at this or in any which way, basically on comparison, we are actually talking about, let's say bilinguals being relatively better in this aspect of metalinguistic awareness than monolinguals. Moving on to syntactic awareness. Now, obviously, when you're talking about words or language, syntax is one of the prominent characteristics of language. And it is also, it also forms part of the metalinguistic awareness that we are actually talking about.

So some prominent metalinguistic tasks have actually looked at the, you know, grammaticality judgment task as one of the tools to judge children on their sense of, you know, syntactic awareness. In one of the studies, for example, Galambos and Hakuta in 1988 compared monolingual and bilingual children in their ability to correct the syntactic structure of sentences. And then in a different task, they were actually asked to determine what was the ambiguity in these sentences and then paraphrase the various versions of the same. As this was a longitudinal study, the authors actually found a consistent advantage of, or bilinguals who are monolinguals in the first task from the beginning, but no advantage was found in interpreting ambiguity. You know, the advantage in interpreting ambiguity only emerged slightly later when the bilinguals were also slightly more agent.

So this tells us that, you know, bilingual children might be better in pointing out these errors, but they were not very good at sort of, you know, understanding or explaining why these errors would have been, or, you know, what are the aspects of ambiguity that are there and explaining them. Another study that we could talk about was conducted by Goldin-Meadow in 1990, who presented monolinguals and bilinguals with a variety of problems to check for their syntactic awareness that included detecting, correcting and explaining errors. You know, explaining errors is very similar to the explaining ambiguity version of the task that we were just talking about. Now, interestingly here, they found a bilingual advantage for noting and correcting errors at all ages, but they couldn't find any group differences for explaining these errors. So there were three parts, detecting, correcting and explaining errors.

For detecting and correcting, they were a bilingual advantage, but not for explaining errors. So the authors actually interpreted these findings as illustrating, you know, in some sense, the developmental progression of moving from a content-based to a structure-based appreciation of languages and found that bilinguals had a degree of advantage over monolinguals across all three stages. However, it's not always that bilinguals, you know, outperform monolinguals in all aspects of syntactic awareness as well. For instance, there are also tasks like Gathercole in 1997, where, you know, she used a grammaticality judgement task to test for whether Spanish-English bilingual children could actually use syntactic cues to distinguish between mass nouns like water, porridge, etc. From count nouns like cups, bottles, keys, etc.

She reported that while older and more fluent bilinguals could actually utilize syntactic cues from these utterances like monolinguals, the younger and weaker bilinguals were not being able to pay attention to those things. More importantly, in another study, Gathercole and Montes actually, you know, in their task, monolinguals actually outperformed the Spanish-English bilinguals on a grammaticality judgement task wherein the participants had to judge and correct sentences. So the authors actually noted that the bilinguals performance was moderated in some sense by the amount of English input they had to read, you know, how well they didn't know their second language. All in all, Bialystok actually reasoned that bilinguals do not consistently outperform monolinguals on syntactic awareness tasks using, let's say, the grammaticality judgement as one of the major tasks. And when they do, it is typically when the task involves some kind of distracting information such as anomalous meanings, etc.

And they are better at pointing and correcting errors, but not really in explaining them. So they're probably not understanding the whole depth of this as well as the monolinguals are doing. And this is also something that Galambos and Hakuta, you know, actually mentioned in their explanation that there was no advantage for bilinguals as compared to monolinguals when the task actually involved analysis and explanation of linguistic structure. Moving to phonological awareness, which is also a very important aspect of, you know, metalinguistic awareness. It is basically, so some studies have also been conducted in the domain of phonological awareness.

For example, studies by Carlisle and colleagues in Durgunoglu and colleagues who have actually shown that the levels of phonological awareness are actually able to predict the levels of reading acquisition in each of the languages of bilingual children. However, very few studies have actually looked at the development of phonological awareness in bilingual children. So let's look at some experiments here. So Rubin and Turner actually sought to compare the phonological awareness of English speaking first grade children who were either part of French immersion or English educational programs and actually

found, you know, an advantage for the French immersion children. Similarly, Bruck and Genesee compared monolinguals and initial state bilinguals longitudinally from kindergarten to first grade on range of tasks.

Now these children were actually English speaking children who were studying in French medium schools and an advantage that was reported for the children in the French school was in onset rhyme segmentation in kindergarten, which appeared, which then disappeared in later grades. So grade one, grade two, it sort of goes away. Why is this happening? This is probably happening because, you know, French is priming these individuals for syllable counting, you know, they are for syllable counting because of their immersion in the French school and the structure of French phonology, which makes it possible for the syllables to become more salient and, you know, definitely more salient than English and children to sort of discover them and make these decisions. The monolingual advantage of phoneme counting was attributed to differences in instruction in English as compared to French. So indeed these findings actually show that factors such as language structure and literacy equation are ultimately more important in bilingualism than bilingualism in explaining children's level of metalinguistic awareness in this domain.

So we've seen that, okay, for word awareness children, bilingual children are very good for syntactic, I'm not sure the evidence was that strong and for phonological as well. In phonological awareness, an interesting insight comes out that children are very, very sensitive to the way they have been taught in school, the way the emphasis has been placed in school on certain aspects of, you know, reading and so on. So even more than bilingualism, the manner of instruction and the emphasis in instruction is a critical factor when we are actually talking about, you know, comparing bilingual and monolingual children on these different aspects of metalinguistic awareness. So if you examine children with limited exposure to bilingualism, for example, Yelland and colleagues did this and they asked children to judge whether pictured objects had long or short names. So they are showing them object pictures and they are asking that, okay, whether this object will have a longer name or shorter name.

They reported it an advantage for bilingual children in kindergarten, but then again, that disappeared by grade first. Also Campell and Sais who were working with the Italian English preschool bilinguals and were reasonably, you know, who these bilinguals were reasonably competent in both languages and assess their phonological awareness across four tasks. So Campell and Sais actually reported that the bilingual children were better than monolinguals on the phonological tasks, but not so much on letter monitoring. Ideally you would expect an advantage in letter monitoring as well because it would need the same kind of disengagement from form and meaning. But again, the results are not

very strong on that side.

So these studies and a range of later studies, you know, to show that awareness in phonological, you know, the skills in phonological awareness come to bilinguals only in very early stages, but disappear with age and as the, you know, they are progressing through grades. So these results have been actually, you know, attributed to more robust effects of instruction and learning to read rather than the peculiarities of different writing systems. So the idea is that how are children being instructed to pay attention on what aspects of language actually is a much more important aspect rather than them being bilingual or monolingual. Moving on, we are, as I was saying, you know, we were talking about metalinguistic awareness, you know, syntactic awareness, phonological awareness and word awareness. But eventually what do we want to talk about? Eventually we want to talk about how these abilities sort of come together and contribute towards literacy acquisition, which is a key skill in today's world.

And you know, for any kid to have a bright future and better job prospects in life, acquisition of literacy is one of the very critical and important skills. So learning to read, actually, if you're talking about learning to read, it builds upon a set of prerequisite skills, some of which include this metalinguistic skill that we've talked about, but there are other skills as well, which basically include, say, for example, mastery of the discourse structure of the stories and also understanding of the nuances of these separate writing systems. The second part I will talk to you about in more detail in the next lecture as well. So researchers have actually looked at the development of the latter in bilingual children and a very important aspect, you know, if you sort of look at it, a very important aspect for bilingual children is to get immersed in a culture of stories, you know, which requires them to become familiar with conventions in discourse and text that would bring sort of some kind of cohesion and, you know, refinement in the text being read. So the idea is when you're teaching children to learn to read, you will basically expect them to gather these skills and expect them to use these skills in order to get better in learning to read and comprehending the overall text and so on.

So they need to sort of, I mean, one of the best ways of imparting the ability to read is for children to read these stories and become aware of them because there are very nuanced semantic aspects as well as aspects of, you know, orthography also involved. So learning to read does not directly follow from competence in oral speech. This is also something that needs to be pointed out. Oral speech, basically you may be very good in speaking or expressing yourself in the oral manner, but it is difficult for people or say, for example, it is a fundamental skill, which is a fundamentally different skill to be able to learn to read, which requires, you know, developing an understanding of the script and its conventions and learning to read therefore develops very gradually from children's

experiences with these storybooks and the level of mastery, you know, that gradually develops. Interestingly, you know, people have shown that this mastery actually has been able to predict successful literary outcomes for these children.

Now range of studies examining these abilities in bilingual children have shown that competence in these purely literate forms of discourse in the two languages is largely shared across bilinguals both languages. For instance, skills that require children to provide formal definitions or picture descriptions or understandings of metaphors are actually at equivalent level across the bilinguals both languages, although more interactive skills like conversation skills develop individually for the separate languages. Say for example, if you interact more in Hindi, you will be better in interacting in Hindi. If you interact more in English, you will develop, you will interact more in English, but your general skill of, if you have acquired a general skill of, or if you have cracked the system of how to read and how to interpret discourse text conventions that would sort of be shared across the two languages. Also, for instance, say for example, in a cross linguistic research enterprise, Wu and colleagues demonstrated that children were able to learn the decontextualized skills with oral and written picture descriptions, and it reflected the emphasis of their school curriculum with some being better in written, whereas others being better in oral mode.

Something that we were seeing with syntactic awareness as well as phonological awareness studies that the manner in which the school imparts education, the manner in which the school plays emphasis on certain aspects of reading acquisition is actually a very, very critical factor here. So, when colleagues actually concluded the second language learners must have direct experience in the target language consistent with the discourse demands of a given task, and if they were to be able to carry out these tasks equally well in both languages. Moving on, before children learn to read independently, they also must be able to acquire concepts that allow them to understand the writing system of a given language and how is the same used to convey meaning from print. So consequently, researchers have asked whether monolingual and bilingual children who are exposed to writing systems of two different languages acquired these skills in different ways or in the same manner. Across several studies, however, it has been reported that bilingual children outperform monolingual children on, say, for example, the moving word task that we were talking about, which requires children to track the relationship between text and meaning, which you've already seen so far.

Moreover, there have also been a range of studies that are explicitly trying to investigate the children's ability of learning to read in a second language and the consequences of their exposure to two different writing systems. Some of them have actually shown that bilinguals benefit from exposure to different writing systems since an early age. Also, a

bunch of studies have shown that there are huge transfer effects in the ability of learning to read between the two different languages, between the two writing systems of different languages, but these transfer effects are more if the two writing systems are similar. Both are alphabetic or both are syllabic. Bialystok, for example, in this same respect, comments that it seems that bilingual children learn to read, you know, in one of their languages and that helps them become literate in both their languages, obviously with the caveat of the similarity between the writing systems.

So overall, if you want to summarize this, it seems that bilingualism does have some consequences for the development of literacy in children, although the exact nature of these consequences depends actually upon a range of factors such as similarity between language structure, their writing systems, as well as school instructions, etc. These factors are also certainly moderated by the overall exposure of these children to different environments and at their schools and homes. So that's all that I wanted to share with you in this particular lecture. I'll see you in the next one very shortly. Thank you so much.