Julius-Maximilians-
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Aphasia in children and adolescents

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FACULTY OF HUMAN SCIENCES - INSTITUTE FOR SPECIAL EDUCATION - III – ACADEMIC SPEECHTHERAPY/LOGOPEDICS

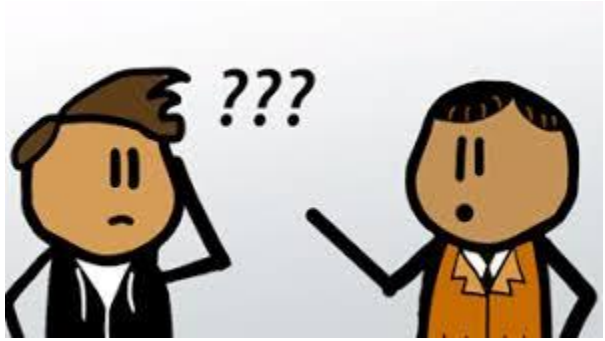
Traumatic brain injury and childhood aphasia

80 % accidental traumatic brain injury

- road accidents
- crashes during play and sports
- physical violence

Abb.: fotocommunity.com

Dysphasia vs. Aphasia

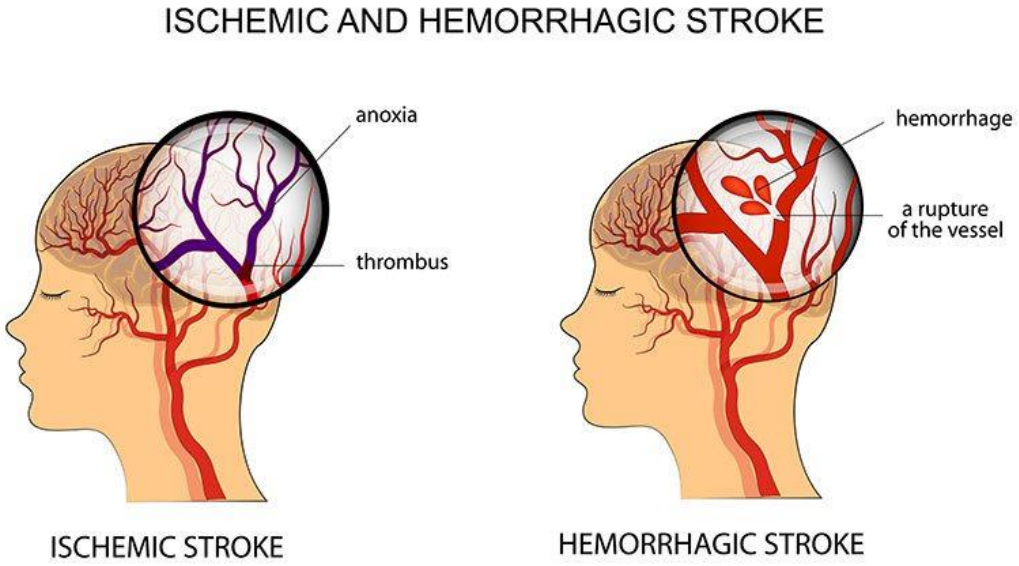


central language disorder before or during childbirth

- ↯ normal language development from the beginning
- ≠ aphasia
- = dysphasia

Abb.: https://study.com/academy/lesson/what-is-dysphasia-definition-causes-symptoms.html

Arterial ischemic stroke: Incidence rate



- acute focal arterial circulatory disorder => Arterial ischemic stroke => lasting damage
- incidence of about 3-5: 100.000 children / year
- Boys 2: 1

Abb.: https://www.chronobiology.com/de/

Atiology Pediatric stroke

- at any age
- accumulation in preschool age => parainfectious / infectious risk factors
- adolescent age => systemic diseases and oncological conditions
- significant event for the victim and his family
- 70% remaining damage
- problems of further social integration
- major cost burden for the welfare system

Incidence rate acquired childhood aphasia

- 3.000 children and adolescents/year => aphasia
- much higher number of affected persons => child's aphasia is an unrecognized or neglected phenomenon.

Time is brain

Abb.: Fotolia/freshidea

Pediatric emergency situation

- Despite of a primary manifestation of hemiparesis in > 40% of cases

=> 2/3 of children are diagnosed too late for interventional medical therapy

Diagnosis Children with a stroke

- stroke is only diagnosed in 1/3 of the affected children within the 6 h limit (Steinlin M., Pfister I.; Pavlovic J. et al (2005)
- 53% of the cases: delay in the diagnosis is due to inadequate assessment of the situation by the parents or the physicians primarily consulted

  => 42% of children with stroke: diagnosis was not primarily suspected

  => 11% misjudged

  (Brown KP, Chaplain LJ, Kirkham FJ, Veber G de, 2006)

Imaging diagnostics: CT and MRI

- Computed tomography (CT) is organizationally feasible in most hospitals
- The gold standard today is magnetic resonance imaging (MRI)

Abb.: Getty Images/Choul Jib Lee, TongRo Images

Causes and risk factors ischemic stroke

Pediatric stroke is a ***"multiple risk" problem***

- > 50 % of the children 2 and more risk factors (Ganesan V., Prengler M., McShane MA et al., 2003), (Steinlin M., Pfister I., Pavlovic J. et al., 2005)
- Recognizing them is helpful in estimating the likelihood of a stroke in the acute situation
- the knowledge of the risk factors: prognostic statements,risk of recurrence.

Causes and risk factors ischemic stroke

Infections

- most common risk factor for childhood arterial ischemic stroke
- 31% of children with stroke (control group 9%) suffered from a ***varicella infection*** in the previous year.
- other infections: Borrelia, mycoplasma, enteroviruses and parvoviruses
- 34% of the children (control group 9%) had a viral infection the month before the stroke.

Riikonen R., Santavuori P. (1994)

Causes and risk factors ischemic stroke

Vasculopathy

- 42-79% of children had abnormalities in their vessels during imaging (Fullerton HJ, Qu YW, Sidney S et al.,2007)

Cardiac causes

- Second most common underlying risk factor.

Hereditary coagulopathies

- are usually not the main cause of a childhood stroke.

Metabolic diseases

- Rarely, however, important for pediatrics are metabolic strokes.

Repetitive risk

- 15-20% The recurrence risk of a childhood stroke
- 5-20% with TIA

(Fullerton HJ, Qu YW, Sidney S et al., 2007)

Mortality

- 16% on average
- increases to 40% in children with pre-existing severe illnesses
- decreases to 3% in previously healthy children

(Amlie-Lefond C., Sebire G., Fullerton HJ. , 2008)

Effects of a stroke

- **Hemiplegia**
- **Aphasia**
- **Epilepsy**
- **Swallowing disorder (Dysphagia)**
- ***Cognitive development***:

  (low) normal IQ score (85-95)
- **Pronounced mood swings**

  long-term problems and impaired quality of life for adolescents
  causes depression, agressivity and mood swings

Accompanying symptoms Frontal brain damage

Performance disorders

- Visuospatial functions
- Concentration
- Attention
- Memory disorders
- Behavioral abnormalities
- Agression
- Hyperactivity

Normal language aquisition

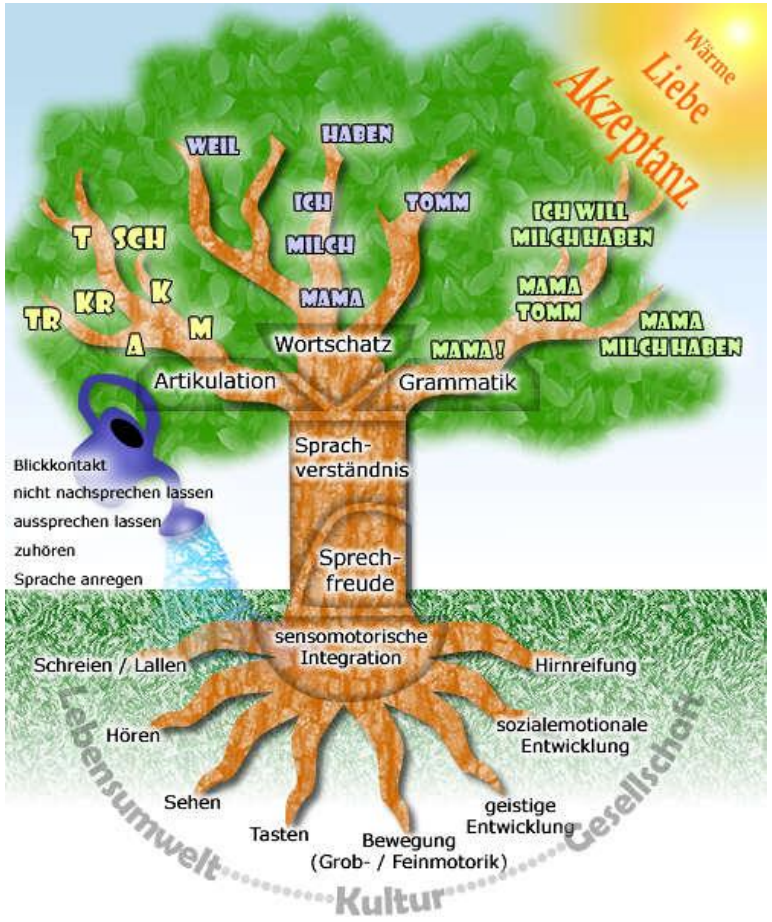


Abb.: http://logopaediewiki.de/wiki/Sprachbaum

- 8. year: language development is completed
- reading and writing are still relatively fresh and are often not well controlled
- additional language skills, such as Idioms etc.: up to the age of 12-14 years

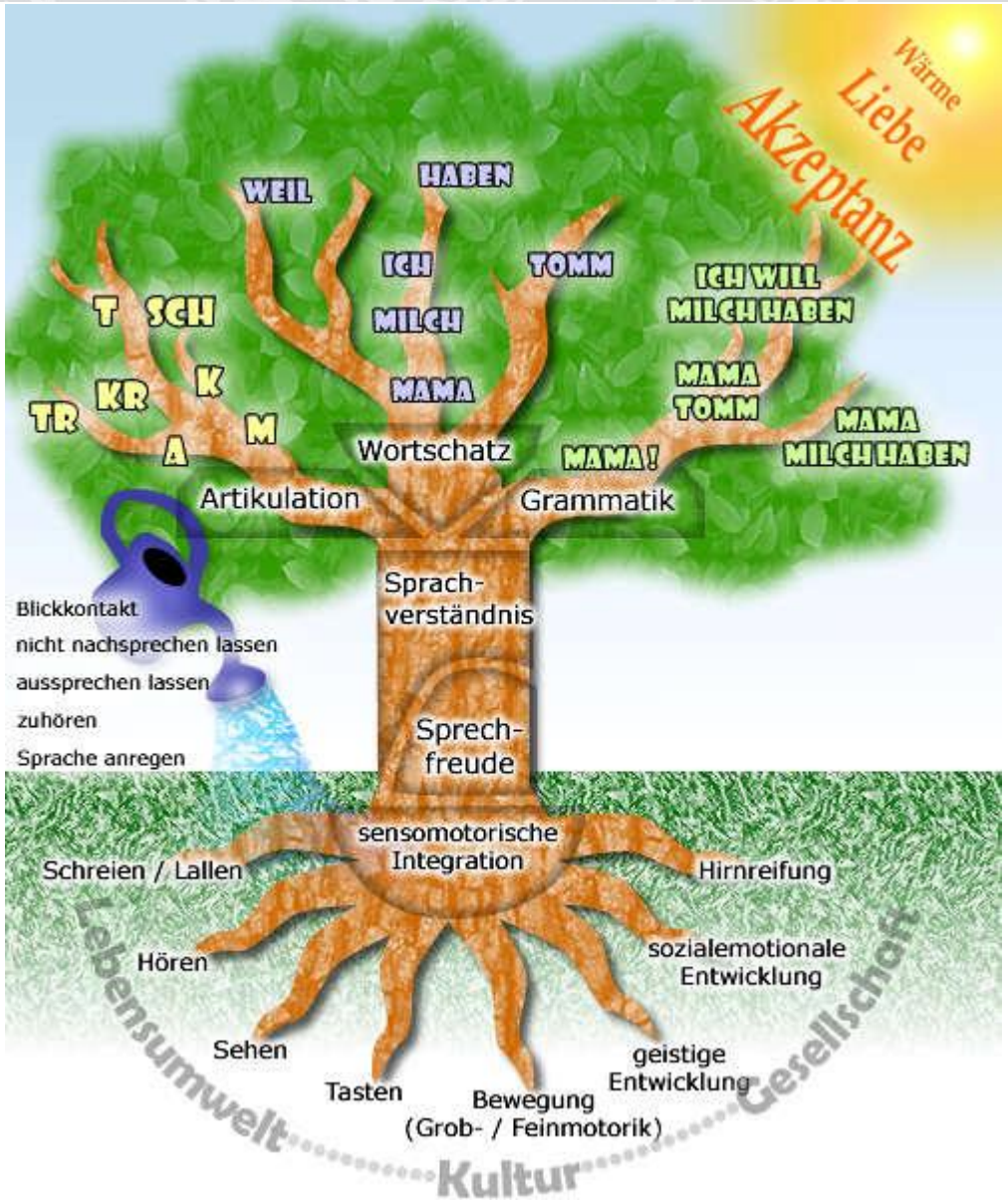


Abb.: http://logopaediewiki.de/wiki/Sprachbaum

Aphasia: Loss of language ability

- loss of an already acquired language ability
- The term is also applied to children who have not yet completed speech development
- in this context that aphasia must be a reduction or loss of existing language functions
- shows a significant difference to language developmental disorders
- infantile aphasias occur after or during an initially normal language acquisition and are the result of a clearly circumscribed event

Impairment of language

- in the least case means a temporal impairment of language development
- in the worst case:, language skills and abilities are spilled
- Language can only be learned with difficulty and not in the quality of the native language
- remains permanently impaired in its development
- in particular, the field of written language is often and persistently affected
- Often, the ability to write and read is much more impaired than the spoken language.

Input/Output linguistic impairments

- Word finding
- Speech understanding
- Writing
- Reading

There is no mental retardation!

Mutism and hypospontaneity of speech

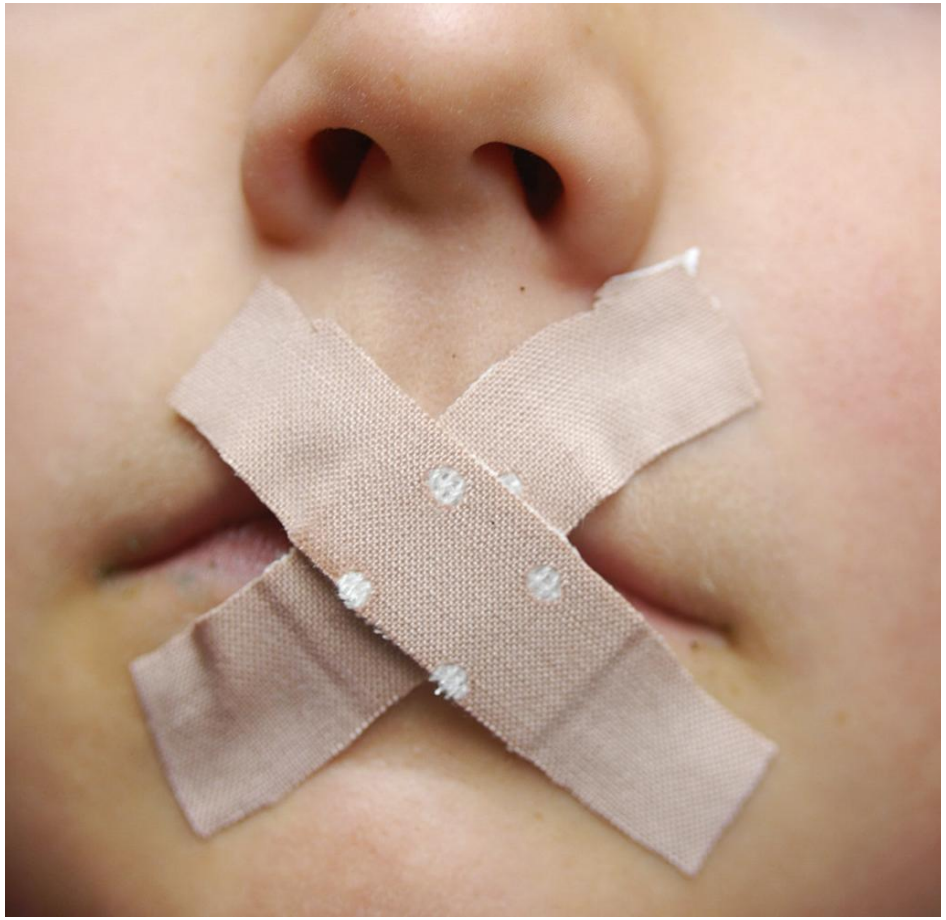


Abb. chromorange/Reinhold Tscherwitschke / CHROMO

- Mutism: is one of the main symptoms of childhood aphasia
- "hypospontaneity of speech„: a reduction of the spontaneous language, follows the mutistic phase.
- the lack of initiation of speech

Psychosocial effects

- the aphasia has great effects for the child and the relatives
- friends withdraw, the child becomes aggressive or depressed
- parents and relatives are helpless

Schooling

- Schooling: obstacles for aphasic children and adolescents
- Aphasia in children and adolescents has not been anchored in any school concept.

Abb.: https://commons.wikimedia.org/wiki/File:Grundschule_Haus_St_Marien_Neumarkt_-_Klassenzimmer_13.JPG

Prognosis

- > 50 % of the surviving children recover completely or show minimal neurological deficits
- Prognostically unfavorable factors are young age in stroke, male sex, bilateral or large-volume infarctions (Boardman JP, Ganesan V, Rutherford MA et al.,2005); Steinlin M, Pfister I, Pavlovic J et al., 2005)
- 42% of children show severe to moderate residual hemiplegia (Askalan R, Laughlin S, Mayank S et al., 2001)

Prognosis

- Regarding the recovery and linguistic abilities of aphasia in children, the prognosis and course vary widely in individual cases
- The main factors that are most commonly referred to in the context of recovery are

$\Rightarrow$ age of the child at the onset of the impairment

$\Rightarrow$ type of injury

$\Rightarrow$ long-term development of childhood aphasia is rather unclear.

Prognosis

- traditional view: better than adult aphasia
- Today: no longer as good as adult aphasia
- Factors such as age and gender are not as important as the type of causation
- even in long-standing or chronic aphasia especially in children recovery successes are still possible

Logopedic diagnostics

- complete a picture as possible of the linguistic abilities
- Aim: to build on it therapeutically
- This includes: detection of the linguistic level before the brain damage.
- differentiate between language development disorder and child aphasia

Logopedic diagnostic

- the aphasic impairment of children and adolescents is probably the most striking phenomenon
- But: it is not the only one
- the entire child's personality experiences impairments
- Aim: capture the child in all its personality.
- affected children: not only have impaired abilities and achievements

Logopedic diagnostic

Szenario-Kids

- A Participation-based Test for 8- to 15-year-old Children with Aphasia

L. Plum, R. Nobis-Bosch, F. Krzok, M. van de Sandt-Koenderman, K. Willmes, S. Abel (2015)

Abb.: christianchan / fotolia.com

Logopedic therapy

Essential therapy tasks are

- the restoration of those language abilities that the child had before the damage
- learning of new (linguistic) skills, e.g. literacy skills
- The special feature of the rehabilitation of aphasic children is therefore the linking of working methods that serve the restoration and acquisition of language skills under individually complicated learning.

Logopedic therapy

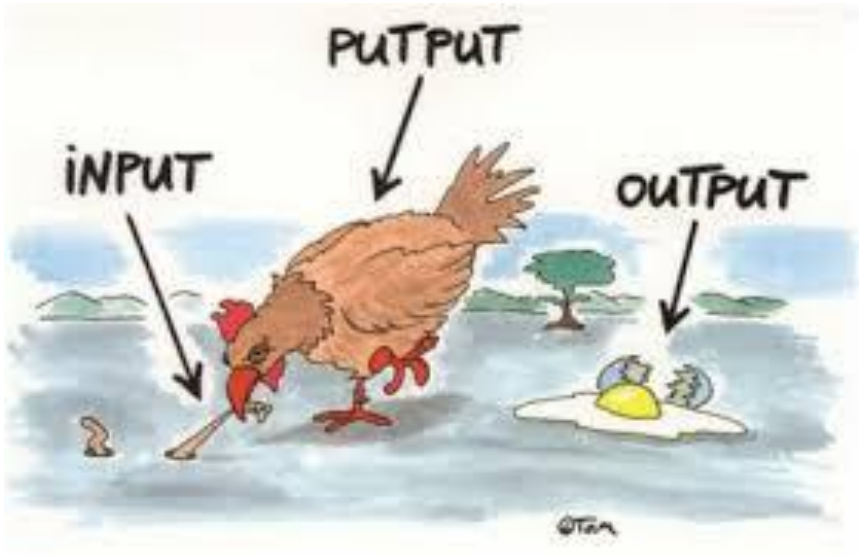


Abb.: TOM Jochen Enterprises, Berlin

Child's language acquisition capacity is not affected by the child's aphasia

- Therefore, it is not enough if once existing skills are re-learned
- the stimulation of the ability to re-learn is at the center of rehabilitation

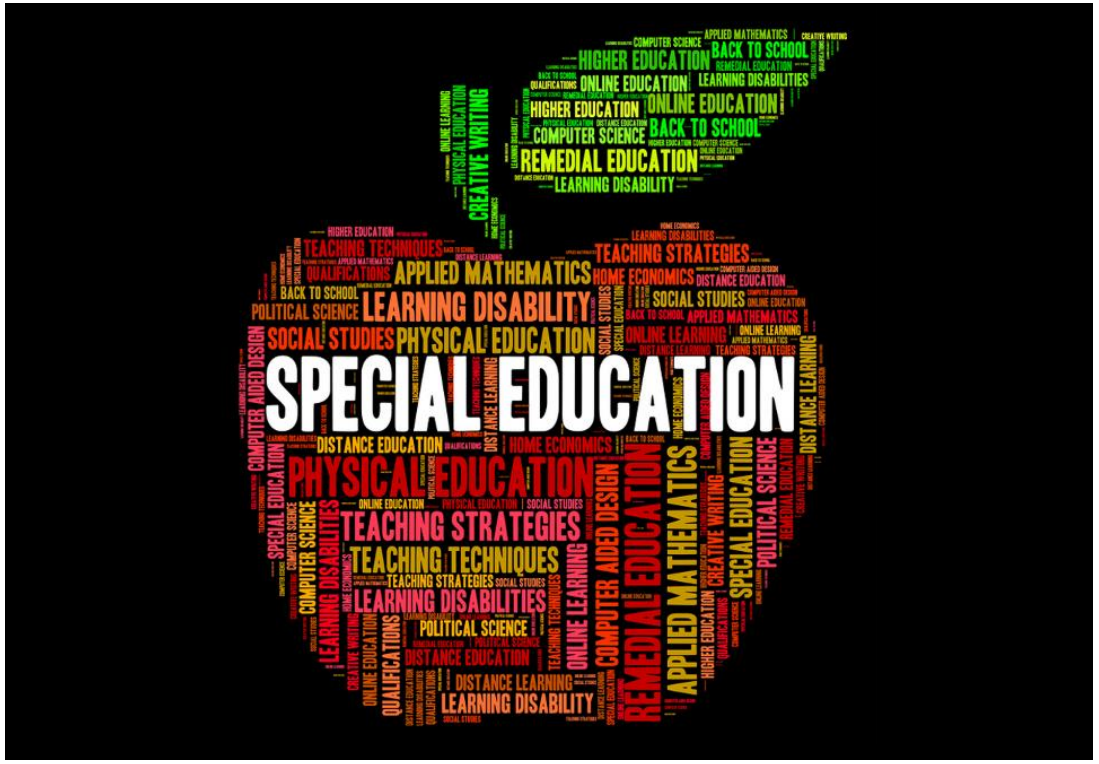
Neurological rehabilitation

- neurological rehabilitation facilities offer specialized therapy programs specifically for aphasia in childhood and adolescence
- the therapy units can be carried out either in individual or in group sessions
- usually performed stationary over several weeks.

Outpatient Therapy

- If the inpatient rehabilitation is completed and the outpatient therapy is carried out by speech therapists
- speech therapy are carried out at the place of residence
- therapists should have at least experience in both the treatment of childhood language developmental disorders and adult aphasia therapy

Elemtary schools and special education



- there is no aphasia-specialized schools and the normal school is usually overwhelmed
- special education areas: aphasia can only be classified insufficiently
- Aphasia is neither physical disability, learning disability nor behavioral problems

Abb.: https://www.gettingsmart.com/2016/07/bridging-the-knowledge-gap-of-special-education-students/

Abb.:
https://de.depositphotos.com/62067009/stock-photo-person-with-megaphone-in-hand.html

Děkujeme vám za pozornost!

Thank you very much for your attention!

Vielen Dank für Ihre Aufmerksamkeit!

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