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 Date: November 2020

Important notice:

- This fact sheet is provided for the exclusive use of all the people involved in teaching at EPFL (hereafter “teaching staff”) and is not meant to be transmitted to students. Any use outside of this context, any distribution or publication, even partial, is prohibited.
- The goal of this fact sheet is to provide information to facilitate the interaction between EPFL teaching staff and EPFL students with disabilities.
- Teaching staff are free to apply this information according to their teaching context and the learning objectives to be achieved and as long as these measures do not create an advantage for students with disabilities.
- This fact sheet does not invalidate the study arrangements which have been granted by the special needs Commission to students with a disability.

Dyslexia, dysgraphia and dyscalculia

1. Description of the disability

Dyslexia, dysgraphia and dyscalculia are neuro-developmental disorders of unknown cause. The international classification of diseases (ICD-10) labels these disorders as specific developmental disorders of scholastic skills.

Dyslexia is a persistent skill acquisition disorder concerning written language (writing and reading) that is not accounted for by hearing or visual acuity loss or by intellectual impairment. Dyslexia generally co-exists with other disorders such as for example dysgraphia, which remains into adolescence. Difficulties arise especially in matching sounds to written signs. Even though a treatment addressing these disorders can improve performances, they remain during the patient’s lifespan.

People with dyscalculia have difficulties understanding or do not understand the concepts of quantities, numbers and mathematical operations. Dyslexia, dysgraphia and dyscalculia have this in common: these disorders generate a lack in sequencing skills that may affect different individuals with a different degree of severity. This lack, which is not a consequence of inadequate training or due to absence of motivation, generates slow responses, fatigue and inattentiveness (inattentiveness is a secondary symptom). It is also relevant to point out that people with dyslexia and dysgraphia or dyscalculia often also suffer for example from dyspraxia.

Dyslexia, dysgraphia and dyscalculia are lifelong conditions, but a multidisciplinary care team (neurologist, neuropsychologist, psychometrician, occupational therapist, speech therapist, psychologist, etc.) can help identify each person’s specific difficulty in order to elaborate organizational strategies and compensatory solutions.

2. Aspects linked to studies

Students may, or may not (depending on their specific problems) and regardless of their intellectual capacities, face the issues described below.

Students' issue	Cause/origin of the issue	What is beneficial to students?
Slow reading pace	Linked to dyslexia	Record all courses to avoid handwriting, use organizational tools such as a learning plan or establish a proof-reading guide
Imprecise reading	Linked to dyslexia	Use notes from fellow students/copy notes/ask teaching staff to provide texts or charts Use a laptop with a special speech synthesis program, voice recorder, take a picture of what teaching staff has shown during the lecture
Difficulties understanding meaning (establish links, understand the coherence and the precise meaning of what is read)	Link to dyslexia	If instructions are given orally, read them aloud and check for understanding (by asking the student to repeat the instructions) If using written instructions, formulate questions clearly (one sentence = one concept) Avoid asking double-negative questions As much as possible reduce possible audio-visual distractions Provide good quality written documents (readable font and font size with reasonable space to allow for easy reading) Underlining key words Create lists, charts, plans
Misspelled words	Linked to dysgraphia	Record lectures, use a laptop, use well designed study support documents
Limited writing skills	Linked to dyspraghia	Allow the student to express him/herself in simple and short phrases when writing, while discussing complex issues orally (the student will demonstrate significantly better competences and knowledge orally than in writing) Authorize the use of software that helps the student (software with orthographic

		prediction, spell checkers, speech synthesis...) Think about leaving big margins and enough writing space to allow students to answer legibly and in a well-structured way when a written document is requested
Inefficient note-taking	Linked to dysgraphia	Allow recording of the lecture, use charts (mindmapping or listings)
Mastering basic mathematical operations (addition, subtraction, multiplication, division)	Linked to dyscalculia	Using a calculator or tables with formulas
Difficult spatial orientation and problems with time-keeping	Linked to dyscalculia	Using timing or spatial cues and simple, well readable charts
Assessment of quantities or sizes	Linked to dyscalculia	Use visual cues (colors, highlighters, etc.)
Easily fatigued	Linked to dyslexia, dysgraphia and dyscalculia	Allow the student to use a third person's notes, use handouts, give out the exercises' answer keys Avoid using two-sided documents Allow the use of check-lists
Trouble concentrating and retaining attention	Linked to dyslexia, dysgraphia and dyscalculia	For tasks that require a lot of concentration and attention, emphasize the importance of a calm and well lit environment
Feel a high level of anxiety without showing it	Due to all the difficulties linked to this disability and to the academic and social requirements	Contact Student Affairs (SAE) which will contact a coach specialised in dys-disorders

Students with dys- disorders need time to adapt to new situations, while also facing the usual changes linked to university studies such as new group dynamics, friendships, love life and complex social interactions on campus (community life, hierarchical relations, etc.). All of these challenges can have an important impact on students' quality of life and their mental health.

For additional information or if one of your students is facing these challenges, please contact sae.amenagements@epfl.ch

For more information:

Dyslexia and dysgraphia (in French) <https://www.ciip.ch/Activites/Pedagogie-specialisee/Fiches-pedagogiques>

Dyscalculia (in French) <https://www.planetesante.ch/Magazine/Bebes-enfants-et-adolescents/Troubles-de-l-apprentissage/Dyscalculie-quand-les-mathematiques-deviennent-un-cauchemar>