STUDY STRATEGIES FOR STUDENTS WITH LEARNING DIFFICULTIES

NMU UNIVERSAL ACCESSIBILITY AND DISABILITY SERVICES

CONTENTS

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INTRODUCTION

Many capable students' at all educational levels experience frustration and failure within their academic process, not because of a lack of ability, but possibly because they do not have adequate study skills and in addition may be experiencing some sort of learning difficulty which could be negatively impacting their learning.

The purpose of this study guide is to provide students with multiple techniques to help develop positive study strategies to assist students that may already be struggling with a learning difficulty which is impacting on his/her ability to learn to their best ability. This guide will also look at the cognitive components that are required to learn effectively and how this process works to optimize learning potential.

WHAT ARE LEARNING DIFFICULTIES?

A learning difficulty (also referred to as a learning disorder/disability) can be described as an issue with the brain's ability to process information. Individuals who have a learning difficulty may not learn in the same way or as quickly as their peers, and they might find certain aspects of learning challenging (GoodTherapy). Learning difficulties interupt the cognitive process of learning . Think of learning as a ladder, if the first step is malfunctioning it is going to make getting to the next step a bit more challenging and create a knock-on effect in the learning process.

What are learning difficulties? Learning difficulties which are neurological challenges, affect the way the brain receives, processes, stores, and analyses information. A learning difficulty often affects an individual's ability to develop reading, writing, and math skills. A learning difficulty is typically recognised and diagnosed while an individual is in school. However, some of those affected by learning difficulties may not have it discovered or diagnosed until they are in university or after they have joined the workforce. Others may never have their condition diagnosed and may continue to experience difficulty processing information as they progress through life. It's important to seek professional help, if you feel you may have a learning difficulty.

Learning difficulties indicate an individual's need for alternative learning methods. They are not indicative of intelligence level and are not the same as intellectual difficulties. While some learning difficulties are mild, others may have a severe impact on an individual's academic performance. However, alternative and behavioural teachings tailored specifically to the type of difficulty can help an individual develop strategies to address and work with particular challenges, and intervention can be a significant benefit. Simply having a learning difficulty does not mean an individual will be unable to succeed academically or hold an intellectually demanding position.

TYPES OF LEARNING DIFFICULTIES

A learning difficulty might often be termed a "hidden disability." A person challenged by a learning difficulty is generally of average or above average intelligence, and many are able to hide the fact that certain aspects of academic learning give them issue for years. The difficulty arises in the gap between the individual's potential for achievement and ability to achieve, which is often hampered by a difficulty in receiving or processing information as mentioned previously. The difficulty lies in a break in the learning process.

Learning difficulties can be verbal or nonverbal. Verbal learning difficulties affect one's ability to read, write, or otherwise process spoken or written words, while nonverbal learning challenges can make it harder for an individual to process visual information or master abstract concepts like fractions. Some learning difficulties can also make it difficult for an individual to focus: At least 20% of those with learning difficulties have a condition that impacts the ability to focus or concentrate. That being said, often someone with a learning difficulty can present with a co-morbid difficulty such as concentration difficulties or an anxiety component.

The diagnostic and statistical manual (DSM-5) classifies learning difficulties under the diagnosis of "Specific Learning Disorder," differentiating between conditions marked by impairment in reading, mathematics, or written expression

The Learning Disabilities Association lists these specific learning difficulties:

Dyslexia: A condition that can affect reading fluency and comprehension, writing, spelling, speech, and recall. Dyslexia might occur along with other related conditions and is also known as a language-based learning disability.

Dysgraphia: An individual with dysgraphia might find it difficult to write legibly, space words consistently, spell, compose, think and write at the same time, or plan spatially (on paper). Specifically, this condition affects handwriting and other fine motor skills.

Dyscalculia: This condition may have an effect on one's ability to develop math skills, understand numbers, and learn math-based facts. It can be difficult for individuals with dyscalculia to comprehend math symbols, organize or memorize numbers, tell time, and count.

Auditory processing disorder (central auditory processing disorder): Individuals with this condition may have difficulty recognizing the differences between sounds, understanding the order of sounds, recognizing where sounds have come from, or separating sounds from background noise.

Language processing disorder: This condition, a type of APD, makes it difficult for individuals to give meaning to sound groups in order to form words and sentences. It relates to the processing of both expressive and receptive language.

Nonverbal learning difficulties: These typically make it difficult for individuals to interpret facial expressions and body language. Visual-spatial, motor, and social skills may all be affected.

Visual perceptual/visual motor difficulty: Those with dysgraphia or a nonverbal learning difficulty might also have a visual perceptual/visual motor deficit, which can impact the way a person understands visual information, the ability to draw and copy, hand/eye coordination, and the ability to follow along in text or on paper.

Attention deficit hyperactively is not considered a learning difficulty, but research shows between 30% and 50% of children have both ADHD and a specific learning difficulty. When these two conditions occur together, learning can become even more challenging. It's also important to be aware that ADHD and anxiety symptoms can often look the same. Although, both are very different.It's critical to get the correct diagnosis for an appropriate treatment plan.

The next section will tap into the components of the learning process, to help us understand how the above learning difficulties interrupt the process of learning making it difficult to learn new information.

THE LEARNING PROCESS

Learning is a complex process that involves multiple cognitive components to acquire new knowledge and skills and ultimately influence their attitudes, decisions and actions.

There are six interactive components of the learning process: attention, memory, language, processing and organizing, graphomotor (writing) and higher order thinking. These processes interact not only with each other, but also with environments emotions, classroom climate, behavior, social skills, lecturers and family.

SIX COMPONENTS OF THE LEARNING PROCESS

Attention

Paying attention is the first step in learning anything. It is easy for most of us to pay attention to things that are interesting or exciting to us. It is difficult for most of us to pay attention to things that are not. When something is not interesting to us, it is easier to become distracted, to move to a more stimulating topic or activity, or to tune out. for example, someone who struggle to pay attention will miss out on important information which will make it hard for them to store and recall the correct information from their memory, creating a knock on effect in the next few steps

Memory

Memory is the complex process that uses three systems to help a person receive, use, store, and retrieve information. The three memory systems are (1) short-term memory (e.g., remembering a phone number you got from information just long enough to dial it), (2) working memory (e.g., keeping the necessary information "files" out on the mind's "desktop" while performing a task such as writing a paragraph or working a long division problem), and (3) long-term memory (a mind's ever expanding file cabinet for important information we want to retrieve over time).

Students are required to remember a wealth of information for each module studied. However, a student may be able to understand the information provided but may have a difficult time recalling learned information for test and exams.Therefore, it is important for lecturers and students to activate prior knowledge and make new meaning for themselves.

Students that struggle with both short-term and long-term memory may require repetition of directions or information orally and or in written form.

Language
Language is the primary means by which we give and receive information in university. The two language processing systems are expressive and receptive. We use expressive language when we speak and write, and we use receptive language when we read and listen. Students with good language processing skills usually do well in university. Problems with language, on the other hand, can affect a student's ability to communicate effectively, understand and store verbal and written information, understand what others say, and maintain relationships with others.

O**rganization**
We process and organize information in two main ways: simultaneous (spatial) and successive (sequential). Simultaneous processing is the process we use to order or organize information in space. Having a good sense of direction and being able to "see" how puzzle pieces fit together are two examples of simultaneous processing. Successive processing is what we use to order or organize information in time and sequence. Concepts of time, dates, and order – yesterday, today, and tomorrow, months of the year, mathematical procedures such as division and multiplication, word order in sentences, and sentence order in paragraphs are examples of sequential processing.

Graphomotor

The writing process requires neural, visual, and muscular coordination to produce written work. It is not an act of will but rather an act of coordination among those functions. Often the student who seems unmotivated to complete written work is the student whose writing coordination is clumsy.

Higher Order Thinking

Higher order thinking is more than memorizing facts or relating information in exactly the same words as the teacher or book expresses it. Higher order thinking requires that we do something with the facts. We must understand and manipulate the information.

Higher order thinking includes concept formation; concept connection; problem solving; grasping the "big picture"; visualizing; creativity; questioning; inferring; creative, analytical and practical thinking; and metacognition. What is Metacognition? it is the ability to thinking about thinking, knowing about knowing, and knowing how you think about information, how you processes information, and how you learn new information (the centre for development & learning, n.d.).

knowledge about the above six components of the learning process – attention, memory, language, processing and organizing, graphomotor (writing) and higher order thinking, helps demystifies learning and provides an opportunity to increase a students metacognition (thinking about thinking). It also enhances their sense of self-worth. A student who understands that she/he may need to use a particular strategy to help his/her working memory function better or that taking frequent breaks will help his/her stay more focused on his/her homework assignments is much better off than thinking that he/she is stupid or lazy.

TWO SIGNIFICANT INFLUENCES ON THE LEARNING PROCESS

Emotions
Emotions control the on-off switch to learning. When we are relaxed and calm, our learning processes have a green light. When we are uptight, anxious, or afraid, our learning processes have a red light. In the classroom, tension slams the iron door of the mind shut.

Motivation
Learning more about the brain and the development of the mind, studying new information on a specific topic/module, creating meaning and connection between information in meaningful ways and learning about your personal learning styles, strengths and weaknesses can help keep a you (student) stay motivated. Watch your the learning process, monitoring closely for breakdowns or weaknesses, and celebrate your successes with studying or learning.

In the next section, we will focus on techniques to use to assit you within your learning process, how to learner smarter not harder. We will also touch on learning styles and how to figure out your learning style in order to tailor the learning techniques to suit your style of learning. We will also focus our attention on alternative study methods specifically focused on the previously mentioned learning difficulties.

GENERAL STUDY TECHNIQUES

Many students realize that their high school study habits aren't very effective in university. This is understandable, as university is quite different from high school. The professors are less personally involved, classes are bigger, exams are worth more, reading is more intense, and classes are much more meticulous. Previous techniques used in high school may not be effective which is normal and doesn't mean there's anything wrong with you; it just means you need to learn some more effective study techniques. Fortunately, there are many active, effective study strategies that are shown to be effective in university classes.However, you may just need to find which ones work best for you.

Below are study strategies to select from to incorporate into your study routine. Select the skills which resonate with you and incorporate those methods/skills into your study plan.

1. READING AS A PRE-STUDY SKILL

Simply reading and re-reading texts or notes is not actively engaging in the material. It is simply re-reading your notes.

Think of reading as an important part of pre-studying, but learning information requires actively engaging in the material (Edwards, 2014). Active engagement is the process of constructing meaning from text that involves making connections to lectures, forming examples, and regulating your own learning (Davis, 2007). Active studying does not mean highlighting or underlining text, re-reading, or rote memorization. Though these activities may help to keep you engaged in the task, they are not considered active studying techniques and are weakly related to improved learning (Mackenzie, 1994).

Ideas for active studying include:

- Create a study guide by topic. Formulate your own quiz and answers.
- Become a teacher. Say the information aloud in your own words as if you are the lecturer and teaching the concepts to a class.
- Derive examples that relate to your own experiences.
- Create maps or diagrams that explain the material.
- Develop symbols that represent concepts or colour code specific topics/themes
- For non-technical classes (e.g., English, History, Psychology), figure out the big ideas so you can explain, contrast, and re-evaluate them.
- For technical classes, work the problems and explain the steps and why they work.
- Study in terms of question, evidence, and conclusion.

Organization and planning is the first and most important step before starting to study for a module. Ensure that you have all module materials (textbooks, notes, PowerPoint, articles, handouts/homework) for the specific topic/area in which you will be focusing on.

2. USE YOUR COURSE OUTLINE

Look at your course outline. Your Lecturer probably included a course reading list, learning objectives or something similar to give you a sense of how the course is structured. Use this as your roadmap for the course. For example, for a reading-based course, think about why your lecturer might have assigned the readings in this particular order. How do they connect? What are the key themes that you notice?

3. KNOWLEDGE & VERBALIZATION

Before you read your textbook or attend a lecture, look at the topic that is covered and ask yourself what you know about it already. What questions do you have? What do you hope to learn? Answering these questions will give context to what you are learning and help you start building a framework for new knowledge. It may also help you engage more deeply with the material.

 verbalizing your thoughts to a friend, class mate or family member or even pet can help you make more sense of the material and internalize it more deeply. This will also help you to retain the information within your auditory memory. Talking aloud is a great way to test yourself on how well you really know the material and to help you retain information auditory. In courses that require problem solving, explaining the steps aloud will ensure you really understand them and expose any gaps in knowledge that you might have (McGuire,and McGuire, 2016).

4. QUIZ YOURSELF

Asking self-reflective questions. Take the
time to be introspective and be honest with yourself about your comprehension. Below are some questions you can ask yourself.

- Does this answer make sense given the information provided?
- What strategy did I use to solve this problem that was helpful?
- How does this information conflict with my prior understanding?
- How does this information relate to what we learned last week?
- What is confusing about this topic?
- What are the relationships between these two concepts?
- What conclusions can I make?

5. WRITING & ORGANIZING THOUGHTS

Writing can help you organize your thoughts and assess what you know. Just like verbalizing, writing can help you identify what you do and don't know, and how you are thinking about the concepts that you're learning. Write out what you know and what questions you have about the learning objectives for each topic you are learning.

Using concept maps or graphic organizers is another great way to visualize material and see the connections between the various concepts you are learning. Creating your concept map from memory is also a great study strategy because it is a form of self-testing (McGuire, and McGuire, 2016).

6. NOTE TAKING FROM MEMORY

Many students take notes as they are reading. However, this often can turn notetaking into a passive activity, since it can be easy to fall into just copying directly from the book without thinking about the material and putting your notes in your own words. Instead, try reading short sections at a time and pausing periodically to summarize what you read from memory. This technique ensures that you are actively engaging with the material as you are reading and taking notes, and it helps you better gauge how much you're actually remembering from what you read; it also engages your recall, which makes it more likely you'll be able to remember and understand the material when you're done.

7. REVIEW YOUR TESTS & EXAMS

Reviewing a test or exam that you've recently taken is a great time to use metacognition. Look at what you knew and what you missed. Try analyze your preparation for the exam and track the items you missed, along with the reasons that you missed them. Then take the time to fill in the areas you still have gaps and make a plan for how you might change your preparation next time.

8. TIMEOUT

When you're learning, it's important to periodically take a time out to make sure you're engaging in metacognitive (thinking) strategies. We often can get so absorbed in "doing" that we don't always think about the why behind what we are doing. Throughout the semester, you should continue to take timeouts before, during or after assignments to see how what you're doing relates to the course as a whole and to the learning objectives that your lecture has set.

Also, you should take breaks inbetween studying. This will assist you cognitive components to process information learnt in order to encode, store, retain and retrieve better when required. Plus, you can't expect to retain what has been learnt when you are tired and overwhelmed by the amount of information being processed.

9. TEST YOURSELF

Self-testing should be an integral part of your study sessions so that have a clear understanding of what you do and don't know. Many of the methods described are about self-testing (e.g., verbalizing, writing, taking notes from memory) because they help you recognize what you do and don't actually know. Other common methods include practice tests, past exam papers and flash cards.

10. FIGURING OUT HOW YOU LEARN

It is important to figure out what learning strategies work best for you. It will probably vary depending on what type of material you are trying to learn (e.g. chemistry vs. history), but it will be helpful to be open to trying new things and paying attention to what is effective for you. If flash cards never help you, stop using them and try something else instead. Making an appointment with a psychometrist or registered counsellor at the unversity is a great chance to reflect on what you have been doing and figuring out what works best for you based on your **learning style.**

LEARNING STYLES

David kolb learning styles is based on the principle that a person should learn through discovery and experience. Different people learn in different ways, and over the years we have seen the application of learning categorised so that we can learn in the way that is not only the most convenient and comfortable for us, but also in the way that enhances our appreciation of the ideas learned.

Knowing and understaning your learning style will help you in learning and retaining information more effectively for tests/exams and for future events where you may be required to recall on prior information.

Kolb's experiential learning cycle involves 4 stages namely: **concrete learning, reflective observation, abstract conceptualization and active experimentation.**

Effective learning can be seen when you progresses through the cycle. You can also enter the cycle at any stage of the cycle with logical sequence.

The **first stage** is **concrete learning** or concrete experience, where the student encounters a new experience or reinterprets an existing experience.

The next stage, **reflective observation**, where the learner reflects on the experience on a personal basis. For many people, this is where the transformation from seeing and doing to reflecting can cement the learning into real-time absorption of materials and theory.

Following reflective observation is **abstract conceptualisation**, where learners form new ideas, or modify current abstract ideas, based on the reflections that arise from the reflective observation stage. You now have the chance to see how the ideas learned previously can be applied in your real world.

Then, there's the **active experimentation** stage. This is where the student applies the new ideas to his/her surroundings to see if there are any modifications in the next appearance of the experience. By actively experimenting with the whole concept of visible action, we learn to associate what we have experienced with new ideas and innovations.

Kolb takes these four components and builds on them to create four overall **learning styles**, as listed below:

- **Diverging**

People with this leaning style see things from differing perspectives.They prefer watching as opposed to doing and are able to use their imaginations to be creative in their overall learning styles.Their learning characteristics is of concrete experience and reflective observation.

- **Assimilating**

These people are able to explore and analyse models well. They are more interested in concepts and tasks than in the people relations. Their characteristics may include abstract conceptualisation and reflective observation (McPheat,n.d.).

- **Converging**

Good problem-solvers and are seen as being quite practical in their analyses of ideas and tasks.
Convergers tend to connect on the answers they want and are characterised by abstract conceptualisation and active experimentation.

- **Accommodating**

Accommodators tend to be more practical in their outlook of learning, and they like to see problems from an intuitive point of view. They may rely a lot on gut feeling and like new-found challenges. They could be characterised by concrete experiences and active experimentation (McPheat, n.d.).

If you are still not sure what your learning style may be after reading the above information you can google "kolbs learning style questionnaire" to help narrow it down and to assist in enriching your study skills.

Now that you're aware of the difficulties or areas of which you are finding challenging and is impacting your learning process let's look at techniques that can assist with some of these barriers to learning.

STUDY STRATEGIES FOR LEARNING DIFFICULTIES

A range of strategies are listed by the australian disability department which can be seen below. These strategies are used by students with specific learning difficulties to address reading, writing, comprehension and organisational barriers:

Strategies for Reading:
- Access and read online reading material and lecture notes prior to each class.
- Use commercial adaptive technology such as Read and Write Gold or free Microsoft Narrator to have an electronic voice read text from the computer.
- Source audio versions of text books.
- Ask your tutors or lecturers for a list of the most essential reading so as to minimise your weekly reading tasks.
- Use the Microsoft Find (CTRL F) function to locate key words within a document. With this function you will save time reading long documents when you are looking for a particular word or phrase.
- Change font, size, line spacing and foreground / background colours to improve readability of text in Microsoft Word

Strategies for writing:
- Download lecture notes such as PowerPoint slides prior to lectures to support with access to key words and concepts, and to minimise writing during lectures.
- Meet with UADS to see how they can support you with essay writing.

- Use commercial adaptive technology such as Dragon Naturally Speaking or free Microsoft Speech Recognition (voice to text software) as an alternative to typing. Many students with an Specific learning difficulty benefit from this software as they are skilled in verbally expressing their ideas but will experience difficulties when typing or writing their ideas on paper or into a computer.
- Audio record lectures. If there isn't already access to a recording of the lecturer source permission from your lecturer prior to the lecture.
- Summarise all lecture notes immediately following each lecture.
- Request additional time for tests and exams by contacting NMU Universal Accessibility and Disability Services (UADS) department or NMU Student Wellness Centre department.
- Use text prediction software to avoid writing frequently used or hard to spell words.

strategies for Comprehension:
- Review key terminology and their definitions for each subject
- View on-line clips for visual and audio descriptions of new academic topics.
- Work in small study groups to talk through key concepts.
- Highlight key words in textbooks or handouts.
- Create summaries of lecture notes and readings.

Organisational strategies:
- Maintain a weekly/monthly calendar and diary to record all due dates of assessment tasks.
- Use a range of apps such as electronic Sticky Notes or software suchas Microsoft OneNote to capture ideas and improve organisational skills.
- Use mind mapping software to assist with essay planning and studying for tests & exams.
- Use colour coding to track content for each subject. (Australian disability clearinghouse on education & training, n.d.).

We hope that the information provided will guide you to create a positive studying environment with tailored strategies that complement and minimase the gap between the challenges you face and your true learning potential so that you can learn effectively.

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