

Diverse learners

Welcome to the guide for diverse learners!

This guide contains information on learning difficulties, and means to facilitate learning as well as links to collaboration partners. The guide covers:

- learning difficulties in reading, writing, and mathematics
- attention deficit disorder
- Asperger syndrome
- anxiety
- mental health

When reading the guide it is important to remember that while learning as a cognitive process is the same for everyone, learners are diverse. We can all benefit from paying attention to our learning and studying techniques.

A learning difficulty is a different way of learning, organising and processing information. Learning difficulties may be classified into linguistic difficulties, perception problems, problems with attention deficiency and executive function, and motor difficulties. In this guide, we will focus on the three first problems, which may also be called specific learning difficulties. An indication of such difficulties is that the academic performance of the student is inconsistent with his or her ability to learn, or with age or talent. Learning difficulties may also be associated with cognitive and psychosocial problems.

Please note that the following list is not exhaustive by any means. If you do, however, feel that several points match your experiences as a student, it's worth contacting the OOP service desk or a student counsellor.

Do you recognise yourself from the following?

- I read slowly.
- Foreign languages are difficult for me.
- I write slowly.
- Mathematics or some areas of it are difficult and I find it hard to follow teaching.
- Stimuli distract me very easily.
- I don't like reading out loud.
- I make a lot of spelling errors.
- The lines jump on the paper when I read.
- I have difficulty distinguishing between left and right.
- I have difficulty focusing on long-term tasks.
- I have perception problems.
- I have difficulty keeping schedule.
- Learning something by heart seems particularly difficult.
- I misplace things all the time.
- Despite trying, I keep having difficulties in my studies.

Famous people with learning difficulties

The following persons (don't take the list as a definite truth) may have had learning difficulties as children or at school or they may have, for instance, done poorly at exams. With hard work, they have developed means to compensate for the problems.

- Alvar Aalto
- Hans Christian Andersen
- Alexander Graham Bell
- Werner von Braun
- Charlie Chaplin
- Charles Darwin
- John Lennon
- Louis Pasteur

For information and descriptions of famous people with learning difficulties, Google 'famous' and 'learning difficulties'

What is dyslexia?

Dyslexia is defined as a specific difficulty of reading and writing. About 10% of the population, 6% of adults, have dyslexia. However, up to 10% of adults experience some degree of difficulty with reading. In such cases, reading is slow or takes an unreasonable amount of time, mistakes are common or the reader does not remember what s/he read despite efforts to do so. This leads to delays in studying and possibly delays in graduation, especially if the studies involve a great deal of reading. Dyslexia is seen as a particular hindrance for adults working and living in an ever-changing and information-focused society such as ours.

Symptoms

Dyslexia manifests itself as slow reading and writing and frequent errors in both. The symptoms are very similar in both children and adults, but may vary individually. University students may have difficulty only in a single area of reading and writing. Reading is slowed down by the difficulty in finding the core content of the text. This also complicates writing, because writing and organising the text into entities is complicated, and remembering long instructions is difficult because of problems with working memory.

When reading, persons with dyslexia easily confuse letters and sounds, skip letters or reverse their order and handwriting may be clumsy. The difficulty with distinguishing sounds leads to difficulty in learning foreign languages, reading them, and particularly in remembering their correct spelling. Letters of foreign origin and sounds resembling each other (t, d, p, b) are mixed into each other. Problems may arise also from long and short vowels (aa or ii) and double consonants (in Finnish) (kk or pp). Dyslexia, is not, however a difficulty of understanding.

In addition to difficulty in reading, dyslexia includes difficulty in reading comprehension. Readers with such a difficulty cannot make sense of what they are reading. Even though reading is fluent, the reader does not understand the meaning. This may be caused by problems with working memory or not understanding grammatical structures. Research shows that 12% of the population have this problem.

Dyslexia, like other learning difficulties often co-occur with other learning difficulties. Dyslexia has been found connected with difficulties in learning mathematics. Problems may also arise in perception, which leads to difficulties in sensing direction, location and distance. In everyday life, this translates into, for instance, difficulties in using a calendar and missing the appointments made. Time and dates get mixed up and names are difficult to remember. This is also related to problems in executive function and time management which complicates making a study plan and keeping to it. In addition, problems arise in attention and remembering sequences like months. In everyday life, dyslexia also manifests itself tiring fast and getting a headache or sore eyes when reading. In addition, slow reading may make it difficult to follow subtitles in foreign-language tv shows and or reading foreign-language newspapers, or filling out forms.

How to support learning

If you experience problems with learning, contact the teacher at the start of the course about the best ways for you to complete the course. Do not take too many courses at one time; learn to know your limits. Using a reading diary or similar system, plan a schedule for assignments or studying for an examination. Reserve enough time for completing each assignment.

It is also useful to know different studying techniques. For additional information on studying techniques and time management, go to the [Study Skills site](#). You may also ask the course teacher about the technique best suited for this course. Trying different studying techniques allows you to find the most suitable one for you. While it is good to think about and value your own style of learning, sometimes it is worth adjusting to the style of the school. When attending lectures, you can ask the lecturer for the outline in advance, since the majority of lecturers prepare an outline in any case. A ready-made outline helps you to follow the lecture because you do not have to write as much and you know what is coming next. You can also record the lecture for listening to later on. However, it's best to let the lecturer know about the recording beforehand.

For instance, you can reduce mixing up letters by copying the text on a paper of different colour. Black text on white paper makes the letters jump around the page for some people with dyslexia. You can prevent this by cutting a narrow hole in the middle of another paper and placing it on the line you are reading. The paper hides the majority of the page and you will find it easier to focus on what you are reading. You should pick a calm colour, such as blue as the colour of the paper.

What are perception problems?

Perception problems refer to difficulties of making sense of the environment: text, places, practices or objects. They complicate planning studies, reading and most of all, learning mathematics. More precisely, perception problems manifest themselves as a difficulty in assessing distances and locations, sequencing, understanding descriptions based on oral instructions, understanding symbols and the working of devices regardless of instructions. This type of learning difficulty is often associated with problems with gross and fine motor coordination which may lead to avoiding sports. The perception problems may also show as a difficulty of adjusting to social situations due to difficulty in understanding social cues. Mathematical problems manifest themselves as difficulties in understanding the different stages of arithmetic operations and proceeding from one operation to another.

Example of perception problems: What is dyscalculia?

The prevalence of difficulties with mathematics or dyscalculia is about 3--7% of the population. It is difficult to know the exact amount, because learning difficulties in mathematics manifest themselves differently in different people and are often left undiagnosed. Dyscalculia may also affect only a single area of mathematics. Dyscalculia in a pure form is very rare, and dyscalculia is often associated with perception problems or dyslexia. About 40% of students with dyslexia also have difficulty with mathematics. This is mainly due to difficulties with reading and understanding the assignment and with remembering long assignments and instructions.

Symptoms

Difficulty in learning mathematics also presents itself as a difficulty in applying formulae, using measurements, writing out phases of calculations, writing numbers, and spatial perception. In addition, numbers may be missing or they may change places. Apart from mathematics assignments, this difficulty presents itself as the difficulty of understanding direction and time, to remember lengthy verbal instructions and in playing strategy games such as chess. Making schedules and planning life may be difficult, and for instance writing long bank account numbers may be difficult as numbers change places.

How to support learning

Also in dyscalculia, it is important that the student first recognises his or her weaknesses and strengths. When thinking and listing things they are good at and what needs improvement, the student learns to direct his or her learning and to compensate for weaknesses. This is also good for self-esteem. Students may think about these things alone, with a friend or with a professional, such as a student counsellor. When students know their weaknesses they can think of learning methods efficient for them. Also strengthening skills through repetition and splitting things or arithmetic operations into smaller entities that are easier to grasp makes processing the information easier. The teacher may help the student by giving practical examples to support theoretical knowledge, which makes the importance and purpose of the arithmetic operation visible. Study books are often full of text but lack illustrative pictures. Illustration, for instance graphs on paper, help most people. Some people simply need to understand connections and causes before they can understand a concept.

For more methods, see the [Study Skills site](#) under 'mathematics'.

What is attention deficit disorder?

Attention deficit hyperactivity disorder (ADHD) is one of the most diagnosed neurobiological brain disorders, but also much discussed and partly disputed. The prevalence of attention deficit disorder is about 4--7 per cent of the population. Previously, ADHD has been mainly thought of as a children's disease, because sometimes the symptoms ease off in adulthood. However, a part of children with ADHD continue to have problems until adulthood and have their lives complicated by them. ADHD is increasingly often diagnosed in adults. Attention deficit disorder with hyperactivity is three times more common in men than in women. **Attention deficit** also occurs without hyperactivity. Its causes are genetic, anatomical and neurophysiological.

Symptoms

The primary symptoms of ADHD are **attention deficit, hyperactivity and impulsiveness**. These primary symptoms may occur either together or separately, and the individual may experience all symptoms concurrently, or primarily either the attention deficit or hyperactivity and impulsiveness.

Attention deficit translates into difficulties with focusing attention and concentrating on the given task, as well as carelessness. Studying is affected by a lack of perseverance, which leads to difficulties in listening and following instructions, starting tasks and finishing them, concentrating and keeping concentration despite other stimuli. Voices, noise and movement take the student's attention away from the task. If the student is unable to focus on one thing for a long time, s/he may try to do many things at once or jump from one thing to another. Such students also often fail to see or hear things. Problems may occur also in reading, writing or understanding, organising and analysing text, as well as mathematics and self-expression, attention to and perception of detail. Perception problems make it difficult for the person with ADD to plan their actions and schedules. Other people may find the impulsive and hyperactive behaviour of an ADD person disrupting which may lead to disturbances of conduct at times.

Symptoms associated with ADHD are sleep problems, learning difficulties, disturbances of conduct, depression and anxiety, and low self-esteem. In addition, ADHD may complicate social relations. On the other hand, people diagnosed with ADHD may be creative, innovative, energetic and unafraid to take up new challenges.

How to support learning

Attention deficit disorder may be treated on various types of courses and with rehabilitation and medical treatment. In Finland, there is no set course of treatment, but individuals usually seek and find treatment and rehabilitation as a result of the other difficulties experienced. If you find that some of the characteristics are true of you, you may organise your study environment so that there are no other stimuli (reading at the library, closing your mobile phone). In addition, it's worth breaking up the matter to be learnt to small enough entities for you to study from start to finish and to prepare for the examination well in advance. To support your capacity to learn, make sure you have a good daily routine, and eat and exercise at regular intervals. Building a routine helps you to organise your actions. For additional information on studying and time management, go to the [Study Skills site](#). Peer support is important in attention deficit disorders: it helps those affected to accept who they are and to learn efficient studying techniques from other students. The surprising behaviour possibly associated with attention deficit disorder may sometimes puzzle teachers and close ones. That is why the OOP unit of the Aalto school of the student and the student counsellors provide information about attention deficit disorder to teachers and other staff as necessary. The OOP units provide support in finding ways to study that facilitate both the learning and the participation in group work and examinations of an ADHD individual.

What is Asperger syndrome?

Asperger syndrome (AS) is a neurobiological disorder causing problems with social interaction and with flexibility of thinking and acting. Its reasons are unclear but it is suspected to be partly hereditary. It is an autism spectrum disorder that is four times more common in boys than in girls. In addition, it may be suspected that persons with AS are overrepresented in technical fields. In children, the incidence of Asperger syndrome is about 3 per 1000, while in adults, typical features are more difficult to find. Cognitive development and as a result, learning, of AS children is appropriate to age.

Symptoms

Asperger symptoms manifest themselves in various ways. Typical symptoms include problems with social interaction. Most AS students wish to make friends and be a part of the community but this may be complicated by difficulties in linguistic interpretation and communication: taking things literally, problems with recognising irony and sarcasm, little use or knowledge of body language, avoiding eye contact, and difficulty in participating in group situations.

The flexibility of thought and functioning may be limited, which manifests itself as an increased need for rules and routines and difficulties in adjusting to changes. AS persons may have a particular hobby or interest which they may engage in ritualistically or rigidly. This may be associated with problems in executive function. AS persons usually experience more stress but about different things than the average student. For instance, preparing for examinations is not necessarily stressful but a slight change in schedule or arrangements may disturb and doing teamwork is stressful.

Many AS persons have sensory hypersensitivity, which makes them experience noisy and echoing spaces such as cafeterias or lecture rooms as uncomfortable and distracting.

How to support learning

Support is particularly necessary at the start of studies, in the new environment and in a new life situation. It's good to get to know the school and its services well in advance. Personal study guidance is important. Due to their social restrictions, AS persons benefit from small group sizes. Often following familiar and safe everyday routines and having someone there to ensure the start of studies safeguards the progress of studies. Clarifying time and space and illustrating assignments visually helps. Tangible examples of this are campus journey planners and maps. It is also useful to be able to predict matters and situations: it keeps things in control and prevents many problems. As with learning difficulties in general, also with AS it is important to focus on the good areas, to find ways of compensating weaknesses and positive studying experiences.

Anxiety and mental wellbeing

What is anxiety?

Normal anxiety is a natural part of life: most of us are anxious sometimes. Anxiety becomes a problem when it complicates or hinders running everyday or study-related errands. Anxiety may be associated with social situations in general or for instance presentations or eating situations. Examples of problems related to social anxiety and affecting the person's ability to function are avoidance of responding orally in student groups or not attending courses for fear of oral presentations. Establishing new friendships or entering into new personal relationships may be challenging due to difficulties in starting conversations. Some of the disadvantages brought on by social anxiety are due to a lack of practice in social situations caused by the avoidance of the same.

Anxiety is most likely genetic and backed up by a congenital temperament, shyness. In our culture, shyness is often thought of as a problem to get rid of. Temperaments are, however, relatively fixed ways of dealing with new situations. Hence, shy people often suffer more from their own attitude towards shyness or that of other people than from the shyness itself. Of environmental factors, experiences of controlling, strict and humiliating upbringing methods and traumatic experiences in youth have proven to have an effect on the development of anxiety. Being bullied at school can be distinguished as single factor contributing to anxiety.

How to support learning

Anxiety is not always visible so it may come as a surprise to the teacher or fellow student. However, a group almost always includes students who have problems with anxiety. Particularly, presentation anxiety is common for university students. If the teacher finds it natural to say that it is okay to feel anxious, saying it aloud may help the students. Students may be encouraged to address the anxiety issue themselves. There is no one right way to act. The person suffering from anxiety does not benefit from being given an easy way out. Instead, awareness of the acceptability of anxiety, providing alternatives and support is more useful. It is worth considering whether the student benefits from encouragement, giving the presentation in a smaller group etc. Everyone benefits from a safe and accepting atmosphere which values individuals. Situations found to cause anxiety should be approached gradually, adding to the demand level little by little; excessive criticism or demands worsen the situation. Under the right circumstances, shy people may actually develop better social skills than talkative people who rush into social situations without second thought.

Read more about anxiety from the FSHS pages (in Finnish). http://www.yths.fi/filebank/356-Esiintymisjannittajille_apua_2.pdf

The line between mental wellbeing and mental health is fine: when does the stress of normal life become so great that it poses a risk to mental health?

Studying is stressful at times, and temporary reasonable stress may help us to focus on a demanding study situation, such as an upcoming examination. Lengthy periods of stress do however, cause strain. Signs of harmful stress include irritation, concentration difficulties, frustration, restlessness, tiredness, sleep problems and different physical symptoms such as stomach or back pains. Usually the symptoms of stress ease off when the stressful situation, like an examination, is over. You can foster your wellbeing by planning your time use in advance, by setting realistic goals and studying together with others. When planning time use, reserve enough time for hobbies and sports to allow the body to recover from stress.

If the stress continues and there are no opportunities for rest and recovery, the symptoms may worsen into a burnout. If stress begins to feel overwhelming and is associated with for instance memory problems, feeling low or depressed, extreme tiredness, carelessness or fear of losing control, it's best to discuss the situation with FSHS.

A very common symptom brought on by stress and a busy and irregular lifestyle and changes in life is **sleep problems**. Temporary problems with falling asleep or waking up at night are nothing to worry about. They are a natural way for the body to react to strain and stress. One poorly slept night does usually not affect one's ability to function the next day but prolonged problems may worsen concentration, cause memory problems and predispose to depression. You may try to reduce sleep problems caused by stress or straining situations by calming down your evenings, reducing caffeine and alcohol consumption for a couple of hours before going to bed and avoiding heavy exercise late at night. Also different relaxation techniques may be useful. If sleep problems continue for weeks, clearly affect your ability to function or are associated with depression, anxiety or continuous pain, you should consult a doctor. For more information on sleep problems go to [FSHS](#) pages (in Finnish).

Youth and student life with all the changes they bring are challenging times in one's life. Mental health problems are the most common health problems of students in higher education. It is estimated that one in four Finns have mental health challenges at some point in their lives. The problems vary and may have different effects on the studying capacity: what lasts for one term for someone may continue throughout life for another. Mental health issues typically manifest themselves as depression, anxiety, and panic or eating disorders. That is why prevention and early recognition of mental health issues and their sufficient and fast treatment are important. For more information on mental health and on the help available, go to the [FSHS](#) pages.

How to support learning

The biggest barriers to studying are usually lack of information and prejudice; even a long-term problem with mental health does not necessarily affect studying. Acquiring information and creating an open atmosphere is important for encouraging open discussion about the issue. An open and accepting atmosphere requires input from all members of Aalto. Greeting, smiling and asking how someone is doing may prove to be surprisingly pleasant. Try it!

The implementation of teaching, the accessibility of the environment and services as well as the individual needs and strengths of the student and teacher all affect the support needs of the student. That is why it is important to discuss the life situation of the students, the goals of their studies and capacity for studying. It is not easy to talk about mental health issues, but hiding things, covering them up and guessing puts a strain on everyone affected. The teacher and staff representatives may encourage students to openness by their example.

Studying and learning on a barrier-free campus goes smoothly in an accessible working environment as the completion methods and deadlines of courses are flexible, materials are available online, and individual support is available.

The HOPS guidance discussions and other one-on-one meetings are natural opportunities for discussing problems in studying. The matters brought to discussion by the student are taken seriously and treated in strict confidence. Here are a few instructions for teachers or HOPS advisors for starting the discussion and keeping it in progress:

- Be yourself when in an expert role.
- Talk about your worries openly and concretely.
- Ask if the student has problems or issues with studying and listen: s/he will talk about it if s/he wants.
- Do not assume to know how the student feels, what s/he thinks or why s/he behaves as s/he does.
- Ask directly and openly about issues while respecting the student's experience and expertise.

- Ask how you can help.
- Discuss whether the student is getting help elsewhere and discuss his or her options.
- Talk about the support available at Aalto.
- Agree on regular meetings where the student may talk about his or her life.
- Write down what you agreed.

Where to find support at Aalto?

[Individual study arrangements](#)

[Learning Services of the schools](#)

Other services:

- [University student counsellor](#)
- [Career Services](#)
- [Aalto University student union AYY](#)
- [FSHS](#)

Additional information and support

- [Celia Library](#)
- [Rehabilitation Foundation](#)
- [Nyyti](#)
- [Helsingin seudun erilaiset oppijat ry](#)
- [Finnish Diverse Learners' Association](#)
- [ADHD Association in Finland](#)
- [Finnish Association for Autism and Asperger's Syndrome](#)
- [Learning Disabilities Resource Community](#)
- [Mensa ry](#) (only in Finnish)
- [Inclusive Higher Education \(ESOK\) project](#)
- [Culture for All](#)
- [www.eesteeton.fi](#) (The Accessibility Project)
- [The Kuulokynnys site of the Finnish Federation of Hard of Hearing](#), only in Finnish
- [Tulkinkäytön opas](#) Guide to using an interpreter, only in Finnish
- [Finnish Federation of the Visually Impaired: Accessibility](#), only in Finnish