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 I am going to talk to you about bilingualism and multilingualism and their consequences for other cognitive functions today. Now so far in the previous lectures we have studied about the various aspects of language acquisition and use in bilinguals. We have also studied about the elaborate system of control that is required by bilinguals to manage the two languages. In the most recent set of lectures we talked about the neural correlates of language acquisition, use, production, comprehension and also language control.

However while we are sort of moving to the conclusion of this course and moving toward a conclusion about conclusion of you know the behavior of bilinguals and multilinguals it is important for us in the spirit of Fodor's modularity argument which we you know took up when we began the course to sort of also examine whether bilingualism or multilingualism has any influences on other cognitive functions as well. In this next set of lectures starting today we will go through some of the you know cognitive functions that may actually get influenced because of an individual being bilingual or multilingual. Now one of the pertinent questions within language research has been the relationship between language and thought. A bunch of researchers in the early 19th century have actually grappled with the issue and approached the question in ingenious ways.

In fact in one of the previous courses that I took on the introduction to the psychology of language I have also discussed this issue in great detail and if you remember we actually saw that although language and thought can actually exist independent of each other and there is a sort of a double dissociation where there have been individuals who can actually speak but you know they cannot you know who can actually have completely fine language but not coherent thought patterns and also individuals who have you know deficiency in language but completely you know fine thought patterns. Also if you look at imagery if you look at other sensory modalities it is perfectly plausible for people to have you know perfectly fine thought patterns without the aid of language. We also saw the case of brother John a French monk who was having epileptic seizures where he could not even talk to himself but could actually carry out operations that would come within the domain of thought. Similarly, we saw Williams syndrome patients who had

fluent output of language but a very incoherent thought pattern and so on. So while you know there is a lot of research on the fact that whether language and thought are related to each other or not or how they are related or let us say as we say whether it is a chicken on an egg problem the contemporary research actually suggests that language and thought are relatively independent from each other although they might have some kind of influence on each other which cannot be denied.

A bunch of researchers in the early 19th century for example Edward Sapir and Benjamin Lee Whorf actually grappled with this idea and came up with what is called the Sapir-Whorf hypothesis which proposed that the languages we speak actually also influences our ways of thinking. Interestingly researchers actually now acknowledge that while there may be innumerable ways to perceive the world the languages of the world do actually differ in the way they may you know the languages map the you know concepts you know onto linguistic structures. Moreover, the theory also states that we may indeed perceive the world through the lenses of our respective languages attending to and noticing the aspects of the world that are reflected and expressed clearly in our languages and ignoring the aspects of the world that are not encoded as well in our languages. Indeed research is replete with evidence that shows that languages do carve out the world differently for instance the English words ladder and staircase map onto the same single Russian word. Also famously you know it was pointed out by you know even Sapir and Whorf that Inuit speakers may have different words for snow falling you know for instance they have a different word qanik for snow that is falling down and up for the snow that has touched the ground.

Similar differences have also been found to occur between linguistic structures of other types of concepts as well for example the information encoded in a verb you know in languages verb forms like gender number and tense information. A very interesting illustration of the kind has been offered by Boroditsky and colleagues which was cited by de Groot and which says to say the elephant ate the peanuts in English we must include the tense the fact that the event happened in the past. In Mandarin indicating when the event occurred would be optional and could not be included in the verb. In Russian on the other hand the word would verb would need to include not only tense information but also whether the peanut eater was male or female and whether the peanut eater finished all of the peanuts or just a portion of them. In Turkish one would need to specify also that whether the event being reported was actually witnessed or was just hearsay.

So the fact that languages dissect the world differently is not really a contested point because there is so much evidence in favor of it neither is the fact that the speakers of different languages may attend to different aspects of the world which is also again you know very prevalent in popular knowledge and you keep hearing anecdotes around it and

so on. But the point of contention with the linguistic determinism hypothesis is the proposal that language determines thought in such a way that only the concepts capable of being expressed in the vocabulary and the grammatical constructions can actually be grasped and other concepts that are not very clearly imbibed or encoded in the language cannot be grasped by the speakers of this language. For instance, proposal could be that according to linguistic determinism speakers of Hopi an American Indian language would lack the concept of time seen as a dimension because the language does not distinguish between the various corresponding you know tenses in English. However, it has been shown and it is quite possible that a speaker of Hopi may be able to grasp the concept of time as a dimension when they were explicitly trained to do so or via another language. In other words, even though the conceptual space of speakers of a particular language is likely to depend upon the distinctions present in their language it should not or it does not necessarily imply that they will not be able to pick up these concepts.

In some sense it does not limit their cognitive capabilities at all. It is only the grasping through that specific language that is limited and when speakers are given an option and trained and talked about these things they might be able to grasp these other concepts as well. A very interesting example of this kind is presented by Dani a tribe in New Guinea that although have only two words for color in their language but these people were able to learn the much more varied set of English color names without a lot of trouble. In the same way Boroditsky demonstrated that while the native speakers of Mandarin Chinese and English actually think about time in different ways whereas Chinese represent time in a vertical dimension and English represents time in a horizontal dimension it took only a small amount of training in Mandarin Chinese for the English speakers to start appreciating and to be able to think vertically about time. So if you look at these evidences these evidences actually provide you know a lot of question against the validity of the stronger linguistic determinism hypothesis.

However the slightly weaker version of this hypothesis that we mentioned earlier which is the linguistic relativity hypothesis has recently found favor amongst scientists. For example, scientists make distinction between the contents of thought and the processes of thinking such as attending, remembering or reasoning. Indeed, some researchers have actually started focusing on the contents of thought which may be limited by the language and the processes by which we arrive at such thought. So there are people there are scientists who are actually working on whether the contents of thought are determined by language or the process of arriving at a thought are determined by language or both of these things and that basically opens up a larger possibility of research into the relationship between language and thought. Indeed a seminal work on these lines in this tradition was presented by Gentner and Goldin-Meadow in three volumes.

They published three books titled language as lens does the language we acquire influence how we see the world language as a toolkit does the language we acquire augment our capacity for higher order representation and reasoning language as a category marker does the language we acquire influence where we make our category distinction. So in that sense, you know, these three books actually chart out this debate in much more detail and is a highly recommended read from my side. Also the nature of more recent research in the relationship of language and thought is slightly more nuanced than earlier. For example, the more recent work is more careful with regards to the type of evidence that would count, you know, that would be counted in support of the fact that language influences thought. For example, a closer examination at some of the earlier studies reveals that several studies several studies examining this relationship have exclusively used verbal tasks, which makes it difficult to interpret the evidence because you cannot, you know, use verbal stimuli to judge something about the language processing to judge something about whether language processing, you know, has an impact on thought processes in that regard to avoid this kind of indeterminacy or confounds evidence from nonverbal tasks might be more useful such as classification, memory, sorting and matching, which are nonverbal tasks and which can still yield whether speakers of different languages have different kinds of thought and reasoning processes.

Also the more recent work in this direction considers the possibility that linguistic relativity might apply in some conditions, but not in all conditions. So for example, Boroditsky has and others have hypothesized that language may exert an especially strong influence on the formation of abstract nominal concepts such as time, concepts representing abstract activities such as thinking or you know, loving, hating, etc. and relational concepts. The reason in the fashion that because in order \to learn these concepts individuals have to typically rely on their linguistic experience. Therefore the linguistic experience actually limits or in some sense scaffolds the type of learning that they would have with respect to these concepts.

Finally recent work also expresses the awareness that the effects of language and thought are often confounded with the effects of culture and thought. Remember that languages do imbibe a lot of cultural practices between them and a lot of effects that we might be interpreting as effects of language might actually in fact be effects of cultural differences between two cultures. Say for example, the culture the French and the English are different cultures, whereas the Indian and the French are also very different cultures. Now interestingly while there has been much debate about the relationship between language and thought, the phenomenon of bilingualism has surprisingly stayed out of this debate. Most studies have made cross linguistic comparisons of some content of thought between monolingual speakers of two or more different languages which differ in ways

such as tense, number or gendered agreement.

In fact, Pavlenko points out that bilinguals have been you know kept out of this research mainly because they are you know sort of messy and will make interpretations more difficult. On the other hand, Pavlenko actually opines that research on linguistic relativity should certainly include bilingualism as a case because bilinguals may be the only individuals that have the first-hand experience of the effects of linguistic relativity because of their experience with the two separate linguistic systems within their conceptual space. Also Athanasopoulos favoured the inclusion of bilingualism in studying the relationship between language and thought on the grounds that majority of the people in the world actually speak more than one language and therefore it makes sense that you know it makes sense that a theory of relationship between language and thought would be incomplete if it does not take into account bilingualism and bilingual speakers. Now an interesting aspect of you know bilingual studies of linguistic relativity has been the question of whether and to what extent bilinguals actually experience different conceptual worlds when communicating in their one or a different language. Now this is something that I am sure a lot of you could relate upon, relate with.

For example for us Indians when we are speaking in English it is typically a very formal setting, a very inhibited, very sort of conscious kind of a setting and when we switch to our own native language we'd Hindi, Tamil, Telugu, Bengali or Malayalam we tend to become less formal more confident more creative and so on and so forth. So indeed it seems that you know there is a difference between how bilinguals actually perform you know in their two languages and how do they feel about the world in their two languages. On this account anecdotal evidence actually exists of bicultural bilinguals who actually describe that they you know experience a personal transformation into a different conceptual world when they switch to their other language. You know for example when you're speaking in school in English with your teachers and your colleagues which may not understand Hindi or Bangla you come out as a very different person as opposed to when you're speaking at home in Hindi or Bangla or any of your first language with your family members. Now these experiences actually align with the notion of coordinate bilingualism that we have discussed before and at the same time provide evidence that switching of languages does not necessarily require a simultaneous switching of socio-cultural circumstances.

It is just that you can access the other cultures through this you know languages of the other kind. Now these anecdotes also provide evidence against a very strong and deterministic view of the theory you know as espoused by linguistic determinism by Sapeer and Hoof. Now there are some more interesting questions that I would want to leave you with before I wrap this particular lecture up and these are questions about the

bilingual relationship between language and thought. The questions could be are there any binaries I mean are these stages between you know the L1 cultural or conceptual world and L2 conceptual world you know binary stages. So for example when I'm speaking in English and when I'm speaking in Hindi am I basically experiencing a binary split personality or there could be any intermediate stages during which a bilingual is gradually transforming from being a primary L1 cultural member to being one belonging to the L2 culture.

For instance is there an initial stage of L2 acquisition in which the new language is exploiting the conceptual world associated with the L1 and gradually transforming it in its own way. So this is again similar to Sub-ordinative bilingualism that we have talked about in the beginning lectures. Moreover, it can also be wondered whether a pattern of gradual conceptual shift can be detected en route to the state of the two conceptual worlds. So how do you start learning a second language? Is there an intermediate stage and eventually when you are proficient in both languages what kind of a world is that? So can certain contexts be identified that ultimately leads to a blended conceptual world which is shared by the two languages you know and basically is different from the conceptual worlds of the monolingual speakers of either language. Given that I am a bilingual and I'm not a Hindi monolingual and I'm not an English monolingual are these three worlds actually different? Is my world a composite of some of the Hindi speakers world and some of the English speakers world or it is basically still a divided entity that has two subsets English subset and a Hindi subset.

This is also something very very interesting and it resembles the concept of compound bilingualism that we have thought about earlier. I would like to leave you pondering about these questions at the end of this lecture and I will discuss these topics in much more detail as I go ahead in the next lectures of this series. Thank you and I will see you with more on language and thought in the next lecture. Thank you.