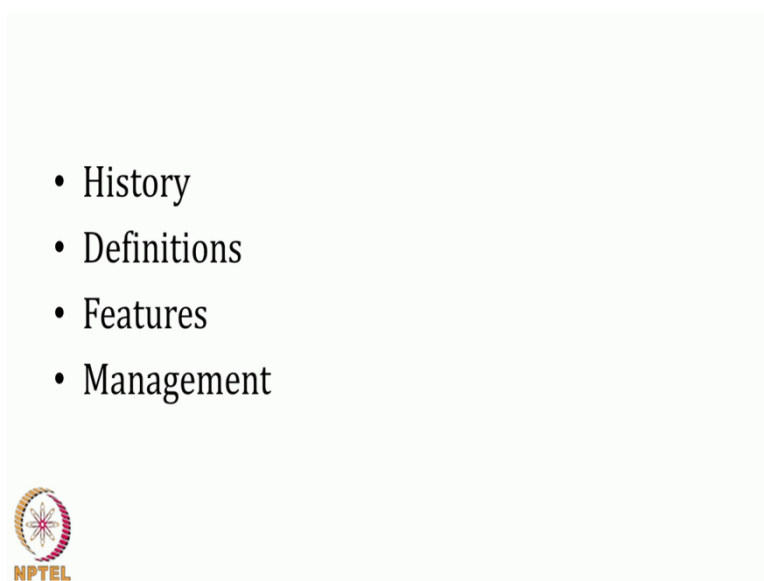


Applied Linguistics
Professor Rajesh Kumar
Indian Institute of Technology Madras
Lecture 28
Specific Learning Difficulties

We continue our discussion today with language and disorder. We have heard so far about language teaching, we have looked at specific difficulties in language teaching and learning. We have seen several perspectives on how certain specific aspect of learning is categorized as difficulty. And therefore, such specific aspects are also considered disorder in the process of learning. It creates real difficulties in teaching process and meeting the goal of education in schools when children are categorized with specific learning difficulties.

Today, we have invited Dr Virudhagirinathan who has huge experience in dealing with specific learning difficulties as a practitioner and as a professional both. Dr Virudhagirinathan is a trained psychologist and have dealt with these difficulties from clinical perspective.

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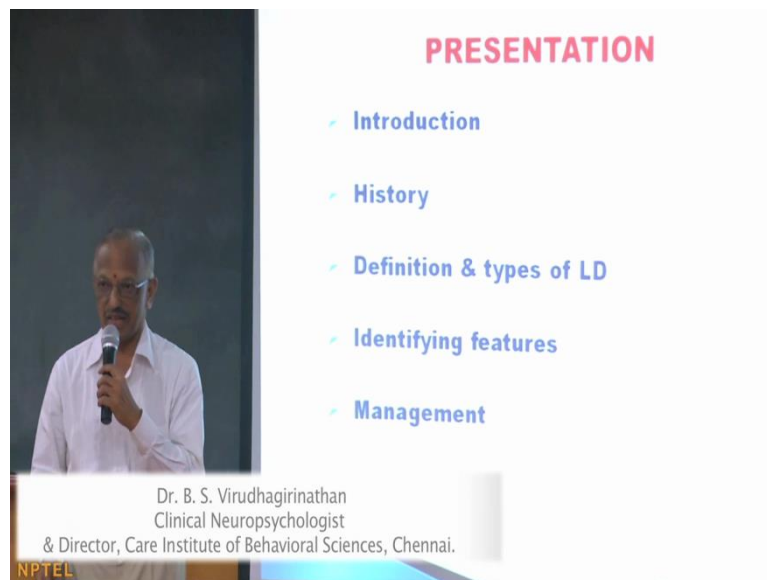
He is going to be talking what about some of these specific difficulties which we have been looking at so far from various perspectives and today he is going to put them in historical perspective. He is going to provide us definition of some of those things, he is going to be talking about certain features of these specific difficulties and then what goes in dealing with these difficulties in terms of their management that is to say, how these things get cured.

Once again I invite you to keep in mind first language acquisition, second language acquisition, differences between the 2, behaviorist perspective on understanding how language development works and mentalist perspective on how language development works in humans.

The differences between the 2 in terms of generative framework as all of these are going to be playing a critical role in understanding in particular features of specific difficulties of language and how they are going to be managed. Dr Virudhagirinathan.

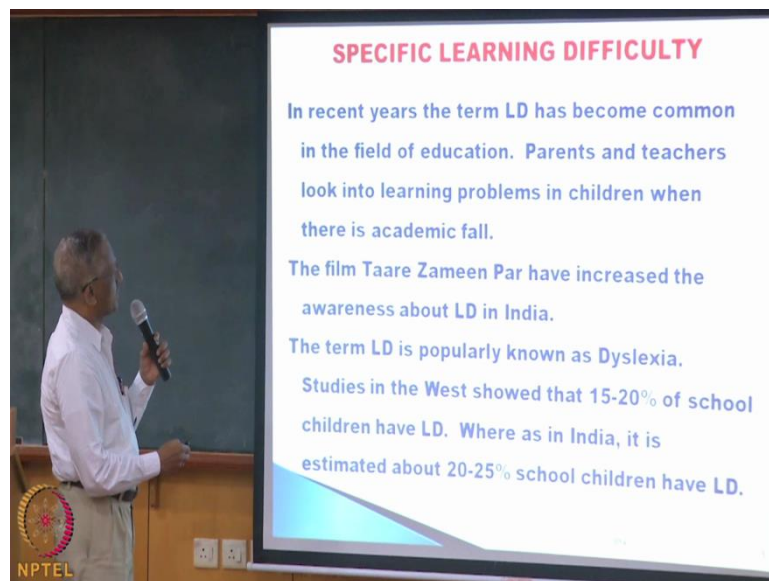
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So this is what I am planning to have in my presentation today, introduction, history, definition, identification and management. Do not worry, I am not going to bore you, I will just give brief presentation, I told you what little knowledge on this grey area of the Neurosciences I am going to share with you.

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See this specific learning disability in the recent term if you see, LD has become more common in the field of education. Parents and teachers look into learning problems in children when there is academic fall. When they come to us, when there is sub failure, the great fall and the teachers start complaining, only then they come to us otherwise, they do not bother.

Even yesterday I can see a child of 9th standard of one of the top schools. They paid 1.5 lakh rupees for LKJ capitation. Now they came because the child was not writing well, the teacher called we are going to detain the child, what I should do.

The first part of it the mother claimed, "Dr, I am a gold medalist I did my MSC, M.Phil, Ph.D., I am working as a professor in a college in Chennai, but my husband is a great software engineer, my father was a doctor, everybody great but why I have a daughter like this?". What answer you give for this? She is going from 8 to 9 and is in one of the good schools in Chennai.

But I ask her, she knows the problem of the child, but she does not want to accept it, there is another problem in LD actually, acceptance is a big problem. I can quote one small example. 40-50 years ago, diabetes was considered as a taboo, many not get marry with a diabetic girl or a diabetic boy, if there is a family diabetic, we hesitate to get married.

But today if I come to your house, I have sugar do not put sugar, yes uncle I would not put sugar because after 40 years you took to have acceptance of diabetes. Similarly, it may take another 30-40 years to accept this Learning difficulty or ADHD, whatever you call it. This is

my humble opinion, the film “Taare Zameen Par” have increased awareness about LD in India, this I think many of you will agree.

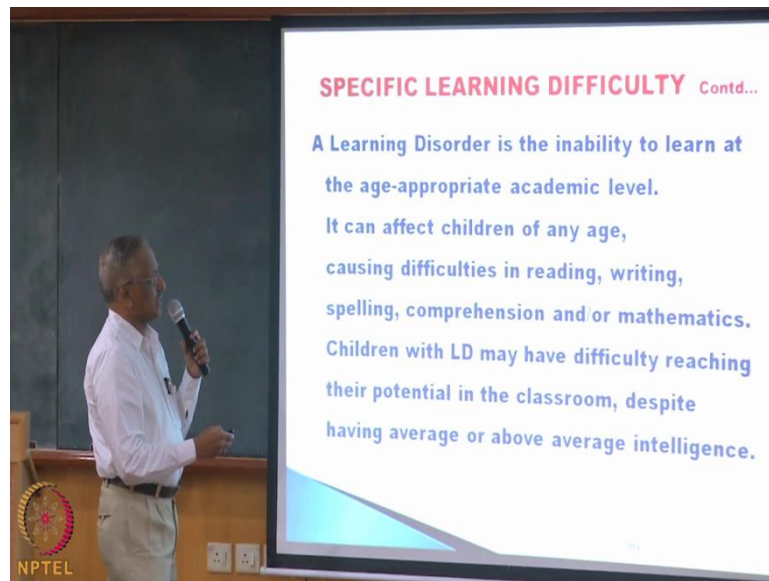
I did a program in Doha, Qatar in 2009 in 18 schools in Doha for 5 days. In that the head master, the principal of the school who organized the program, he just put the film, telecast the film “Taare Zameen Par” before the program. I ask why Narona, Narona is from West Bengal.

Narona why did, he said, this only makes them to understand doctor before you present otherwise, they will think you are talking something non English, but really it did well. After the movie, everybody paid attention to my talk and the presentation was successful that is why I put this.

The term LD is popularly known as Dyslexia, which my earlier speaker Dr Sirish has I mean contribute a lot in this. Studies in the West showed that 15 to 20% of schools going children have LD. In India, it is estimated to about 20 to 25%, but unfortunately we do not have authentic statistics in the country. We have done just one study, one of my students; she is submitted for Ph.D. that is on awareness and presence of LD.

Even there she found only, study could be done only in Chennai and neighborhood, not through Tamil Nadu. So if anybody is willing to do a study in Tamil Nadu if at all I am happy to associated and help whatever knowledge I can share with you because this is need of our, we do not have real statistics prevalence, but my guess could be wrong, it could be really 40 to 50% of children in probably Tamil Nadu area will have this problem may have the problem.

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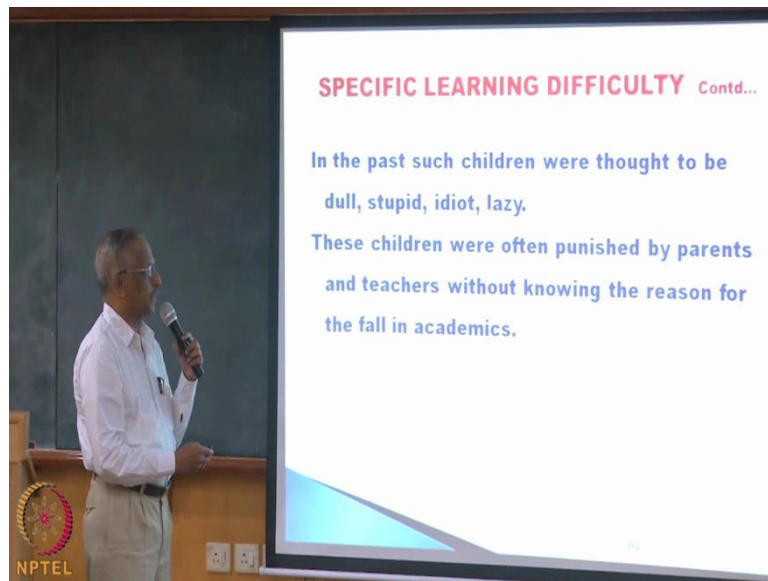


A learning disorder is an inability to learn at the age appropriate academic level. Just what all of us said, in Sirish Choudhary's slide we said "a small mistake". It is not, this is the meaning. The child should learn at age appropriate level, if the child failed to learn at age appropriate level, then you find there is some difficulty in learning. It could be anything, but not necessarily dyslexia.

It can affect children of any age causing difficulties in reading, writing, spelling, comprehension, mathematics or in combination of the above. Children with LD may have difficulty reaching their potential in the classroom, despite having average or above average intelligence. This is another component I will like to highlight to you. These children have invariably normal IQ.

Normal IQ is 90 to 100 for anybody whether British or black or white or any south Indian, North Indian, East Indian, is all universal rating is 90 to 100 will have average IQ. These children will have average IQ 90 to 100 more than that. Below 70 is mentally retarded, we are not (consider). Those children will have, by virtue of low order IQ, they will have learning problem, so above 70 only we are going to see in this.

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But above 90 only we talk just in this presentation. In the past children were thought to be done, stupid, idiot, lazy. Even Einstein was called by his teacher what? “Idiot” you know you know that? Einstein’s teacher called Einstein as idiot, but was he an idiot? No, really. So that is even parents say “Doctor romba lazy hai” “He is very lazy” first I ask what is lazy (())(8:26) that is what people I am putting this real vocabulary what they use in my practice

“Adete mata, adadrana Lazy padekau kar matagra umba somveri lazy again” “Somveri” is Tamil word for laziness. So, this is what parents themselves say, they say stupid, idiot, lazy. But you just feel, a child of 110 100 IQ, how they feel. Someone call you stupid, lazy, dull, would you feel hurt? That I am coming later. These children were often punished by parents and teachers without knowing the reason for fall in academics.

Does your teacher know why? I told you yesterday I saw a lady professor Ph.D. gold medal is, she says several things, but she did not, she knows it, but she did not understand, she is blaming the child. The teachers know maybe little, but do not understand, say you just correct it or take TC whether other school is going to teach 2 letters less than English 26? No, is going to reduce some letters in Tamil? No, the same number of letters.

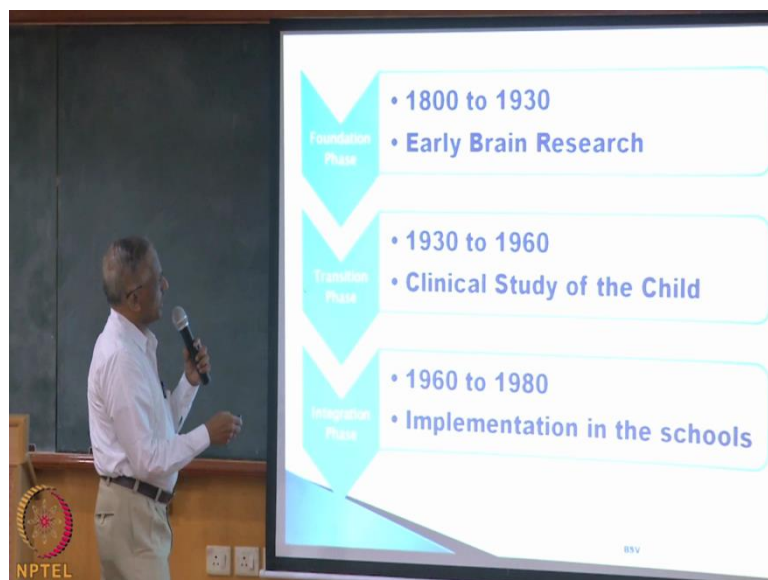
But this is a scenario in Tamil Nadu, I do not know about other places in East India I think. In Tamil Nadu, this is the scenario in many schools.

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See, if you take the history how long this medical history, you would not guess how long this is the this learning disability, 100 years, 50 years, 10 years, 20 years, anybody? More than 100 years, okay. Guess roughly. It is there in the medical history more than 200 years, but unfortunately we do not know. This is what I am going to put you briefly in this presentation, so the 3 things; foundation face, transition phase, integration phase.

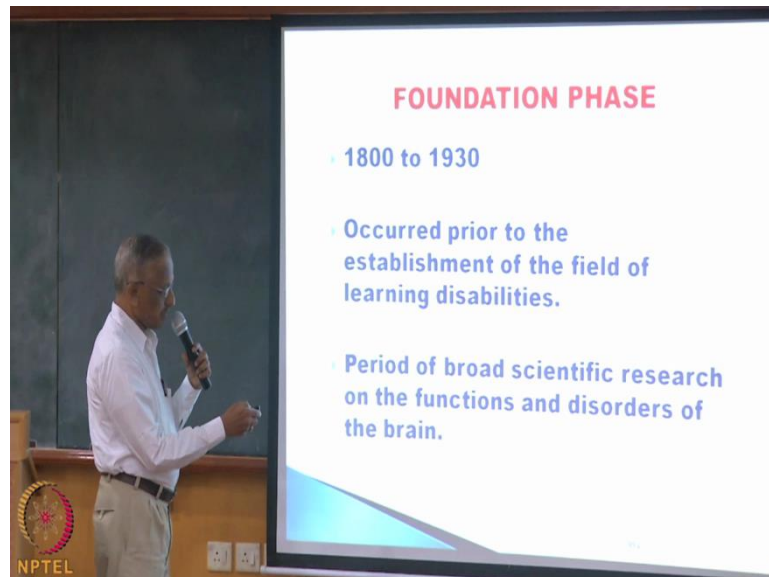
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Put it one slide, the foundation phase is 1800 to 1930, where early brain research was done. The second is transition state, 1930 to 1960, where clinical study of the child was done by medical people. The third one is integration phase, where 1960 to 1980, implementation in

the schools. This is in America, this statistics I am putting is an US based, not in any country, only USA this happened.

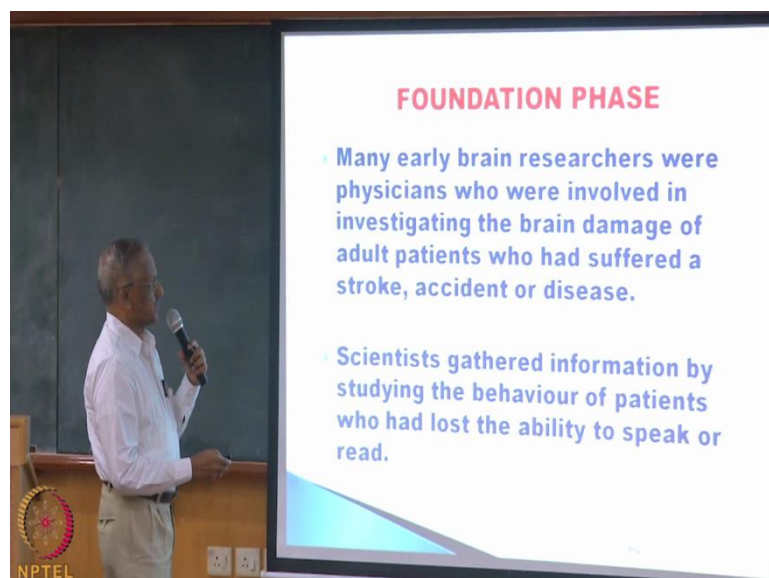
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So just briefly I want to tell you, the foundation phase is 1800 to 1930 it was there. So there if you see, most of this work was done by medical people, physician who did surgery and who handled people with brain tumors, stroke, head injuries, accidents, various other complications by which they lost speech, writing that resulted in some learning problem, so occurred prior to the establishment of the field of learning disabilities.

We read of broad scientific research on the function and disorders of the brain

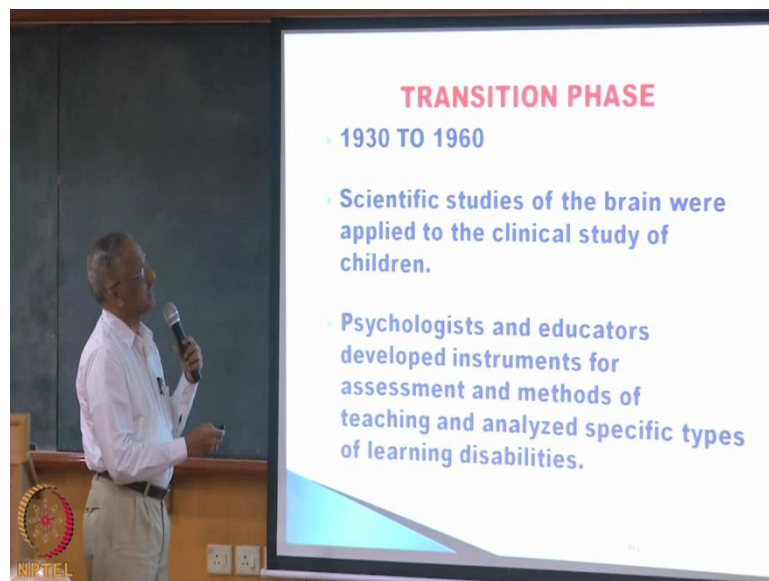
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Many early brain researchers were physician as I told you, who were involved in investigating the brain damage of the adult patients who had suffered a stroke, accident or disease. So that means this is what occurred learning difficulty, they are not developed mentally, they occur due to some injury to the brain. Scientists gathered information by studying the behavior of patients who had lost the ability to speak or read.

So they collected their terms and started studying, this is the way their research started going on learning difficulties, learning problems.

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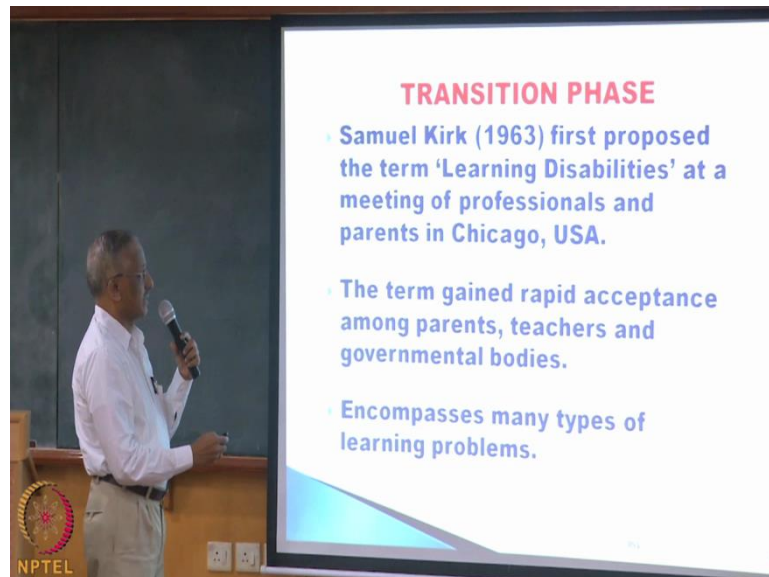
So 1930 to 60s transition phase, where the scientific studies of the brain were applied to the clinical study in children. So earlier they were one adult people who had accident or stroke or brain injury or tumors, but these people later they apply this on children where psychologists, educators developed instruments for assessment and method of teaching analyzed specific types of learning disabilities.

This I like to mention, in the year... 19 I do not know how many of you are from psychology background, do you know when was the first psychological test was device in the world. In 1905, the French authorities in the Paris called their person called Alfred Binet is a psychologist to find why children in the city of Paris are falling in academics. So they put him to a commission as a head of psychologists.

He started devising a tool in 1905 and 1906 Binet and Simon to psychologist formulated a test that is called Binet Simon test of intelligent, first test in the world 1906 officially launched in the city of Paris by the French government to identify why children are falling in

academics to assess their mental abilities. Then there are a lot of tests, you can see many tests now.

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See, this is really, I just like to highlight. The term dyslexia is popularly termed dyslexia is popularly called for understanding. But the transition phase, is psychologist, speech pedagogist and educationalist Samuel Kirk in the 1963 just called for a meeting like this in the city of Chicago, where he called people, educators, doctors and parents and teachers, various people a small gathering, where he introduced the term “learning disabilities”.

The term “learning disabilities” was introduced in 1963 in a meeting by Samuel, he was the first person who invented the term “learning disabilities” until then it was called various names, learning (de) dyslexia. So the term gained rapid acceptance among parents, teachers and government bodies in USA. So it encompasses many types of learning problems.

Once the government educators, psychologists and all the people parents accept it, this become popular after Samuel introduced the term for LD.

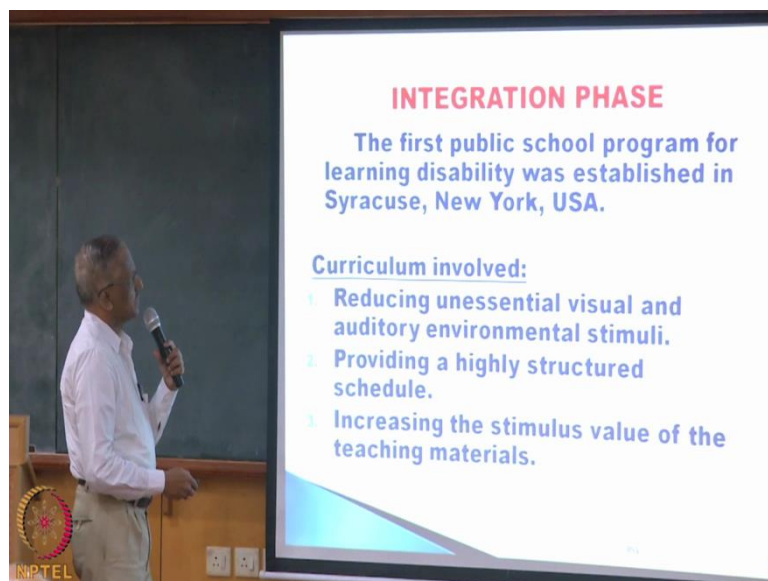
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So the integration phase 1960 to 1980, the implementation in school. There only the really USA, they started implementing in schools. So the field of learning disabilities grew rapidly as programs were lots of programs were organized in the schools and the programs were developed by teachers, educators and teachers were trained how to identify and handle the children with LD.

And these children begin to receive proper services through the teachers and educators psychologist that happened in 1960 to 1980.

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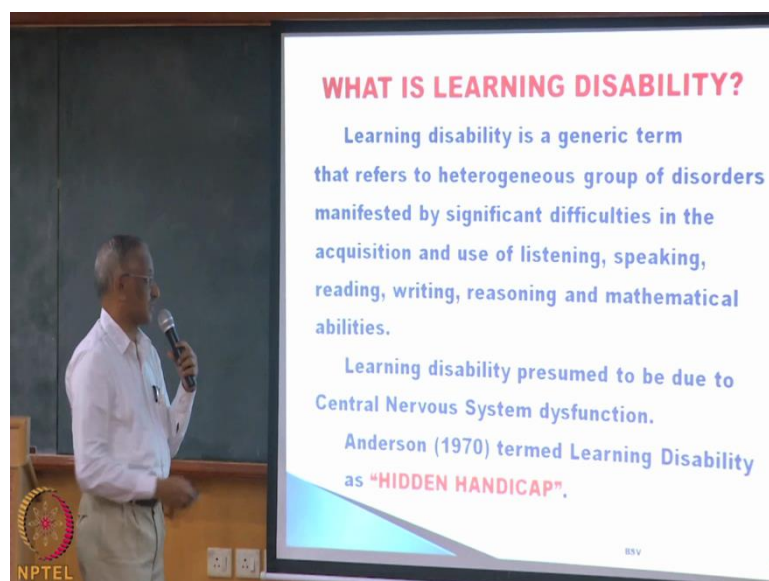
This integration phase really put in the city of New York. The first I have just some up what the program contained. They developed a special curriculum for the children which have reducing unessential visual and auditory and environmental stimuli. The children because as Prof Shirish Choudhary they said, the child pronounces certain board what is wrong in it, for example, that slide he put it one slide “know” “k n o w” is “know”, “I know him”.

But the child “No n o”, what is wrong in it “I no him” the meaning you should say “I no him”, but there it would not be a meaning “I no him”. It is not no means not, it is only no. So there “know” the ‘k’ letter is missing, the last letter ‘w’ is missing. So similarly they developed special curriculum which is removed the, reduce rather visual, auditory and environmental stimuli providing a highly structured schedule which suit to the children.

Increasing the stimulus value of the teaching material for the children, this was passed in this integration phase in USA. So now I will just briefly mention about the history that means 200 years more than that, the history it is there, but are we still having proper awareness in our country? Are we having? Certainly not, to my knowledge. Why? I think that is why thanks to Rajesh to have such programs.

This is the area where you have intellectual people, you will definitely take you to the public; definitely take you to the parents and teachers. Definitely it will have some impact on the society on awareness.

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So if you see this, Learning disability is a generic term that refers to heterogeneous group of disorder, it is not one to one, it is a group of disorders, manifested by significant difficulties,

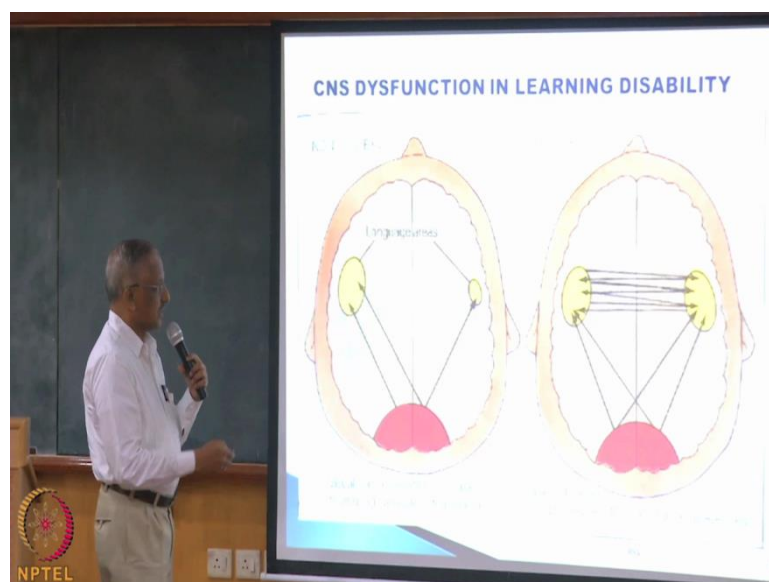
please focus the lines, significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning and mathematical abilities. That means, it is not one aspect, it is a many that is why I said heterogeneous group of disorders.

It would be one or in combination. Learning disability presumed to be a Central to Nervous System dysfunction, so there is brain related. Anderson termed learning disability as “Hidden Handicap”. I just give an example, some of us wear specs, so we come to the hall without the specs, how many of you can identify you have visual problem? Can you identify us by seeing us? Will you? Definitely, not.

When you a student “Excuse me, I wear my specs”, you ask me to “Excuse me, I will wear my specs”. So till then, we do not know I am a visually impaired or visual problem I have. Similarly, children with learning disabilities look apparently normal, bright in many things other than academics. So that is why we cannot say them as lazy, stupid, idiot, useless, whatever we know, English language to scold the children we use it, unfortunate.

But are we doing the people who where specs like this? That is why I gave the example. That is why Anderson called “hidden handicap” put it in because is hidden handicap the child. The child is bright in everything except academics either in writing or reading or spelling otherwise, the child is right in many things. Do you agree with this? Fine.

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So this I put it example, so all of I think many of you know, we have 2 brains; right brain, left brain, many of you know. Right handed person, left brain is predominantly language brain and a small area on the right brain. Left -handed child, the right brain is his language brain

and the same side brain is small area language brain. So here if you see, this right hand brain of the child, this is normal child who do not have any learning problem.

You see the right; there is a big yellow circle, a small yellow circle. This is you know the visual optical area, all of you know the image is inverted in all our brain, the visual cortex only inverts the image to normal position and we perceive it as normal. If I say, if all of you sitting upside down the desk, so this area only makes you to sit down the desk in a proper order, so this I think many of you know this physiological thing.

So this right side picture is dyslexia child with LD. See here you see yellow circle is big or small, the language area left side and right side, the yellow circle is almost same or here you say 90-10 or 80-20, 75-25, here it could be 55-45, 60-40 or 50-50 like this the ratio is even. So here the arrow goes correctly properly. It goes to the respective language brain.

But here you see, suppose the child reads about ball, the 'b' letter goes straight away instead of here you goes, so the child perceives 'b' as 'd' the dog. The child perceives 'b' as 'd', so he the child reads 'dog' correctly when he writes, he writes 'd' as 'b' or 'b' as 'd' but he reads correctly, understand. Because the reading could be perceived by other neurons, some neurons in the area, writing is by the prefrontal quarter that is why this is called index finger.

It is not (())(20:25) index in the language, so that index finger is the prefrontal quarter which makes the language to write. So reading may be good in a child, but writing maybe mirror writing mirror writing, but reading perfect. There are children who have reading wrongly, but writing sometimes correct, some children have both reading, writing mirror writing, mirror reading could be there, so this is what the make us to believe.

But if you take CT scan or MRI, it would be normal. There are doctors if you go, to please the parents, they will write and get some commission from the scan centers sorry to say this things but they prescribe it, but unfortunately only functional fMRI functional MRI magnetic resonance imaging only can show certain, but the PET scan will show the functions of the cell, this is very expensive Rs 30,000 per PET scan. Is it necessary?

It is not going to help you in any way, so only academic but not in any practically, it would not be. But this thing is believed all over the world, the learning disability is a Neurobiological disorder which is due to functional wiring of the brain, disturbance in the functional wiring. Structurally the brain is normal, only the function of the brain is wrong. So sometimes the function may be normal just like electrical voltage fluctuation.

Can you give an answer why there is fluctuation? We do not know. The light dims, fluctuation, light is bright, the voltage excess, but we do not know why it happens. Similarly, in brain it occurs as Prof Shirish Chaudhary said is a grey area of medicine, still people are working on this. If somebody finds out the cause, definitely he or she will get a Nobel Prize.

Lots of children very (())(22:14) if you work with children, you will realize how sad the parents and children, I sorry for them. That is why, I took this, last 10 years I work on this do lots of things on this work, almost 14 years I am actively working on this area.

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BRAIN FUNCTION OF A DYSLEXIC INDIVIDUAL

For a normal child the brain would visualize the images and reject the incorrect ones.

For a dyslexic/LD child analyzing abstract symbols like letters and numbers is more difficult because by switching the same shape around you can get different letters and numbers. Like,

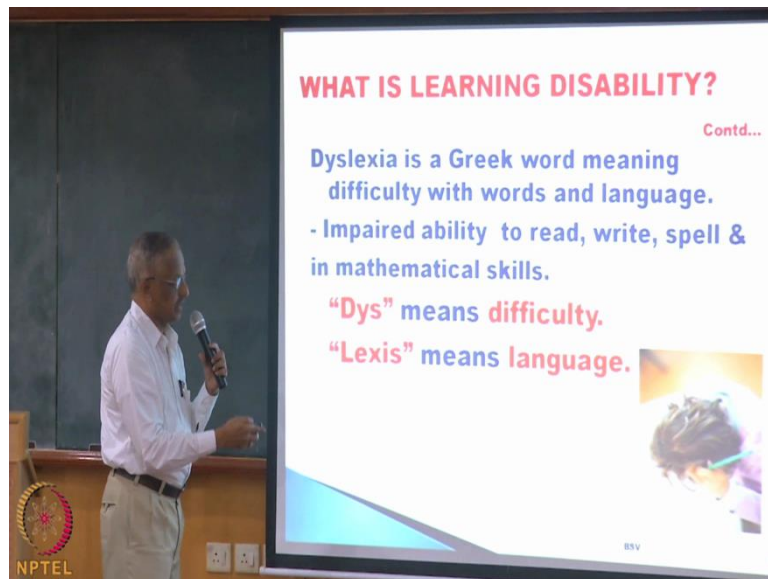
b	-	d
p	-	q
m	-	w
9	-	6
n	-	u

Thus the confusion in nerve messages may be why dyslexics often reads 'b' as 'd' and vice versa.

NPTEL

See I just give an example, how the brain perceive, the normal child perceives correctly and reject the wrong image. Whereas, the dyslexic child does not able to reject it perceive as it is, so b as d, p as q, 9 as 6, n as u, like this they have they have basic confusion.

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WHAT IS LEARNING DISABILITY?

Contd...

Dyslexia is a Greek word meaning difficulty with words and language.

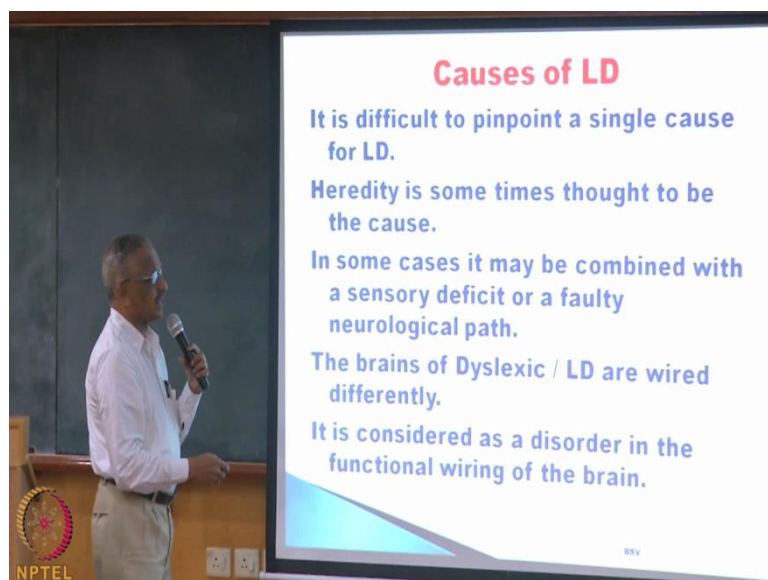
- Impaired ability to read, write, spell & in mathematical skills.

“Dys” means difficulty.

“Lexis” means language.

So I am not going. Both dyslexia is from, is not a disease, as I said disorder. Learning disability is not a disease, it is a disorder. I said that is why I gave the example, we wear specs, are we having a visual disease, eye disease? No, it is a visual disorder. So we go to the eye doctor or optician, have your eye checkup, you wear specs, and you correct disorder. Similarly, it is a learning this order, it is not a disease. So it can put by order what, that is what we are going to see. So is a Greek word which means difficulty in language.

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Causes of LD

It is difficult to pinpoint a single cause for LD.

Heredity is some times thought to be the cause.

In some cases it may be combined with a sensory deficit or a faulty neurological path.

The brains of Dyslexic / LD are wired differently.

It is considered as a disorder in the functional wiring of the brain.

So why does this happen? There are no definite cause in the world, there are 4 causes have been identified in the world medical literature. The first cause is delay in maturation lag, there is delay in motor milestone for example, 3 months 3 to 4 head can roll, 5 to 6 months

sitting, 8 to 9 months child stand up and 10 to 11 month child should walk, by 15 to 18 months, child should walk nicely, so this is a normal dictum.

If there is a delay, that can cause. And speech one year, so if the delay is more than that can cause that is another theory. The second one is that is what you call birth complications are antenatal complications, chord around the neck, Epoxy of brain and various other causes too, but complications. The third thing is genetic that parents were the offspring, grandparents parents have that has some impact on LD children, just one of the cause.

I have seen in my practice also, the father says “I had in my childhood that is why I did not pass after 10th”, mother says “Up to 9th only because of spelling mistakes I could not perceive my studies” so this is one. The fourth cause is very important, psychological stress during pregnancy. This there is a published article in 2005 in the city of Silicon Valley, you know the American software hub, I think you may know the article was published in 2005.

So there they said, both husband wife are software engineers who are going for work, children born to the almost 99% are born with ADHD or ADHDLD or AHD spectrum, so ADHDLD, there is a published article. Even I see in my practice, when the husband wife are working, the psychological stress one. Similarly, other children cases where nowadays single-parent is on the increase.

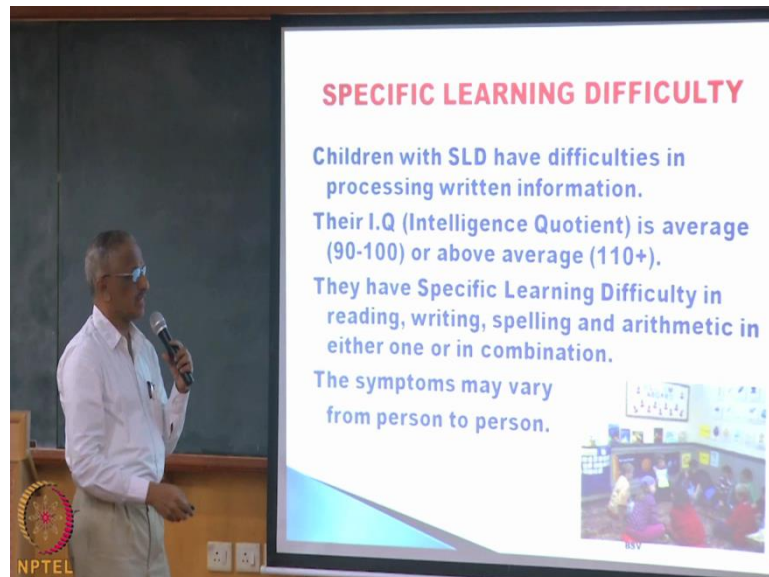
When they come to me, they separated, when the mother is pregnant, that child could be... The interesting thing I will just, it is not that I am collecting data. Nowadays many youngsters postpone the birth of the child, 5 years later ones I economically independent. So now they go for fertility treatment IUL, IVF all these Inc.

Children born IVF, IUL, I am collecting data so far about 18, all the 18 have ADHD or AHD or both combinations, is a new use for you, anyone interested can join me; I can help you to work. This is why I say, the psychological stress, I do not know how many of you see the mother undergoing the fertility treatment, she is taken like a doll, she is in the car and the car will be going in the just 5-10km speed in the road.

And she will be in the nightie, so nowadays we cannot have the dark glasses, everybody will watch her, she is going like a procession, how much psychological stress the young lady has imagine. And when she gets down of the car, 4 people hold her so everybody is watching, so there is lot of psychological impact may be my guess it could be a cause.

And lot of hormonal treatment is undergoing that can also result in some complications in the learning process of the brain. Still these are all my educated guesses; I am not definite on this.

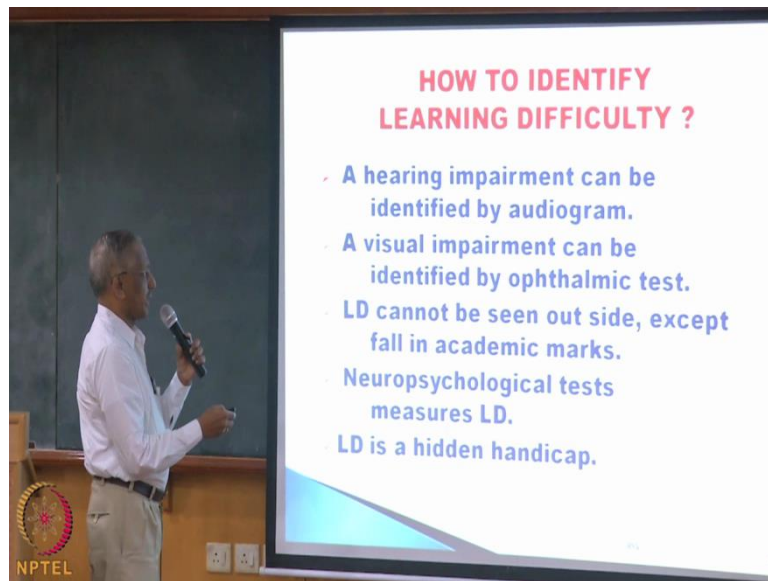
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I have just lost but 2-3 areas, SLD slow learners LD and ADHLD. SLD is specific learning difficulty; I think the current definition by DSM 5 even difficulty has been taken over their qualities specific learning disorder that is the current terminology being used by DSM 5, specific learning disorder. So here the children as I told you have very good IQ 90 to 100, some children 110 + and they have specific learning difficulty in reading, writing, spelling or in combination.

The symptoms may vary from child to child, individual to individual. But if you have 2 kids in the same house, one may be having writing, another may be having writing, but they may have different writing problem even though they have the writing disorders that is what I like to give you the message.

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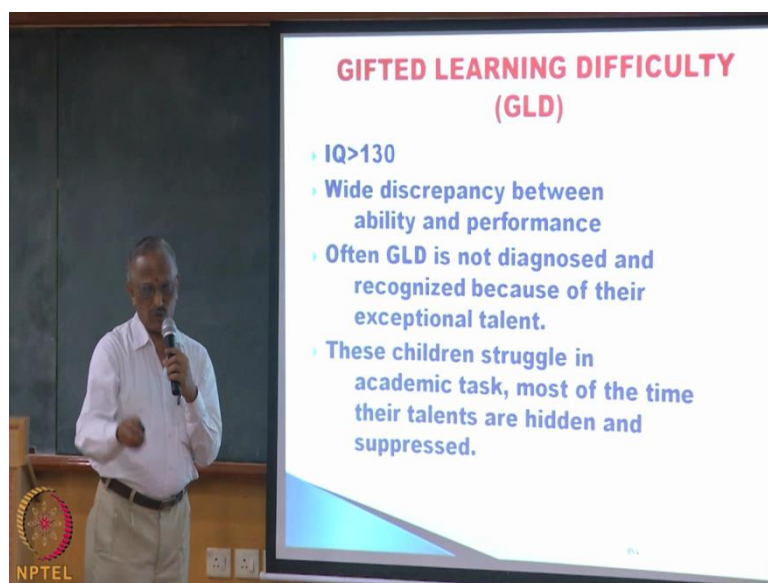
HOW TO IDENTIFY LEARNING DIFFICULTY ?

- A hearing impairment can be identified by audiogram.
- A visual impairment can be identified by ophthalmic test.
- LD cannot be seen out side, except fall in academic marks.
- Neuropsychological tests measures LD.
- LD is a hidden handicap.

How to identify? Suppose you have a hearing problem, go to a audiometrician or a ENT surgeon he or she does audiogram and you identify. You have visual problem, go to eye doctor or optometrician as such, but how to identify? Is there any thermometer or having test or tool to identify LD? No. Neuropsychological test, we have a battery of tests that takes about 2 to 2 and half hours, this told about the standardized.

But again with words of caution, theses tests are standardized for the region USA, UK. Nowadays, lot of education NA voice pattern and slow learners coaching have come for children is a boon for children.

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GIFTED LEARNING DIFFICULTY (GLD)

- IQ>130
- Wide discrepancy between ability and performance
- Often GLD is not diagnosed and recognized because of their exceptional talent.
- These children struggle in academic task, most of the time their talents are hidden and suppressed.

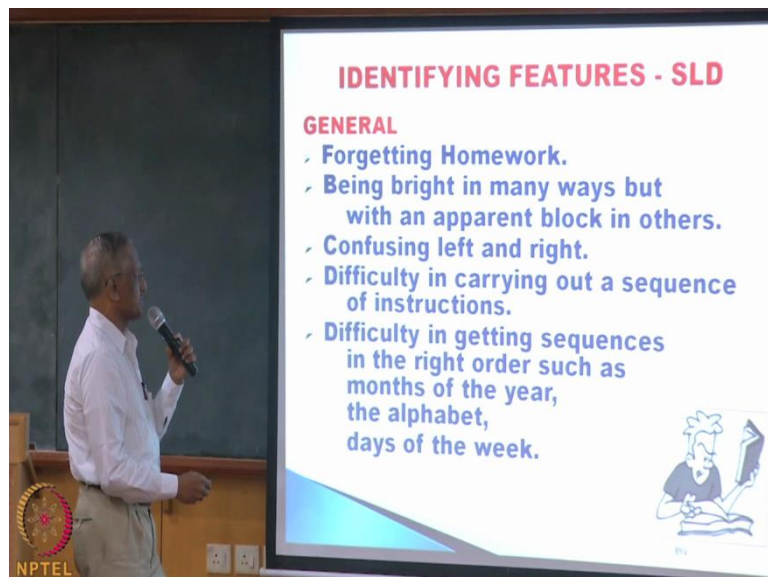
This is what Prof Sirish Choudhary mentioned in the names of very famous people Einstein, Winston Churchill, how many of you know Bill Gates is like this? Anybody knows? Bill Gates, Bill Gates till 8th grade he never went to school gorily, he was a school dropout. And and his father wrote I I even I wrote in a Tamil magazine 10 years back this clipping.

So he is ADHD + LD is writing disorder and ADHD Attention Deficit Hyperactivity Disorder. Even DV that is (())(28:59) not contemporary, but what happened is he successfully made everybody, many of you work on Microsoft and make money and he made billions of dollars and become 2 times rich person in USA.

What I like to say, this is not a problem which fluently becoming great if you the parents understand, give adequate support and you do it. So this is one, gifted people they will have IQ 130 +, but one fortunate thing is because they are brilliant, the teachers do not bother about, they will have very good thing, only in academic they have some problem, but because of the other talent and brilliant IQ, their problem is hidden and many of us we do not bother.

When we bother, when they fail to accomplish in certain areas of learning, writing or spelling then only we, oh what is wrong, then only they come to us, is again very difficult to identify because of the biological what you call intellectual ability.

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IDENTIFYING FEATURES - SLD

GENERAL

- Forgetting Homework.
- Being bright in many ways but with an apparent block in others.
- Confusing left and right.
- Difficulty in carrying out a sequence of instructions.
- Difficulty in getting sequences in the right order such as months of the year, the alphabet, days of the week.

NPTEL

How would you identify? I told you, they are simple when you have a child, their common symptom this all I put in my practice from my experience not many textbooks or any Google or any reference. Forgetting homework, the children's mother will ask, do you have

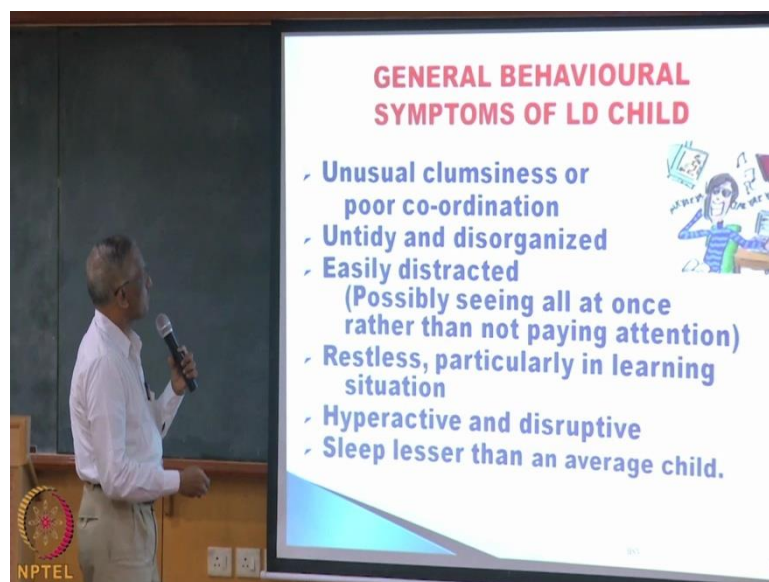
homework? “Mummy, no homework” “Satamailama” on 7:30 the child we say, “Mummy I have not done English work and I did not do the maths”.

Yesterday asked 10 times, yesterday asked 10 times you forgotten, so is not one day, it is daily occurring. So there is a big fight between the mother and the child every day. Do you agree with me or not? This is common; this is one thing forgetting homework. They are bright in everything, that is why we think they are lazy, useless, idiot, only in academics they have problem.

And they have right left condition, “chappal dematiporam” right chappal left, left chappal right” you say take that keep it on the right; they will have this common problem. One of the common problems you come across with children of SLD. And difficulty in getting sequence, suppose you say, you ask them to say the months name, they say January, February, March then they say July, August then say November, December, they will skip.

Sunday, Monday they will say, Tuesday they will omit, then say Friday, Saturday. This is the common thing you get to see in sequence difficulty in sequence thing. This is what common problem features.

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And their unusual clumsy morning, the mother put nice polish, nice uniform, even you see the colour of the skin of the shoe has come as not the black is white. And uniforms will be as most put it in the dust completely is soil, very dark and this is common, not one their fault. And they lose some pencil box, sometimes the school bag itself they forget it, lunchboxes.

So there is a father, he bought many lunchboxes, many pencil boxes, I was doing a school program, he probably raised his hand, “Dr, I bought about so much money and kept it because whenever my daughter says I am losing, immediately I will give one and I never make her to feel sorry for it.” So I said how many? 100 he said I keep in my cupboard, she was in first standard.

Because he was not bothered, he does not want to hurt his daughter, what I like to say is this is a common offer, every day I lose something pencil, pen, they will say, even though homework notebook they sometimes schoolbooks. Watchmen will call the mother “Amma bainoda book yeruku please take it” so this is a common offer you come across.

And they are restless, (())(32:25) when you ask them to learn, they say “mummy, I want to go to bathroom” then they will read, then I need water, “Ippa la tani gudsan” “mam I want to go to sussu” “Ippa la dailepar” “no no, I want to go”, so they will try to avoid the learning situation by nicely giving suitable excuses which you cannot say no otherwise, you will have the fear that he goes to “sussu” what happens, so this is common.

(Someone from the audience asked a question at 32:51, but it was not audible)

Good question sir, I will come to that there is, no, you are right, say actually it is a very good question. Even though we are dealing with children, but if you do not read them in the childhood ADHD or LD, even in colleges they will have the same problem. They would not sit quietly, they will be moving around, and Professor Rajesh will have tough time to handle them in the classroom.

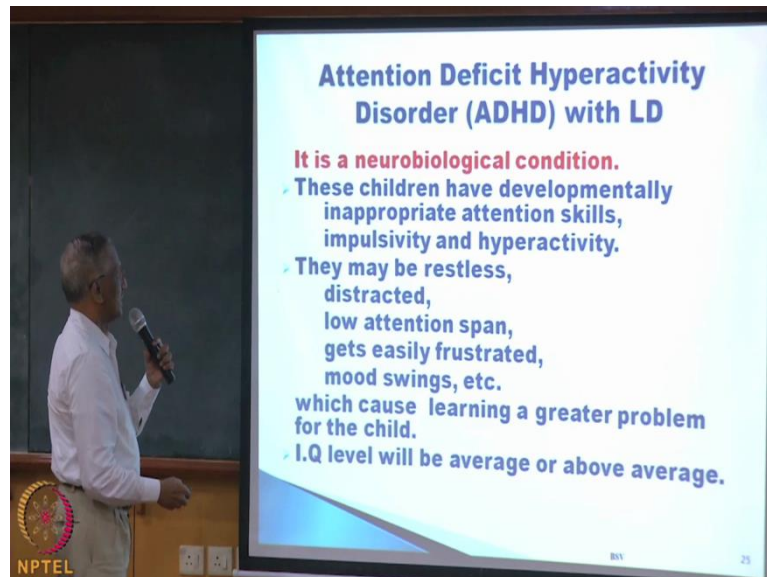
So they will be saying, fortunately we do not have anybody, but there are college girls, college boys, high schools, I am doing programs in the high schools, big schools in Chennai. 9th standard and 10th standard, the parent says 1 minute he would not say doctor (())(33:35) TV, give cell phone, he sit hours together, I do not know what is the problem in it.

So that is the problem is, he is not interested in writing because he does not know. But you give the phone, they will meddle with nicely, they open the password, without you they open the computer and play with lots of programs. So what I say, you are true, it is applicable to adults also if you do not read it in younger age.

So hyperactive and disruptive and anyone important thing is these children have less sleep than the normal children, they do not have proper sleep, they have less sleep than the normal

children because of the stress, I do not know the reason. If you ask me why, I do not even have answer for it.

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And another important area is ADHD Attention Deficit Hyperactivity Disorder, see we have done this study 1996-97 about 74 children we collected, this is out of interest I do some cranky work I do in my clinic when doing my regular work, I always do this. I Prof Shirish chaudhary this kind of crank thoughts come and says, “come on, go you would not become mad, you will have base” so I started doing it.

So in that we found on study, 40% of children with ADHD have combed morbid learning problem, so that paper presents the regions South Zone psychiatric award and next year we got National conference representing Indian psychiatrist we got National award. So we found in our own research small number, 40% of ADHD children have comorbid learning difficulty.

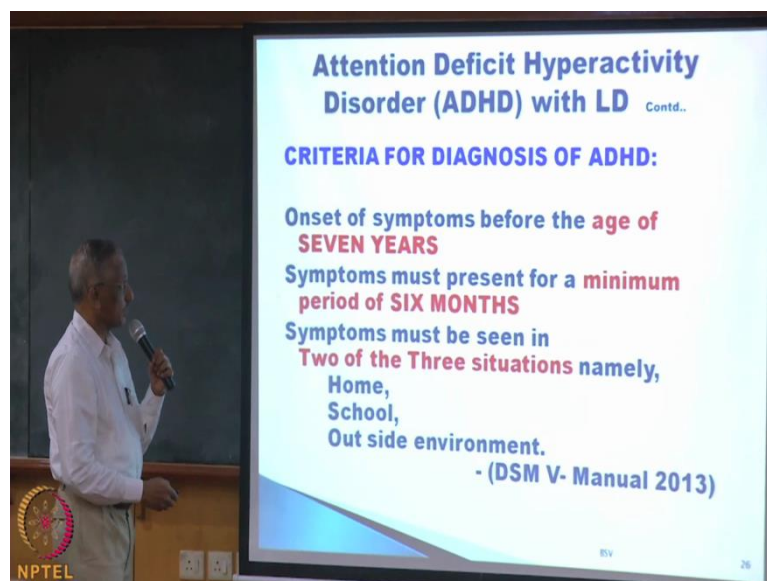
What research says, VS also have found 20 to 25% of children have co-morbid LD ADHD children they have found vice versa, LD also can have comorbid ADHD features, but this is ADHDLD. So this ADHD I am going to say, again neurobiological condition.

All these problems are neurobiological disorders and again in ADHD, one more composition is, there is a neurochemical imbalance in the brain, which causes hyperactivity as a recent theory, neurochemical imbalance. And one group of geneticists people in USA California State, they identify a gene an 8 band gene, one of the gene I do not I am not a geneticists, I read in the article that is responsible for ADHD.

The recent one, they give some genetic coloring to this problem, but the neurochemical imbalance is proved, there are lots of medicine for this to treat hyperactive kids. 6 months to one year, they become all right plus other supporting therapy. And some of the symptoms they may be restless, distracted easily, low attention span they see too many things that is why they could not focus.

And gets easily frustrated, mood swing, they will cry, they will laugh very easily, it causes learning a greater problem, IQ will be average or above average.

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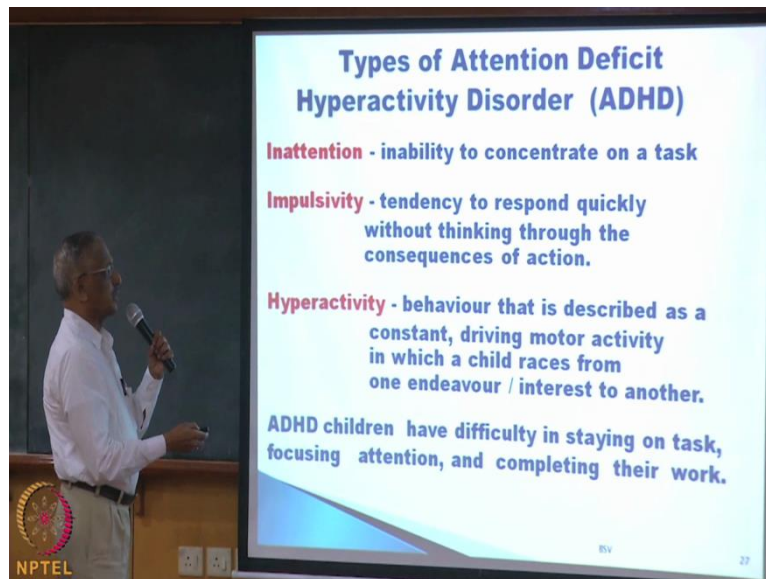


And what are the criteria for diagnosis of ADHD? This is DSM 5 rightly I put it. These are the important criteria. Onset of symptoms before the age of 7, but DSM 5 they say 12, as you ask them, now the increased to 12 years, so that means they are also seeing adults also. Maybe next DSM 5, they make it 18 years, because this is on the increase. The symptoms persist for a minimum period of 6 months.

So you cannot see a child for one sitting, 2 sitting, by jumping or moving you cannot say hyperactive, the symptom is minimum period of 6 months it must persist. So we are scaled to screen from parents and teachers, the questioners, from that only we diagnose of it. The third symptom is home, school, outside environment, 2 of the 3 setting the child must have, so the answer must be before the age of 7, now 12 and minimum 6 months the system must persist.

Home, school, outside of the 3 setting, 2 setting than only you have to treat the child otherwise, leave it as it is, they will become alright as the course of time, this is the present criteria.

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Types of Attention Deficit Hyperactivity Disorder (ADHD)

Inattention - inability to concentrate on a task

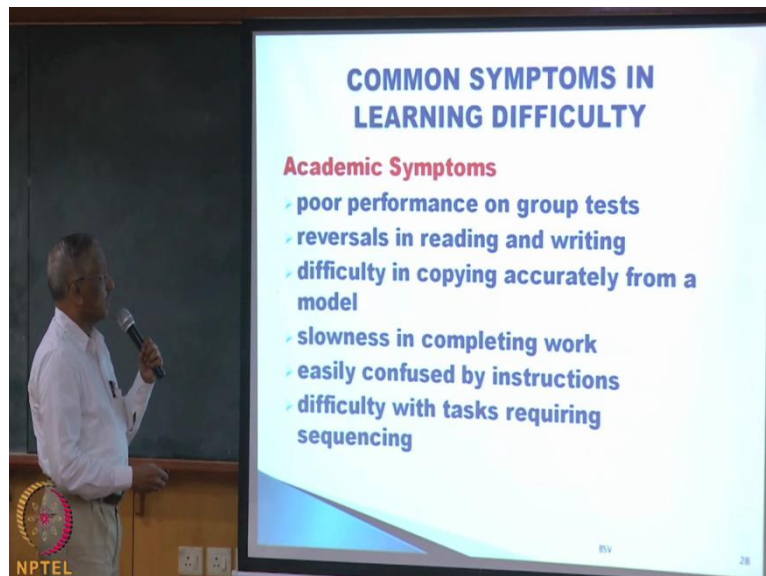
Impulsivity - tendency to respond quickly without thinking through the consequences of action.

Hyperactivity - behaviour that is described as a constant, driving motor activity in which a child races from one endeavour / interest to another.

ADHD children have difficulty in staying on task, focusing attention, and completing their work.

Inattention: inability to concentrate. Impulsivity: tendency to respond without thinking. Hyperactivity: they are always constantly driving motor like just you give a key to the doll ready to act like that they will be. So ADHD children have difficulty in staying on task, focusing attention, completing their work.

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COMMON SYMPTOMS IN LEARNING DIFFICULTY

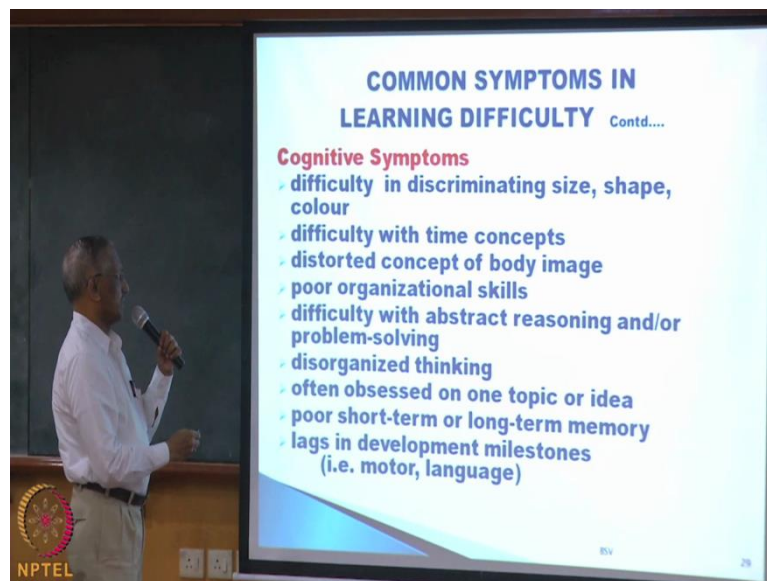
Academic Symptoms

- poor performance on group tests
- reversals in reading and writing
- difficulty in copying accurately from a model
- slowness in completing work
- easily confused by instructions
- difficulty with tasks requiring sequencing

Common symptoms academically if you see poor performance on the group tests, reversal in reading writing in some children, difficulty in copying accurately from a model that is a problem and slowness in completing homework. That is why government gives some facilities like one hour extra time, allowance of spelling mistakes like that they are giving, even use of computer for children who have writing disorder.

Those facilities are given by CBSE and State government. Easily confused by instructions, they cannot understand, they have confusion, difficulty with task recurring sequencing. Suppose we say “Take this, give it to grandpa, collect it from him, go and give it there” what did you know? “I did not, I forgot” and they say “I forgot”. So because they are not able to focus, there is a problem in the children.

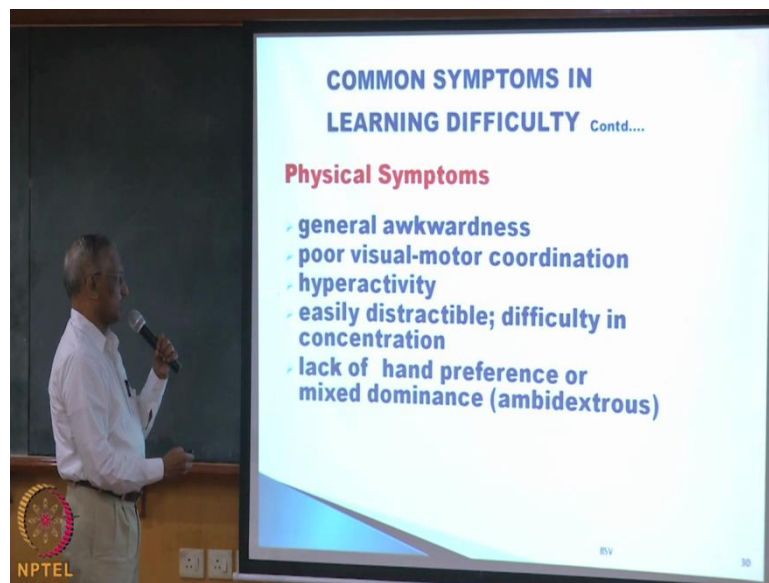
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Cognitive difficulty as Dr Pritha said, the cognitive ability has lot of input in this particular disorders. Difficulty in discriminating size, shape they have problem. Difficulty with time concepts, they will say “yesterday we went” they say “tomorrow we went know that place” for tomorrow they are going to say “yesterday we are going no, that place” so they do not know the time sequence, they have confusion in this.

And even seeing the timing, they have difficulty in that. Poor organizational skills, if you go and see the table even of grown-up adult children, the table will be completely messy, the mother may have to organize well; next 2 hours you see it is completely messy. So often obsessed in one topic or idea, poor short-term and long-term and lag in developmental milestone, motor, language will be delayed in these children.

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Physical symptoms; generally awkwardness, poor visual motor coordination, hyperactivity, easily distractible, difficulty in concentration, and indigenous handedness word of caution I say. Many of the left-handed people, the parents and teachers force the child to change right, is it right or wrong? Changing left to right is right or wrong? Why? But many says, do not give it by the time, it is this disrespect to the elders, do not take it, it is not respect to elders.

We we have a traditional saying of this, is it irrespective of north, south, east throughout the country. So but lot of research studies if you Google, forced change of handedness can result in learning disability forced change of handedness can cause learning disability particularly mirror writing, mirror reading this very common, lot of articles you can Google.

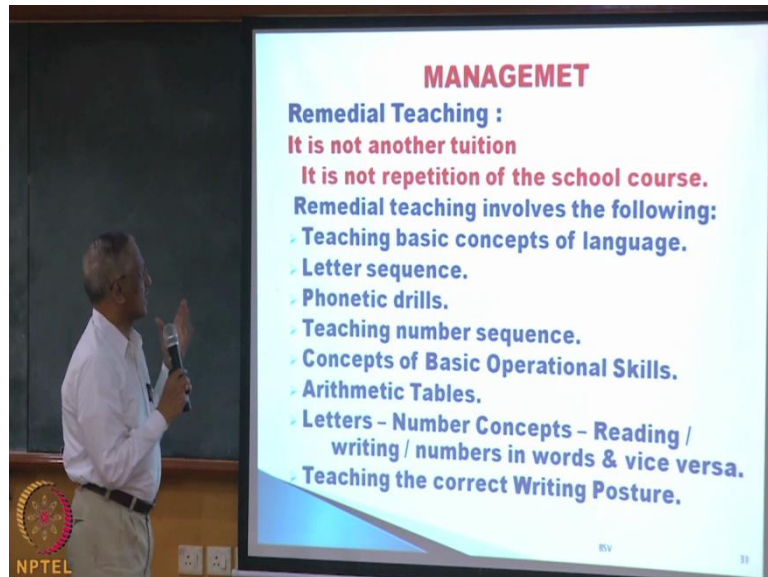
So if the child on its own changes from left to right, they become ambidextrous. They do have learning problems in the course in 1 or 2 I have seen cases, but not really as first change. So never change if the child is left-handed, allow it to, it is right. That is the main message will like to give you; still I see lots of parents compel the left-handed child to change to write.

Many teachers beat them to change right hand, but the child write only with the right-hand man alters automatically, so you can just simply throw a ball, ask the child to catch, which hand the child uses there is a dominant hand. Similarly, you know dominant eye, dominant foot, you just walk when you which foot you first put it for climbing up and climbing down, there is a dominant foot.

Make a hole in a paper, the child to see it, which eye the child sees there is a dominant eye. You can check domain eye, dominant foot, dominant hand, very simple, you may not go to a

neurologist or neuropsychologist for this, so why I say this, these are all by birth during conception decided, we do not have right to change all these factors, which results in learning problem.

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MANAGEMENT

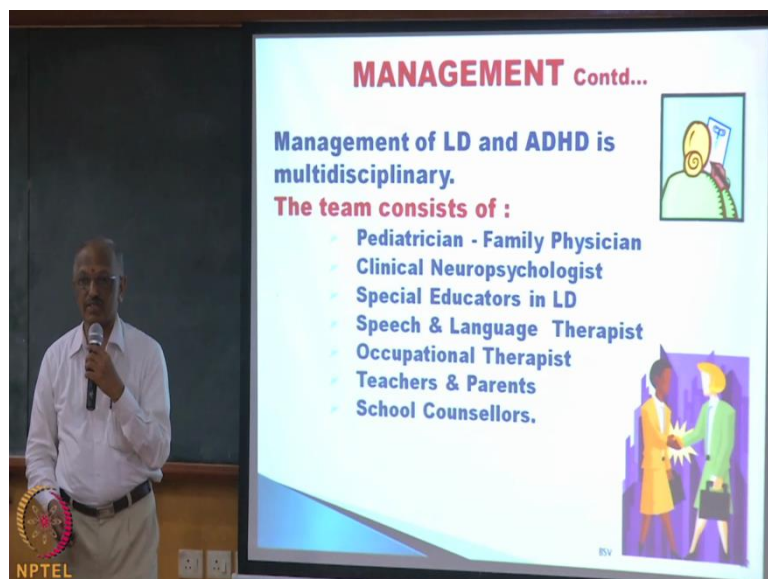
Remedial Teaching :
It is not another tuition
It is not repetition of the school course.
Remedial teaching involves the following:

- Teaching basic concepts of language.
- Letter sequence.
- Phonetic drills.
- Teaching number sequence.
- Concepts of Basic Operational Skills.
- Arithmetic Tables.
- Letters – Number Concepts – Reading / writing / numbers in words & vice versa.
- Teaching the correct Writing Posture.

NPTEL

So what is Management? Remedial teaching this is what Prof Shirish Chaudhary it is not another tuition or it is not another repetition of school work. They teach the basic concepts of language, letter sequence, phonetic drills, teaching number sequence, teaching basic operational skills in mathematics and board, all these things involves. And teaching correct writing posture, these are the remedial teaching, we involve all these things.

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MANAGEMENT Contd...

Management of LD and ADHD is multidisciplinary.

The team consists of :

- Pediatrician - Family Physician
- Clinical Neuropsychologist
- Special Educators in LD
- Speech & Language Therapist
- Occupational Therapist
- Teachers & Parents
- School Counsellors.

NPTEL

It is not tuition or it is not repetition of the school course work. Who manages? Is it one man show? Certainly not, it is not one man show it is a teamwork, who is the team? Paediatrician or your family doctor, clinical neuropsychologist or clinical psychiatrists, special educators in learning disability, we have a course first course in the country I can say proudly under Tamil Nadu Doctor MGR medical University.

One-year postgraduate course in learning disabilities, we started in the year 2008 in Tamil Nadu Doctor MGR medical under Allied health science faculty, any graduates can join this course and age was restricted, now it was removed. Until last year, engineers, chartered accountant cannot do, then we represent it because they do have learning disabled children, many mothers contributed.

This year they lifted, so above 20 years anybody can do the course June July the admission starts, the course starts in October September first, October every year 15 to 16, 17 exams, this is one-year course and this is the 7th batch we are doing. First course in the country which, we give the title called Postgraduate Diploma in Learning Disability we have 4 theory papers, 2 practical papers.

One is diagnosis of LD, another is Management of LD, 2 practical papers, which carries 200 dissertation and 4 theory is basic psychology, learning disability diagnosis, management, basic medical aspect childhood to adolescence, so these are the 4 theory papers. First course we are doing it, so those people are called special educators. Why I give this importance here? There are people who undergo training in mental retardation.

BA BA mental retardation, BSc mental retardation or from government upon universities, they are only mental, but they do remedial for normal children, but unfortunately in the way they do for mental retardation, not the children it should be done, that is why I gave this explanation for you to understand.

And speech language therapist, where there is speech problem and occupational therapists, teachers, parents, school counselors they have one. These the team work together, then only the problem with the children with the LD ADHD actually can be it is a multidisciplinary approach, it is not one-to-one basis. So thank you for your patience hearing, thank you very much.

(Presentation ends and now questions answer session starts)

Dr. Pritha: Is there any attempt to deal with such kind of problems in humane way. Somewhere we are not questioning the concept of academic mirror that seems to go along with these diseases and especially since you mentioned that this term itself fact that this is a disorder came to be recognized in the what was it, 18th century, right? And I think around the some sort of capitalism, whatever you call it.

And I am just thinking that why we are not questioning the school system in any way, where we seem to be much more you know, we seem to undermine the capacities of human kids and somewhere try to narrow down the focus onto those themes or those kinds of abilities that will be useful for this kind of a society economic system, right?

So do you think it instead of I mean I I appreciate that you are making these efforts, because they seem to be there, but these kinds of efforts seem to be saying that look we are doing things alternative we are proposing alternative mechanisms for things for your kind of system, where your schooling system cannot really do for you, right. So it is not questioning the other underlying cause of this entire disorder.

And that is these cooling system and the kind of you know expectations we have of kids nowadays.

Dr Virudhagirinathan: No, you are true Pritha actually I will share with you. I think some of you may be knowing, last year the CBSE Central Board of Secondary Education sent a circular to all the CBSE schools in the country, each school must have a special educator in LD which consists of school principal, vice principal, class teacher, school counselor and parents and psychologists.

So this we started implementing, so you might know about the school Maharishi Vidya Mandir in Chennai, so the first school in Chennai started this project, so we are associated with the project, we have trained about so far 60 teachers, we are going to train another 40 teachers.

The principal wanted to train 100 teachers of the school and we screened about 210 children who were identified first level by the teachers from first standard to ninth standard they are not doing well in academics. And one request they request me to be the team head and do all this job, we are doing training. So I met 2-3 conditions; the first condition was as Dr. Pritha said, the child no way should be punished and academic burden should be reduced.

Third thing, the child should not know the child is undergoing remedial for this, if you are ready I will do the project. So the principle agreed, so we trained the teachers and we named it probably 2 to 2:30 to 3:30 and morning first hour 1 hour. The child is undergoing the class as a coaching class, not remedial teaching, I said no word should be there. You know the bullying is another problem in schooling, I think how many of you will agree.

I face lots of kids, bullying is the worst thing in Tamil Nadu in Chennai. Tamil Nadu Chennai it is a very worst problem I facing. Particular children with the LD AD, are bullied like anything, so that is why to avoid such thing there are some centers, does not want to name the names of the centers in schools. They have their centers in various schools, very big schools; they do it in lunch hours or PT hours.

They call “Hey, Amuda LD da sapatvarma tau” so the child was bullied. All this experience kept it, because they close the centers many schools big schools, so which I do not want to happen, so I told requested and management agreed, so we started a project. Similarly, the government of Tamil Nadu has created a manual call, teacher counselor manual which I was heading the team.

We prepared the manual; probably after election they are going to implement it. 30,000 teachers we are going to train in Tamil Nadu 10,000 female, 10,000 male teachers of 8th, 9th, 10th students, class teachers; how to handle the children, behavioral issues and learning issues, only that is what the counseling process we are doing it. So we trained the teachers too.

There are lots of questions proposed to me, how can you train the teachers as counselor and that is of course, I said name one course which is good course in the country which gives proper training on counseling, and they could not answer me. So I said, we are training the teachers to handle only, not giving title or degree, only training the teachers to handle the children. So this come so, this is the move taken in Tamil Nadu.

I think we have to wait, as he is believed, I believe in God, it is God’s wish, God’s blessing and people’s cooperation probably we may see. Next time, we may take it very easily to children and children feel comfortable. You are right, I fully agree with you, there is no fault of the children we are punishing, the system itself is board, CBSE, ICSE, so many.

Now probably Modi is planning to make one school pattern Central State if it comes I am very hats off to it.

Dr Shirish: I have the good luck to have known view and to have worked with you initially or so. It is pity that this country recognizes dancers and actors and singers and many and cricket players and volleyball players, but not people like you. And there is no way people like me can become President of India, so that...

Dr Virudhagirinathan: So Rajesh recognized me, really this is big award for me, more than Padmashree really I am telling. This is I consider this more than Padmashree honestly I am telling. Because those are all given, this is only when I met him for some purpose, he said without hesitant, can you give a talk, I did not next expect, I take it as a surprise, first instance I met, he did not know about me, I am a stuff worthy fellow, I am useless fellow he does not know.

Immediately asked, no I will honestly say, this I consider as a big award for me and I met you today.

Dr Shirish: Quite truly, you are totally right that you know these things are changing, the scene is changing now, but I also know when you began and I have been part of some of your some of your diagnosis scans in Selum and in Chennai and these many of these places. The least that we can do is to stop bullying the child and it is a pan Indian problem, not just Chennai related problem.

A stranger comes; Inspector of the school comes and asked the child “what is your name?” And the child is naturally frightened and the child does not speak loud enough and the Inspector responses, “Khana Nahi khaya hai, kisne paida kiya isko Dharti par” right? The entire school system is so insensitive to the different needs of children.

Dr Virudhagirinathan: But one good thing sir and with place of record. In Tamil Nadu, I am not politically any party fellow, the present government proposes lot of things which we suggests, honestly I have to admit. We have sensitized 6500 matriculation principals in Tamil Nadu about LD. One year we travelled along the director of matriculation was Mr. Devrajan.

I travelled with him throughout Tamil Nadu 13 months we sensitized 6500 principals and the correspondence of matriculate schools from Kanyakumari to Chennai. So that we be started doing so many things, so that way Tamil Nadu is in the forefront in the country to my knowledge.

Dr Shirish: You are right, you know the least that we can do the least that we can do is to place one part of curriculum in one part of curriculum at least you know the things like teacher training and learning difficulties and then you know, a general culture of sensitivity to children that is purely you know that is totally lacking. Without that whatever you teach, whatever you do is not as effective as it ought to be.

So you know we need to have more and better trained teachers, we need to have greater patients, less burdened curriculum, there is absolutely no reason that we should teach photosynthesis to a class 3 child. You know currently I am for some time Rajesh knows that I have been working with primary school children in as backward place as some villages in Bihar, Indo-Nepal Border.

Even today, we do not have electricity, the lessons that you have there is Urban, middle-class based Urban, “Kisi ladki ka naam, Renu Ek Din seher ke liye park mein gayi” though children have never seen a park, though children have never gone for a “seher”. Nobody has told those children even one story in their 10 year old life, a 5th class child.

So what you are doing Prof. Virudhagirinathan should become a campaign, which all of us ought to join.

Dr Virudhagirinathan: Thank you very much, thanks you.

Dr. Shirish: And all governments must join including UNESCO and United Nations. Political opinions may vary on explanation of the data, but management that you have suggested, there can be no 2 opinions, we must join hands, we must understand the child’s mind better and the neurologist or the psychologist must understand the language aspects of child’s behavior, only then can we change it, but then we can change the scenario.

So thanks for presenting you know a lifetime of work in these lights thank you very much.

Dr Virudhagirinathan: Thank you very much, thank you sir thank you.

Participant: I just wanted to ask about your um what your thoughts are about misdiagnosis of the same issues, because I have a feeling that the symptoms you gave, I am sure parents will say every there every child that they have those issues, he is disorganized, he does not study, he does not concentrate, he does not focus.

I think sensitivity to all of this is great, but this might lead to over diagnosis of these like you have higher percentage of children being diagnostic to ADHD, dyslexia, learning disability, when I do not think this should be labeled under that category, but what are your thoughts on that, that is my question.

Dr Virudhagirinathan: your question is very valid actually, the process I have done, I did much touch upon diagnosis that is some 5, we have set of criteria for SLD. In that, if it is more than 4 then only it is significant, less than 4 even it is highly positive, we do not call it as SLD. Similarly, ADHD we have 3 categories each one 9 symptoms, each area 3 symptoms must be, 3 areas must be covered.

Totally if the 9 out of 18 present only you diagnose it, even it is 5-6 we do not diagnose it. And another one important thing I will like to tell you and he was doing a lot of work. Autism there is no autism today for your kind information is called autism spectrum disorder. Another one info I do not know whether he knows or many of you know. In 2014, a psychologist called Angelica Rebecca she is British psychologist.

The British psychologist society gives various awards, Spearman gold medal; Spearman is one of the famous psychologists to devise the intelligent test. So in his name there was a medal, Spearman gold medal. So she presented a paper that paper is nothing but diagnosis of ADHD ASD. In that she presented that ADHD children 50 to 70% ADHD symptom, 30 to 50% ASD autism spectrum, we have to treat both separately.

But unfortunately, still in Tamil Nadu in India in Chennai, many I do not want to mention, middle aged professionals and some people wrong use the words California autism (())(57:02) which was age old, is outdated, so that as you said, it gives high significant of autism.

So this is the current one, so in child trust I am consultant child trust, we have a child that is Preneet, myself, Dr Andal, we have a team of doctors, psychologists, various people we sit. So in that we treat as I told you, other child the AHD 50 to 70% autism spectrum, 30 to 50% ADHD. You have to treat both, if you treat both, child become alright. So there is no question of over diagnosis or under diagnosis if you follow these criteria very rigidly.

That is the clear cut definition you all sticks, which anyone you can use it, it is there.

Participant: Sir, I think specially thank you very much for sharing it at the community of linguists, we were always looking for important problems to solve right in, and dyslexia is

very important thing to work on from a linguistic perspective. I would just like to share some recent information, some recent studies, which have been done, which might be very interesting to question a linguist.

You have mentioned certain problems which are frequently observed in the reading and writing specifically writing of children with dyslexia. For example, for reversal of alphabet, so instead of 'b' they write 'p' or they write 'd', these kinds of things. As you may imagine, these kinds of problems vary a lot language to language, so one of the worst examples is Korean.

In Korean language, every alphabet is almost like a mirror image of some other alphabet or some upside downside version of some other alphabets. So it is incredible that the incidents and in fact the diagnosis of dyslexia in Korea is about 1 in 10, so it is you know it is much higher than what it is in most of the other countries purely because of the nature of their alphabets.

Similarly, in languages like English we do see something syntactic problems also in the so for example, many children with dyslexia have difficulty with tense formation, so instead of saying "did you eat" they may say "did you ate" they so you know those kinds of formation they have difficulties. Again if you compare this with a language like Chinese, where the inflections do not, they have not there, morphological complexity are not there.

Diagnosis of dyslexia in countries like China is much lower because the language is much simpler there, at least along these parameters, what is the alphabet, what is the morphology, what is the syntax, so this is a dimension which as linguist we find very fascinating and you know which perhaps requires a lot of study and get shed some light on how dyslexia should be managed at a language level.

Dr Virudhagirinathan: The Chinese, Japanese script is not write no, it is only character. Character you do not make mistakes, only language you make mistakes, that is why there is no much LD in Chinese or Japanese language because it is all character, it is only row column wise, not row wise. Whereas, language we write row wise, that is one thing. The second thing is as I said; this is another experience I want to share with you.

I saw one child; the child was studying in a Montessori school UKG, up to UKG. The child was brought to me for mirror writing of 23 letters out of 26 letters. I have not seen any child in my lifetime, 23 letters mirror writing. I was really my, I broke my head, what is wrong. I

made him to write myself, my another colleague, another assistant, 4 people asked him to write different days, not one day, asked the child to come and told the mother.

All the child 4 visits, the child wrote 23 letters mirror writing. Then I really confused, I asked the mother, what the school teachers... phonetics first and then they teach letters. That day my brain struck me, do not teach phonetics first, first teach English. The reason you say 'A' 'B', but in 'A' phonetic is 'aa', in 'B' it is 'ba'.

So the sound you teach the child confuses and could be the processing the brain, the neurons wrongly send the message to the area, the child writes reverse writing, this is my guess. I need someone to take up this topic and do it; definitely I can give you lots of sample. This is one area of interest I am having.

Participant: The problem I, my opinion needs more to do with um teaching, writing first. And also these problems more you will find in English medium schools or in this environment of 2 languages. In native languages or where we have one language medium or just say Hindi or Tamil. I think this problem is not very significant this is just a wild guess, I do not know.

Dr: No, I will just give you one more... his question. So I see children bilingual, multilingual, they make more mistakes in mother tongue than in English. Some ill mother tongue will say (())(61:58) child hindi "Arey mereko nahi ata hai" the child immediately say without thinking or hesitation. But mother thing is he speaks nicely Hindi, but cannot learn Hindi. Reasons any one can give? Any guess youngsters? Any guess?

The medium in the school is English is being used a lot. The mother tongue, only 1 hour class maybe 3 hours per week. So my guess is, even at home the mother Tamil speaking or any speaking, they do not like to call "Amma yachan" they do not want, they want daddy, mummy. So the child even at home, they called the mother studies only 8th standard, she likes to call herself as mummy, daddy is daddy, no sorry I am not, this is my observation.

So that the child is exposed in speaking at home calling everybody in English only, maybe that is the reason, lack of time, inadequate time could be the factor, this again I want someone to take up this issue and do a research, I will help you, thank you very much for your participation, thank you very much for the opportunity. I thanks once again to Professor Rajesh for this opportunity.