Teaching Strategies for Students with Learning Disabilities

Introduction to Learning Disabilities

The rapid development of technology that our world has seen over the last century has brought many conveniences to and beyond our doorstep. One of the most important benefits we've reaped from this development is the fact that we now understand ourselves—and each other— better. We know what makes us tick, we know what makes us think, and we know that we don't all work in the same way—we have different needs, abilities, wants, and interests.

The majority of people in this world lead privileged lives because the world we live in has been designed for the majority. Everybody else is forced to adapt and squeeze themselves into boxes that aren't quite their size. Just ask any left-handed person for his or her opinion on spiral-bound notebooks and scissors to know how true that is.

When architects design buildings, they do it with people's needs and abilities in mind. They know you can't fly between floors—that's why they build stairs. They know that some people have difficulties with stairs—or that there's a limit to the number of flights a person can climb in one stretch. That's why they include escalators and elevators in some designs. At the end of the day, they give you a building that you can function in without a thought. Most of the world is designed that way. Whatever you look at right now was designed with the abilities of the majority in mind. Even the way you learn. *Especially* the way we learn.

Everybody deserves the opportunity to learn and grow. Everybody has the right to develop and unleash their potential. And our recognition of that right lies at the heart of this discussion. IIMB is committed to creating a learning environment in which everybody can thrive. Like the other world-class institutions, we stand amongst, our courses and teaching strategies have always been designed with the majority in mind. But the understanding we have of how different people think and learn makes it imperative that we rethink our strategies.

The first thing we need to understand is how to think about people with learning disabilities. They're not people we approach with pity but are people we approach with consideration. They are not helpless people whom we need to relax the rules for but are capable people who require alternate methods to flourish. We don't need to feel sorry for them or give them 'easy tasks.' We need to make sure that the world, which was once tailored for the majority, is now inclusive of them, too.

The second thing we need to understand is what a learning disability is. 'Learning disorder' or 'learning disability' refers to different types of problems that affect how a person receives and processes information. People with learning disabilities have trouble in one of three foundational areas: reading, writing, and math. It's important to remember that people with learning

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disabilities are no less intelligent than people without learning disabilities. They just hear, see, or understand things differently. All they require, like every one of us, is a world that understands their needs and caters to their abilities.

Types of Learning Disabilities

Albert Einstein * Agatha Christie * Leonardo da Vinci * Muhammad Ali * Walt Disney.

These five men and women have two things in common: they are amongst the most talented, celebrated, and successful people in the world. And they all have Learning Disabilities. So do Steven Spielberg, Tom Cruise, Abhishek Bachchan, Cher, Pablo Picasso, and Boman Irani. People with Learning Disabilities have found success in every field—they populate scientific, artistic, and economic spheres with as much ease and flamboyance as people who have no Learning Disabilities. That tells us at once that having a learning disorder does not imply low intelligence or predict poor productivity and unsuccessfulness. A lotus can't flourish in the desert any more than a cactus can survive on a lake. Every plant has its conditions to be met before it can thrive— and this holds for people as well. If you put a person with a learning disorder into an environment that takes their requirements into account, they will flourish—and the world will be enriched for their talent.

People with Learning Disabilities, as you've realised by now, experience the world in very different ways from people who don't have Learning Disabilities. And even within this category, they may have tough challenges or completely different needs. There are three types of Learning Disabilities that we will discuss here: dyslexia, dysgraphia, and dyscalculia. (Other learning disabilities that are not covered in this document include auditory processing disorder, language processing disorder, nonverbal learning disability, visual perceptual and visual-motor deficit).

Dyslexia
Dyslexia is a reading disorder. The problems that arise from dyslexia don't manifest in the same way for all affected people. To some, certain letters may appear backward, upside down, or interchangeable. To others, the text might seem to jump around on a page. Some people may develop headaches or feel queasy while reading. Others may be unable to understand or retain the information that they've read (they may, on the other hand, have no trouble remembering and understanding the information they *hear*). There are many variations within the Disabilities. The examples below will help you understand some of them.

Looking into a Dyslexic World:
Look at the optical illusions below.

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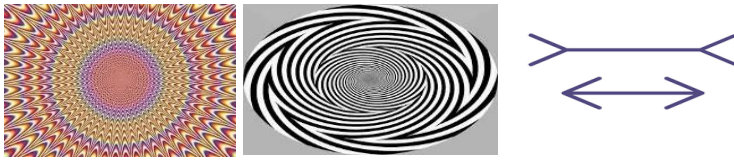
There's nothing magical or complex about these images. Yet, for all of their simplicity, the images have managed to trick your brain into seeing things that aren't true. The concentric circles/spirals in the first two images don't move. In the third image, the horizontal lines don't look equal, but they are. Your brain was simply tricked into thinking otherwise. And that's how it often is for certain types of dyslexic people. An ordinary piece of paper with regular printed words can trick their brains into seeing things that aren't there.

Another (simplistic) look into a Dyslexic's World:

> Nto evrey bylseixc peorsn epxerincees bsylxea in teh smae way. Tehy dno't lal xeprienece it wtih teh smae sveetiry etiher. Smoe poepel may fnd tehir prefronamce silghlty ipmatced in jsut oen or tow felids. Oherts may fnid temhsleves sveerley hpamereb in veery aerna of teihr viles. If tihs praagarhp anonys yuo igamine hwo mchu a wohel boko toruldes tehm!

Dysgraphia

Dysgraphia is a writing disorder and can often go hand-in-hand with dyslexia. People with dysgraphia may have trouble putting thoughts on paper. They may have difficulty with spelling or poor handwriting. They may omit words when writing, make basic errors with verbs and pronouns, or write the words of a sentence in the wrong order. It isn't uncommon for people with dysgraphia to speak more fluently than they write. Agatha Christie, the woman who ties with Shakespeare as the best-selling author of all time, had dysgraphia. She overcame the problem by dictating her books to a secretary instead of writing them down herself. Just think of how remarkable that is—a woman with a writing disability went on to be the most widely-read writer in the world. Her books have sold between two to four billion copies and all because she was given the tools that she required. If accommodations hadn't been made for her needs, the literary world would have been robbed a million times over.

Dyscalculia

Dyscalculia describes difficulties with learning or understanding arithmetic. People with dyscalculia may have trouble memorizing the multiplication table. They may be slow to solve problems. They may be unable to count backward, or estimate amounts accurately. Dyscalculia

isn't usually associated with low intelligence—people with the disorder may be high performers in several or more subjects but *still* struggle with anything more complicated than addition.

Working with Adults with Learning Disabilities

Teaching strategies that work for children with Learning Disabilities don't necessarily work with adults. The techniques below are included because they are effective with adults who are suspected of having (or have been diagnosed with) Learning Disabilities. (Refer to Appendix 1 to get a summary view of Assistive Technology tools available to students with Learning Disabilities)

It is important that you and your 'student' agree on the expected outcome of the program and draw up a work plan to achieve those goals together. You can increase student involvement with the techniques below:

- Help your student set practical goals. Short-term goals have an attractive bonus of allowing students to enjoy success sooner rather than later.
- Allow your student to meet goals in creative and flexible ways.
- Invite your student to determine how to evaluate specific goals and include him/her in the assessment of his/her development.
- Draw up a work plan with your student and make sure he/she fully understands it.
- Discover what truly interests your student through listening, discussion, and observations.
- Allow each individual to be unique. Encourage your students to take risks and help them discover what techniques they can use to accommodate their particular Learning Disabilities.

Understanding instructions is a vital precursor to attempting assignments. Techniques that achieve this include:

- Make the instructions available both in written and oral (e.g. a video recording) form. These instructions should include changes made to schedules, assignments, and exams.
- If possible, allow students to review a model of the finished product.
- Demonstrate through examples and provide illustrations.
- Be specific, concrete, and understandable.
- Give students a comprehensive overview of the whole lesson.

- Be familiar with the SQ3R method (Survey, Question, Read Write, Review).

SQ3Rmethod.pdf

https://www.weber.edu/wsuimages/vetsupwardbound/StudySkills/SQ3Rmethod.pdf

- If possible, allow students the option of achieving assignments in different ways.
- Use multiple mediums: write on the board, present orally, and outline in a handout.
- Let the transition from one task to the next, be obvious.

Since it is easier for teachers to adopt different teaching strategies than it is for students to change the way their brain accepts information, the key to effective teaching is flexibility.

These suggestions can help you connect with adult learners more easily and effectively:

- Introduce new concepts by relating them to practical applications.
- Tailor reading material so that it is at the right level for the learner. For example, you could use large-print type if necessary.
- Teach your students to pick the main ideas in a text.
- Relate the information acquired to everyday situations.
- Use language experience approaches and reading materials from home and work environment to stimulate interest.
- Build on what your student already knows so that learning is developmental and not remedial.
- Teach your student to spot and correct his/her own mistakes and probe 'incorrect' responses to discover underlying thought processes.
- Don't make assumptions about what your student already knows.
- Be creative and vary your teaching style.
- If necessary, encourage your student to sit in the front of the classroom where he/she can see and hear more easily.
- Remove unnecessary or distracting stimuli from the room.
- Establish a routine to encourage organization and consistency.
- Use multi-sensory strategies to present materials: many learners must be able to see, say, hear, and touch before they can develop full mental images that stick and make sense.
- Encourage students to read aloud from their notes/textbooks when studying or listen to recordings. Encourage them to write too. These activities deepen and strengthen their learning.

- Assign short term tasks with short breaks in between. Marathon study sessions don't work.
- Rehearse and revise frequently.
- Allow flexibility in terms of time: the workload of each student should not exceed his/her work speed
- Provide students with the opportunity to review their work. Recap the previous session's material before beginning a new topic.
- Respect different learning methods.
- Encourage students to use mind maps.
- Use materials that students can relate to their experiences.
- Rethink or redefine activities that don't work.
- De-emphasize timed tests.
- Use mnemonics to aid memory and encourage the use of learning tools (e.g., calculators, highlighters, digital learning programs, videos, charts, experiences, fingers, etc.).
- Employ color whenever possible for visual impact.
- Allow students to recall the material taught, verbally, as an accuracy-control.
- Collaborate with other tutors, faculty, and professionals and ask for ideas and viewpoints.
- Encourage the student to find a mentor who can help review the information and apply classroom skills to real-life situations.
- Suggest reinforcement activities that can be used at home. For example, posting new words on the refrigerator door, repeated listening to a recording of vocabulary words, watching recommended educational television/ youtube programs, etc.
- Discuss with students their learning process. Find out what does and does not work for them.

Students try harder when the learning process is a rewarding one. The suggestions below can help build a positive environment that will raise students' self-esteem and encourage them to aim higher:

- Pay attention to self-concept enhancement when working with learning disabled students.
- Do not assume laziness or embarrass individuals publicly or privately.
- De-emphasize competition and perfection.
- Make sure that your student's accomplishments have been noted at the end of each session.
- Let students know they are valued by making eye contact, smiling, and listening to them

- Allow humor a place in your tutoring session.
- Praise even the successes you consider minor.
- Reinforce the effort and progress of the student.
- Identify and teach to each student's strengths and make each student a 'star' as often as possible.
- Talk to students about their strengths and encourage them to build on them.

We are creating a note for students with Learning Disability. Do make time to review that document as well- there are valuable study tips in there. Remember to check out Appendix 1 for an understanding of Assistive Technologies.

As you may already know, in peer-assisted tutoring, the tutors benefit tremendously from the teaching/studying process as well (perhaps even more so than the student).

Any queries or suggestions? Do write to us at CTL@iimb.ac.in

Appendix 1

Assistive Technology (AT) by domain: Here is a list of AT tools that facilitate learning for students with learning disabilities.[1][Adapted from Young, G., & MacCormack, J. (2014).

Assistive Technology for Students with Learning Disabilities

Domain	Low-Mid Technologies	Mid-High Technologies	Mobile Apps
Receptive	**Notepads** help students record information. They can color-code the details based on the subject and learning purpose	Students may purchase **audio recorders** to store several hundred hours of lectures.	**Audiobooks** are pre-recorded. They offer relevant information on a particular subject that the student is studying. Recordings are available in different formats – MP3, CDs, audio cassettes.
	Alternative keyboards are programmable keyboards excellent for	**Talking dictionaries** also make for a good investment. This is a great low-cost tool to	

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[1] https://www.ldatschool.ca/assistive-technology/

	students with LD and typing issues. The keyboard can be customized with overlays which are not present on a general keyboard. Students have options to add graphics (for comprehension) and group keys using separate colors. **Frequency Modulation (FM) systems** reduce background noise and help students with attention deficit and LDs. The tool helps address language processing concerns.	help students verify spellings of words and their definitions easily. Students can conveniently carry these devices in their pockets/pencil cases. The free online dictionary, **VisuWords** helps students look up words and their meanings. Students can also look up their association with other words.	Students also have options to subscribe to **electronic libraries** online, like Sugamya Pustakalaya. **Google Meet** and **Microsoft Teams** (Office 365) come with auto-captions for students to follow a live conference better.[2] **Microsoft PowerPoint** also has option of subtitling/captions.
Speaking	**Cue Cards** are composed to organize the information to be presented before-hand. It offers students helpful clues on the lecture.	**Prezi** is a free 3D graphic organizer tool. This is used for creating presentations that students can comment on and utilize the information to build on other Prezis.	**ShowMe Interactive Whiteboard** is a recorder that allows students to record presentations on their iPads and also record videos, which can be uploaded on YouTube/a private platform.
Reading (Dyslexia)	**Sticky notes** are used by students to summarize ideas from a chapter they read and stick it directly on that page. This makes	**Text-to-Speech** software like *Kurzweil 3000* reads aloud the printed/digital text. The text is scanned, synthesized and read out in a voice that	**GoodReader** is a PDF reader enabling students to take notes, highlight text and add sticky notes.

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[2] http://islrtc.nic.in/sites/default/files/Indian%20Sign%20Language%20Interpreters%20directory.pdf.

	learning and revision very convenient. **Highlighter strips** are color rectangles that highlight only the text being read at that time while blocking out the rest of the text. This reading guide makes reading easy by wiping out the clutter. **Pentop computers** like *LiveScribe smart pens* can help with reading disabilities. The tool helps translate text-to-speech	students can easily understand. *Bookshare Web Reader* is a free tool students may use. **Wikipedia** has a *Simple English* function which translates the content into very simple/plain English making it easier to comprehend. Computers with **screen readers** like NVDA or JAWS for Windows and voiceover for Mac.	**Speak Selection** is available to Apple device users. The application reads aloud digital text. **Free Books** has over 23,000 free books. Students can highlight/bookmark text and pages. It also comes with an in-built dictionary. OCR (Optical Character Recognition)/ reading software like **EYE-D Pro** app
Writing (Dysgraphia)	**Pencil grips** make it easier for students facing difficulty with handwriting. There are also **computerized pens** transmitting handwriting into electronic text. Some of these also come with audio-recording features. **Pentop computers** are hand-held tools digitizes written words	**Word processing** features facilitate students with writing issues. The functions include spell check, synonyms, dictionary tools, and word prediction. **Writing Support** software, like *Grammarly*, *Reverso*, *LanguageTools*, *ProWritingAid*, etc. helps students who cannot write grammatically correct sentences with no semantic problems.	**Pages** help students to write, edit and share. The app has spell check, word prediction and speech-to-text features. **iWordQ** not only helps in writing with functions like word-choice and proof reading, it also is a good app providing reading assistance. **Dragon Dictation** is a voice recognition app.

	supporting students in taking notes and composing essays.		Students can speak and immediately see their text/email messages.
Reasoning (Cognitive)	**Graphic organizers** work with outlining software to help students with organizing and outlining problems. It gets easier for students to connect ideas. **Audio recorders** help students record lectures for going through later. It provides better clarification on the subject discussed.	**Inspiration** is a software letting students visually organize ideas; no need of handwriting or dealing with spellings. The whole content is translated into essay outlines automatically. **Spark-Space** uses idea mapping essay writer feature supporting visual learner students to write. **Audacity** lets students record and edit sounds. This software is free.	**SimpleMind+** is apt for organizing ideas. Concept maps are converted to outlines automatically.
Math (Dyscalculia)	**4-function calculators** help students with LDs without giving them disproportionate advantage over students with no learning issues. **Pentop computers** help provide strategic	**Graphing calculators** assist students in solving complex equations. Students can verify results before actually putting the solution on paper.	**ShowMe** and **ScreenChomp** offer interactive whiteboard interface for solving calculation issues The solution steps on screen can be recorded along with the audio and shared as a video file.

	auditory feedback during math activities[3].		

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[3] https://www.ldatschool.ca/assistive-technology/