



InSIDE: Including Students with Impairments in Distance Education

**Deliverable
DEV4.2-I**

Report on the training of the accessibility advisors-Training material

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InSIDE project	Page 2	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors- Training material

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InSIDE project	Page 3	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors- Training material

Project Information

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InSIDE project	Page 4	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors- Training material

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InSIDE project	Page 5	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors-Training material

Table of Contents


1	The National and Kapodistrian University of Athens.....	8
2	Greek Legislation for SwD in HEI	42
3	The Accessibility Unit of the NKUA	60
4	Design4All and Universal Design for Learning (UDL).....	81
5	Service users: Activity and Participation Restrictions’ Registration.....	121
6	Built environment accessibility Service	132
7	Support Service for the Academic Secretaries.....	140
8	Academic Advisors and PHINEAS System for SwD	147
9	Services for Deaf and Hard of Hearing Students.....	161
10	Volunteer Service	181
11	Transportation Service for Students with Disabilities	228
12	HERMOPHILOS platform for accessible e-textbooks.....	256
13	Production of Accessible textbooks.....	280
14	Introduction to Digital Accessibility and Assistive Technology.....	352
15	Assistive Technology.....	393
16	The mATHENA inventory of free mobile Assistive Technology apps.....	464

InSIDE project	Page 6	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors- Training material


Introduction

This report includes the training material prepared for the training of the accessibility advisors on the operation of accessibility offices.

InSIDE project	Page 7	WP4: Training
2018-3218 /001-001		Deliverable DEV4.2-I Report on the training of the accessibility advisors- Training material




HELLENIC REPUBLIC
National and Kapodistrian
University of Athens




Accessibility Unit
<http://access.di.uoa.gr>

A.4.1.2 training in Greece (Athens-UoA) on the operation
of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens


Presentation of the National and Kapodistrian University of Athens






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National and Kapodistrian University of Athens (NKUA)

- Officially founded: April 14th, 1837
- The first university in Greece, Balkan peninsula and Eastern Mediterranean region
- The largest Greek state institution in Higher Education
- Self-governed legal entity under public law
- Provision of free undergraduate & PhD education



Historical Background (1/3)

- 1837: “Othonian University”
- 1837: 4 schools, 33 professors, 52 students, 75 non-matriculated “auditors”
- 1862: “National University”



fresco from NKUA



Historical Background (2/3)

- 1911: founding “The Kapodistrian University”
- 1932: merge into the “National and Kapodistrian University of Athens”



flag of NKUA



Historical Background (3/3)

Prominent students:

- George Papanikolaou (*test PAP*)
- Constantin Carathéodory
- Odysseas Elytis (*Nobel prize*)
- George Seferis (*Nobel prize*)
- Nikos Kazantzakis
- Hélène Glykatzi-Ahrweiler

* Kostis Palamas (*Secretary of NKUA*)



Propylaea of NKUA

- 1839: founding as a part of the Athenian Trilogy
- 1841: NKUA at the neoclassical Central Building
- One of the most iconic places of remembrance of Athens



the Athenian Trilogy



the Athenian Trilogy



Vision

- High quality education and research
- Constant engagement to innovation and creativity
- Active in scientific, social and cultural events
- Worldwide promotion of historical and contemporary Greek culture



Policies of NKUA

for:

- Language
- Publications
- Academic ethics and bioethics
- Persons with disabilities
- Environment
- Gender equality
- Benefits and assistance for disadvantaged social student groups



Policy for students with disabilities

“....to actively realize coequal access to academic studies, through built environmental modifications, advanced Assistive Technologies and access services.

The main entity to achieve the targets of this policy is the Accessibility Unit for Students with Disabilities.”



Research

- European, international and national funds
- 5.000 to 8.000 full-time or part-time researchers
- More than 3.200 active projects



International relations

- 78 active Agreements with Universities/Institutions from 34 countries world-wide
- Additional agreements with 18 of the partner Universities for students' mobility or agreements between specific Schools/Departments
- ERASMUS+ Program



Rankings

Ranking table	World rank	National rank
Webometrics "Top Universities by Top Google Scholar Citations"	86	1
SCImago Institutions Rankings (SIR) – Societal Rank	137 (44 in EU)	1
Webometrics Ranking Web of Universities (January, 2021)	180	1
«Performance Ranking of Scientific Papers for World Universities», National Taiwan University (2020)	206	1
CWUR (Center for World University Rankings) (2020-2021)	267	1



University profile (1/2)

Studies and Services:

- Undergraduate programs: 43
- Postgraduate programs: 205
- e-learning programs: 415
- University Research Institutes: 5
- University Hospitals: 3
- University Laboratories: 243
- Libraries: 11 (9 School libraries and 2 libraries belonging to the Students' Union)
- Museums: History Museum of NKUA, Historical Archive of NKUA and 13 thematic museums



University profile (2/2)

- **Faculty and Staff**
 - Professors (all ranks): 1.653
 - Research associates and other teaching, laboratory and technical staff: 483
 - Administrative staff: 1.078
- **Students**
 - 45.104 undergraduates
 - 15.473 graduate students at Master level
 - 8.679 Ph.D. candidates
- **International Students**
 - 7.014 Undergraduates
 - 381 Graduate Students at Master level
 - 202 Ph.D.candidates
- **Erasmus+ Student Mobility (2018-2019)**
 - 354 Incoming Students
 - 755 Outgoing Students



Academic Schools of NKUA

- School of Agricultural Development, Nutrition and Sustainability
- School of Economics and Political Sciences
- School of Education
- School of Health Sciences
- School of Law
- School of Philosophy
- School of Physical Education and Sport Science
- School of Science
- School of Theology



Academic Departments (1/6)

School of Economics and Political Sciences

- Department of Economics
- Department of Turkish Studies and Modern Asian Studies
- Department of Political Science and Public Administration
- Department of Communication and Media Studies
- Department of Sociology
- Department of Business Administration
- Department of Ports Management
- Department of Digital Art and Cinema



Academic Departments (2/6)

• School of Health Sciences

- Department of Dentistry
- Department of Pharmacy
- Department of Nursing
- Department of Medicine

• School of Physical Education and Sport Science

- Department of Physical Education and Sport Science



Academic Departments (3/6)

School of Philosophy

- Department of Philosophy, Pedagogy and Psychology
- Department of Philology
- Department of History and Archaeology
- Department of Philosophy
- Department of Psychology
- Department of Educational Studies
- Department of German Language and Literature
- Department of Spanish Language and Literature
- Department of Russian Language and Literature and Slavic Studies
- Department of Italian Language and Literature
- Department of French Language and Literature
- Department of English Language and Literature
- Department of Music Studies
- Department of Theatre Studies



Academic Departments (4/6)

School of Science

- Department of Biology
- Department of History and Philosophy of Science
- Department of Mathematics
- Department of Geology and Geoenvironment
- Department of Informatics and Telecommunications
- Department of Physics
- Department of Chemistry
- Department of Aerospace Science and Technology
- Department of Digital Industry Technologies



Academic Departments (5/6)

- **School of Law**
 - Department of Law
- **School of Theology**
 - Department of Theology
 - Faculty of Social Theology and the Study of Religion



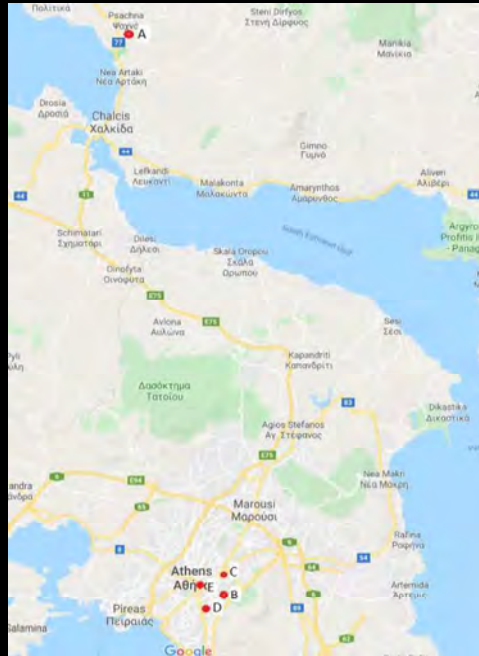
Academic Departments (6/6)

- **School of Education**
 - Department of Early Childhood Education
 - Department of Primary Education
- **School of Agricultural Development, Nutrition and Sustainability**
 - Department of Agricultural Development, Agrofood and Management of Natural Resources



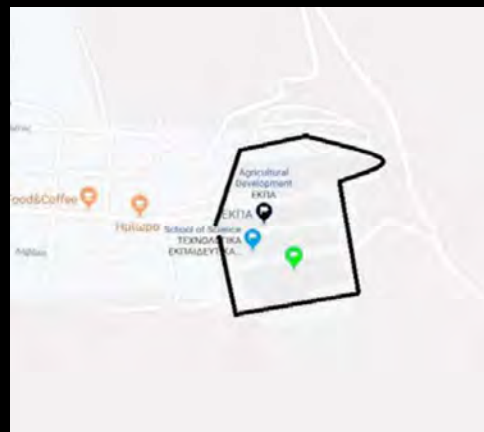
NKUA campuses

- A: Psachna, Evia
- B: Zografou, Athens
- C: Goudi, Athens
- D: Dafni, Athens
- E: Centre of Athens



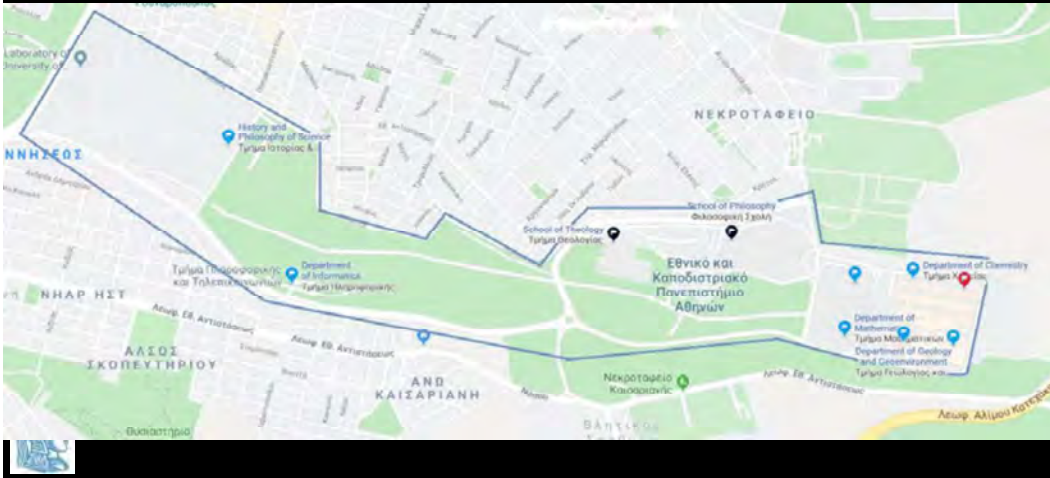
NKUA at Psachna, Evia island

- Departments of School of Science
- School of Agricultural Development, Nutrition and Sustainability
- Departments of School of Economics and Political Sciences



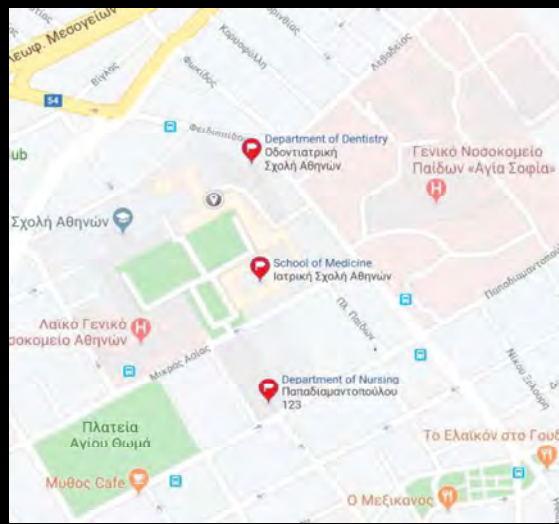
- **NKUA main campus at Zografou, Athens**

- School of Theology
- School of Philosophy
- Departments of School of Science
- Department of Pharmacy

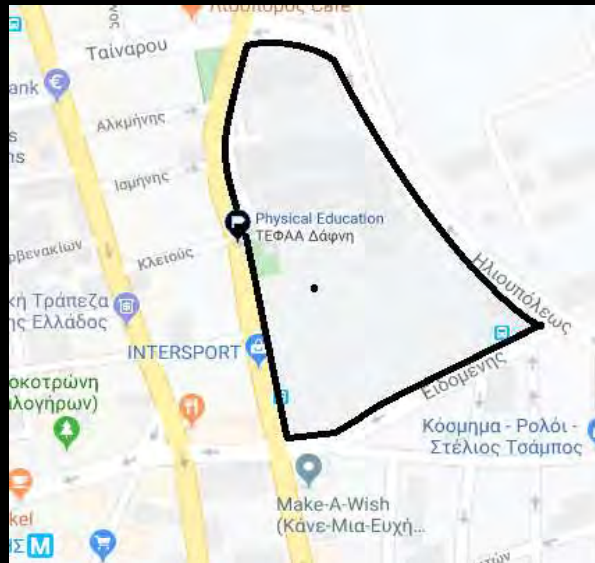


NKUA at Goudi, Athens

- Department of Dentistry
- Department of Medicine
- Department of Nursing

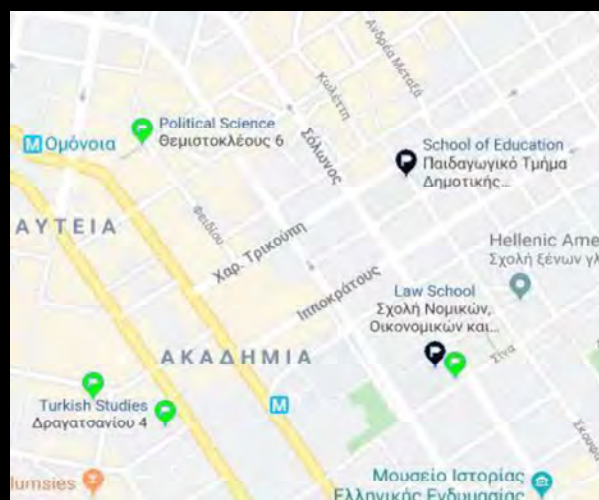


- **NKUA at Dafni, Athens**
 - School of Physical Education and Sport Science



- **NKUA at the center of Athens**
 - Law School
 - School of Education
 - Departments of School of Economics and Political Sciences

- *Rectorate*
- *Main (old) building*



Stakes of academic structure

- 2019-2020: were founded 10 new departments
- Significant changes in size and spatial distribution of NKUA
- Difficulties in organizing the support of students with disabilities
- Poor ratio between academic staff and students in many Departments
- Difficulties in involving the academic staff in the support of the students with disabilities



Study programs (1/3)

Undergraduate studies

- 8 semesters of study and a total of 240 ECTS in order to obtain a Bachelor's degree
- Department of Dentistry, the Department of Pharmacy and the Department of Music Studies: 10 semesters > Integrated MSc degree
- School of Medicine: 12 semesters



Study programs (2/3)

- **Postgraduate Studies**
 - Leading to a Master's degree
 - 154 departmental programs
 - 15 interdepartmental programs
 - 25 inter-institutional programs
 - 6 interstate programs
 - 2 programs in the framework of Erasmus Mundus Joint Master Degree
 - 2 European programs
 - Duration: 2-6 semesters each 30 ECTS
 - Leading to a doctoral degree
 - Minimum duration: 3 years
- **Postdoctoral studies and research**



Challenges due to Covid-19

- Distance learning
- How to modify laboratory and clinical courses
- How to continue research activities
- Access to Libraries and their collections
- Student and staff's psychology



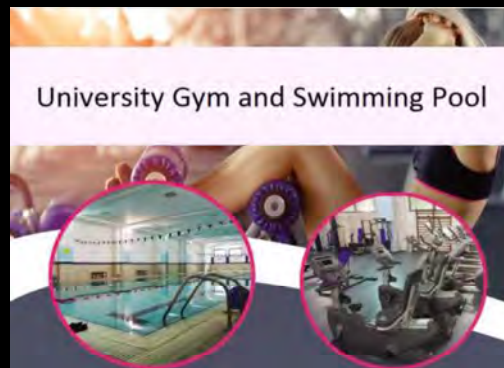
Facilities and Services (1/17)

Counselling Services	Support services	Studying and Leisure facilities
Student Ombudsman	Accessibility Unit for Students with Disabilities	9 School Libraries and 2 Libraries at the Students' Union
Psychosocial Intervention Unit	Student Support Fund	Students' Union
Advisory Office - School of Theology	Students' Hall of residence	Computer and Multimedia Center
Advisory Office - Department of Primary Education	Student Food services	Foreign Languages Teaching Center
Community Mental Health Center	Medical care	Modern Greek Language Teaching Center
Coeval Counselling Center	Scholarships - Awards	University Gym and Sports Center
10306 - Hotline for Covid-19 psychological support	Job-seeking assistance	Student Cultural Society

Facilities and Services (2/17)

University Club

- Food supply
- Health care
- Gym
- Students' Relief Fund
- Cultural society



Facilities and Services (3/17)



- **Psychosocial Intervention Unit**
 - Goals: improvement of life, help and support to problems, learning difficulties management mechanisms
- **Students' Relief Fund**
 - Goals: the moral and material support of the students to cover their emergencies



Facilities and Services (4/17)

- **Student Ombudsman**
 - reviewing students' applications regarding academic problems and students' reporting complaints
 - facilitating student's contact with the NKUA
- **Gender and Equality Office**
 - observing and studying issues related to the equality and equal treatment of sexes in the University community of the NKUA.



Facilities and Services (5/17)

Library and Information Center

- 9 central libraries, one for each School
- More than 1.000.000 items (books, periodicals, maps, cd-roms, etc.)
- In cooperation with Libraries, such as the British Library Document Supply Center and SUBITO
- Study rooms for Students with Disabilities
- PERGAMOS digital inventory



Facilities and Services (6/17)



Study room for Students with Disabilities



Facilities and Services (7/17)

- Computer & network center
 - Internet & telephone services
 - Web & email services
 - Distance learning
 - E-class
 - Academic webcasts & teleconferencing
 - Digital signature service
 - Video services



Facilities and Services (8/17)

Historical Archive of NKUA

- One of the most important and biggest archives of Higher Education in Greece
- More than 2.000.000 items



Facilities and Services (9/17)

Foreign Languages Teaching Center

- Established in 1931 as part of the Students' Union
- 1994: fully independent academic unit
- 2019-20: 2.525 students, 24 languages



Facilities and Services (10/17)

Modern Greek Language Teaching Center

- 1950: established
- 2014: the largest of its kind in the world
- Since 2015: more than 5.650 students from 86 countries
- guided tours to museums and archaeological sites and excursions to areas of historical interest



Facilities and Services (11/17)

Centre of Continuous Education and Training

- Active role in the sector of Professional Training
- Person and distance learning (e-learning)
Educational Programs in various areas



Facilities and Services (12/17)

• University Hospitals

- ARETAEIO, AIGINITEIO, EYGENIDIO
- Specialized health services
- Medical education and clinical research



• University Laboratories

- 243 in relevant Schools and Departments
- educational and research purposes



Facilities and Services (13/17)

- **Energy Policy and Development Center**
 - Environmental issues
 - Housed in the only bioclimatic building of the NKUA
- **Forecast and Prognostic Center**
 - Cosmic Rays Measurement Station
 - Seismicity of the Greek area
 - Wave Forecast
 - Weather Forecast



Facilities and Services (14/17)

“Maraslean” Teaching Center of Primary Education



Facilities and Services (15/17)

Conference Venues



Facilities and Services (16/17)

“Kostis Palamas” Building

- 1857: private Lyceum with the name “Greek Educational Establishment“
- Cultural Centre – Lounge: hosts cultural events, meeting and cooperation place



Facilities and Services (17/17)

Kapnikarea

- Byzantine Church of the «Presentation of Virgin Mary» and Saint Barbara
- 1932: granted to the NKUA, directly linked to the School of Theology



Museums (1/14)

Museum of Anatomy -
Collection of George Papanikolaou



Museums (2/14)

- Museum of Anthropology



Museums (3/14)

- Museum of Criminology



Museums (4/14)

- Museum of Pharmacology



Museums (5/14)

- Museum of the Department of Dentistry



Museums (6/14)

- Museum of Archaeology and History of Art - Archaeological Park



Museums (7/14)

- Museum of Education



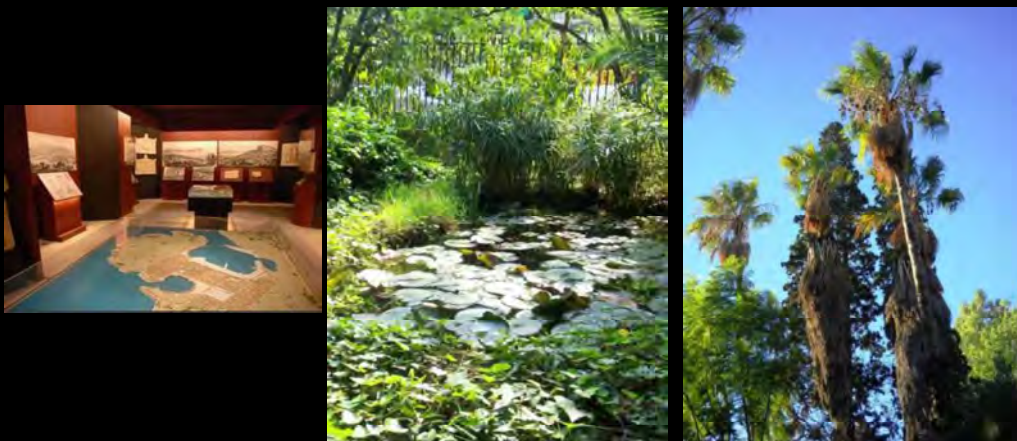
Museums (8/14)

- Museum of Biblical and Christian Archaeology



Museums (9/14)

- Botanical Museum - Diomidous Botanical Garden



Museums (10/14)

- Museum of Zoology



Museums (11/14)

- Museum of Mineralogy and Petrology



Museums (12/14)

- Museum of Physical Sciences and Technology



Museums (13/14)

- Museum of Paleontology and Geology



Museums (14/14)

- History Museum of NKUA



More in the booklets of NKUA


in 15 languages:

English, Albanian, Arabic, French, German, Greek, Japanese, Hindi, Spanish, Italian, Chinese, Norwegian, Portuguese, Turkish and Russian


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Legislation for Students with Disabilities in Greek Higher Education Institutions

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Legislation for Students with Disabilities in Greek Higher Education Institutions (HEI)

- SwD entry in HEI
- SwD Transfers
- HEI obligation for SwD
- Codification
- Miscellaneous relevant provisions



SwD entry in HEI (1/4)

Article 35 – law 3794/2009

Up to 5% of the number of admissions* to each HEI Department are admitted without examinations by students suffering from the following categories of serious illnesses, based on the Certificates of Disease Assessment issued by the Special Seven-member Hospital Committees:

** yearly after national exams*



SwD entry in HEI (2/4)

Article 35 – law 3794/2009

- with reduced visual acuity (disability $\geq 80\%$)
- with a motor disability $\geq 67\%$
- suffering from a variety of rare congenital, inherited/genetic or acquired syndromes when expressed with severe clinical manifestations (disability \geq at least 80%)



SwD entry in HEI (3/4)

Article 35 – law 3794/2009

- patients with congenital haemolytic anemia undergoing transfusions or having severe clinical manifestations conferring a disability of 67% or more (Mediterranean anemia, Sickle cell anemia, Microleukemic anemia, Multiple transfusion anemia)
- patients with severe inherited/genetic angioedema with laboratory confirmed disability $\geq 67\%$



SwD entry in HEI (4/4)

Article 35 – law 3794/2009

- patients with benign brain bridge volume with a disability $\geq 67\%$
- suffering from aneurysm rupture with hemorrhage and hydrocephalus with a disability $\geq 67\%$



SwD Transfers

Law 4332/2015

The right to relocate to the county where the city belongs, which the parent or guardian declares as a permanent home, or to the city that is likely to receive medical care, according to a public hospital certificate, is granted to all students who:

- have a disability (physical or mental) $\geq 67\%$
- suffer from serious illnesses (as defined in the law on non-examinations admission to HEIs)
- have donated an organ or bone marrow



History of HEIs Obligations for SwD

- Law 3549/2007-Article 12: In each Academic Department is provided by the Internal Regulations of operation of the relevant HEI the establishment and operation of a student support service in order to provide counselling services to them for the smooth transition from secondary to tertiary education, support for students with disabilities or students who face difficulties for the successful completion of their studies.
- Law 4009/2011-Article 52: The Organization of each HEI provides for the establishment and operation of a single or independent student support service per faculty, in order to provide counselling services to them for their smooth integration into higher education, information on the overall operation of the institution and support for students with disabilities or students who have difficulty completing their studies successfully.



Law 4047/2012: United Nations Convention on the Rights of Persons with Disabilities (2008)

- Article 24: Education

Par. 24.5: "States Parties shall ensure that persons with disabilities are able to access general higher education, vocational training, adult education and lifelong learning, without discrimination and on an equal basis with others. For this reason, States Parties shall ensure that persons with disabilities are provided with reasonable accommodation. "



HEIs Obligations for SwD (1/3)

Provisions of Law 4485/2017 (Government Gazette A '114) for SwD

- Article 7 Organism

The organization of a HEI regulates the setting up and regulation of issues related to the supervision, administration, structure and operation of the **Support and Accessibility Ensuring Service** for students and staff with disabilities.

- Article 8 Rules of Procedure

The Rules of Procedure shall regulate the internal functioning of the relevant HEI and in particular following:

The procedures for granting social benefits to students, the rules of operation of the relevant services of the HEI, such as healthcare, housing and nutrition services, as well as issues related to the **support of students with disabilities and / or special educational needs** and staff with disabilities.



HEIs Obligations for SwD (2/3)

Provisions of Law 4485/2017 (Government Gazette A '114) for SwD

- Article 13 Senate

The Senate shall ensure that measures are taken to ensure access to the facilities of the Foundation for Persons with Disabilities, as well as the accessibility of students with disabilities and / or special educational needs in teaching and the proposed textbooks of the three studies cycles.

- Article 34 Selection, rights and obligations of postgraduate students

HEIs are required to provide postgraduate students with disabilities and / or special educational needs access to the proposed textbooks and teaching.



HEIs Obligations for SwD (3/3)

Provisions of Law 4485/2017 (Government Gazette A '114) for SwD

Article 48 Training and Lifelong Learning Center

Higher Education Training and Lifelong Learning Centers can organize lifelong learning programs with distance learning methods, taking into account the needs of persons with disabilities and / or special educational needs and ensuring the online accessibility of the programs to these people as well.



Codification of SwD by the Ministry of Education

Code	Description
01	BLIND PEOPLE
02	PEOPLE WITH REDUCED VISUAL ACIDITY (WITH A PERCENTAGE OF DISABILITY OF AT LEAST 80%)
03	DEAF PEOPLE
04	DEAF-MUTE PEOPLE
05	SUFFERERS FROM THALASSEMIA
06	SUFFERERS FROM SICKLE CELL ANEMIA
07	SUFFERERS FROM MICRO-SICKLE CELL ANEMIA
08	SUFFERERS FROM ASSOCIATED HYDROCEPHALUS WITH PERMANENT ARTIFICIAL DRAINAGE OF THE CELEBROSPINAL FLUID (SHUNT), ACCOMPANIED BY OTHER DEFECTS, SUCH AS ARACHNOID CYST WITH EPILEPSY CRISIS FEATURES
09	SUFFERERS FROM DUCHENNE MUSCULAR DYSTROPHY
10	SUFFERERS FROM SEVERE VASCULAR MALFORMATION OF THE BRAINSTEM



CODE	
11	SUFFERERS FROM MALIGNANT NEOPLASTIC DISEASES (LEUKEMIA, LYMPHOMAS, SOLID TUMOURS WITH PERSONALIZED DECISION OF THE EXAMINATION COMMITTEE)
12	SUFFERERS FROM BUDD-CHIARI SYNDROME
13	SUFFERERS FROM FABRY DISEASE
14	SUFFERERS FROM CYSTIC FIBROSIS (IN PANCREAS, LUNGS)
15	SUFFERERS FROM MULTIPLE SCLEROSIS
16	SUFFERERS FROM MYASTHENIA GRAVIS THERAPEUTICALLY TREATED WITH MEDICATION
17	SUFFERERS FROM CHRONIC KIDNEY DISEASES SUBMITTED TO HEMODIALYSIS OR PERITONEAL DIALYSIS
18	SUFFERERS FROM BLEEDING DISORDER – HEMOPHILIA AND TREATED WITH COAGULATION FACTORS
19	PATIENTS WHO HAVE BEEN SUBMITTED IN BONE MARROW TRANSPLANTATION
20	PATIENTS WHO HAVE BEEN SUBMITTED IN CORNEA TRANSPLANTATION



CODE	
21	PATIENTS WHO HAVE BEEN SUBMITTED IN HEART TRANSPLANTATION
22	PATIENTS WHO HAVE BEEN SUBMITTED IN LIVER TRANSPLANTATION
23	PATIENTS WHO HAVE BEEN SUBMITTED IN LUNGS TRANSPLANTATION
24	PATIENTS WHO HAVE BEEN SUBMITTED IN KIDNEY TRANSPLANTATION
25	PATIENTS WHO HAVE BEEN SUBMITTED IN PNCREAS TRANSPLANTATION
26	PATIENTS WHO HAVE BEEN SUBMITTED IN SMALL INTESTINE TRANSPLANTATION
27	SUFFERERS FROM TYPE 1 DIABETES (INSULIN-DEPENDENT / JUVENILE DIABETES)
28	SUFFERERS FROM EVANS SYNDROME
29	MULTI-TRANSFUSION SUFFERERS FROM THALASSEMIA
30	DISABLED PEOPLE WITH A DISABILITY PERCENTAGE OF AT LEAST 67%



CODE	
31	SUFFERERS FROM PHENYLKETONURIA
32	SUFFERERS FROM ASSOCIATED THROMBOPHILIA SUBMITTED IN LIFELONG ANTICOAGULATION TREATMENT
33	SUFFERERS FROM ARRHYTHMOGENIC RIGTH VENTRICULAR CARDIOMYOPATHY WITH IMPLANTED CARDIOVERTER-DEFIBRILLATOR
34	SUFFERERS FROM GAUCHER DISEASE
35	SUFFERERS FROM COMPLEX ASSOCIATED HEART DISEASES THAT HAVE BEEN SURGICALLY OPERATED OR NOT WITH PULMONARY HYPERTENSION HIGHER THAN 50mmHg
36	SUFFERERS FROM SINGLE VENTRICLE
37	SUFFERERS FROM TRUNCUS ARTERIOSUS
38	SUFFERERS FROM ANY TYPE OF MYOCARDIAL DISEASE WHICH CAUSE PERMANENT HEART FAILURE (EJECTION FRACTION < 35%), DOCUMENTED BY SPECIALIZED HOSPITAL ECHOCARDIOLOGY UNITS AND CONFIRMED IN OPTICAL MAGNETIC INDUCTION TOMOGRAPHY OF THE HEART
39	SUFFERERS FROM HYPERTROPHIC CARDIOMYOPATHY
40	SUFFERERS FROM PULMONARY ARTERIAL HYPERTENSION



CODE	
41	SUFFERERS FROM SEVERE PULMONARY FIBROSIS OF ANY JUSTIFICATION
42	SUFFERERS FROM BRUGADA SYNDROME
43	SUFFERERS FROM IDIOPATHIC VENTRICULAR TACHYCARDIA WITH IMPLANTATION OF CARDIOVERTER-DEFIBRILLATOR
44	SUFFERERS FROM GLYKOGONIASIS
45	SUFFERERS FROM LIVER CIRRHOSIS
46	SUFFERERS FROM PORTAL HYPERTENSION DUE TO PORTAL VEIN HYPOPLASIA
47	SUFFERERS FROM CROHN DISEASE
48	SUFFERERS FROM WILSON DISEASE
49	SUFFERERS FROM MULTIPLE NEUROFIBROMATOSIS (VON RECKLINGHAUSEN'S DISEASE)
50	SUFFERERS FROM MULTIPLE MYELOMA



CODES	
51	SUFFERERS FROM SARCOIDOSIS UNDER MAJOR IMMUNOSUPPRESSIVE THERAPY DUE TO LUNG OR/AND CENTRAL NERVOUS SYSTEM ATTACK
52	SUFFERERS FROM AUTOIMMUNE HEPATITIS
54	PATIENTS WHO HAVE BEEN SUBMITTED IN TOTAL LARYNGECTOMY
55	SUFFERERS FROM BRAIN CRANIOPHARYNGIOMA
56	SUFFERERS FROM SYSTEMIC LUPUS ERYTHEMATOSUS UNDER MAJOR IMMUNOSUPPRESSIVE THERAPY DUE TO LUNG OR/AND CENTRAL NERVOUS SYSTEM OR/AND SEROUS MEMBRANE OR/AND BLOOD ATTACK
57	SUFFERERS FROM SYSTEMIC SCLERODERMA WITH DIFFUSE CUTANEOUS INFECTION
59	SUFFERERS FROM ULCERATIVE COLITIS WHO RECEIVE IMMUNOSUPPRESSIVE THERAPY, OR THEY HAVE RECEIVED MAJOR IMMUNOSUPPRESSIVE THERAPY IN THE PAST AND NOW THEY CONTINUE RECEIVING A DIFFERENT MEDICATION



CODES	
60	PATIENTS WITH ULCERATIVE COLITIS WHO HAVE BEEN SUBMITTED TO A TOTAL PROCTOCOLECTOMY AND PERMANENT ILEOSTOMY OR SUBTOTAL COLECTOMY WITH A DIRECT ILEOCOLIC ANASTOMOSIS OR BY CREATING ILEOANAL POUCH
61	SUFFERERS FROM THROMBOCYTOPENIA
67	SUFFERERS FROM AUTOIMMUNE HEMOLYTIC ANEMIA UNDER MAJOR IMMUNOSUPPRESSIVE THERAPY
62	SUFFERERS FROM KLIPPEL-FEIL SYNDROME
63	SUFFERERS FROM JUVENILE IDIOPATHIC ARTHRITIS WITH CONTINUOUS ACTIVITY AFTER THE AGE OF 14 YEARS OLD DESPITE THE BIOLOGICAL TREATMENT
64	SUFFERERS FROM ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) UNDER ANTIRETROVIRAL THERAPY
65	SUFFERERS FROM PAROXYSMAL NOCTURNAL HEMOGLOBINURIA WITH CRONICAL NEED OF REGULAR TRANSFUSIONS
66	SUFFERERS FROM IDIOPATHIC THROMBOCYTOPENIC PURPURA UNDER MAJOR IMMUNOSUPPRESSIVE THERAPY



CODE	
68	SUFFERERS FROM VARIOUS RARE CONGENITAL OR ACQUIRED SYNDROMES – DISEASES, WHEN EXPRESSED WITH SEVERE CLINICAL MANIFESTATIONS ATTRIBUTING A DISABILITY RATE OF AT LEAST 80%, EXAMINED ON A CASE-PER-CASE BASIS
69	SUFFERERS FROM KLIPPEL-TRENAUNAY-WEBER SYNDROME
70	SUFFERERS FROM MUCOPOLYSACCHARIDOSIS TYPE 6
71	SUFFERERS FROM DERMATOMYOSITIS UNDER MAJOR IMMUNOSUPPRESSIVE THERAPY
72	SUFFERERS FROM MUCKLE-WELLS SYNDROME (SYMPTOMATIC DISEASE WITH CONVENTIONAL CLINICAL PICTURE WITH DIAGNOSIS CONFIRMED BY A PEDIATRICIAN WITH SPECIAL EXPERIENCE IN RHEUMATIC DISEASES, GENETIC CONFIRMATION OF MUTATION IN CRYOPYRIN (NALP3) IS DESIRED, NOT NECESSARY, THEY DO NOT EXIST IN EVERY PATIENT, TREATMENT WITH BIOLOGICAL FACTORS E.G. INTERLEUKIN INHIBITORS IL-1)
73	SUFFERERS FROM SEVERE HEREDITARY ANGIOEDEMA LABORATORY CONFIRMED WITH A MINIMUM DESABILITY PERCENTAGE OF 67%
74	SUFFERERS FROM BENIGN BRAIN TUMOUR WITH A MINIMUM DESABILITY PERCENTAGE OF 67%

CODE	
75	SUFFERERS FROM ANEURYSM RUPTURE WITH HEMORRHAGE AND HYDROCEPHALUS WITH A MINIMUM DESABILITY PERCENTAGE OF 67%

CODE	
001	Learning Difficulties
002	Attention Deficit Hyperactivity Disorder
003	Different Neurodevelopmental Disorders
004	Mental Disorders

Electronic Accessibility

Constitution of Greece, article 5^A(2):

"Everyone has the right to participate in the Information Society. It is the responsibility of the State to facilitate access to information transmitted electronically and to its production, exchange and dissemination".



Law 4488/2017

Article 64 Access to the physical, structured and electronic environment

2. Governments and authorities within their competence shall ensure that persons with disabilities have equal access to the electronic environment, in particular electronic communications, information and services, including the media and internet services.



Law 4488/2017

Article 67 Non-discrimination in the media and audiovisual activities

2. Media and communication service providers, including the internet, are required to utilize new technologies, such as web pages, subtitling, audio description, sign language interpretation, to ensure that people with disabilities have access to them.



Law 4591/2019 and Law 4727/2020

Adoption into the Hellenic legislation of Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of websites and mobile applications of public sector bodies

Conformance with the European Standard
EN 301 549 V2.1.2 (2018-08): Accessibility requirements for ICT products and services

Equivalent to conformance with WCAG 2.1 at level AA



Ministerial Decision 98546/2007

Publishers are required to submit to the HEI electronically the records of the works requested to be reproduced in accessible formats, such as braille or Moon writing, DAISY, talking books, etc.



Law 4672/2020

Adoption of Directive (EU) 2017/1564 of the European Parliament and of the Council of 13 September 2017 on certain permitted uses of certain works and other subject matter protected by copyright and related rights for the benefit of persons who are blind, visually impaired or otherwise print-disabled and amending Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society.



Law 3699/2008: Special Education and Training (SET) for Persons with Disabilities or Special Educational Needs (1/4)

Article 2 Organization and objectives of the SET

- The application of the "**Design for All**" principles to ensure accessibility for persons with disabilities is mandatory both in the design of training programs and educational materials and in the selection of all types of equipment (conventional and electronic), building infrastructures and developing all Special Education and Training School Units (SETSU) and Centers for Diagnosis and Support of Special Educational Needs (CDSEEN) policies and procedures.



Law 3699/2008: Special Education and Training (SET) for Persons with Disabilities or Special Educational Needs (2/4)

Article 2 Organization and objectives of the SET

6. The above objectives are achieved by:

d) the implementation of specific training and rehabilitation programs, the adaptation of educational and teaching materials, the use of special equipment including electronic equipment and software, and the provision of all sorts of facilities and ergonomic arrangements by the SETSUs and the CDSEENs.



Law 3699/2008: Special Education and Training (SET) for Persons with Disabilities or Special Educational Needs (2/4)

Article 2 Organization and objectives of the SET

7. By decision of the Minister of National Education and Religions, two advisory committees are established at the Ministry of National Education, one for monitoring the **physical accessibility** of persons with disabilities in the educational and administrative structures of the Ministry of National Education and one for monitoring **accessibility of educational materials and websites**. These committees include - among others - representatives of the National Confederation of Persons with Disabilities. The same decision determines their operating rules.



Law 3699/2008: Special Education and Training (SET) for Persons with Disabilities or Special Educational Needs (4/4)

Article 4 Diagnostic, Evaluative and Supporting Bodies (CDSSSEN)

CDSSSEN has the following responsibilities:

e) Determining the type of educational aids and technical instruments which facilitate access to the place and learning process that the child needs at school or at home and which do not require medical advice and prescription.



Law 4780/2021: National Accessibility Authority

Article 2:

The Authority has the following responsibilities, in particular:

(a) Monitor the implementation of international, national and national framework for accessibility



March 2021: Strategic Plan for Equal Access to Education for Persons with Disabilities in Higher Education

Ministry of Education

- a) the gradual improvement of universal accessibility in all Universities (physical accessibility, electronic accessibility, accessibility of educational and supervisory material and teaching methods, making reasonable adjustments, creating accessible websites, creating accessible administrative services, public service).
- b) the necessary institutional guarantees of equal treatment of students , faculty members and staff of all categories with disabilities with the main goal of their smooth academic and professional development;



March 2021: Strategic Plan for Equal Access to Education for Persons with Disabilities in Higher Education

Ministry of Education

- c) the establishment of an "Accessibility Committee & Support for Persons with Disabilities" in each HEI. The committee will be supported by a corresponding administrative unit within each HEI (relevant office or department) and will be responsible for proposing an integrated framework of general support for people with disabilities of the relevant Institution
- d) the necessary actions for the future integration of students with disabilities into active life and the labor market;
- e) the introduction of "VOLUNTEERING" in the context of supporting students and staff with disabilities within HEIs, as well as general awareness actions of the entire university community.



Accessibility Unit
<http://access.di.uoa.gr>

Thank you!



InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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of the European Union



The Accessibility Unit of the NKUA

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The Accessibility Unit for Students with Disabilities

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Basic Requirements of Students with Disabilities

Students with disabilities need to:

- **access** interpersonal communication with the members of the academic community,
- **access** the structured environment of the university,
- **access** the printed or electronic educational material,
- **access** the board and the presentations in the classrooms,
- **access** the exams/tests, and
- **access** the WWW content and Internet Services



Accessibility Services Provision

Dimensions:

- Legal / Legislative
- Economic: cost & benefits
- Social / Ethical
- **Services and Support Technologies**



The Model of Services

of the Accessibility Unit for Students with Disabilities, NKUA

Aims to fulfill the basic requirements of students with disabilities

Based on the principles of:

- **Universal Design / Design-for-All**
- **Inclusive Education**
- **Universal Design for Learning (UDL)**



Mission of the Accessibility Unit for Students with Disabilities, NKUA

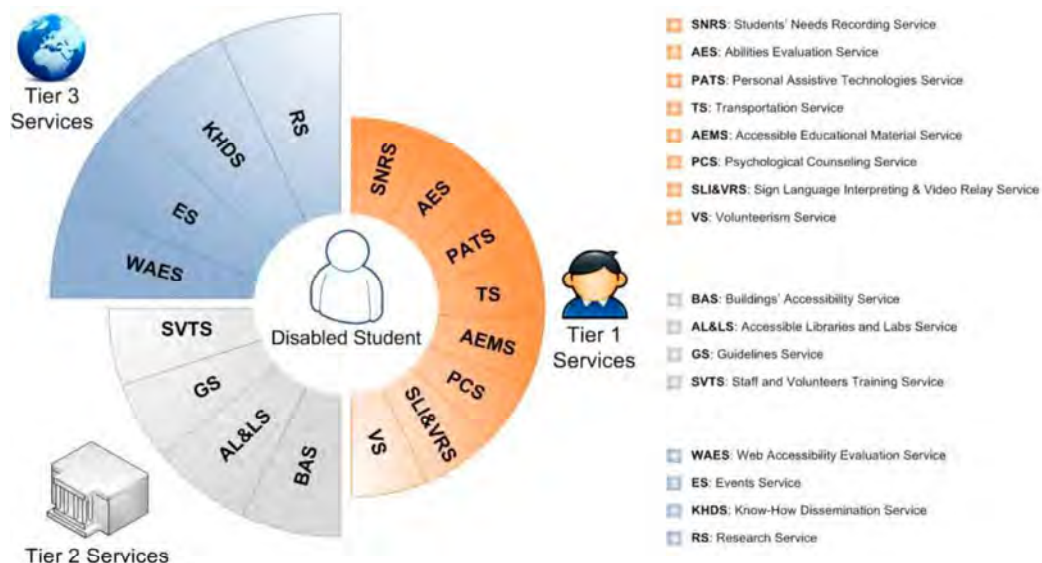
***“to actively realize
coequal access to academic studies
for students with different abilities and needs,
through:***

***built environmental modifications,
Assistive Technologies and
Access Services”***

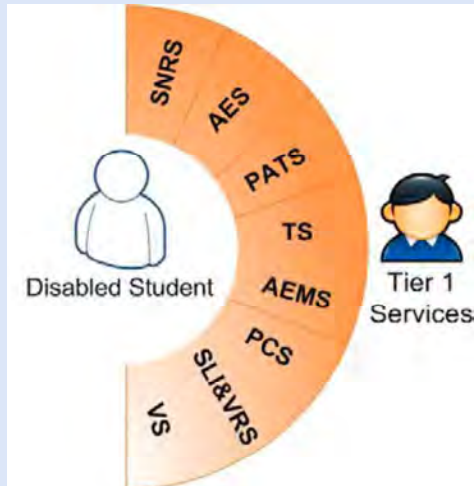
** adopted by the senate of NKUA*



The Model of Services of the Accessibility Unit for Students with Disabilities, NKUA



TIER 1: Accessibility Services Addressing Directly the Student



- Services that deal with specific requirements of the disabled students
- They have an immediate impact in a number of students' activities:
 - participation in the educational process,
 - interpersonal communication
 - transportation and housing accommodation, and
 - interaction with their academic environment

TIER 1: Accessibility Services Addressing Directly the Student

SNRS: Students' Needs Recording Service

- Provides a systematic and detailed registration of the disabled students' needs and the main obstacles that might arise during their studies
- available during all the years of studies and can be revisited when students' needs change
- e-connection with the general student records system **MyStudies**



TIER 1: Accessibility Services Addressing Directly the Student

AES: Abilities Evaluation Service

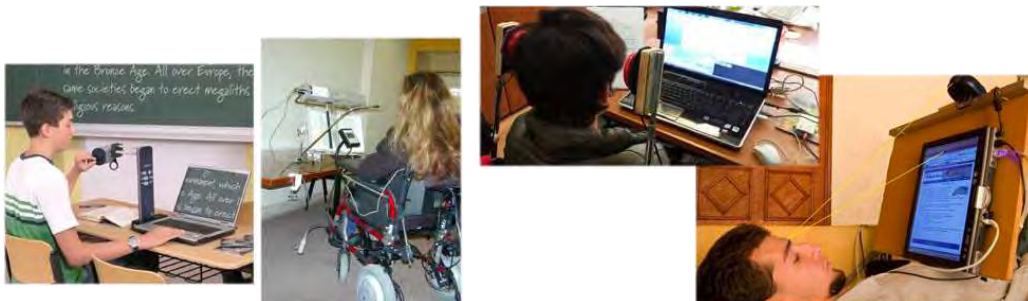
- Individual diagnostic assessments are conducted in order to determine main obstacles through the educational process, such as:
 - reading printed books,
 - accessing libraries,
 - navigating to university campus,
 - test taking, etc.
- The ultimate goal of the AES is to assign the services each individual student with disabilities needs



TIER 1: Accessibility Services Addressing Directly the Student

PATS: Personal Assistive Technologies Service

- Offers the infrastructure and the appropriate tools needed for testing and assessing a wide variety of computer-based Assistive Technologies (AT)
- Provides one-to-one training, technical support and consulting on advanced AT





TIER 1: Accessibility Services Addressing Directly the Student

TS: Transportation Service

- Arranges everyday transportation to the University for those who use a wheelchair, or those with severe mobility impairments



TIER 1: Accessibility Services Addressing Directly the Student

AEMS: Accessible Educational Material Service

- Provides conversion of academic texts-books & educational material into accessible format for the print disabled students
- Production of 10 accessible formats (e.g. DAISY and ePUB)
- Supports full mathematical formulas and music notation
- Supported by a web-based integrated system
- Connected with the EVDOXUS national text-book system



TIER 1: Accessibility Services Addressing Directly the Student

PCS: Psychological Counseling Service

- Provides individual and group psychological counseling to students with disabilities
- Disabled students may request advice on any of the following basic difficulties:
 - (i) interpersonal and social relationships (difficulties in relationships with family, the other sex, and friends),
 - (ii) academic difficulties and stress through study and test-taking period,
 - (iii) low self-esteem,
 - (iv) anxiety and phobias,
 - (v) mood and eating disorders

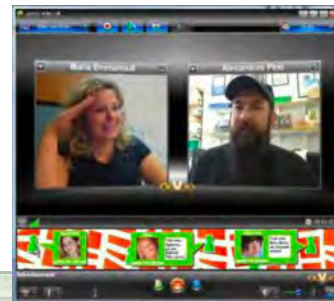
...



TIER 1: Accessibility Services Addressing Directly to the Student

SLI&VRS: Sign Language Interpreting & Video Relay Service

- Provides immediate remote interpersonal communication with fellow students, professors and administrative staff of the university
- Deaf students can ask for remote sign language interpreter
- The VRS service addresses students:
 - with total or partial loss of hearing,
 - dysarthria and severe speech disorders, and
 - generally those who cannot use the phone for interpersonal communication.



TIER 1: Accessibility Services Addressing Directly the Student

VS: Volunteerism Service

- A disabled student, who needs assistance on a day-to-day basis, can apply for a volunteer help through the VS.
- Volunteers are coordinated by the VS to aid and facilitate disabled students in various activities, such as:
 - transportation,
 - mobility,
 - communication,
 - accessible educational material,
 - note-taking,
 - ...

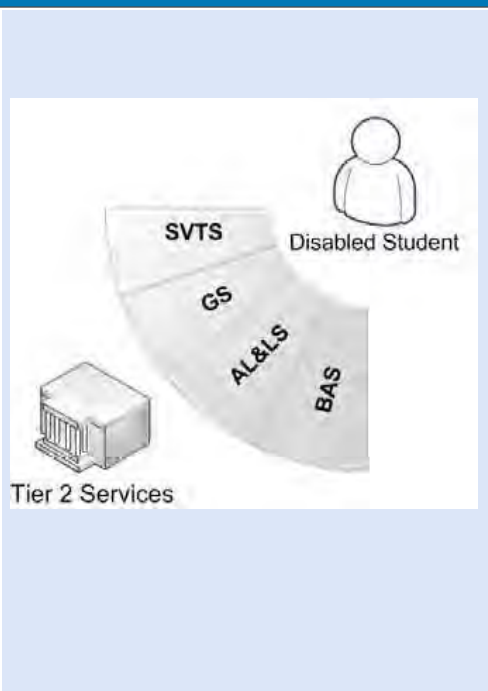


TIER 1: Accessibility Services Addressing Directly the Student

Sports for SwD

- In collaboration with the University Sports Unit
- For students with sensory or mobility impairment
- **Adapted / Tailored Sports**
 - Exercise and improving fitness
 - Hellenic traditional dancing
 - Trekking (with volunteer companions)
 -

TIER 2: Accessibility Services Addressing the Student's Environment



- Services included in the second tier are related to adjustments made on the academic environment that are required to improve accessibility.
- They have a direct impact on student's participation in the educational process since they deal with:
 - physical access on university's facilities,
 - training of volunteers and university staff,
 - developing guidelines, and
 - providing accessible libraries and labs.

TIER 2: Accessibility Services Addressing the Student's Environment

BAS: Buildings' Accessibility Service

- evaluates the physical accessibility of structured environment in the university campus.
- inspects buildings and the external structured environment in perspective of accessibility legislation compliance, and
- monitors construction of new buildings in order to ensure a high level of physical accessibility to students, employees, and visitors.



TIER 2: Accessibility Services Addressing the Student's Environment

AL&LS: Accessible Libraries and Labs Service

- provides the specifications, installation and technical support of public workstations in university libraries and labs with AT hardware and software for students with various disabilities.



TIER 2: Accessibility Services Addressing the Student's Environment

GS: Guidelines Service

- provides guidelines and standardization on procedures and services applied on students with disabilities during their studies
- The activities of the GS include the development of:
 - guidelines for the accommodations in exams or test-taking
 - guidelines for the production of accessible educational content, and
 - standards for the services and procedures of the Accessibility Unit.



TIER 2: Accessibility Services Addressing the Student's Environment

GS: Guidelines Service

- guidelines for the accommodations in exams or test-taking



- guidelines for the production of accessible educational content

- Οδηγίες δημιουργίας προσβάσιμων εγγράφων με MS-Word 2013
- Οδηγίες δημιουργίας προσβάσιμων εγγράφων με MS-Word 2010
- Οδηγίες δημιουργίας προσβάσιμων εγγράφων με MS-Word 2007
- Οδηγίες δημιουργίας προσβάσιμων εγγράφων με Libre Office Writer
- Οδηγίες δημιουργίας προσβάσιμων εγγράφων με LaTeX
- Οδηγίες δημιουργίας προσβάσιμων παρουσιάσεων με MS-PowerPoint 2013
- Οδηγίες δημιουργίας προσβάσιμων παρουσιάσεων με MS-PowerPoint 2010
- Οδηγίες δημιουργίας προσβάσιμων παρουσιάσεων με MS-PowerPoint 2007
- Οδηγίες δημιουργίας προσβάσιμων παρουσιάσεων με Libre Office Impress
- Οδηγίες δημιουργίας προσβάσιμων εγγράφων και παρουσιάσεων PDF
- Ειδικές οδηγίες δημιουργίας προσβάσιμων αρχείων για τις Θετικές Επιστήμες
- Ειδικές οδηγίες ανάπτυξης προσβάσιμων εγγράφων για Ελληνικά Πολυτονικά Κείμενα
- Ειδικές οδηγίες ανάπτυξης προσβάσιμου εγγράφων για Πολύγλωσσα Κείμενα
- Ειδικές οδηγίες υποστήριξης βιντεοσκοπημένων παρουσιάσεων

TIER 2: Accessibility Services Addressing the Student's Environment

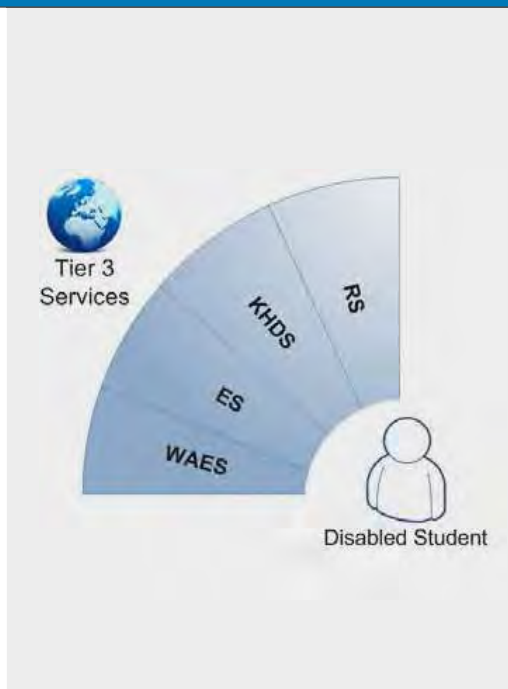
SVTS: Staff and Volunteers Training Service



- raises general staff's and professors' awareness on disability issues.



TIER 3: Accessibility Promoting Services



- Tier 3 includes services that attempt to disseminate good practices and reach more people in the community.
- This influence is achieved through a number of activities like:
 - web accessibility evaluations,
 - meetings and events,
 - know-how dissemination,
 - research projects.

TIER 3: Accessibility Promoting Services

WAES: Web Accessibility Evaluation Service

- provides accessible web page and document templates to the university's web developers
- helps web developers to analyze and take the most of accessibility reports
- facilitates AT enhancements and accessibility modifications to university websites,
- conducts web evaluation reports



TIER 3: Accessibility Promoting Services

ES: Events Service

- Organizes social and informal events like meetings, press conferences, training camps, etc., promoting the Accessibility Services Provision Model, the Accessibility Unit and the University itself.



TIER 3: Accessibility Promoting Services

ES: Events Service



International Conference on Enabling Access
for Persons with Visual Impairment

February 12-14, 2015, Athens, Greece

<http://access.uoa.gr/ICEAPVI-2015/>



Co-organized by:
ICEVI-Europe
International Council for Education and
Rehabilitation of People with Visual
Impairment - Europe Region



TIER 3: Accessibility Promoting Services

ES: Events Service

ICC 2010: 16th International Camp for students with visual loss

Athens 20 July- 5 August 2010



TIER 3: Accessibility Promoting Services

KHDS: Know-How Dissemination Service

- is responsible for organizing or participating in workshops, seminars, and scientific conferences in the domain of accessibility, Information and Computer Technologies, Assistive Technologies and inclusive education,
- issues leaflets, posters, and other dissemination material, useful to other institutions and organizations or similar Accessibility Units, and
- develops and maintains the Accessibility Unit's website presenting its services, the provision model, and the information on the available AT.



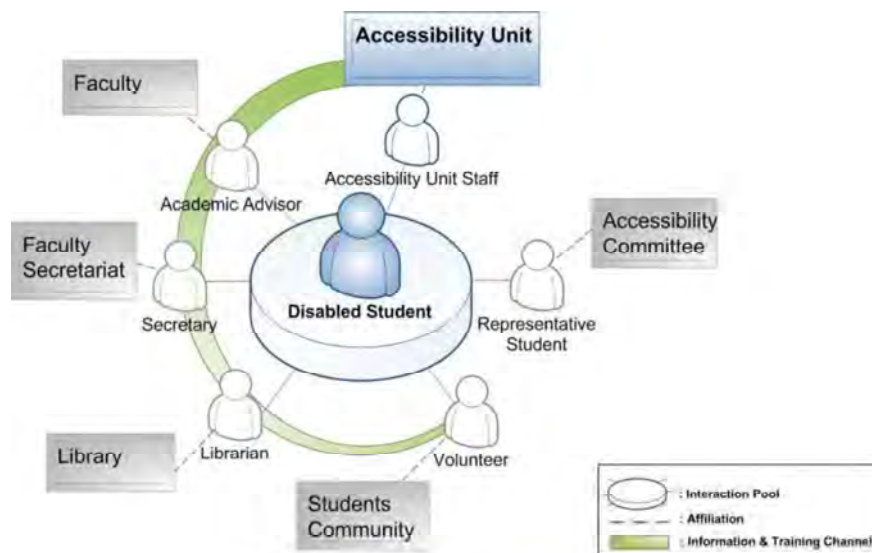
TIER 3: Accessibility Promoting Services

RS: Research Service

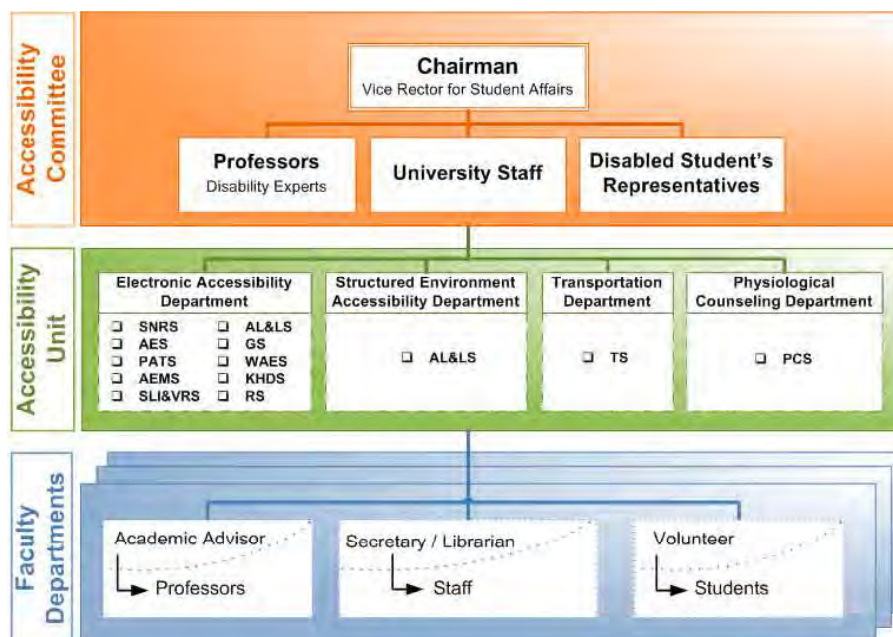
- leading or participating in national or international research projects related to facilitating equity of access to learning and teaching for students with disabilities



Accessibility stakeholders' interactions



Organization and Management of the University of Athens' Accessibility Unit



Students with Disabilities, Learning difficulties and Chronic/severe Diseases NKUA

Recorded by Faculty Secretariats	1948
Blind and low vision	79
Deaf and hard of hearing	78
Motor impaired	225
Other or learning disabilities	240
Chronic/Severe Diseases	1326

NKUA

- 43 academic departments
- 44.658 undergraduate students
- 13.257 MSc students
- 8.015 PhD students
- 1.703 professors
- 1.095 staff members

Accessibility Unit

- Head: vice rector
- Director: Executive vice president
- 9 staff members (full time)
- 3 staff members (part time)
- 4 drivers
- 580 volunteers (students)

Students with Disabilities, Learning difficulties and Chronic/ Severe Diseases NKUA

Department / Faculty	Total	recording with missing data															
		Blindness/Low vision		Deafness/Hard of hearing		Motor Disability		Other Disability		Chronic / Severe diseases		Learning Difficulties		Learning Difficulties		Severe psychosocial problems	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
English Language and Literature	73	2	3	7	14	46											1
Biology	75		1	3	1					44	26						
French Language and Literature	13	1	1	1						2	8						
German Language and Literature	12					1				6	5						
Geology and Geoenvironment	12		1	2		1				4	4						
Early Childhood Education	55	6	1	5		5		2		35		1					
Communication and Media Studies	47	1	3	1		7	3			16	16						
Physical Education and Sport Science	89	2	1	8	5	2	1	1		48	18			1		1	1
Theatre Studies	44	1	1	1	1	4				9	27						
Theology	45	2	3	1	1	3		2		24	9						
Medicine	150	2	2	1	1	6				58	69	2					
History and Archeology	84	3	2	1	2	10	7	1		27	29			1			1
Spanish Language and Literature	6					2				1	3						
Italian Language and Literature	8	1						1		3	3						
Social Theory and the Study of Religions	30	4	1		3	3	2			9	7			1			
Mathematics	31	1	1	1	1					14	6	1		1	1	2	2
History and Philosophy of Sciences	23	1				1	2	3		7	9						
Music Studies	27	2	4		1	1				13	6						
Law	333	16	11	2	11	9	20	40	52	51	117			2			2
Nursing	42	1		1	1	1				10	28						
Liberal Arts	31		1	1	1					11	17						
Economics	39	1	1		3	4	4	1		18	7						
Primary Education	75	2	2	1	3	4	6	2		15	39						1
Informatics and Telecommunications	129	4	3		18	3	2			56	7	20	5	8			3
Political Science and Public Administration	98	5	3	1	8	3	3	3		27	42	1	1				
Turkish Studies and Modern Asian Studies	13					1	1	1		2	6						1
Psychology	85	3	5		3	3	13			10	45	1	1				1
Pharmacy	29		2	1		4				9	13						
Philology	66	2	1	2	4	5				19	30		1	1			1
Philosophy, Pedagogy and Psychology	55	1	1	2	7	8		1		10	25						
Philosophy	16				2					7	7						
Physics	25	2			3					12	5	2		1			
Chemistry	28	2	1		1		1	1		6	10	1	1	2	1	1	
Russian Language and Literature and Slavic Studies	9					3				2	4						
Aerospace Science and Technology	4									2	2						
Ports Management	8		1							1	1	4	1				
Digital Industry Technologies	3									2	1						
Digital Art and Cinema	7			1		1				2	1		2				
Business Administration	8									5	3						
Sociology	9		1	1		1				4	2						
Educational Studies	12					1		1	3	7							
Total	1948	54	51	35	43	105	120	61	67	584	742	35	13	18	2	9	9

Indicative Results



Indicative References

G. Kouroupetroglou, A. Pino, H. Kacorri: **"A Model of Accessibility Services Provision for Students with Disabilities in Higher Education"**, in Proceedings of the International Conference "Universal Learning Design" 8-11 Febr. 2011, Brno, pp. 23-33, ISBN 978-80-210-5828-6

G. Kouroupetroglou, A. Pino, P. Riga **"A methodological approach for designing and developing web-based inventories of mobile Assistive Technology applications"** Multimedia Tools and Applications International Journal, Vol. 76, Issue 4, pp. 5347-5366, 2017

A.Pino, G. Kouroupetroglou, P. Riga. **"HERMOPHILOS: A Web-Based Information System for the Workflow Management and Delivery of Accessible eTextbooks"** Lecture Notes in Computer Science, Vol. 9758, pp 409-416, 2016

K. Riviou, G. Kouroupetroglou and A. Bruce: **"UDLnet: A Framework for Addressing Learner Variability"**, Proceedings of the International Conference on Universal Learning Design, Paris, 9-11 July 2014, vol. 4. ISSN 1805-3947, pp. 83-93.





Thank you!



InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

Co-funded by the
Erasmus+ Programme
of the European Union





Design for All and Universal Design for Learning

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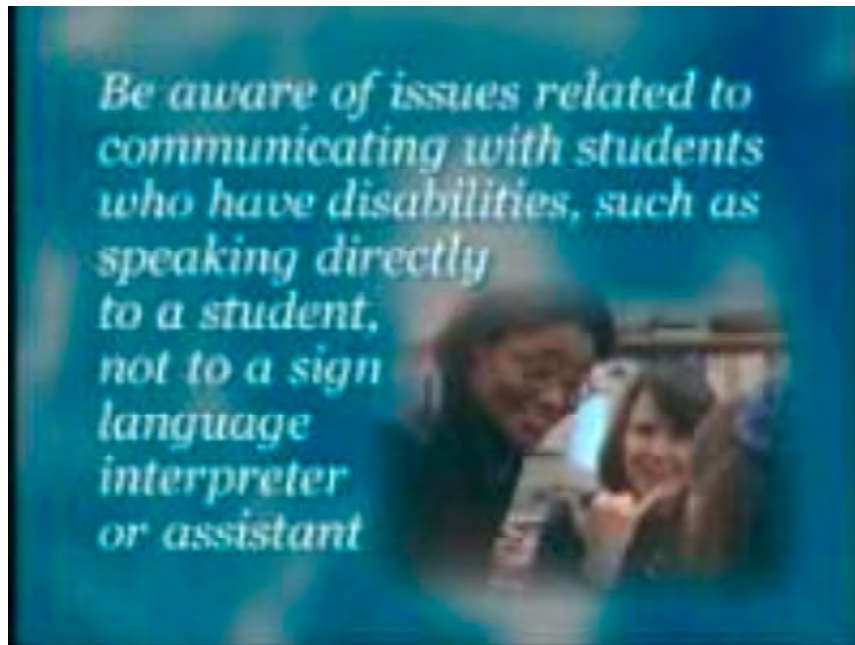
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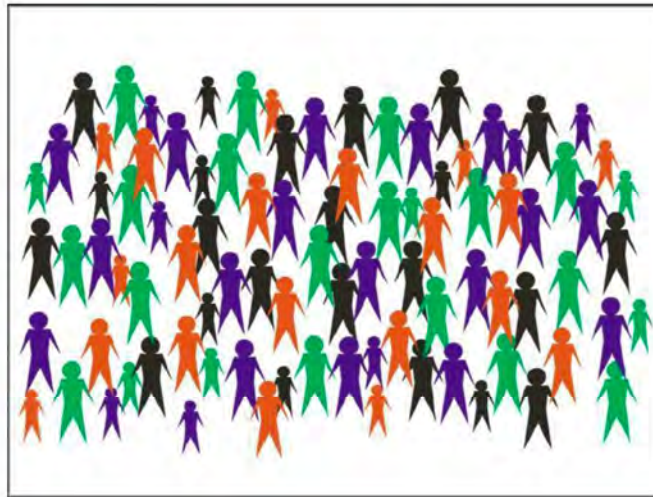
Aims to fulfill the basic requirements of students with disabilities

Based on the principles of:

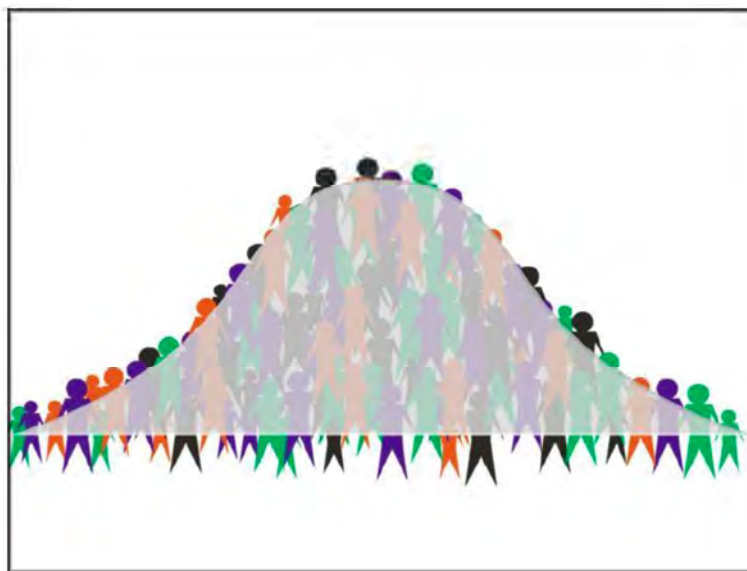
- Universal Design / Design-for-All**
- Inclusive Education**
- Universal Design for Learning (UDL)**



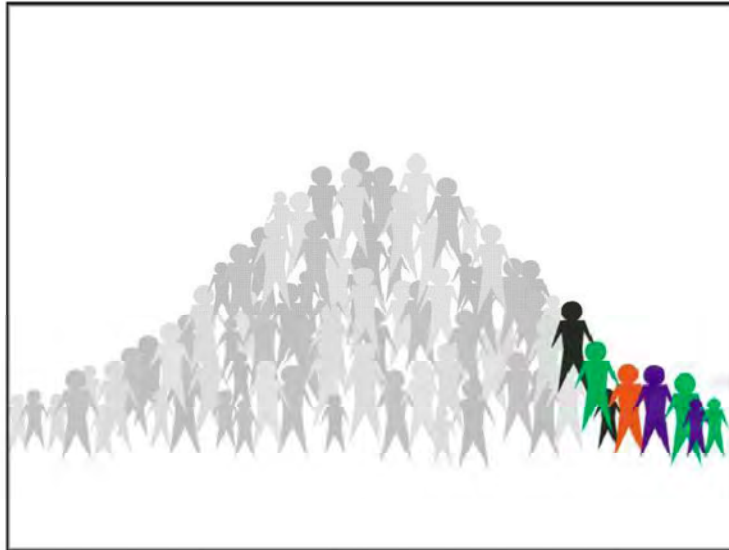
All constitute a continuum



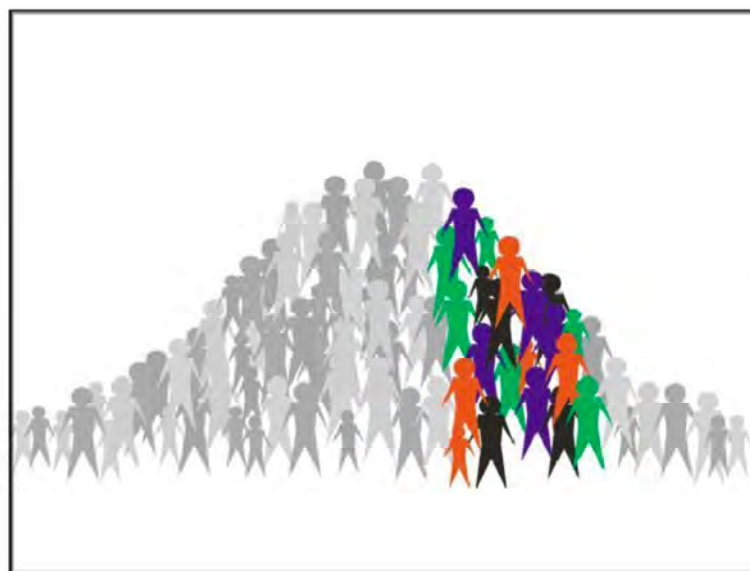
Users of a product (e.g. book, PC) form a usability curve



Users who have no problem using any part of the product



Users who only have a little difficulty using the product



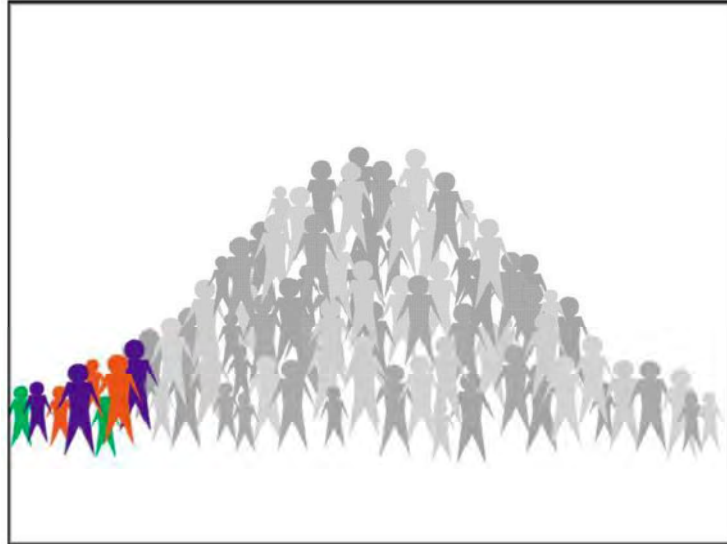
Users who have difficulty with some properties of the product but generally use it well



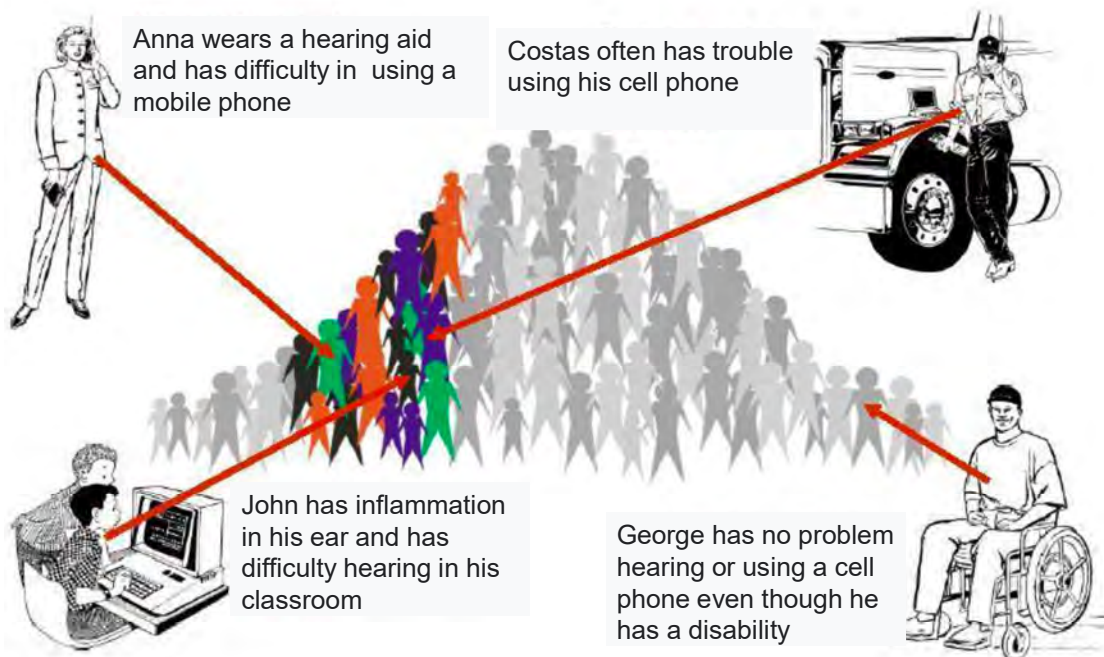
Users who find it difficult to use the product or parts of it



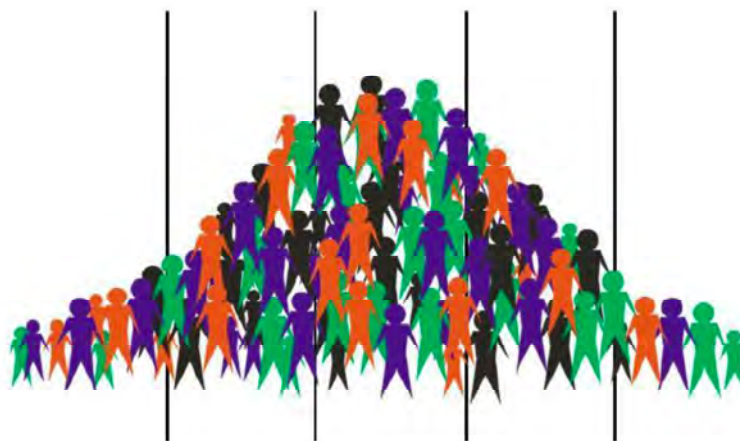
Users who can not use the product



Different causes of usability problems



User fragmentation



Traditionally, the science of Human Factors (HF) tries to maximize the number of people who have little or no problem using the product



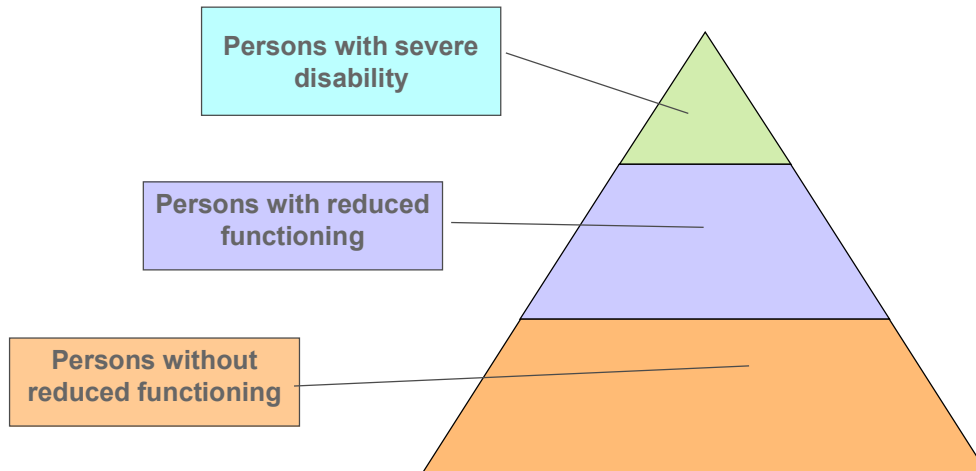
Accessibility professionals try to minimize the number of users who have difficulty or can not use the product



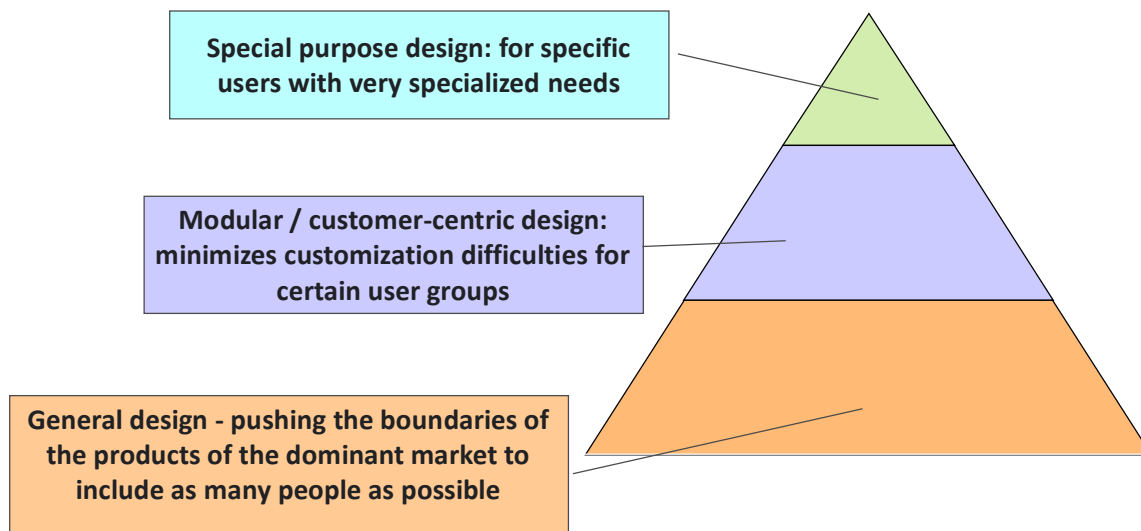
In fact users are a continuum and lines tend to unite with the best (or worst) product design



User pyramid



Design Approaches in User pyramid



Design Approaches (1/3)

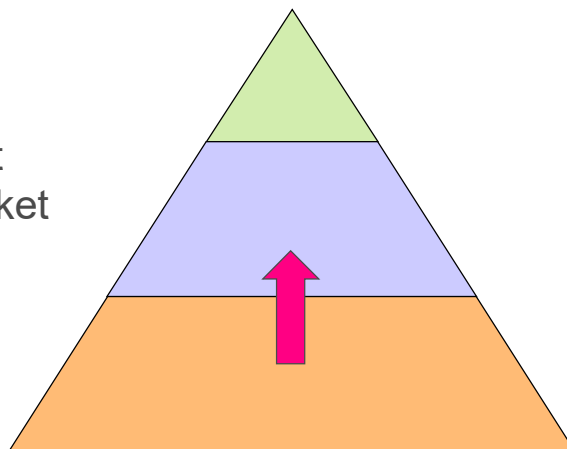
ex post: try to adapt existing technologies / products to the specifics of the disabled, the elderly, and generally those with disabilities

ex ante / proactively: the product design process takes into account that part of the buying public is disabled, elderly or disable



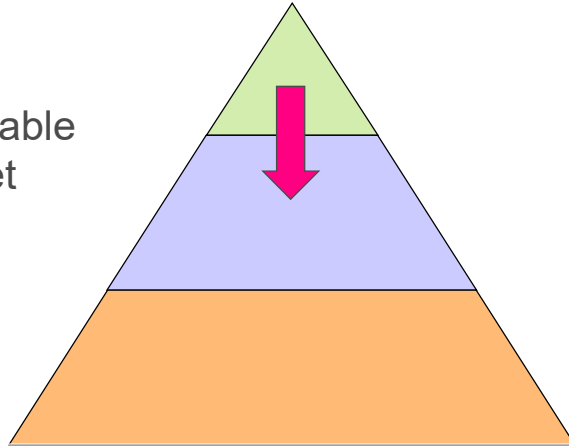
Design Approaches (2/3)

- Bottom-up
- from the dominant market to the market for people with disabilities



Design Approaches (3/3)

- Top-down
- Designing by the less able to the dominate market



Usability

- the efficiency, effectiveness and satisfaction with which a certain set of users can accomplish a defined set of activities in a given environment (ISO9241, 1998)

It does not referred to all users



Accessibility

The ability of the user to interact in a natural way with the product or service

e.g. to reach it, to have enough power to move it, etc.



Universal Design / Design-for-All

“the conscious and systematic effort to **proactively** apply principles, methods and tools, in order to develop products and services which are **accessible and usable** by all citizens, thus avoiding the need for **a posteriori** adaptations or specialised design”

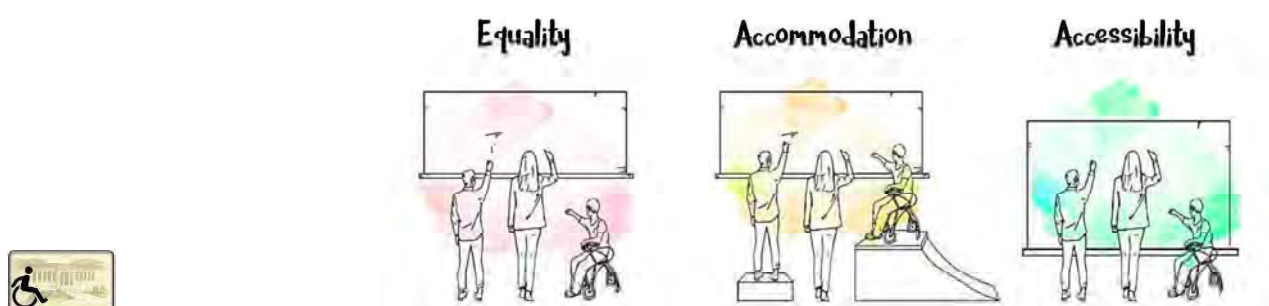
“a framework for the design of living and working spaces and products benefiting the widest possible range of people in the widest range of situations without special or separate design”



Moving from Reactive to Pro-active

Pro-active strategies:

- Determining essential requirements;
- Following principles Universal Design;
- Communication regarding essential requirements and course design.



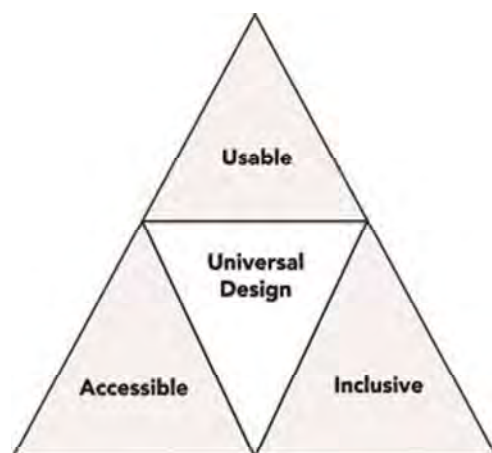
The Disability Act 2005 (USA) defines Universal Design, or UD, as:

1. The design and composition of an environment so that it may be accessed, understood and used
 - i. To the greatest possible extent
 - ii. In the most independent and natural manner possible
 - iii. In the widest possible range of situations
 - iv. Without the need for adaptation, modification, assistive devices or specialised solutions, by any persons of any age or size or having any particular physical, sensory, mental health or intellectual ability or disability, and
2. Means, in relation to electronic systems, any electronics-based process of creating products, services or systems so that they may be used by any person.



Universal Design / Design-for-All

.....is the design of products and environments that deliver student services that support teaching and learning to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design”



Universal Design / Design-for-All

- People who benefit from Universal Design / Design-for-All include those with a broad range of abilities, disabilities, ages, reading levels, learning styles, native languages, cultures, and other characteristics.
- Keep in mind that students may have learning disabilities or visual, speech, hearing, and mobility impairments. Applying Universal Design / Design-for-All minimizes the need for special accommodations for those who use your services and for future students as well.



Principles of Universal Design / Design-for-All

1. **Equitable use:** the design is usable and operable to people with diverse abilities.
2. **Flexibility in use:** the design accommodates a wide range of individual preferences and abilities.
3. **Simple and intuitive:** use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
4. **Perceptible information:** the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. **Tolerance for error:** the design minimizes hazards and the adverse consequences of accidental or unintended actions
6. **Low physical effort:** the design can be used efficiently and comfortably, and with a minimum of fatigue.
7. **Size and space for approach and use:** the design provides appropriate size and space for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.



Principles of Universal Design / Design-for-All

1 Equitable use

The design is useful and ready to be used to people with diverse abilities.

- It provides the same means of use for all users: identical whenever possible; equivalent when not.
- It avoids segregating or stigmatizing any users.
- Provisions for privacy, security, and safety are equally available to all users.
- The design is appealing to all users.

Guidelines:

- Provide the same means of use for all users: identical whenever possible; equivalent when not.
- Avoid segregating or stigmatizing any users.
- Provisions for privacy, security, and safety should be equally available to all users.
- Make the design appealing to all users.



Principles of Universal Design / Design-for-All

Principle 1: Equitable Use

The design is useful and marketable to people with diverse abilities.



Principles of Universal Design / Design-for-All

2 Flexibility in use

The design accommodates a wide range of individual preferences and abilities.

- It provides choice in methods of use.
- It accommodates right or left handed access and use.
- It facilitates the user's accuracy and precision.
- It provides adaptability to the user's pace.

Guidelines:

- Provide choice in methods of use.
- Accommodate right- or left-handed access and use.
- Facilitate the user's accuracy and precision.
- Provide adaptability to the user's pace.



Principles of Universal Design / Design-for-All

Principle 2: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.



A user at a computer table. The table height can be easily adjusted to suit different user needs.



Right & left-handed scissors

Principles of Universal Design / Design-for-All

3 Simple and intuitive

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

- It eliminates unnecessary complexity.
- It is consistent with user expectations and intuition.
- It accommodates a wide range of literacy and language skills.
- It arranges information consistent with its importance.
- It provides effective prompting and feedback during and after task completion.

Guidelines:

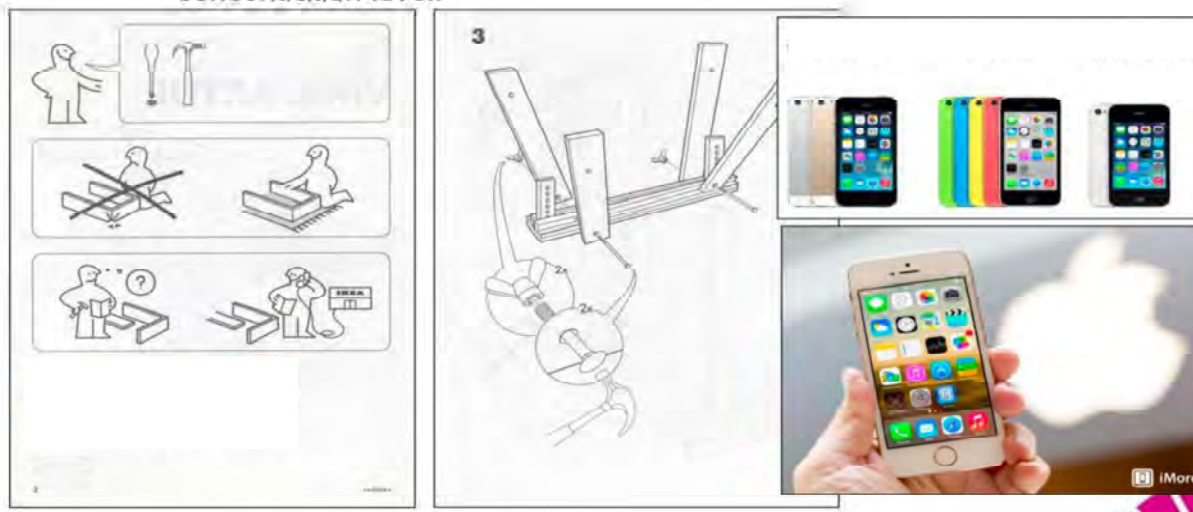
- Eliminate unnecessary complexity.
- Be consistent with user expectations and intuition.
- Accommodate a wide range of literacy and language skills.
- Arrange information consistent with its importance.
- Provide effective prompting and feedback during and after task completion.



Principles of Universal Design / Design-for-All

Principle 3: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.



Principles of Universal Design / Design-for-All

4 Perceptible information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

- It uses different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
- It provides adequate contrast between essential information and its surroundings.
- It maximizes "legibility" of essential information.
- It differentiates elements in ways that can be described (i.e., make it easy to give instructions or directions).
- It provides compatibility with a variety of techniques or devices used by people with sensory limitations.

Guidelines:

- Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
- Provide adequate contrast between essential information and its surroundings.
- Maximize "legibility" of essential information.
- Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).
- Provide compatibility with a variety of techniques or devices used by people with sensory limitations.



Principles of Universal Design / Design-for-All

Principle 4: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.



橋本 Hashimoto		泰山 Chapama	
次郎丸 Jiro-maru		別府 Beifu	
賀茂 Kamo		六本松 Ropponmatsu	
野井 Noeji		桜庭 Sakurazaka	
梅林 Umematsu		華院大通 Han'in-dōtō	
福太郎 Fukutaro		栗園 Tsubaki	
七瀬 Nanase		京町通 Kyōchō-dōtō	
金山 Kinsappan		天神橋 Tennjinbashi	

Nanakuma Line, Japan. Each station is color coded and is identified in English, Japanese, and by its accompanying unique symbol. Symbols generally relate to the station's surroundings.



Looking down the length of the symmetrical platform, lighting accentuates train doorways and the adjoining gates that prevent riders from falling onto the tracks. Nanakuma Line, Japan

Principles of Universal Design / Design-for-All

5 Tolerance for error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

- It arranges elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded
 - It provides warnings of hazards and errors.
 - It provides fail safe features.
 - It discourages unconscious action in tasks that require vigilance.
- **Guidelines:**
- Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.
 - Provide warnings of hazards and errors.
 - Provide fail safe features.
 - Discourage unconscious action in tasks that require vigilance.



Principles of Universal Design / Design-for-All

Principle 5: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.



Principles of Universal Design / Design-for-All

6 Low physical effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

- It allows user to maintain a neutral body position.
- It uses reasonable operating forces.
- It minimizes repetitive actions.
- It minimizes sustained physical effort.

Guidelines:

- Allow user to maintain a neutral body position.
- Use reasonable operating forces.
- Minimize repetitive actions.
- Minimize sustained physical effort.



Principles of Universal Design / Design-for-All

Principle 6: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.



Principles of Universal Design / Design-for-All

7 Size and space for approach and use

Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of user's body size, posture, or mobility.

- It provides a clear line of sight to important elements for any seated or standing user.
- It makes reaching to all components comfortable for any seated or standing user.
- It accommodates variations in hand and grip size.
- It provides adequate space for the use of assistive devices or personal assistance.
- **Guidelines:**
 - Provide a clear line of sight to important elements for any seated or standing user.
 - Make reach to all components comfortable for any seated or standing user.
 - Accommodate variations in hand and grip size.
 - Provide adequate space for the use of assistive devices or personal assistance.



Principles of Universal Design / Design-for-All

Principle 7: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.



Fare gates accommodate a wide variety of users. Note that the gate assembly is long enough so that exiting passengers do not have to slow or stop walking in order for the gate to open. The gate has multiple smart card targets to speed fare collection.
Nanakuma line, Japan



The interior of the 100% ultra low floor Alstom Citadis tram has both wide open areas as well as 2X2 seating. LUAS light rail, Dublin, Ireland



Universal Design Principles for Information / Technology

P.O.U.R.

- ✓ **Perceivable:** so that individuals with sensory impairments can understand the information being conveyed
- ✓ **Operable:** navigate to information via multiple methods (not only the mouse)
- ✓ **Understandable:** enough so that all different learning styles can engage
- ✓ **Robust:** technology should be compatible with a user's desired devices, applications or system preferences



Universal Design Principles for Information / Technology

Examples of Best Practices



Alternate text: Images and Videos

- Where possible, add a caption to an image - Captions are universal.
- Otherwise, add alternative text.
- Videos posted online or used for instruction must be captioned.
 - Videos online need both a title and an alternative such as a link to the content.

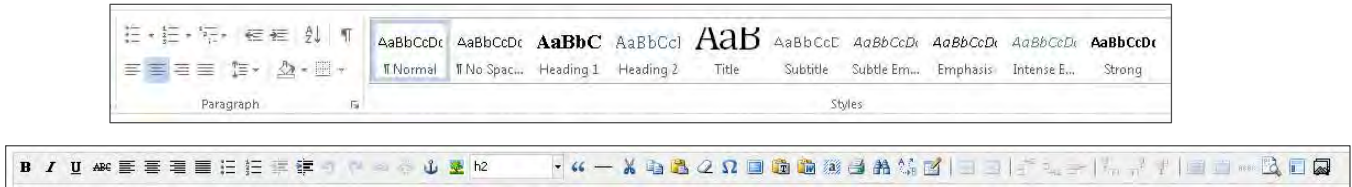


Tiny turtle eating a ripe strawberry.



Structure: headings and lists

Use these:



Color Contrast



Meaning without Color

Fill Out the form below to register now

All field in **red** are required information

Contact Information

First Name:

Last Name:

City:



User Interface

- Users should be able to get to content without using a mouse
 - Keyboard
 - Hearing
 - Touch
- Users should be able to access content on different screens (phone, tablet, etc.).



Navigation and Links

- Fix broken links.
- Use descriptive link text, not URLs. (*Always on the web; usually in documents.*)
 - Link text should clearly identify the target of each link. Good link text should not be overly general.
 - Do not use different [link text](#) to refer to the [same](#) resource.
 - Do not to use the same [link text](#) to refer to [different](#) resources.
- Web pages with links to files that require a special reader or plug-in should contain a link to obtain the reader or plug-in.



The goals of Desing4All - Universal Design

- **Body fit** - accommodating a wide a range of body sizes and abilities
- **Comfort** - keeping demands within desirable limits of body function and perception
- **Awareness** - insuring that critical information for use is easily perceived
- **Understanding** - making methods of operation and use intuitive, clear and unambiguous
- **Social integration** - treating all groups with dignity and respect
- **Personalization** - incorporating opportunities for choice and the expression of individual preferences
- **Appropriateness** - respecting and reinforcing cultural values and the social and environmental context of any design project.



Desing4All - Universal Design of Student Services

- The Desing4All - Universal Design of all student services is a long-term goal.
- Deliberate, small steps can make that goal attainable for your service department.
- By the next slides you will find a series of steps to lead you through the re-design of an existing service or the creation of a new one.
- As you travel through the phases of implementing Universal Design, remember to plan ahead and keep the diverse needs of students at the forefront.



Desing4All - Universal Design (UD) of Student Services

1. Identify the service and best practices in the field. Select a campus service (e.g., a library) to which you wish to apply UD. Identify best practices for the delivery of this type of service (e.g., for the design of campus libraries).
2. Consider the diverse characteristics of potential users. Describe the population and then consider the diverse characteristics of those who might potentially use the service—e.g., with respect to gender; age; ethnicity; race; native language; learning preferences; size; abilities to see, hear, walk, manipulate objects, read, speak—and the challenges they might encounter in using the service.
3. Integrate UD with best practices in service design. Integrate best practices within the field of service delivery (e.g., for the design of libraries) with UD practices (e.g. WCAG principles) to maximize benefits of the service to individuals with a wide variety of characteristics.
4. Plan for accommodations. Develop processes to address accommodation requests (e.g., arrangements for a sign language interpreter) from individuals for whom the design of the service does not automatically provide access. Promote the process through the service's website, publications, and signage.
5. Evaluate. After implementing the service, collect feedback from individuals with diverse characteristics who use the service (e.g., through online surveys, focus groups). Make modifications based on the results. Return to step 3 if evidence from your evaluation suggests improvements for your design.



Desing4All - Universal Design (UD) of Student Services: Guidelines and Examples

The following questions can guide you in making your campus service unit universally accessible.

This content does not provide legal advice.

To clarify issues, consult your campus legal counsel, or call the regional Office for Civil Rights (OCR).



Desing4All - Universal Design (UD) of Student Services: Guidelines and Examples

Planning, Policies, and Evaluation

Consider diversity issues as you plan and evaluate services.

- Are people with disabilities, racial and ethnic minorities, students with diverse gender identities and sexual orientations, young and old students, and other groups represented on your staff in numbers proportional to those of the whole campus or community?
- Do you have policies and procedures that ensure access to facilities, printed materials, computers, and electronic resources for people with disabilities?
- Is accessibility considered in the procurement process?
- Do you have a procedure to ensure a timely response to requests for disability-related accommodations?
- Are disability-related access issues addressed in your evaluation practices?



Physical Environments and Products

Ensure physical access, comfort, and safety within an environment that is inclusive of students with a variety of abilities, racial and ethnic backgrounds, gender identities, and ages.

- Are there parking areas, pathways, and entrances to the building that are wheelchair-accessible and clearly identified?
- Are all levels of the facility connected via an accessible route of travel?
- Are there ample high-contrast, large-print directional signs to and throughout the office and to elevators and wheelchair-accessible restrooms? Do elevators have auditory, visual, and tactile signals and are elevator controls accessible from a seated position?
- Is at least part of a service counter at a height accessible from a seated position?
- Are aisles kept wide and clear of obstructions for the safety of users who have disabilities related to mobility or sight?
- Are there quiet work or meeting areas where noise and other distractions are minimized or facility rules, such as no phone use, in place to minimize noise?
- Is adequate light available?



Desing4All - Universal Design (UD) of Student Services: Guidelines and Examples

Staff

Make sure staff are prepared to work with all students.

- Do staff members know how to respond to requests for disability-related accommodations, such as arranging for a sign language interpreter or providing a document in an alternative format?
- Are all staff members aware of issues related to communicating on-site and online with members of a diverse student body, including those with disabilities?



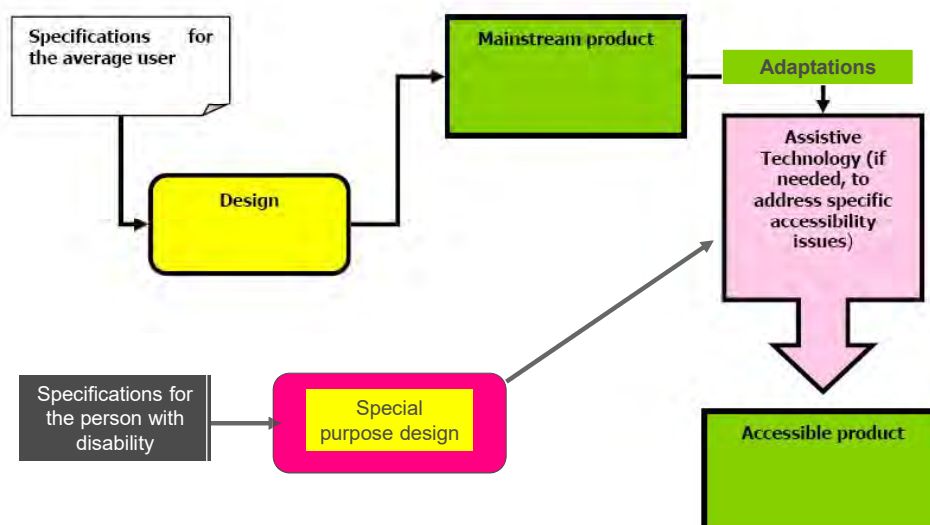
Desing4All - Universal Design (UD) of Student Services: Guidelines and Examples

Information Resources and Technology

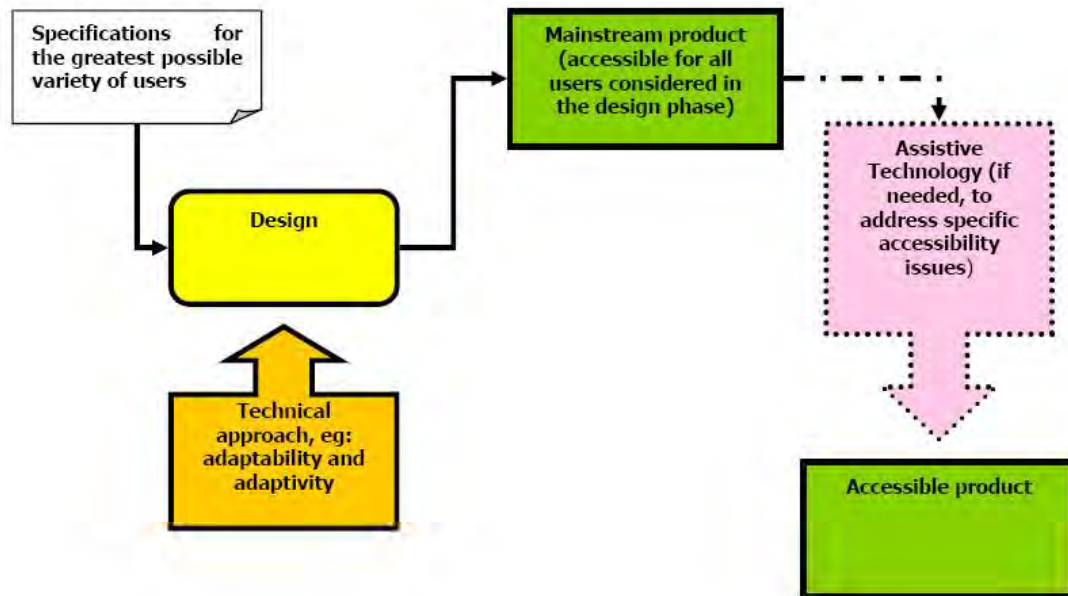
Ensure that computers on-site as well as digital resources are designed to be accessible to students with disabilities and that systems are in place for providing accommodations.

- Do pictures in your publications and on your website include people with diverse characteristics with respect to race, gender, age, and disability?
- In key publications and on your website, do you include a statement about your commitment to universal design as well as procedures for requesting disability-related accommodations?
- Is an adjustable-height table available for each type of workstation provided in your center to assist students who use wheelchairs or are small or large in stature?
- Do you provide adequate work space for both left- and right-handed users?
- Are staff members aware of accessibility options (e.g., enlarged text feature) included in computer operating systems and of assistive technology available in the facility or by special request?
- Are printed materials within easy reach from standing and sitting positions in an uncluttered area within the facility?
- Do web pages, adhere to accessibility guidelines or standards adopted by your institution (e.g., the World Wide Web Consortium's Web Content Accessibility Guidelines)?
- Are documents available in an accessible electronic format?
- Are videos used by your service captioned?
- Are procedures in place for a timely response to requests for assistive technology and remediation of inaccessible documents?
- Do web pages, adhere to accessibility guidelines or standards adopted by your institution (e.g., the World Wide Web Consortium's Web Content Accessibility Guidelines)?

Special purpose design



Design for All approach



Assistive Technology (AT) or Design for All (DfA): which is better?

- **None - all together**
- **DfA**
 - Lower cost for the user
 - It is always available as a solution for the disabled, the elderly, or to those with a temporarily or developmental disability
 - No stigma for the user
- **Public AT**
 - They can provide greater efficiency
 - They do not work with very severe or multiple disabilities
- **Personal AT**
 - They can provide greater efficiency
 - They work with very severe or multiple disabilities

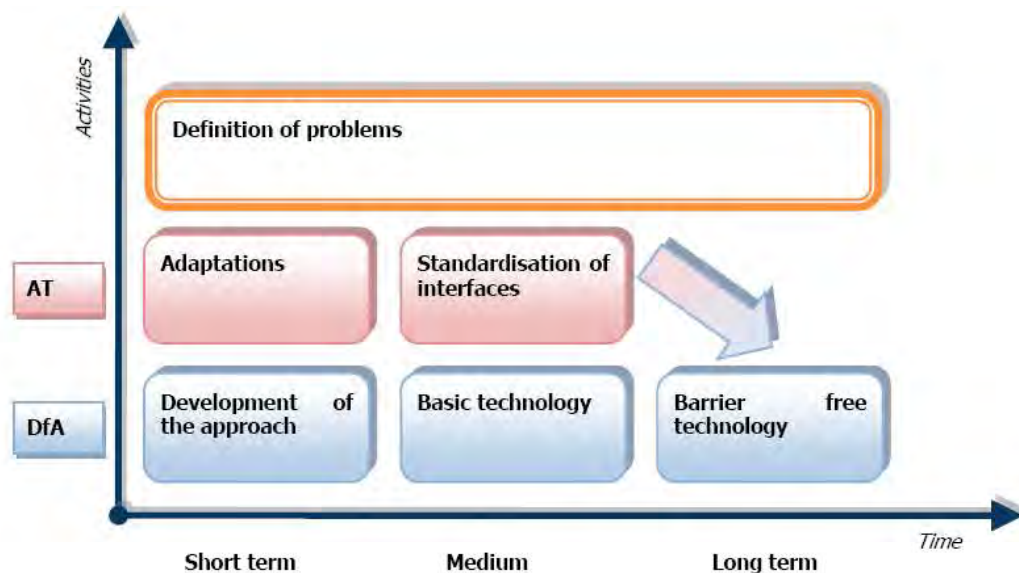


Ideal World

- Everything is designed through the Design for All (DfA) approach
- Special purpose designed Assistive Technologies (AT) are available
 - When the DfA does not work and the Personal AT are not available
 - There is a subsidy for their supply
- Everyone who needs Personal AT has them and they are compatible with the usual products
 - There is a subsidy for their supply



Convergence between Assistive Technology (AT) and Design for All (DfA)

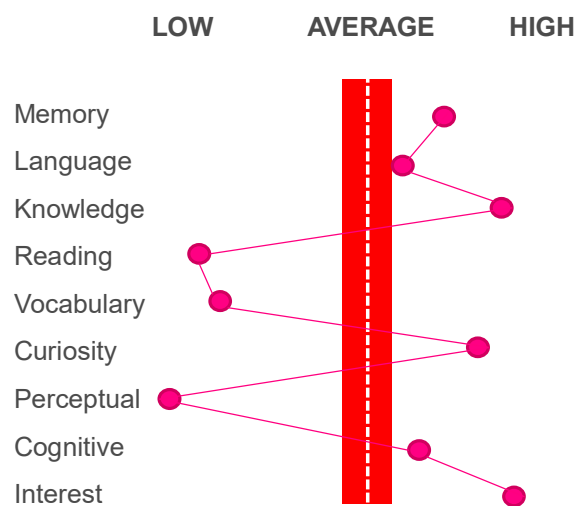


Do you have students in your class who...

- ☐ have a variety of academic *abilities*?
- ☐ have different educational *experiences*?
- ☐ have different *backgrounds*?
- ☐ have different *learning styles*?
- ☐ have different *preferences*?
- ☐ are used to instruction at *different paces*?
- ☐ have a *disability*?



The average student is a myth



Universal Design for Learning (UDL)

- an educational framework to guide development of **flexible learning environments** to accommodate individual learning differences
- UDL seeks to **increase access to learning** by reducing physical, cognitive, intellectual and organizational barriers



The two aspects of UDL

- a conceptual model from which a set of **principles** and practices are derived
- a set of specific practices and **guidelines** by which universal design is actually accomplished



UDL Principles and Guidelines

Principle I. Multiple Means of Representation

- Guideline 1: Provide options for perception
- Guideline 2: Provide options for language, mathematical expressions, and symbols
- Guideline 3: Provide options for comprehension



CAST: Center for Applied Special Technology, 2011

UDL Principles and Guidelines

Principle II. Multiple Means of Action and Expression

- Guideline 4: Provide options for physical action
- Guideline 5: Provide options for expression and communication
- Guideline 6: Provide options for executive functions



CAST: Center for Applied Special Technology, 2011

UDL Principles and Guidelines

Principle III: Multiple Means of Engagement

- Guideline 7: Provide options for recruiting interest
- Guideline 8: Provide options for sustaining effort and persistence
- Guideline 9: Provide options for self-regulation



CAST: Center for Applied Special Technology, 2011

Universal Design for Learning - UDL (1/2)

QUICK REFERENCE CARD UDL



Affective
Network



ENGAGEMENT

Stimulate interest and motivation for learning in different ways

1. Are there different options to recruit the learner's interest?
2. Are there different options to sustain the learner's efforts to achieve his goals?
3. Are there different options for self regulation?

Recognition
Network



REPRESENTATION

Present information and content in different ways

4. Is clear info about goals and organization available online and beforehand?
5. Can information be absorbed by different senses?
6. Can the learner comprehend the subject matter in different ways?

Strategic
Network



ACTION AND EXPRESSION

Differentiate the ways that learners can express what they know

7. Can the learner work actively with the subject matter in different ways?
8. Can the learner show what he has learned or achieved in different ways?
9. Are there various options for goal-setting and prioritizing?



Source: www.cast.org

Universal Design for Learning – UDL (2/2)

SUGGESTIONS



1. - Choices in challenge, reward and context - Personal development plan - Authentic tasks -	2. - Helpdesk with generous opening hours - Peer tutoring - Tailor-made formative assessments -	3. - Intake assessments - Progress tracking - Communities of practice (learners and experts) -
4. - Online assessment criteria (e.g. rubric) - Link to official knowledge bases - Description of when and where of module organization -	5. - Clearly readable/audible texts - Audiovisual, textual and kinesthetic learning materials - Online and face-to-face session (blended learning) -	6. - Mindmapping - Visualization techniques (illustrations, graphics, timelines) - Voice-overs and text-to-speech programmes -
7. - Differentiated group work - Gamification and serious games - Interactive and responsive software (Socrative, Kahoot etc.) -	8. - Formative and summative testing - Formal presentations and simulations, games or drama - Article writing, group presentations -	9. - Tailor-made mentoring and tutoring - Timely and specific feedback - Scaffolding -



Powered by: NHL University of Applied Sciences

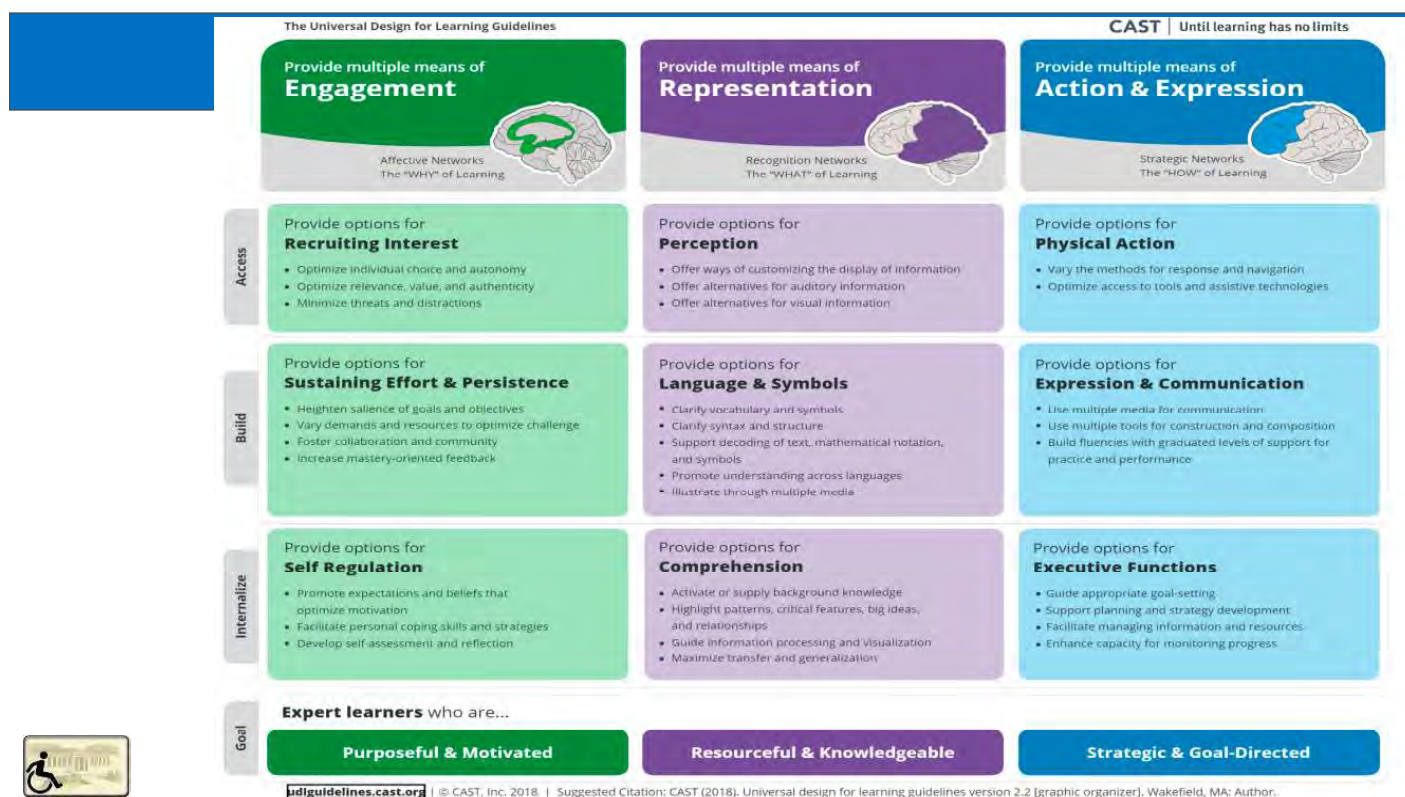
Myths and Misconceptions about UDL (1/2)

- **UDL comes in a box** - If we accepted this idea of UDL came in a box, then opening and unpacking UDL would lead to effective UDL implementation every time. However, UDL is a framework and implementation is dependent on the teacher and the class and conditions. Not all situations are the same, so implementation may be different for each situation. UDL is not like something you can unpack and it starts working. UDL is a framework and requires practice and planning to implement successfully.
- **UDL is just good teaching** - While the practice of UDL is good teaching, it requires an awareness that UDL is for all the individuals in the class and it is about helping to make the curriculum amenable and accessible to all the students, rather than the student becoming amenable to the curriculum.
- **UDL is only for Special Education or students with disabilities** - UDL is for children and students with special needs and it is for children and students who are not diagnosed with a special need. It is about motivation of all students in the class and allowing them to interpret information in the most appropriate way express themselves in a manner that gives them the grates flexibility.
- **UDL cannot be done without computers** - Technology can play a significant role in helping make the curriculum more amenable and accessible to students. However, technology is not necessary to implement UDL. UDL is only limited by the imagination of the educator.



Myths and Misconceptions about UDL (2/2)

- **UDL cannot be done in every lesson** - UDL principles can be applied in all lessons. Just like all teaching some lessons can be more successful than others and implementing UDL requires practice and patience to implement successfully.
- **UDL versus Assistive Technologies (AT)** - Assistive Technologies and UDL can be implemented together very effectively but one does not replace the other. For example, UDL strategies that benefit one student may benefit other students as well. While AT is specifically selected, implemented and evaluated for an individual student often based on the Individualized Education Program (IEP) to allow that student to access the general education curriculum with greater independence. Even in a well-designed classroom, some students may still require the use and implementation of AT to further enhance and demonstrate their learning. However, UDL strives to adjust the curriculum to make it accessible to all students: **UDL** makes the general education curriculum available to students with varying needs, while **AT** is specifically targeted at an individual student.
 - **UDL** is used by all students with diverse learning needs, but **AT** use is for specific students to help meet the expectations of the general education curriculum.
 - **UDL** is implemented by general and specific education teachers, while **AT** is selected and monitored by special educators and also is used by general education teachers.



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UDL at a glance



Accommodation vs Universal Design	
Accommodation	Universal Design
Available to specific students registered with SDS who have a documented disability	Available to all students in the classroom
Meeting a legal standard of access for a specific student by modifying course content	Creating additional ways of accessing the course content and making it accessible to everyone
Ensuring specific students can participate by providing a support or modification for an assignment	The goal is to create a variety of ways of interacting with the content and assessing the client's knowledge



Thank you!



Service users: Context and Presentation

Activity and Participation Restrictions' Registration



InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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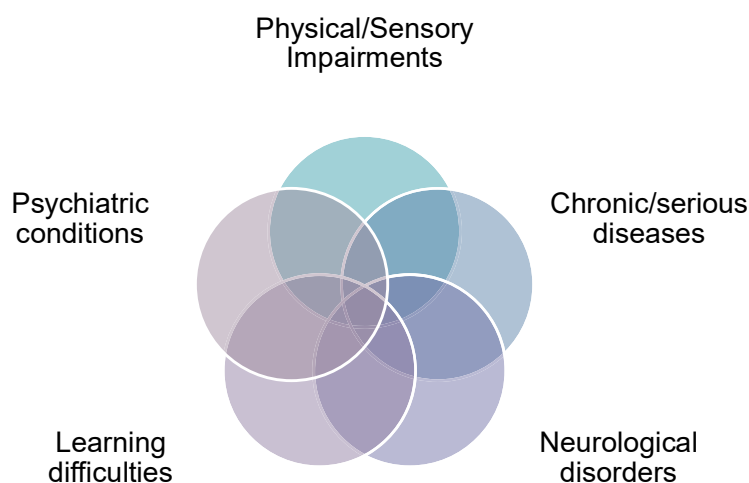
Vocabulary use and mindset

- International Classification of Functioning, Disability and Health, known more commonly as ICF: correlation with environment's accessibility.
- Impairment not equal to problem: mental health condition not mental health problem.
- Disability may be a personal success story.
- Person first.
- Decisions made in collaboration with the concerned.
- Individual approach.
- No distinction with the rest of the population: everyone has rights, and needs (not special needs, nor exceptional abilities).
- Avoid acts resulting on pity.
- Equality aimed with objective measures.

Important: service provision is based on the above mindset



Users 1/2



Users 2/2

- Temporary/Not Temporary,
- Acquisition date of disability.

Additional:

- Learning difficulties: will to study, cognitive impairments such as memory loss, ADHD, specific learning disabilities, etc.,
 - Disabilities or health impairments,
 - Psychosocial disabilities.
-
- Numerous Students >25 year old



Schooling (and transition difficulties)

- Special school (rarely) → for example people with hearing loss.
- Inclusion in a traditional (mainstream) schools
 - Special education tutors in the class,
 - Special education classes,
 - Interventions after school, often covered by the social welfare.
 - Personal assistants.
 - Accessible educational material.
- Less students in the class → attentive teachers.
- Accessibility matters resolved easily (class changing floor in case of a student with disability).



Admission of SwD at the University

- 5%
 - System of compensation. Pupils' median of all grades of High School. Type of exam according to pupils' preferences and abilities and school's/teacher dispositions.
 - Sometimes with reduced educational material to read: may be different than the one acquired from students passing the Panhellenic Exam.
 - Late inscriptions at the University.
- Panhellenic exams (orally or written).
- Transfer.
- Late diagnosis (learning difficulties, asperger's syndrome, mental health issues, etc).
- Acquired disability as students.



Use of Assistive Technology: cases

- Some SwD don't know:
 - how Assistive Technology might be useful to them,
 - how to acquire it,
 - how to use it.
- Assistive Technology might have been provided during school years (students with sight loss).
- The technology might be old or insufficient for universities new tasks.
- Some SwD didn't learn to use a computer at school.



Independent living, autonomous living technics and use of technical aids

- Financial support often insufficient.
- Rare existing free possibilities, especially in towns other than Athens/Thessaloniki.
- Waiting lists.
- New disability.
- New environment.
- Medical/Psychological/etc. reasons not to use technical aid which could grant autonomy.



→ use of caregivers, usually family

Communication skills / Decision making and family involvement

- Young student with disabilities, most cases:
 - Parents' protectivity.
 - Unconditional caretaking.
 - Decisions having direct impact to the family.
 - People used to talk with the parent and not to the teenager with an impairment.
- Students with mental health issues/ Autism Spectrum: difficulty to develop relationships.
- Students >25 : difficulties to mix with the rest of the student community.



Financial support

State providence funds

- State Scholarships Foundation (IKY): scholarship for vulnerable populations (disability=criteria).
- Organisation of Welfare Benefits and Social Solidarity (OPEKA) : financial support (not correlated with studies).
- New plan: personal assistant.

Municipalities

Assistance at home (mostly for elderly and based on income).

Collectivities

- Sign language users: X hours of free interpreter.
- Free autonomous living technics for the people with sight loss.

International funding

Erasmus + : extra financial supports for mobility

University

For all students

- Relieve funds,
- Free meals,
- Dorm rooms,
- + Assistive Technology: the University may buy and lend expensive equipment



Accessible University: restrictions

Students supported by the Accessibility Unit usually face limitations and restrictions, which can be overcome through our intervention, such as:

- access to interpersonal communication with members of the academic community,
- access to the University premises,
- access to the educational material (printed or electronic),
- access to the blackboard and the presentations in the classroom,
- access in keeping notes, submitting assignments and taking part in written examinations,
- access to information, Internet content and software applications.

→ disability unit services



Registration process

- Communication of the disability isn't compulsory in the NKUA
- 5%: Students' disability is known to the departments' secretaries and the Disability Unit



How do SwD learn about Accessibility Unit

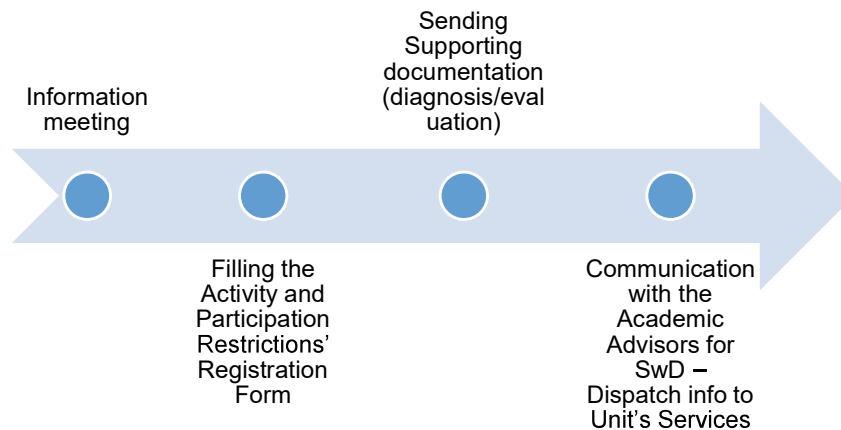
- Syllabus
 - Departments' and NKUA's websites
 - Mouth to mouth
 - Personal research
 - Academic secretaries
- Useful: Information before the start of the registration process (ministry of education)



Activation of academic adjustments

- Accessibility Unit Services
- Educational Adjustments
- Exam adjustments

Steps



Good practice : Inclusion meeting (ideally face to face)

- Creation of a communication channel.
- Observation/Assessment of SwDs' autonomy, communication skills, transitional issues (accommodations at school, ...).
- Information about Accessibility Unit Services and proposed accommodations.
- Facilitation of the registration process (Filling the activity and participation Restrictions' Registration Form).
- Examination of the documentation provided.
- Notification about the transmission of personal information in the academic departments.
- Description of procedures concerning services and accommodations (beneficial for the student).



ReF: "Activity and Participation Restrictions' Registration Form for Students with Disabilities, Disorders, Learning Difficulties or Chronic Diseases"

Protocol number (To be filled out by Accessibility Unit's staff).

Date (To be filled out by Accessibility Unit's staff).

Has the student completed his/her studies? (To be filled out by Accessibility Unit's staff).

☐ Yes ☐ No

The purpose of the **Activity and Participation Restrictions' Registration Form for Students** is to enable the Accessibility Unit to stay in contact with and provide better services to students with disabilities, disorders, learning difficulties or chronic diseases (SwD). Each SwD's personal data entered in the Registration Form are safeguarded by the ERMOFLOS system and can be accessed only by the Accessibility Unit's staff and the Counseling Professor of each student's department/faculty. Personal data are not disclosed to any third party. The collected data may be used for statistical purposes, i.e. to draw up anonymized statistical reports used for the University's or State's information about the students studying at the NKUA.

Fields marked with an asterisk (*) or within red border are required.

Part A. General Information

Name*

Surname*

Father's Name*

Date of Birth*

Activity and participation Restrictions' Registration Form

- General Information
- Contact info
- Information about disabilities, disorders, learning difficulties and chronic diseases
 - diagnosis/evaluation
 - State of autonomous living technics
 - Functions
 - Assistive devices
- Activity limitation and participation restrictions (detailed)
- Circulation in urban environment
- Circulation in university premises
- Academic participation (labs, study, socialization, exams)
- Use of Computers
- Assistive Technologies
- Academic Textbooks
- Notice concerning personal data collection and processing

Supporting documentation (diagnosis/evaluation)

- Issued by a public health institution (Law: private or public health institution).
- Preferably recent.
- As analytical as possible.

Why: understand the obstacles faced and activity limitations → to conceptualize appropriate individual accommodation.

→ Ideally: Participation of a medical expert, attached to the university, to comprehend (if needed) medical aspects of SwD's limitations.



Notification of the Academic Advisor

- Participation Restrictions' Registration Form
- Support documentation
- Individual accessibility plan

→ at the disposition of the Academic Advisor + collaboration





Thank you!



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A.4.1.2 training in Greece on the operation
of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens

Built environment accessibility Service



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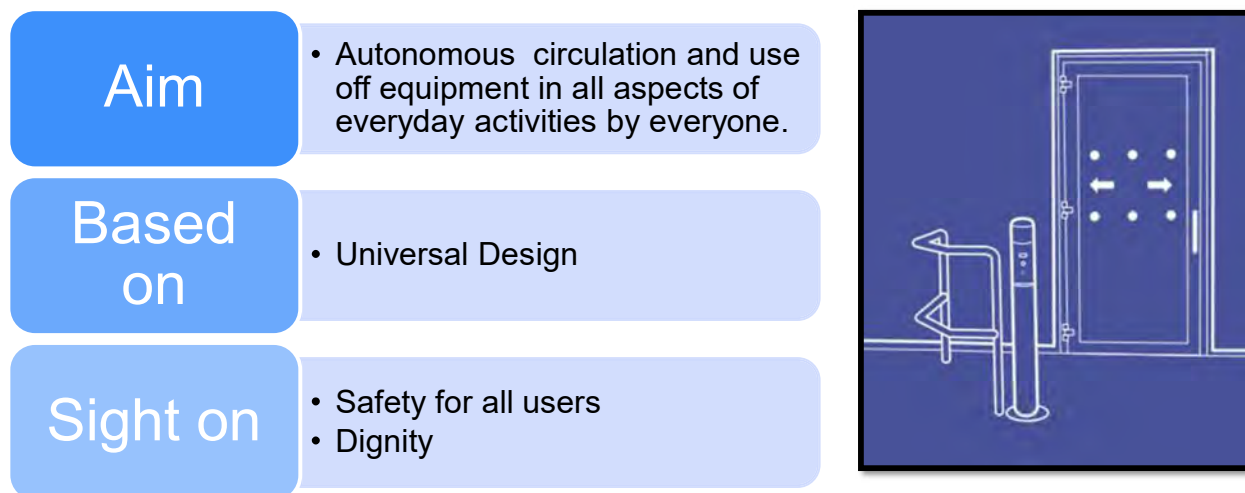


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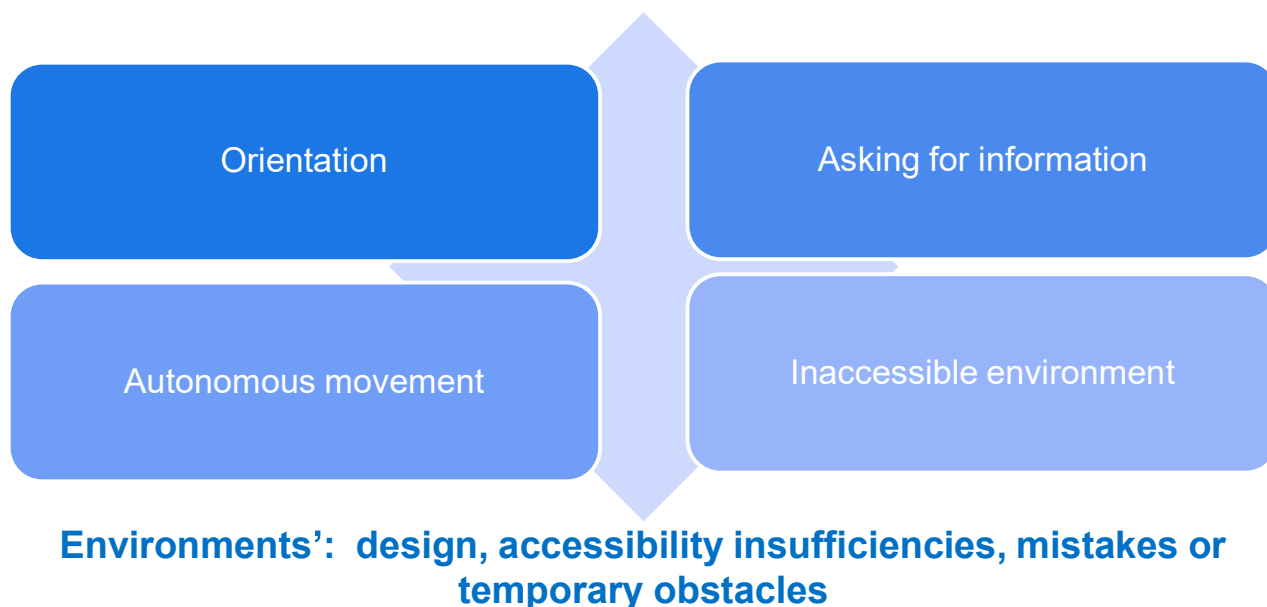
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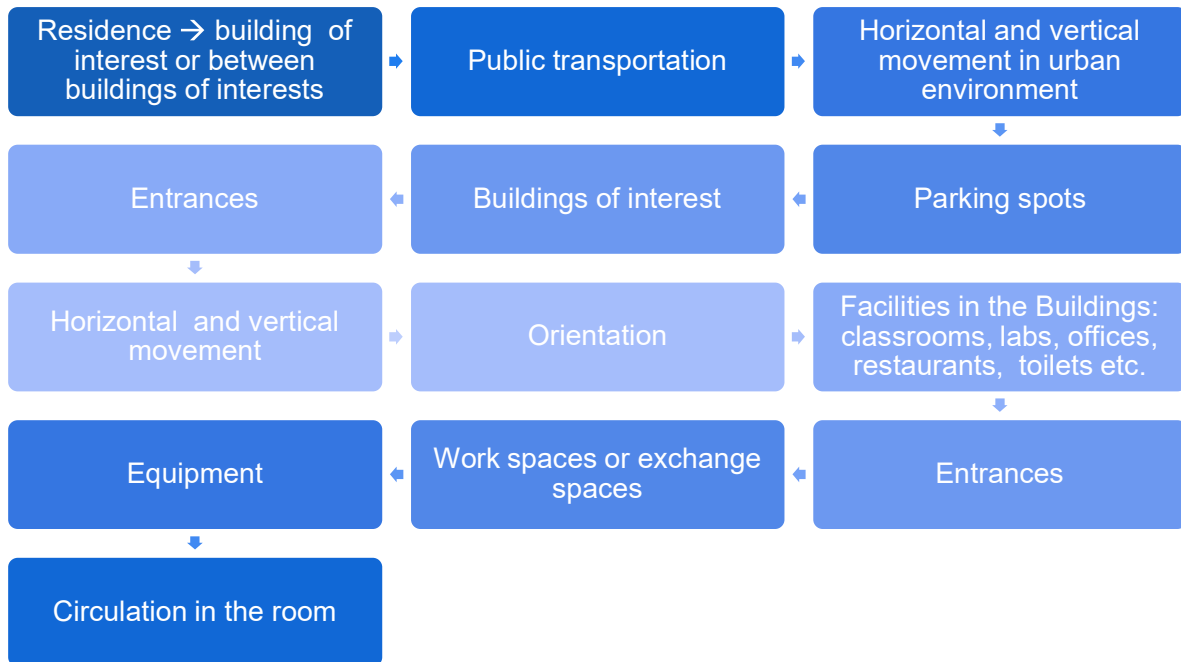
Accessibility and Universal Design



SwD's Obstacles



Concerned environment



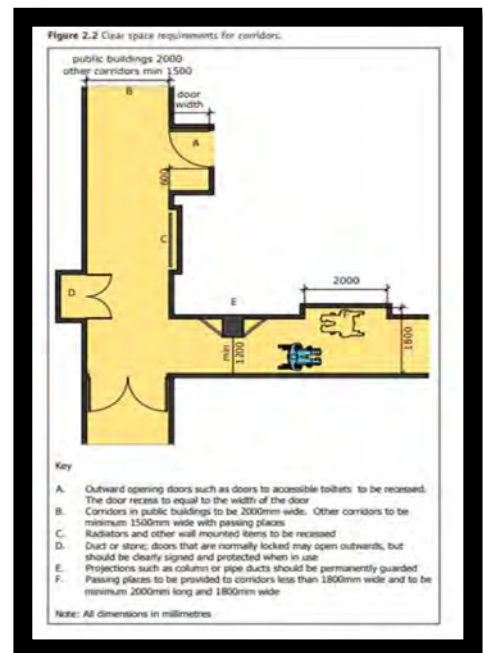
New Buildings

Existence of laws which grants accessibility

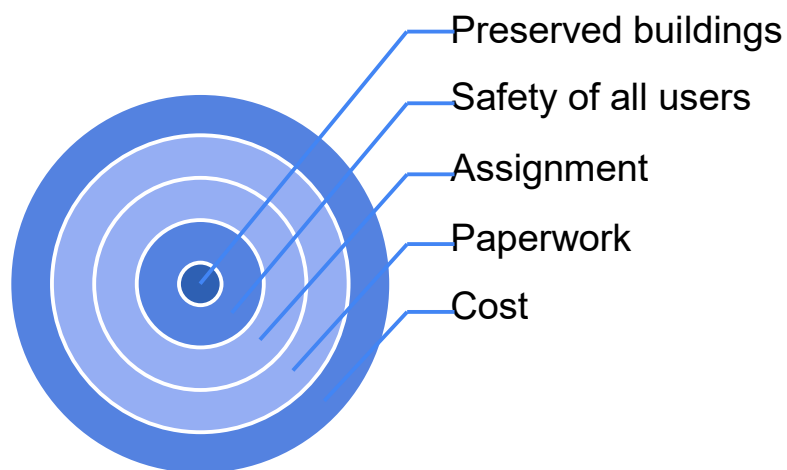
Though:

Architectural studies:

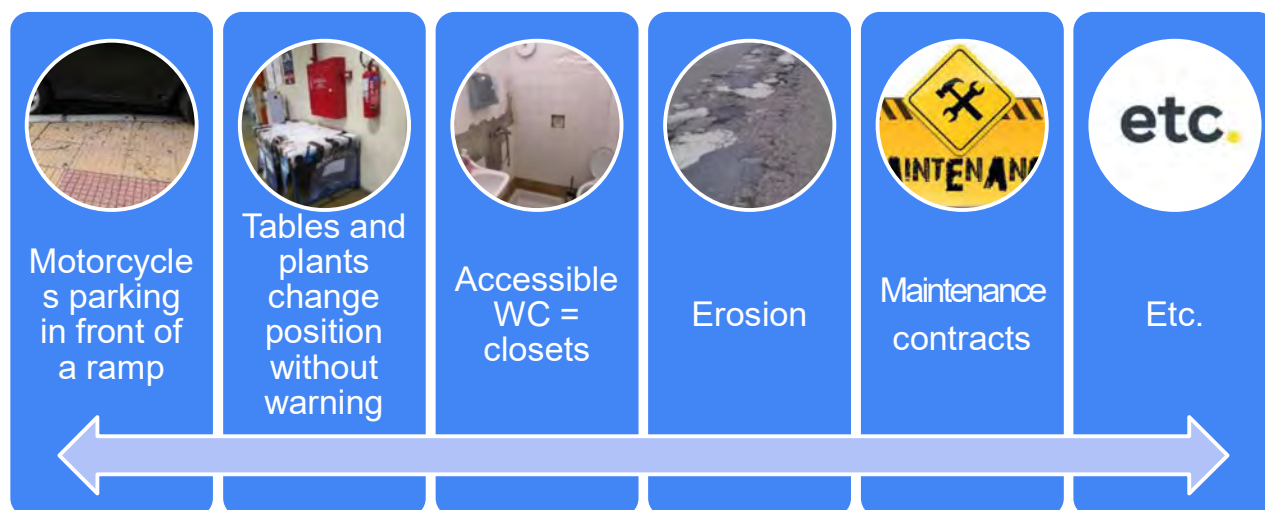
- No courses on accessibility and universal design
- Professors tend to ignore accessibility rules



Existing built environment



Temporary obstacles



Existing mindset



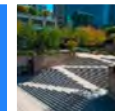
People with a disability are so rare

“And what about me”- “I’ll just park for 5 minutes”

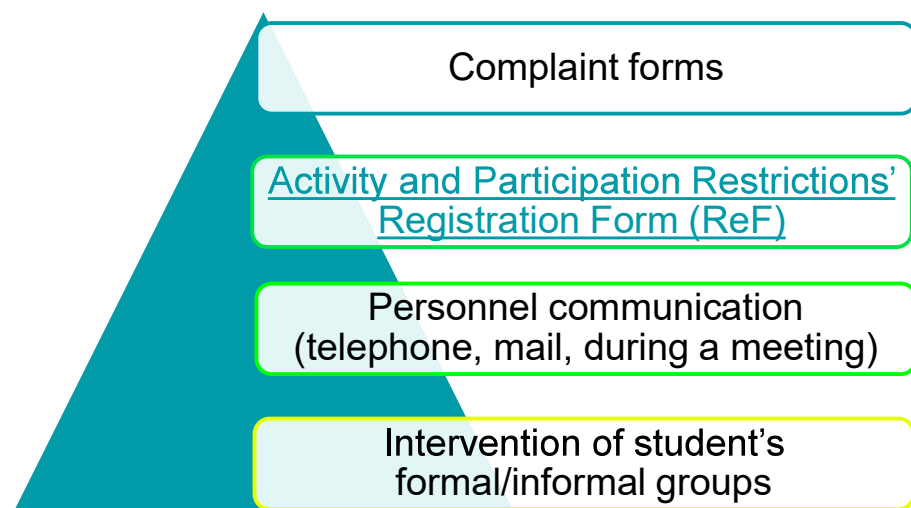


I’ll carry the wheelchair with my bare arms

The intervention is not pretty/is not practical



Ways to gather accessibility complaints/informations



Accessibility Service: Complaint gathering and processing

Complaints gathering →

Official notification of:

- Rector
- Department's President or/and Faculty's Dean
- Technical service: 2 members (formal responsibility) + director (dispatch to other employees)



→ autopsy + intervention proposal + paperwork in collaboration with rector or president of the department or the dean of the faculty) + actions

Solutions 1/2

- Information (before admission and during studies) → Internet application,
- Disability unit vans,
- Video Relay Service,
- Mind maps for students with sight loss,
- Volunteer escort/guides (or notetakers etc.),
- Alternative trajectories,
- Personnel Involvement (access to elevators, WC, alternative entrances).

Solutions 2/2

- Delos/Distance learning and exams
- Maintenance: exceptional use of elevators
- Provision of special equipment
- Change of classrooms
- Mobile Ramps
- Information campaigns (volunteers' training)
- Accessibility guidebooks
- Distance learning

Note: Most solutions may also apply for people which cannot attend university because they live too far, need to be hospitalized or to be in a germ free environment.

Service's Challenges

- Who will be the responsible of the intervention: the department? The uni? A program?
- I prefer to help them and to provide compensation than to make actual radical changes in the environment.
- I don't see the importance of involving an actual expert for the intervention.
- I have money for an accessibility intervention but I'll use wrong materials/technics.



Thank you!



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Support Service for the Academic Departments' Secretariat Employees appointed for Students with Disabilities



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Regulatory framework (1/2)

Article 12 - law 3549 / 2007 “Support services – Study consultants”:

- “Each Department must have its own student support service in order to provide counseling services to the students for the smooth transition from secondary to higher education, the support of students with disabilities and the successful completion of their studies, as it is mentioned in the Internal Regulation of each University.”



Regulatory framework (2/2)

Article 88 – “Internal Regulation of the University of Athens”:

- “Students with disabilities are supported by an employee of the Secretariat and his/her deputy, who are appointed for this purpose in each Academic Department. In their work, they are cooperating with the Accessibility Unit for Students with Disabilities.”



Role

- Support and assistance to Students with Disabilities (SwD) for issues concerning the administrative services of NKUA
- Provide Service by priority of SwD



Responsibilities

- Enrollment in the Academic Department of the University
- Support in administrative procedures, e.g. completing applications, enrollment in courses, etc.
- Support in communication between SwD and academic staff
- Providing information about the Accessibility Unit
- Informing Accessibility Unit about issues of SwD
- Cooperation with Accessibility Advisor Professors
- Support in implementation of the provided accommodations for SwD



Interrelation with Accessibility Unit (1/2)

Obligations of Secretariat Employees appointed for SwD towards Accessibility Unit

- Briefing at the beginning of every academic year about SwD who have been admitted to NKUA using special law provisions
- Support to Accessibility Support Voluntary Service
- Sharing announcements from the Accessibility Unit to students and staff
- Notification if the Secretariat Employee appointed for SwD or his deputy change
- Notification if the Accessibility Advisor Professor or his deputy change



Interrelation with Accessibility Unit (2/2)

Obligations of Accessibility Unit towards Secretariat Employees appointed for SwD

- Staff training
- Informative material
- Information on how to communicate with SwD depending on their disabilities
- Lending equipment, e.g. ramp, special desk, etc.
- Overall support to Secretariat Employees and SwD on administrative issues



Interrelation with Accessibility Advisor Professor

- Support in organizing the examination of SwD, e.g. finding an accessible examination room
- Support in Accessibility Advisor Professors' communication with the other teaching staff
(in some departments only)



Guidelines / Templates

- Brochures for Accessibility Unit
- “Student’s Activity and Participation Restrictions’ Registration Form” (ReF)
- Excel file to be completed by the secretariats with the data of SwD who have been admitted to NKUA using special law provisions
- “Interpersonal communication with SwD”
- “Support for students with Pervasive Developmental Disorders (Asperger's syndrome)”
- “Guidelines regarding suitable ways of testing students with disability”



Challenges

- Finding the best way of communicating with each SwD
- Inconsistency from SwD
- Due to Covid-19, remote provision of their services
- Ignorance or indifference from Secretariat Employees appointed for SwD



Concluding...

Important role because:

- Reference point for SwD
- Immediate support
- Psychological security







Thank you!



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Accessibility Unit
<http://access.di.uoa.gr>


A.4.1.2 training in Greece (Athens-UoA) on the operation of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens

Academic Advisors - PHINEAS Online System on Support Services for SwD





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Contents

- Greek Legislation for Academic Advisors
- Academic Advisors
- Classroom & Examination Accommodations
- PHINEAS Online System



Greek Legislation for Academic Advisors (1/2)

Article 12 – law 3549/2007 “Support services – Academic Advisors”

“Each Department must have its own student support service in order to provide support services to the students for the smooth transition from secondary to higher education, the support of students with disabilities and the successful completion of their studies, as it is mentioned in the Internal Regulation of each University”.



Greek Legislation for Academic Advisors (2/2)

Article 90 – Par. 5 “Internal Regulation of the University of Athens”

“In each School or Department, an **Academic Advisor** for SwD **with his/her deputy** are appointed. In their work, they are supported by the Accessibility Unit”.



Academic Advisor (1/8)

The lack of Academic Advisors (AAs) during the previous years and the University Professors' lack of information as far as the existence of the Accessibility Unit is concerned, resulted in their inability to deal with emerging difficulties, e.g.: examination of SwDs. From now on, in similar cases, University Professors can turn to AA, who know the particularities of studying in the specific Department/School, he/she can guide them appropriately.



Academic Advisor (2/8)

An AA is assigned to each Academic Department

An AA constitutes the link between:

- Students with Disabilities of the Department
- Professors of the Department
- Accessibility Unit



Academic Advisor (3/8)

- Faculty Member
- Address and advise on studies issues
- Enshrined in the relevant laws and regulations of the NKUA
- Appointed by the Head of each Department

Academic Advisor (4/8)

1st Meeting with SwD

- takes place after Activity and Participation Restrictions' Registration Form (ReF) is completed
- discussion about the obstacles the student faces in his/her studies
- accommodations to ensure the student's seamless participation in course attendance and examinations
- agreement on what other professors will be informed about the difficulties of the SwD and how to deal with them



Academic Advisor (5/8)

Activity and Participation Restrictions' Registration Form (ReF)

- register the SwD of the National and Kapodistrian University of Athens (NKUA)
- the main obstacles they may face during their studies
- medical certifications
- in the event that the student is unable to complete the form himself/herself, it should be completed by the Accessibility Unit staff on site or by telephone



Academic Advisor (6/8)

- He/she is the link between the SwD and the professors of the Academic Department
- shortly before the start of each examination period, the AA informs the professors of the courses in which the SwD has chosen to be examined
- professors can contact the AA for any questions or problems that may arise on the participation of a SwD



Academic Advisor (7/8)

- The SwD may meet again with the AA at any time during his studies for:
 - lessons/examination arrangements
 - courses attendance/examination accommodations
 - other reasons
- The role of AA is of great importance as far as the effectiveness of SwD's service is concerned, as the SwD does not have to contact each and every professor of his/her department regarding his/her needs, facilitating his/her participation and studies during each semester.
- The Accessibility Unit provides know-how to AA



Academic Advisor (8/8)

Contact details of AAs and Deputy AA are published on the Accessibility Unit website

<http://access.uoa.gr>



During COVID-19

- The communication of the SwD with the AAs is conducted remotely, through e-mails.
- Of course, this procedure has been organized and standardized in the best way by the Accessibility Unit and as a result of this, even before the pandemic it was usually conducted remotely.



Challenges

- The AA has the duties of a typical Professor. As a result, sometimes he/she delays in the executing of his/her duties as an AA and a malfunction arises in the communication between the parties involved (SwDs, Professors & the Accessibility Unit)
- the AA of all Departments are typical with their duties



Example of Classroom Accommodations (1/2)

Attention Deficit Hyperactivity Disorder (ADHD)

- Short and specific instructions/questions
- Eye contact
- Announcement of the tasks and examination timetable from the beginning of the course
- Extension of deadlines for tasks deposit
- Additional time for the completion of writing tasks / mid-term examinations
- Spelling, grammar and syntax errors not to be considered
- Frequent feedback
- Overlooking the inappropriate behavior
- Reinforcement of positive behaviors



Example of Classroom Accommodations (2/2)

Blindness

- Verbal formation of visual information
- Determining of who is speaking
- Calling the student using always his/her name
- Speaking with the face turned to the student
- Verbal description of the visual information of the course
- Reading the notes written on the board or projected on it
- Accessible notes, course material, academic textbooks



Example of Examination Accommodations (1/2)

Attention Deficit Hyperactivity Disorder (ADHD)

- Additional time of examination
- Spelling, grammar and syntax errors not to be considered



Example of Examination Accommodations (2/2)

Blindness

- Additional time of examination
- Use of Assistive Technology
- Examination questions in accessible formats
- Composition of the examination writing text in braille



PHINEAS* Online System (1/8)

- Web-based system for supporting the services of the Accessibility Unit
- Current online services:
 - Registration / Recording the Needs of SwD
 - Supporting the role of AAs

** Phineas lived in Salmidessos, on the coast of the European Thracian coast of the Black Sea, and he was king of Thrace. He had divine abilities given to him by the god Apollo and was blind. Phineas showed the way to the Argonauts and told them how to cross the Symplegades (Clashing Rocks).*



PHINEAS Online System (2/8)

- an online web-based application
- to access it you need:
 - a personal computer or laptop or tablet or smartphone
 - Internet connection
 - a Web Browser



PHINEAS Online System (3/8)

- You can log in to the system and use its services if you are a member of the university and have one of the following roles:
 - Student with Disabilities
 - Academic Advisor
 - Faculty Secretariat
 - Volunteer Student
 - Employee of the Accessibility Unit



PHINEAS Online System (4/8)

- supports the following student requests:
 - Request First Meeting with AA
 - Request for Examination Accommodations
 - Request for Lesson Accommodations
 - Announcement of Courses to Attend
 - Announcement for Courses Examination
 - Request for Other Reasons



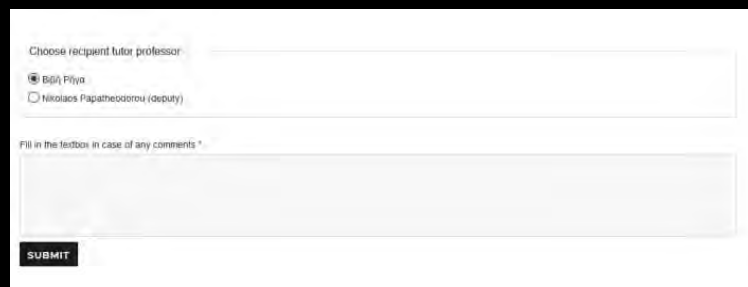
Add New Request ▾

- Request First Meeting
- Request for Examination Arrangements**
- Request for Lesson Arrangements
- Announcement of Courses to Attend
- Announcement for Courses Examination
- Request for Other Reasons



PHINEAS Online System (5/8)

Request for Examination Accommodations



Choose recipient tutor professor

☒ Bilal Piliya

☐ Nikolaos Papatheodorou (deputy)

Fill in the textbox in case of any comments *

SUBMIT



PHINEAS Online System (6/8)

Announcement for courses Examination

Announcement for Courses Examination

Please fill in the following fields:

☐ All Files
☐ Available After the exam is complete

At least one year

Start date *

☐ Yes
☐ No

Please enter any additional information or requirements.

COURSE #1

Please fill in all the course protocols (name, location, etc.)



PHINEAS Online System (7/8)

Announcement for courses Examination

Course Title

Course Type

Lecture

Please fill in the course starting time

Please fill in the course ending time

Please fill in the course examination place

Please note any additional information regarding this course

SUBMIT


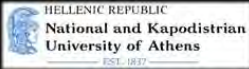


PHINEAS Online System (8/8)



E-mail Notification System


- PHINEAS Online System implements the following e-mail-based notification interface:
 - Registration Success/Rejection
 - Activity and Participation Restrictions' Registration Form Success
 - Successful Request Application
 - Request Completion
 - Communication between SwD - AA
 - User Role Changes
 - Admin Messages

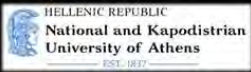



**Accessibility Unit**
<http://access.di.uoa.gr>

**Thank you
very
much
for your time!**

**InSIDE: Including Students with Impairments in Distance Education**
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP


Co-funded by the
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Accessibility Unit
<http://access.di.uoa.gr>

A.4.1.2 training in Greece (Athens-UoA) on the operation of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens

Services for Deaf and Hard of Hearing Students





InSIDE: Including Students with Impairments in Distance Education
 Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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General Information about SL in Greece

- 40.000 signers
- 2000: recognized as the main language in the education of deaf and hard of hearing students
- the knowledge of GSL is a compulsory qualification for the recruitment of professionals in the education of deaf students
- 2017: GSL was recognized as equal to the Greek language



Services for Deaf and Hard of Hearing Students at NKUA

- **Video Relay Service**
- **Text Relay Service**
- **Volunteer Service**
- **Finding GSL Interpreters**
- **Assistive Technologies**



Services' Target Groups

- **Deaf students**
 - Prelingual deafness
 - Post-lingual deafness
- **Hard of hearing students**
- **Students with cochlear implants**
- **Students with severe dysarthria (or unintelligible speech)**
- **Students without speech**



Services for Deaf and Hard of Hearing Students

Cover basic student's requirements for interpersonal communication with:

- **Accessibility Advisor Professors**
- **Professors**
- **Departmental Secretariat staff**
- **Staff of all departments of the University**
- **Peer students**





Aim of the Video Relay Service (VRS)

To allow students with any hearing or speaking impairment to tele-communicate with other persons



VRS Types of Operation

- **Real time text exchange**
Text Relay Service
- **GSL via video conferencing**
Video Relay Service



Text Relay Service

- A student writes to the interpreter text messages using computer, mobile phone, etc.
- The interpreter verbally recites the student's text messages to his interlocutor by phone
- The interlocutor responds to the messages orally
- The interpreter writes back to the student what he is listening from the interlocutor
- The student reads the text reply/ies that was sent by the interpreter



Video Relay Service

- A student communicates with the interpreter via online video conferencing
 - The interpreter translates verbally and in real time by telephone to the student's interlocutor and vice versa
-
- It can be combined with text relay service
 - For the hard-of-hearing students: it helps to facilitate communication by lip reading



VIDEO



Applications for VRS

- Skype
- Viber
- Zoom
- Messenger



First meeting - contact with the student

- Process
- Required Supporting Documents
- Expectations



Meet the student (1/3)

- Arrange an appointment via e-mail or VRS
- Fill the Activity and Participation Restrictions' Registration Form (ReF)
- Disability Certificates
- Discussion about his/hers specific needs



Meet the student (2/3)

- Sign Language User or Lip Reading
- Hearing aid or cochlear implant
- Oral speech level
- Writing level



Meet the student (3/3)

- English language level
- Discussion about his/hers goals
- Discussion about Assistive Technology
- Discussion about accommodations



Accessibility Support Voluntary Service for the Deaf or Hard of Hearing

- **Taking notes during in the classroom**
- **Sending notes via e-mail**
- **Attending the course together**
- **Meetings to discuss about the course**
- **Helping students during meetings with other students**



Volunteers' Training

- **GSL knowledge not needed**
- **Educational and informational meeting**
- **Personal contact with deaf students**
- **Continuous communication**
- **During COVID**



Communication tips for volunteers (1/4)

- GSL knowledge no needed
- Gently tap them on the shoulder
- Standing or seating nearby
- Always have eye contact
- Have light on the speaker's face
- Generally pay attention to the lighting
- Do not move when you speak



Communication tips for volunteers (2/4)

- Do not cover your face with your hands, especially lips, while speaking
- Do not eat or chew gum while speaking
- Speak slowly and clearly using sort sentences
- Do not speak too slow
- Do not whisper
- Do not speak too loud



Communication tips for volunteers (3/4)

- Inform when the subject changes
- Make sure there is no noise in the communication area
- Learn some signs
- Use gestures and face expressions
- Repeat your sentence in case of misunderstanding



Communication tips for volunteers (4/4)

- Ask to repeat their sentence in case of misunderstanding
- Written communication if you have difficulty to understand each other
- Don't be ashamed to ask
- Do not put your hand in your ear
- Do not talk to the interpreter



Student's professors

- Inform about the participation restrictions
- Communication tips



Communication tips for student's professors

- Should speak clearly
- Turn their face towards the student for lip reading
- In case of questions from peer students they should repeat the question
- Assurance a front row place



During COVID

- Provision by Accessibility Unit masks with transparency or visors
- Good lighting on the face during the delivery of the course via videoconferencing
- Send the student important information that can be said during the course
- Acquittal homework
- Actions that must be taken to enable seamless video contact



Communication Cases (1/5)

- **With Accessibility Advisor Professor**
 - **Arrange accommodations in for attending a course, lab, etc.**
 - **Arrange accommodations to participate in exams**
 - **Communicate agreed arrangements to other professors on a semester basis**
 -



Communication Cases (2/5)

- **With student's professors**

- Notes and lectures
- Schedule changes
- Upcoming tests
- Project writing
- Appointment arrangements
-



Communication Cases (3/5)

- **With secretariat staff**

- Detailed scoreboard
- Statement of courses
- Registration in courses
- University attestation certificates
-



Communication Cases (4/5)

- **With the administrative staff**

- Academic ID
- University restaurant
- Student residence
- University gym
- Student Ombudsman
-



Communication Cases (5/5)

- **With volunteers and peer students**

- Appointments
- Meetings about courses
- Scheduling group projects
-



Other VRS Services in Greece

- **National Deaf Institution - Iris app**



Assistive Technology (AT)

- **Appointment with expert in Accessibility Unit**
- **Suggestion for appropriate AT**
- **Donation of AT**
- **Training of use**
- **Technical support**
- **Real time captioning**



Finding GSL Interpreters

- **A student sends his course schedule (request)**
- **The interpreter forwards the request to the relevant organization**
- **Difficulties**
- **Criteria for finding an interpreter from Hellenic Federation of the Deaf**



During COVID

- **Difficulties**
- **Actions that must be taken to enable seamless video contact**



Learning the written Greek Language

- **Modern Greek Language Teaching Centre of NKUA**
- **Covers difficulties in:**
 - **Grammar**
 - **Syntax**
 - **Scientific Terms**



Production of Accessible Educational Content

- **Design-for-All approach**
- **Conversion of textbooks or notes to various accessible formats**



Terms of Use

- Only for students of the NKUA
- Must be active students
- Must have completed the Activity and Participation Restrictions' Registration Form
- Must be consistent
- May use the VRS only for academic issues
- May not use the VRS for personal communication
- May not use the VRS on behalf of others students or friends for their issues
- Text message exchange should not be the main way of communication



Difficulties in Operation of the Service

- Inconsistency of students
- Limited student attendance
- Problems on the definition of scientific terms
- No tool to collect and spread the scientific terms
- Collaboration problems with organizations related to the deaf



Contacts



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**Accessibility Unit**
<http://access.di.uoa.gr>

Thank you!



**InSIDE: Including Students with Impairments in Distance Education**
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

Co-funded by the
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Volunteer Service for Students with Disabilities



InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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- 1. Volunteer Support Service: WHY?**
- 2. Organization**
- 3. Provided Support**
- 4. VS's Actions: Contents**
- 5. Challenges, Stakes and Keys Of Success**
- 6. Results**



1. Volunteer Support Service: WHY?

- 1.1. SwD's Obstacles
- 1.2. Inevitability of Human Support Service
- 1.3. Culture of Volunteering
- 1.4. Aim
- 1.5. Overview
- 1.6. Vision



1.1. SwDs' Obstacles (1/2)

- **Autonomous movement:** university's premises / residence ↔ university,
- **Information gathering:** accessibility, registration processes, etc. (freshmen),
- **Courses/ lab:** Note taking, receiving optical or sound signals, object handling, stress handling, attention retrieving,
- **Studying:** acquiring Eudoxo's books (gathered from Athens Center), acquiring accessible books on time , having access to accessible class notes, understanding concepts and theory, practice with exercise,
- **Interpersonal communication** with peers and academic staff.



1.1. SwDs' Obstacles (1/2)

Presence @ Uni

- Quarantine
- Serious health conditions (hospitalization, therapies, immunosuppression),
- Psychosocial issues (agoraphobia, social stress),
- Lack of accessibility (lack of elevator , need of family care in another location).



1.2. Inevitability of Human Support Service

When obstacles cannot be overcome by:

- SwD's Skill development
- Students' assistive technologies or technical aids
- Accessibility Service
 - Buildings' Accessibility Service
 - Transportation Service
 - Etc



UN Convention for Human Rights
Human aid → Grants full participation

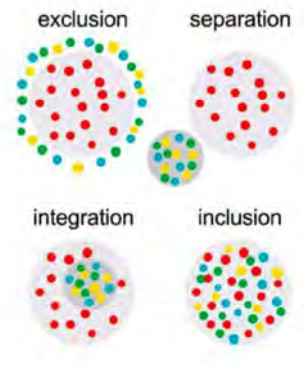
1.3. Culture of Volunteering



- Religion
- Olympic Games 2004
- School
- Solidarity
- Boy scouts
- Community work
- Explosion of work in special education
- Voluntarism: career ladder / Learn new skills

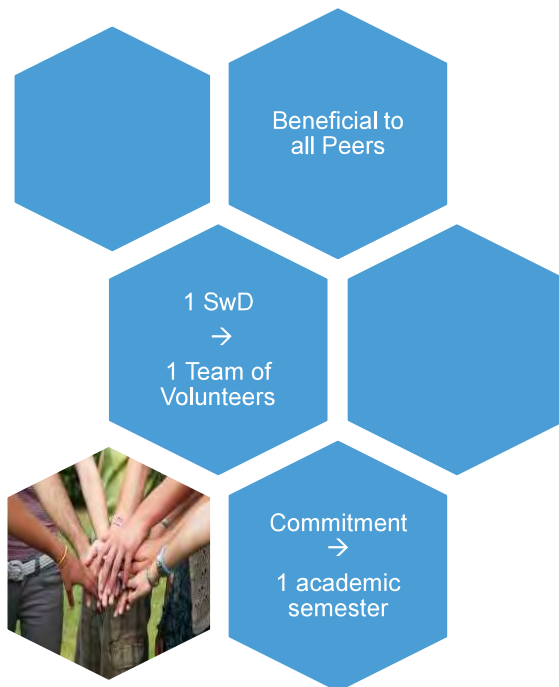
1.4. Aim

- Guarantee a smooth integration into the student's life and community.
- Improve Student's with Disabilities (SwD) transition and access to higher education.
- Relieve care givers which are members of the family and alleviate cost of professional assistance.
- Encourage SwD's acquisition of new communication and studies related skills.
- Enhance SwD's overall independence and participation.

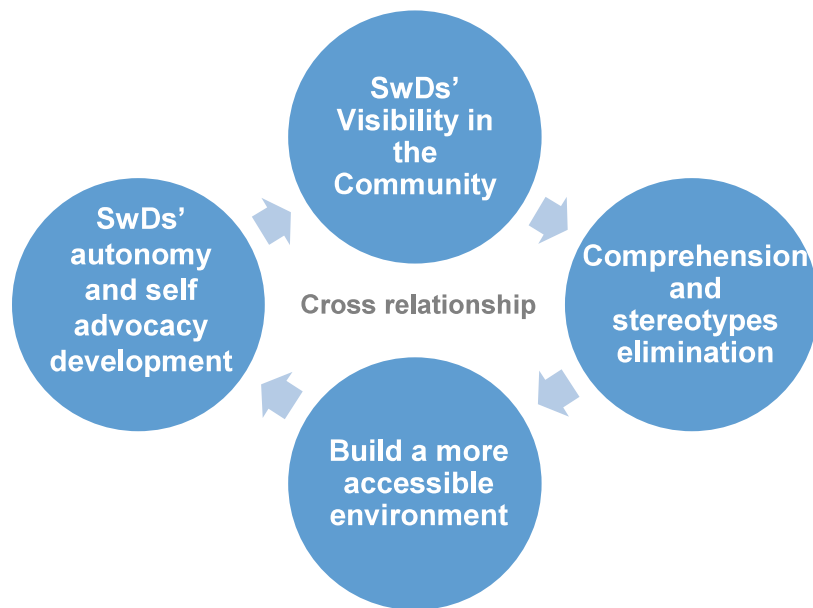


1.5. Overview

- Channel the solidarity of students towards peers facing obstacles in the educational procedure.
- Voluntary, discreet, safe, coordinated and official voluntary collaborations based on peer to peer model.



1.6. Vision

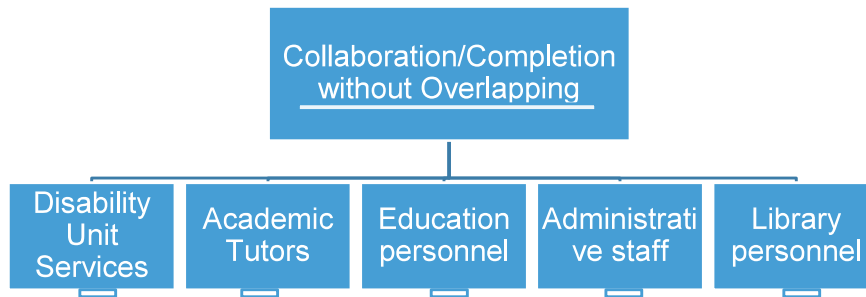


2. Organization

- 2.1. Distribution of competencies between VS and other university services and personnel
- 2.2. VS Coordinator's Actions
- 2.3. Meeting SwD's requests: Procedure
- 2.4. Complementary Actions

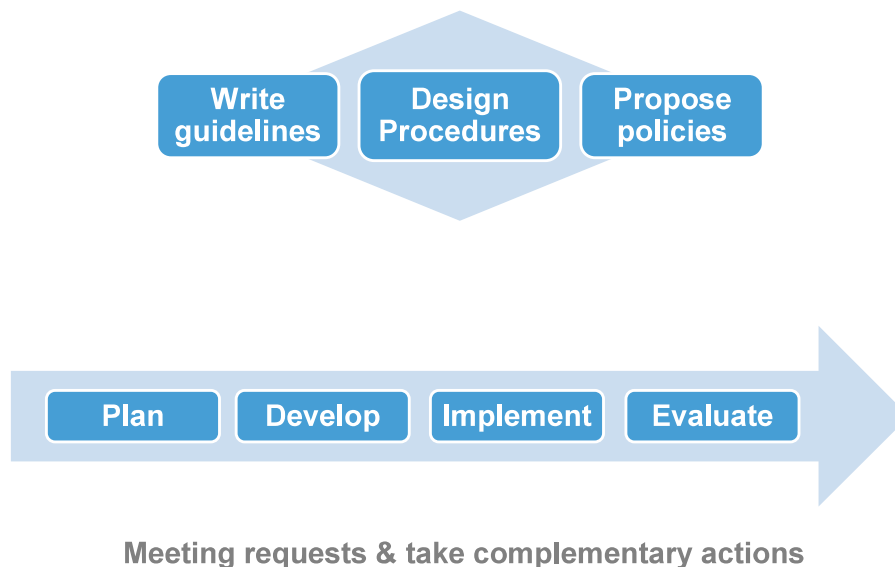
2.1. Distribution of competencies between VS and other university's services and personnel

Understanding that Volunteers shouldn't be the major liability concerning the accessibility issues resolutions



- Proposition of new services

2.2. VS Coordinator's Actions



2.3. Meeting SwD's requests: Procedure

1. SwD show interest for VS
2. Preparation of SwD
3. Request of SwD
4. Call for Volunteers (old or new)
5. Preparation of Volunteers
6. Mission proposition
7. Matching
8. First meeting of collaborators, beginning of collaborations
9. Feedback and resolution of issues
10. End of Collaboration (1 semester)
11. Evaluation of Collaborations

2.4. Complementary Actions

- Track requests and activities.
- Deliver specialized skill training.
- Team building.
- Recognition of volunteers.
- Trace user satisfaction.

3. Provided Support

- 3.1. General Framework of VS
- 3.2. Participation Requirements
- 3.3. Form of Support

3.1. General Framework of VS

Peer-to-peer collaborations are:

- exclusively for academic matters,
- additional to already existing services (without overlapping),
- prepared and closely supervised.

This collaboration consists of small missions:

- with a specific and well-defined type of intercourse, time, duration and location,
- distributed and assigned individually to a team of volunteers,
- Subject to regular feedback.

3.2. Participation Requirements (1/3)

SwD & Volunteer:

- Orientation meeting (Only Once).
- Screening (Only Once).
- Note or provided by a doctor mentioning the diagnosis of the SwD / the volunteer, as information on the nature of possible physical or psychosocial emergencies + related guidelines (Only Once or if needed).



3.2. Participation Requirements (2/3)

- Sign a declaration of honor stating that the Accessibility Unit will be informed in cases a peer may represent a danger for himself or the rest of the community (drugs, self mutilation, suicidal tendencies, etc.) .
- Sign a "Participation Agreement" (every semester)→ understanding
 - Mindset,
 - Framework,
 - Procedures,
 - Eventual consequences.
- Sign "Disclosure agreement".
- Commit, if needed, to develop new skills.
- Commit, if needed, to follow a referral.
- If previous collaboration with VS, positive evaluation.



3.2. Participation Requirements (3/3)

SwD:

- Be an active student.
- Disclose his disability and obstacles to the disability unit.
- Submit ReF and be certain the data are up to date.
- Disclose his disability and obstacles to his academic tutor and decide with him for appropriate measures for the exams.

V:

- Students from NKUA.



3.3. Form of Support

- **Direct**
 - Regular (on a weekly basis)
 - Exceptional (as they occur)
- **Indirect**
 - Awareness raising campaigns
 - Building's accessibility recording
- **Contact**
 - Anonymous
 - Danger for SwD or Volunteer
 - Will of SwD or Volunteer
 - Excessive family presence
 - Face to face
 - In groups/one to one
 - **DISTANCE:** Video Meetings, Messenger Applications



3.3.1. Regular Support (1/2)

- Escort/guide to and from university's locations & support in handling objects.
- Support in class or labs.
- Forward, in case of health or accessibility related absence: announcements, notes and any other related information.
- Production of accessible notes.
- Learning of computers
- Study groups:
 - vocabulary,
 - exercises,
 - study organization.



3.3.2. Exceptional Missions

- All of the above
- Gather textbooks from their distribution points,
- Produce accessible textbooks (limited),
- Support during exams (escort, reading & writing),
- Support in the undertaking of assignments (writing, book or object handling, computer use),
- Workshop for skills development,
- Orientation day: showing the facilities and give advice on the courses.



3.3.3. Referral Cases

A referral to professional care is may be a necessity because:

- Support requires professional skills.
- The responsibility or the nature of the support may be too much of a physical or sentimental burden for young peers.
- The volunteer support might become a barrier to the SwDs' autonomy's development.

It might be for parallel support or for the full coverage of the accompaniment .

- Psychiatry,
- Psychology,
- Professional caretaker,
- Doctor,
- Use of technical aid/assistive technology,
- Learning of a new skill,



4. VS's Actions: Contents

- 4.1. Volunteers' attraction
- 4.2. SwD Orientation and Screening
- 4.3. V Orientation
- 4.4. V Screening
- 4.5. Specialized Skills Training
- 4.6. Receiving and processing SwDs' requests
- 4.7. Matching
- 4.8. First Meeting of peers
- 4.9. Feedback and Problem solving



4.1. Volunteers' attraction (1/5)

Attract New Volunteers to Meet Specific Requests

HOW	MESSAGE	WHY
<ul style="list-style-type: none">• SwD's professors address a call to students in e-class to find the ones willing to support the SwD in his courses.• Posts in targeted social media student groups and forums.	<ul style="list-style-type: none">• Announcement describing requirements and proposing very specific missions.• Invitation to attend to an orientation meeting.	<ul style="list-style-type: none">• Attract volunteers which are related with the field and are already motivated to attend the courses.



4.1. Volunteers' attraction (2/5)

Call for volunteers addressed in already formed and involved student groups: religious, student clubs, etc.



VS aims at a **global campaign** in order to attract all kind of volunteer profiles because:

- Disability unit neutral in color (cannot show preferences)
- Several types of mission = several type of volunteers
- Raise awareness to all students communities
- Give an example of inclusion in all aspects of society.



4.1. Volunteers' attraction (3/5)

Raise Awareness of VS In The Student Community

WHY

- Direct impact: spontaneous applications
- Awareness raising amongst community
- Wide recognition
- Motivate indecisive potential volunteers



4.1. Volunteers' attraction (4/5)

HOW

- Presentations in media.
- Presence in social medias:
 - Groups of students,
 - Fb pages of academic departments,
 - Page for the team of volunteers and for the VS.
- Posters display at high visibility locations.
- Through secretariats:
 - Face-to-face: secretariats inform freshmen about VS during the scheduled meeting for their registration.
 - Online: publication of banners on departments' webpages.



4.1. Volunteers' attraction (5/5)

Through volunteers:

- Face-to-face: active volunteers are informing students in crowded locations (during specialized skill training workshops with white canes and wheelchairs).
- Collaborations with existing student groups (only if related with the department **NO political or religious groups**)
- Word of mouth referral:
 - registered volunteers are spreading the word.
 - SwD are recruiting helpful class mates and advises them to get registered as volunteers.



4.2. SwDs' Orientation and Screening (1/3)

The Meeting

- Description of framework of support and type of missions.
- Procedures and guidance on how to choose missions according to profile.
- Insist on the supervision role of the VS and the need of feedback.
- Present skill development strategies or referrals
- Presentation of "Peer's Mindset"
- Discussing disclosure matters
- + SIGN DOCUMENTS (Terms of services and disclosure agreements)



4.2. SwDs' Orientation and Screening (2/3)

Understanding SwD reality, profile and requests

When

- Discussion during the orientation day or complementary meeting.

Tool

- Questions+ empirical observation (for ex. way of walking, way to interact in front of parents, etc.).

Why

- Building a support strategy, prepare missions framework and analytical collaboration plan (type, duration, details, additional information's to give to the V).



4.2. SwDs' Orientation and Screening (3/3)

Subjects covered:

- Questions change according to disability, health problem, psychiatric or neurological disorder,
- Evaluate objective capacities and obstacles,
- Evaluate transitional difficulties,
- Determine SWD Profile,
- Additional difficulties than the one for which the support is asked for (work, distance, parenthood, professional athletes, etc. ...) ,
- Tendency to seek sentimental bonding,
- Necessity to have a referral & additional services or already existing help of other structures,
- Necessity to gather more medical documents and with which information's,
- Necessity to have an emergency contact/ emergency protocols,
- See how SwD expects his relationship with the V, the support granted, the desirable results and disclosure wishes...



4.3. Orientation Meeting for Volunteers (1/3)

2 hours meeting

Purpose:

- Inform.
- Shape Volunteers' attitude in order to respond to any possible scenario, according to Disability Unit's principles.



After the orientation meeting:

- presentation of the proposed missions (link to doodle)
- + sign papers (Terms of services, disclosure agreements)



4.3. Orientation Meeting for Volunteers (2/3)

- Population description (+individualized approach).
- Language/attitude used in peer support (+rights, not needs or super powers).
- SwD's obstacles regarding studies accessibility.
- University structures and services for the integration of SwD (+ arrangements but not a decrease of the academic difficulty: fair to the other students).
- VS procedures and participation requirements
- Best way to choose missions according to motivations
- **Peers' Mindset.**
- Disclosure issues
- Discussion.

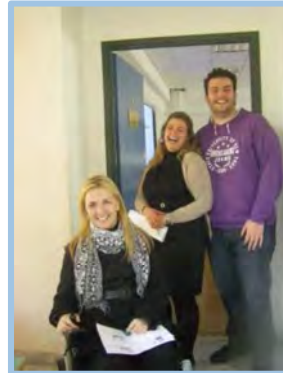
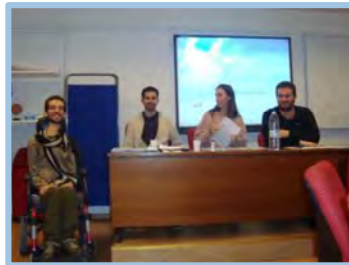


4.3. Orientation Meeting for Volunteers (3/3)

Meetings AND trainings

Maximum Involvement

- Students with Disabilities
- Former Volunteers
- Trainers from recognized collectivities



4.4. Volunteer's Screening (1/3)

During the interview, opportunity to insist on matters in order to adjust mindset.

30 minutes of recorded semi directive interview – Recorded

Questions:

- How did you learn about the VS.
- Why did you decide to become a volunteer, and why do you wish to offer your time in this specific framework.
- Are you acquainted with people with disability, chronic disease, etc.? At what level?
- What are your expectations regarding your participation in this program.
- State 3 positive and 3 negative characteristics of yours (impact on your collaborations).

4.4. Volunteer's Screening (2/3)

- How do you cope with time management?
- Describe situations that make you abandon something you chose to do. Does it happen frequently?
- Role play: How would you react in front of a situation you find unfair? How do you react in an emergency situation concerning health issue? (with examples)
- How do you picture yourself as a volunteer?
- What are your strongest worries about your participation?
- If you were the volunteer coordinator, what would be the most important question you would ask to a new volunteer? Why? Please, answer the question.



4.4 Volunteer's Screening (2/3)

Challenge:

- Depending on the number of new volunteers
Time Management problem
3 weeks workload (8 hours a day to see all volunteers) for this process, parallel with other activities as Welcoming new students, awareness raising campaigns, proceed to matching's etc.

Solutions:

- Video Meetings
- Group Screenings
- Written Screenings
- Less questions
- Prioritizing volunteers which will have interpersonal communication with the SwD / sensitive "task"



4.5. Specialized Skill Training (1/5)

- “Disability: stereotypes and prejudices” (2 hours).



4.5. Specialized Skill Training (2/5)

- “Wheelchair user assistance” (2 hours theory, 2 hours practice).



4.5. Specialized Skill Training (3/5)

- “Sighted guide of students with sight loss techniques” (2 hours theory, 2 hours practice).



4.5. Specialized Skill Training (4/5)

- “Support of students with hearing loss” (2 hours).

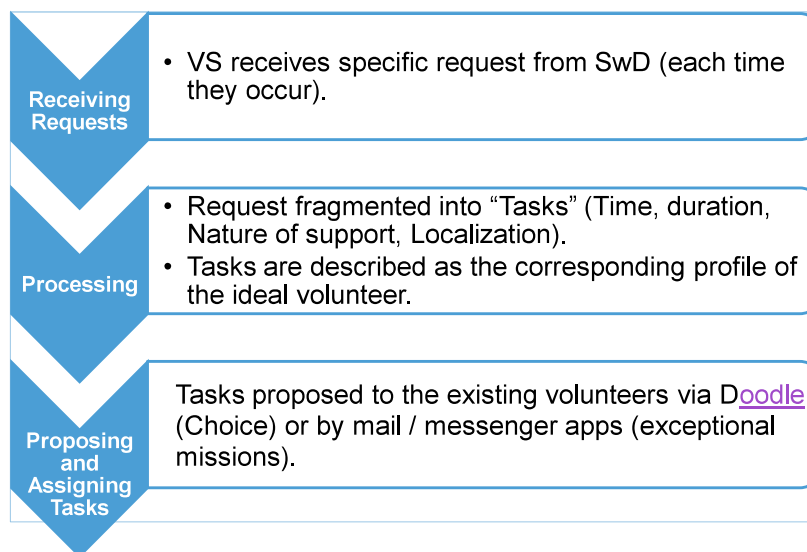


4.5. Specialized Skill Training (5/5)

- “Support of students with Asperger syndrome” (2 hours).
- “Support of students with ADHD” (2 hours).
- “Support of print disabled students” (accessible notes and books) (2 hours).
- “Accessibility of public buildings” (2 hours theory, 2 hours practice).



4.6. Receiving and processing SwDs' requests (1/3)



4.6. Receiving and processing requests (2/3)

Notes on exam period and exceptional support

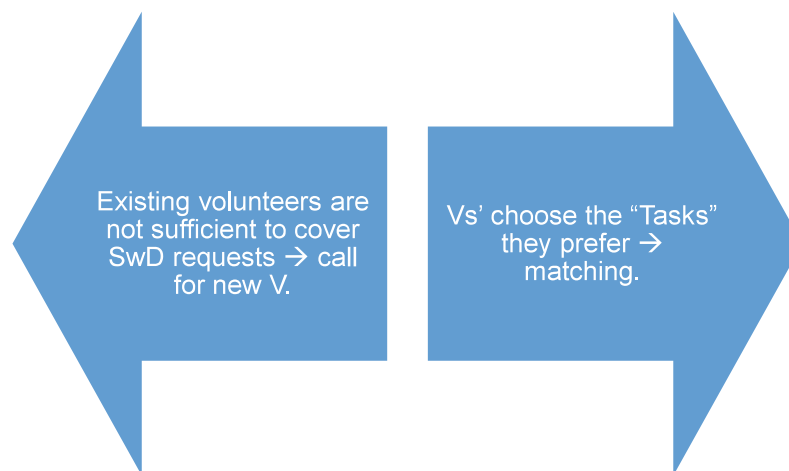
Requests for the Exam period are only accepted from the Examiner and only if the Academic Advisor was informed:

- Inclusion + responsibility → decision and process / certainty that the other requirement of SwD are met (accessible room or pc),
- Assignment of a contact person responsible and available for the collaboration,
- Certainty that changes concerning the time, the duration and the location of the exam will always be shared disclosed on time.

Treated by VS as an exceptional support.

- Preparation is achieved by **do and don'ts' document** forwarded to the examiner, the SwD, the volunteer, and the person in charge of each exam.
- The first meeting between the V and the SwD is not achieved.

4.6. Receiving and processing requests (3/3)



4.7. Matching (1/2)

Exceptional missions

- It might be addressed by the SwD, a member of the teaching community or by the Accessibility Unit.
- First answer which fits the profile within the requested time gets the mission.
- First meeting is not achieved: Vs' and SwD are though prepared accordingly.



4.7. Matching (2/2)

Systematic missions

- Tasks are proposed to all volunteer, they choose what they would be interested to do (even if tasks may overlap)
- VS proceeds to final matching.
- VS proposes final tasks to each V + Analytical presentation of each assigned mission and their stakes. V may be assigned to one or more tasks and to one or more SwD. (Maximum of hours: they mention it in their declaration of interest form).
- If V agrees, specific, rapid preparation of each mission according to results of SwD Screening.
- Ask to give availabilities for 1st appointment with collaborator(s).



4.8. First Meeting Of Peers (1/3)

Meeting at the SwD's academics department's building. If needed, booked room for privacy. 30 minutes to 1 hour.

- Breaking the ice: 2 words about each other.
- Description of the mission of each volunteer.
- Presentation of guidelines and limits relating to the mission.
- Depending on the profile of the SwD and the volunteer, give emphasis on parts of "Participation's Conditions". For example in case of the matching of a SwD with an extraverted volunteer, a reminder of the discrete nature of the support, etc.
- Highlight disclosure to other students related matters (disability, nature of the peer's relationship).



4.8. First Meeting Of Peers (2/3)

- Escort rehearsal and specifications concerning escort scenarios.
- Protocol, guidelines and contact person relating to health/accessibility/cancellation emergencies.
- Answering questions.
- Outline the need of a weekly feedback.
- Creation of a group in a Social Network (messenger, viber) for direct communication purposes.
- Inclusion of all the members of the meeting + VS coordinator.

VS coordinator sends:

- Terms of participation,
- Peer contracts,
- Link which conducts to the weekly feedback questionnaire.



4.8. First Meeting Of Peers (3/3)

In case of anonymous collaboration:

1. Creation of anonymous mail for each peer.
2. Access to a Google Drive File.



→ volunteers may gather their notes anonymously
→ SwD consult them anonymously. Communication is encouraged in the form of a new “document” (access of VS’s Coordinator to its content).

Cute: They choose an Alias. Contact exists and may help peers.

4.9. Feedback and Problem solving

Collaboration Journal (Specific Questions)

- Each Peer
- Each Week
- Via a Google Form, a weekly meeting, mail, messenger/ viber written or spoken message.

Case to case

- Meetings for solutions.
- Possible intervention of Accessibility Unit’s Psychologist.
- Change of assignment, exclusion from specific missions or from the program.



5. Challenges, Stakes and Keys Of Success

- 5.1. Main keys of success
- 5.2. Using effective managing tools and means of communication
- 5.3. Recognition of Volunteers
- 5.4. A beneficial collaboration for all peers
- 5.5. Team Building
- 5.6. VS attitude in front of Vs' types and profiles diversity
- 5.7. VS's Coordinator: Profile
- 5.8. Building Volunteers' and SwDs' Mindset
- 5.9. Matching Strategies
- 5.10. Peer preparation for missions
- 5.11. Responding to Challenges



5.1. Main keys of Support's Success

Accept Guidelines, collaboration mindset and framework of support



Good preparation of each mission



Systematic feedback



Sincere communication between peers



Implementation of communication strategies between VS and Vs' according to Vs' profile



5.2. : The tools (1/3)

Track Requests and Activities : IMPORTANT

- Excel (Google Drive)
- SwDs' requests treatment: analytic traceability of each request + progression to meet the request.
- Volunteers' activities:
 - declaration of interest,
 - orientation,
 - interview,
 - date of assignment of each mission,
 - date attendance to each specialized skill training,
 - etc.



5.2. : The tools (2/3)

Communication Tools

• Talking 1-1

- Telephone
- Mail (lists are very useful)
- Mail list from the University
- E-Class announcements
- Videoconference Meeting
- Face to Face Meetings
- Messenger applications (SmS, Viber, Messenger, What's Up):
 - Video or Sound Messages
 - Written Messages



• Groups Communications

- Messenger applications
- Videoconference
- Face to Face Meetings

• Proposing: Doodle

• Sharing: Google Drive



5.2. The tools (3/3)

Tracking User Satisfaction

- Final Evaluation: anonymous feedback form concerning volunteer's and SwD's perception of the volunteer service sent separately to peers.
- Jovial evaluation meetings with volunteers.
- Departure interview of volunteers.

Topics

- supervision,
- politeness,
- punctuality,
- easiness of communication,
- speed and handling of problems resolutions,
- sufficiency of information and orientation,
- overall satisfaction,
- willingness to continue the collaboration with the VS,
- intention to recommend the experience,
- description of personal benefits from collaborations,
- mention of ideas, recommendations and concerns.



5.3. Recognition of Volunteers

- Positive gratification.
- Participation certificate.
- Certification of acquired specific skills (attendance to workshops).
- Recommendation letters / advice on curriculum.
- Food and beverages during meetings.
- Award ceremonies.
- Show interest for volunteers life (exams, holidays, ...) during communication + keep contact + never forget to say ...



5.4. A beneficial collaboration for all peers

- No sentimental, physical or program burden
- Learn new skills
- Develop open-mindedness
- Discover different lifestyles
- Improve Self value
- Mature in communication and in decision making
- Official recognition/career ladder
- Improve consistency of attendance in courses and quality of note taking



5.5. Team Building

- First meeting of SwD with his team of volunteers: indirect encouragement to also communicate with each other.
- Group on Social Networks (VS and Volunteers can propose events, media, activities).
- Workshops.
- Other voluntary projects propositions.
- Strategic planning meetings (Raising awareness campaigns).
- Evaluation meetings.



5.6. VS attitude in front of Vs' types and profiles diversity

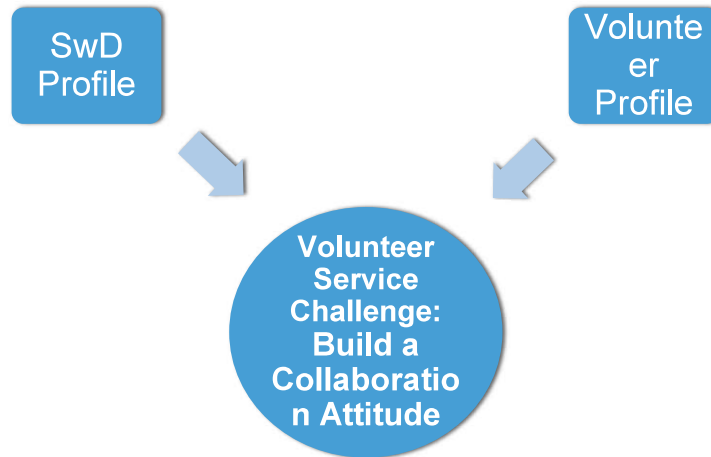
1. Be analytic and strict concerning the responsibility VS may not have if the framework is not respected.
2. Proposes Vs' to adopt a specific mindset and guidelines. VS often open dialogues to understand different opinions to eliminate stereotypes or to enrich Vs' own mindset. Discussion may happen during the interview or the orientation day.
In case of disagreement □ discussion on the suitability of the participation to the program or specific missions.
3. VS shows V's their motivations are taken into account and a wide variety of type of missions, locations and timeframes.



5.7. VS's Coordinator: Profile



5.8. Building Volunteers' and SwDs' Mindset



Involvement of volunteers in regard to SwDs' autonomy and self advocacy development

Mindset:

SwDs should operate as autonomous and determined adult members of the student community, as their peers.



Interaction: roles, limits, behaviors, responsibilities



Balance:

- Studies Assistant
- Peer Student
- Volunteer

Develop principles of mutual support and solidarity as an equal ☐ ≠ acts resulting from feelings of insufficiency (SwD) or pity (Vs).

Volunteer

- Works within a framework and follows guidelines. He accepts procedures and supervision.
- Has a responsibility to provide feedback to the VS.
- Channels vision and image of Disability Unit through community.
- Is neutral in colors (politics, religion, football teams).
- Chooses realistically the missions he can handle.
- Respects hierarchy communication channels of the University of Athens.
- Handles personal information of SwD and of other volunteers carefully.
- Knows when he can act and when it is indicated to coordinate help because it would be irresponsible to act.

Peer Student

- Is himself.
- Respects his own limits.
- Recognizes ethic issues and boundaries.
- Enjoys the mutual learning and growing experience.
- Interacts with the SwD and not with his family.
- Expects SwD to act and react as he desires inside the academic and student community, as he would do with another peer.
- Is not acting on pity (for example is not giving money to SwD).



Studies Assistant

- Understands that the missions which are assigned to him are strictly related to academic matters.
- He is not expected to provide health (physical/psychological) or hygiene (toilets, etc.) related assistance.
- Does not undertake tasks the SwD can do himself.
- Understands the commitment, punctuality and concentration needed to provide a quality service.
- Shows an available but discreet presence.
- Avoids close personal relationship development.



5.9. Matching Strategies

Many declaration of interest for the same missions □

Preference for very suitable matching's.

- Be practical (concerning the program, the location, the scientific field of the collaboration).
- Respect wishes concerning the gender (or other characteristic) of the volunteers, if considered justified
- Understand the physical barriers of the support.
- Understand the importance of motivations, profile and the character of the future collaborators.
- Reorientation of a collaborator with certain characteristics for some type of support (Sometimes, empirical).



5.10. Peer preparation for missions (1/2)

In any case, according to the matched profiles, before final attribution:

- Clarification of all the mission's details + emergencies that may arise,
- Justification of the choice,
- Objections' discussions,
- Clarification on the attitude to adopt,
- Explanations of the impossibilities of parts of the mission,
- Close supervision.

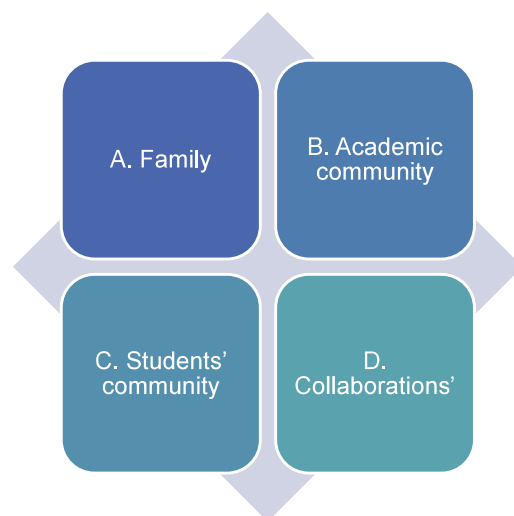


5.10. Peer preparation for missions (2/2)

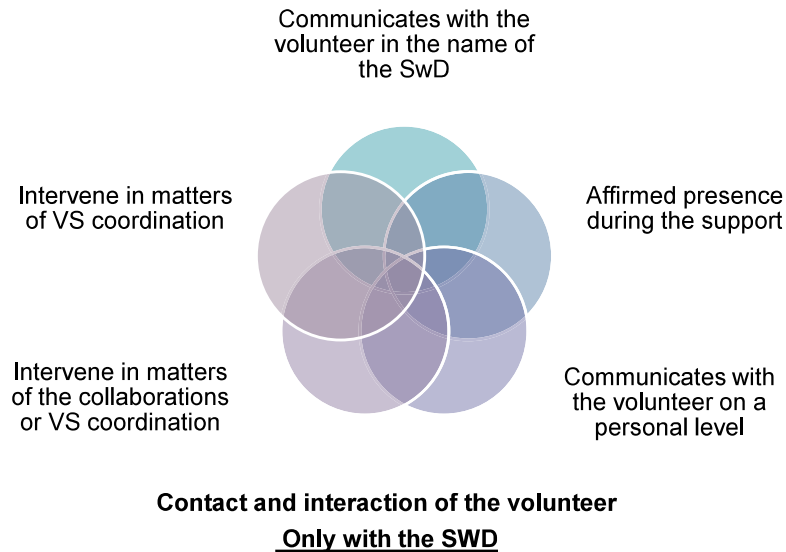
Additional psychiatric or health related issues or other characteristics (not related with the original request for support) :

- Analytical description of the situation to both parties (with the agreement of the peers for disclosure)
- Need to create emergency protocols,
- Support may remain anonymous (no personal contact),
- Worst case scenario: no intervention possible.

5.11. Responding to Challenges

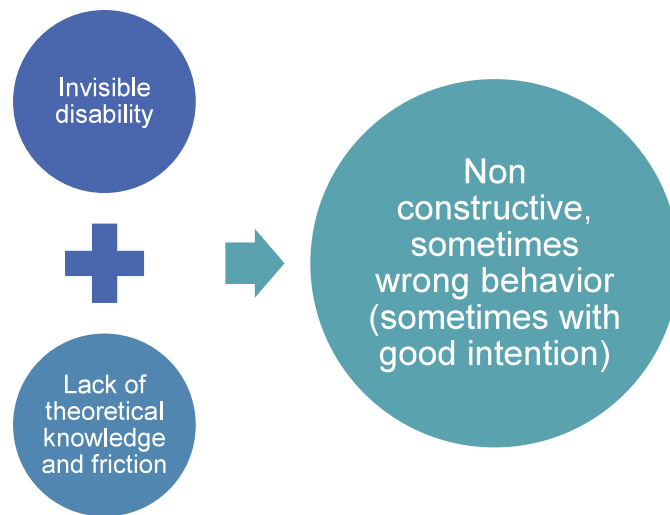


A. Family



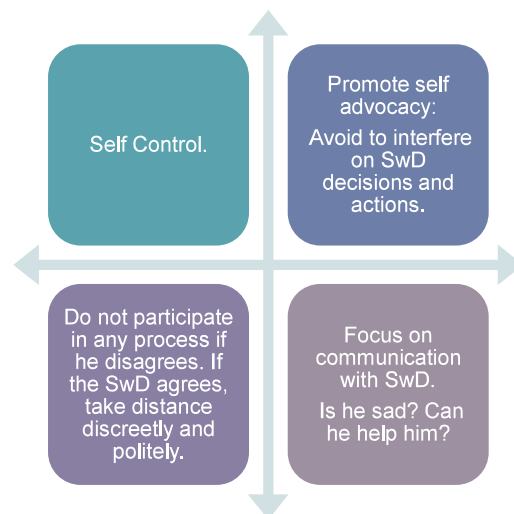
- Build a trust and understanding relationship: parents are the first to be influenced by the wellbeing of their child.
- Gradually and politely take distance (2 weeks) :
 - body language,
 - address only to the SWD,
 - clear appointment after the mission.
- VS may intervene politely if the distance isn't respected.
- If distance is still not respected, the missions and interaction with the volunteers will be restricted and limited (for example only note taking anonymously).
- VS Keeps contact with parents only for S with Asperger, mental health disorders and cognitive disorders.

B. Academic community



- Intervention on the body and the tool of the SwD: ask 2 person to take the wheelchair from the wheels to descend stairs without asking the SwD. Drag a blind student instead of accompany him.
- Communicate with the SwD escort instead of the SwD
- Underestimate, avoid awkward situations : doesn't let the SwD read aloud because of an articulation difficulty when all the class did.

- Doesn't know procedures for SwD in order to orientate him
- Is not able/willing to create an inclusive environment/educational material
- Is annoyed with different behavior or accommodation he doesn't understand: show irritation.



Inform VS: Intervention via the right hierarchical channel

- Promote an new guideline to the academic community,
- Awareness raising campaign,
- Discreet phone call,
- etc.

C. Students' community

Talk with the escort

Misunderstanding of behaviors: bullying and exclusion from discussions and activities

Dangerous ways to help

Help too much

Talk/act as if the student was a child

***Immediate physical threat**

interfere , ask for help, inform.

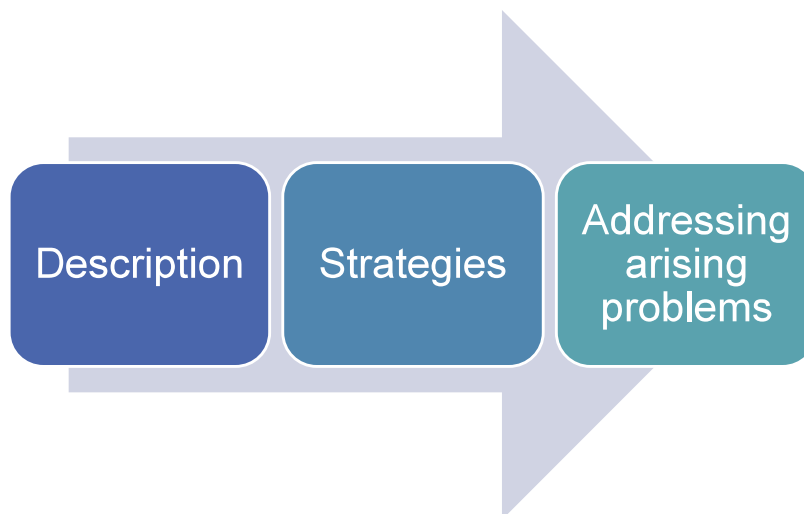
Matters of disclosure of disability and relation with the peer

- ☐ discuss with the SWD during screening what he would like to disclose or not.
- Role plays during Vs' preparation according to SwD wishes.

Relationships within common student groups

- ☐ V is a tool for the volunteer to be more approachable to other student. V remains discreet during the mission.

D. Challenges arising from peer collaborations



Description (1/2)

- **Sentimental issues:**
 - Extreme bonding,
 - Difficulty to open up // opening up to much,
 - Rest on the collaboration instead of develop new friendships.
- **Organizational:**
 - Punctuality,
 - Drop out the program,
 - Difficulties to keep activities within the framework,
 - Will to build own network.
- **Communication issues:**
 - Difficulties to give feedback about behavior or the quality of the support,
 - Disagreements.



Description (2/2)

- Emergencies:
 - Known accessibility or health emergency
 - Additional unknown mental or physical health issues.
 - Inappropriate behavior.

SwD:

- Difficulty to overcome transition challenges (first slides) despite the collaboration

Volunteer Hyper investment :

- Take additional missions without limits and without VS knowledge: burnout
- Take personally the defeats of the SwD
- Wants to do things where there is no need



Strategies

- According to collaborators profiles:
preparation of every known possibility + role plays/case studies
during orientation day and screening.
- Check weekly feedbacks, discuss with collaborators if something is mentioned or seems to start developing.
- Encourage sincere and mature communication between collaborators, as with all peers.

Addressing arising problems

1. Discreet phonecall, ask collaborators for information's on the matter and their possibilities to evolve in a better direction (no good or bad answer but be clear on difficulties to keep VS responsibility over the collaboration)
2. Ask for personal meeting with both peers. Possibility of DS Unit Psycholog's presence.
3. Immediate withdrawal from the collaboration, anonymous support or withdrawal from the program if the situation is grave.

Results (1/2)

Pilot: 2010 with 10 volunteers and 10 SwD.

Each semester, requests from 20 to 45 SwD and orientation of 20 to 80 volunteers.

Half the volunteers stay for one or more semester.

This Semester:

95% of requests met

100% SwD collaborating with a peer



Results (2/2)

- Evaluation extracts (Volunteers): «I had the opportunity to learn things about a group of people with misunderstood abilities» . «I acquired a lot of knowledge and by helping, i became more social. Also, i learned to take action». «My participation made me more punctual, and collaborative. Also, I learned to be more patient trough communication» .
- SwD: «Notes were truly helpful. Psychologically i felt a huge satisfaction seeing that people care about me, without expecting something back».

□ Minimum cost: university locals, food, beverages, wheelchairs for the trainings.





Complementary Measures To Complete VS

- Building's accessibility improvement.
- Care giving personnel specialized in disability in every university's building complex (nursing care, toilet assistance).
- Academic departments' implementation of Universal Design for Learning.







InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP


Co-funded by the
Erasmus+ Programme
of the European Union






<http://access.di.uoa.gr>

A.4.1.2 training in Greece (Athens-UoA) on the operation of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens


Transportation Service for Students with Disabilities





InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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Criteria on which students' transports are based

Students who use a wheelchair or those with severe motor disabilities have priority in being transported from their home to the University and vice versa.

Transportation Service (TS) for Students with Disabilities (SwDs) serves on an annual basis, ~ 62 students, realizing ~ 1.202 itineraries per year (based on the annual statistics of the academic year 2018-2019).



Transportation Service (TS) (1/3)

- SwDs need to be transported
from their home, or a meeting point easily accessible by
the students (such as a metro station)
to the University of Athens
and vice versa
- according to the student's weekly academic schedule



Transportation Service (2/3)

- itineraries are carried out **every day**
- **from 06:00 to 22:00**
- During the examination periods: itineraries are carried out, exceptionally, on **Saturdays**, too
- 4 employees:
 - a secretary
 - three drivers



Transportation Service (3/3)

- two vehicles of the Accessibility Unit
- with modifications for disabled users
- 2021: two more vehicles



Modifications made to old vehicles

The two vehicles of the Accessibility Unit have been modified as soon as they are purchased, being equipped with:

- a special electric step
- an electric ramp for wheelchairs
- lashing belts for wheelchairs
- support handles



The special electric step (1/2)

It is a folding step used by SwDs in order to board the vehicle, setting aside the difficulties they encounter.



The special electric step (2/2)



The electric ramp

It is an electric folding ramp used by students who use wheelchairs in order to board the vehicle. The ramp is placed at the rear of the vehicle.

Vehicles capacity (as far as the students who use wheelchair is concerned):

- the first vehicle can transport two students in a wheelchair and
- the second vehicle only one of them



The electric ramp of the vehicle (1/3)



The electric ramp of the vehicle (2/3)



The electric ramp of the vehicle (3/3)



The operation levers of the ramp of the vehicle

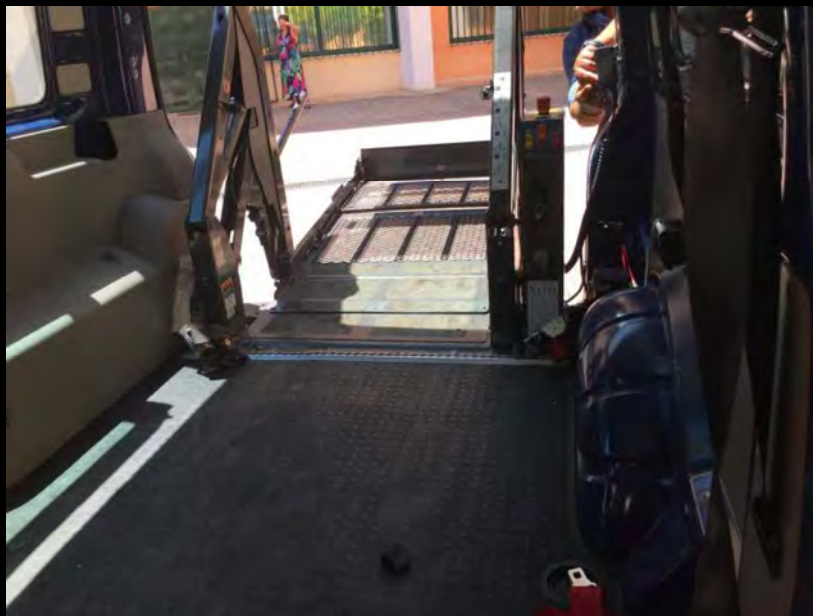


The lashing belts of the vehicle (1/2)

These are some belts used in order students in wheelchairs to be fastened throughout their travel from their home to the premises of the University of Athens and vice versa, so as to be safe in the Accessibility Unit's vehicles.



The lashing belts of the vehicle (2/2)



The electric ramp of the 2nd vehicle



The seats for students in the 2nd vehicle



The lashing belts of the 2nd vehicle



The operation levers of the ramp of the 2nd vehicle



The new vehicles of the Accessibility Unit

Currently, we have purchased two more vehicles to cover the needs of the students of the University of Athens, setting aside the fuel restrictions.

After months of research, we ended up in the following option:

- Nissan NV-300 Combi



Nissan NV-300 Combi (1/2)



Nissan NV-300 Combi (2/2)

The vehicle technical characteristics are:

- number of seats for both the students and the drivers: 9
- reversing camera and parking sensors
- NAVI & Bluetooth
- fog lights
- driver/co-driver airbag
- rain/light sensors



The interior of the Accessibility Unit's new vehicles (1/2)



The interior of the Accessibility Unit's new vehicles (2/2)



The air-conditioning system of the Accessibility Unit's new vehicles (1/2)



The air-conditioning system of the Accessibility Unit's new vehicles (2/2)



The back of the Accessibility Unit's new vehicles (1/2)



The back of the Accessibility Unit's new vehicles (2/2)



The back doors of the Accessibility Unit's new vehicles



The dashboard of the Accessibility Unit's new vehicles



The touch screen of the Accessibility Unit's new vehicles



Restrictions (1/2)

Since 2012, a monthly fuel consumption restriction has been imposed on the state vehicles of the country, which can be calculated based on the following type:

**It to be consumed = max quantity of lt '200' *
(km traveled / upper limit of km '1200')**

As a result, each one of the Accessibility Unit's vehicles has the ability to consume only 200lt per month.



Restrictions (2/2)

This fact inevitably, led to the selection of SwDs who will finally be transported by the Accessibility Unit's vehicles, the percentage of whom is extremely small in relation to those who apply for being transported each semester.

SwDs and their families have tried their best for this restriction to be abolished, respect to the Accessibility Unit's vehicles, but the only thing they succeeded was the total quantity of liters to be consumed per month to be increased by 50lt (a quantity which is included in 200lt per month total quantity).



SwDs' transport (1/4)



SwDs' transport (2/4)



SwDs' transport (3/4)



SwDs' transport (4/4)



Expansion of the Accessibility Unit in Euripus complex (1/2)

National and Kapodistrian University of Athens has acquired new departments at Psachna, Evia island, thus the services of the Accessibility Unit have been expanded to cover the needs of this region, too.

Therefore, a branch of the TS exists in Psachna, staffed by

- two employees and
- a driver



Expansion of the Accessibility Unit in Euripus complex (2/2)

One of the vehicles, serves the SwDs who study in five new departments, at Psachna.

The specific vehicle transports the SwDs who study in the specific new departments of the Euripus campus branch from their home or train/bus station to the amphitheaters and vice versa.



Students' first meeting with the TS (1/2)

- Each student applying to the TS is required to register to the Accessibility Unit

fill out the "Activity and Participation Restrictions' Registration Form for Students with Disabilities, Disorders, Learning Difficulties or Chronic Diseases (ReF)"

Activity and Participation Restrictions' Registration

Activity and participation restrictions' Registration

Student's Activity and Participation Restrictions' Registration Form (ReF)

Students with disabilities (SwD), learning difficulties, neurodevelopmental disorders or severe diseases must fill in the ReF in order to receive services from the Accessibility Unit or collaborate with the Coursework Professor of their Department/Faculty.

As part of its obligation towards Students with Disabilities, the National and Kapodistrian University of Athens (NKUA) aims to **register their activity limitations and participation restrictions systematically**, either they have entered the university by special law regulations or by regular special national examinations, or they have acquired their disability during their studies. This systematic registration is achieved by filling in the **Activity and Participation Restrictions' Registration Form**.

The ReF can be submitted in one of the following alternative ways:

- Print, fill in and submit the ReF during the student's **visit** to the Accessibility Unit.
- Fill in and submit the ReF through **telephone or video call** with a staff member of the Accessibility Unit.
- Fill in and send the ReF per e-mail to access@nku.gr. In that case you will have to process the ReF as a PDF file and therefore you need to open it with Adobe Reader, in order to fill it in and save the changes you made.

In any case students are advised to contact a staff member of the Accessibility Unit before filling in the ReF, in order to get information about the Unit and the services it provides and discuss any questions they have concerning the ReF.

Students can submit the ReF at any time during their studies and, if any of the data mentioned in the ReF changes, they can submit a new one.

 **Activity and Participation Restrictions' Registration Form (ReF)**

In order to open the above document you must have installed a PDF Reader. If you haven't, you can download Adobe Reader for free from the link below:



Students' first meeting with the TS (2/2)

"Application Form for the TS" (courses or exams)

Transportation Service for SwD



The NKUA has two special vehicles for the transportation of SwD from their residence to the university premises and back. Students who use a wheelchair or those with severe motor disabilities are considered a priority for receiving this service.

Students wishing to receive support from the Transportation Service must fill in the Student's Activity and Participation Restrictions' Registration Form (ReF) and apply for transportation every semester. The Transportation Request Form must be submitted at the beginning of each semester, after the time schedule has been announced, and before every exam period, after the exam schedule has been announced.

SwD can submit the Transportation Request Form in the following ways:

- fill in the PDF file "Transportation Request Form" and send it per e-mail to access@nku.gr or
- print, fill in and submit the "Transportation Request Form" to the Accessibility Unit in person or
- fill in the "Transportation Request Form" through telephone communication with the Accessibility Unit's employee responsible for the Transportation Service (☎ +30 210 7275183).

 **Transport Request Form for SwD**

In order to open the above document you must have installed a PDF Reader. If you don't, you can download Adobe Reader for free by clicking on the link below:



Transport Request Form for SwD

- at the beginning of each semester
- before each examination period
- new students or those with a temporary motor disability can apply **at any time during the academic year**

The form is titled "ΑΙΤΗΣΗ ΓΙΑ ΤΗΝ ΥΠΗΡΕΣΙΑ ΜΕΤΑΦΟΡΑΣ ΦΟΙΤΗΤΩΝ ΜΕ ΑΝΑΠΗΡΙΑ (οχήλα)". It includes sections for personal data (A), details of the disability (B), and a table for requesting transport services (C). The table has columns for "Μέγεθος οχήματος", "Αριθμός φοιτητών", and "Εκτιμώμενη ώρα έναρξης".



The organization of the itineraries timetable

Each student is informed by the Secretary of the TS about the receipt of his/her application and the time period within which he/she will receive a response to his/her request.

After gathering all the students' applications, **an itineraries timetable** must be organized. This timetable depends on:

- the priority that each student has over the others
- the program overlays
- the distances to be covered in each case
- the availability of the TS in reference with the fuel to be consumed (due to the monthly fuel consumption restriction)
- the availability of the vehicles



Modifications on an itinerary of the TS

- A scheduled itinerary can be modified by the student e.g.: due to illness
- another student's transfer can be scheduled
- In extremely unexpected cases: students can call the drivers on the mobile phone (even in the morning of the day their transportation is scheduled)



Communication between SwDs and the Secretariat of the TS

All students who have expressed interest in being served are informed about **the ability** of the TS to transfer them (on which days)

SwDs **are informed** about their upcoming transfer (exact time of transfer) **the day before the realization of the transfer**

The Secretary of the TS and each student arrange **together** the time on which the driver will take the student from the meeting point

The Secretary of the TS communicates with the SwDs **on a daily basis**, in order to confirm their attendance



Details regarding itineraries (1/2)

TS fills out a daily form which includes the details of the itineraries:

- the current date
- per itinerary:
 - the student's address / the meeting point
 - the student's department
 - the departure time
 - the indication of the odometer at the departure point
 - the time of the arrival
 - the indication of the odometer at the arrival point
- the signature of the Accessibility Unit's director



Details regarding itineraries (2/2)

During the itineraries' execution, the daily form with the details of the itineraries must be in the vehicles, so that the drivers will present it during police checks.

In case of a delay during the itinerary (e.g.: due to traffic jam), the TS informs the student about it by phone, in order the student not to be exposed to bad weather conditions for a long time without any reason, waiting for the vehicle.



Vehicles certifications for the transportation of People with Disabilities

The Accessibility Unit's vehicles are certified for:

- being fully equipped as vehicles who transport People with Disabilities

The Accessibility Unit's vehicles licenses contain both all the vehicle characteristics and all the evidence which prove that the vehicles can transport People with Disabilities.



Annual Statistics of the TS

- Total number of students served: 62
- Total number of itineraries: 1.202
- Total distance covered: 23.923 kilometers
- Total amount of gasoline consumed: 3.600 liters



Cooperation between the services of the Accessibility Unit (1/2)

In general, all the services of the Accessibility Unit cooperate with each other several times in order to serve SwDs as effectively as possible.

First of all, the secretaries of all the Accessibility Unit's services inform together the SwDs, during their first contact with the Unit. Each one of them analyzes the provisions of each service to SwDs, so that they have an overview of the Unit's provisions.

Especially, the cooperation between the Transportation and Accessibility Support Voluntary Services is perfect and effective, since in most cases, volunteer students undertake to help students with mobility problems move from the Unit's vehicles to the amphitheaters and vice versa.



Cooperation between the services of the Accessibility Unit (2/2)

A case of a student helping her classmate move from the Accessibility Unit's vehicle to the amphitheater is depicted in the picture below:



Case studies

To say the truth, every semester, the employees of the Accessibility Unit encounter various difficulties while interacting with the SwDs and their families. Especially, as far as the TS is concerned, these difficulties are focusing on the monthly fuel consumption restriction which has been mentioned before.

Nevertheless, there are some specific examples of SwDs that have provoked malfunction within the Accessibility Unit's environment, for example:

- a SwD who wanted to be transported to the toilet by volunteer students, which is prohibited under the Accessibility Unit's regulations
- a SwD was impossible to be matched with volunteer students who will help her be transported from one amphitheater to another or other areas of the University



Results from the evaluation of the Accessibility Unit operation

In general, SwDs are quite satisfied from the way they are transported by the Accessibility Unit's vehicles and their cooperation with the employees of the Unit and the volunteer students who help them in their everyday life.

This is evident from the thanks of the students and their families, at the end of their studies, not only to the Unit in general, but also to the drivers and the employees of the Unit, in a personal level.

Moreover, there are many cases where articles have been published in the Press that highlight the importance of the Accessibility Unit and how the Unit's services facilitate the daily life of SwDs.





Special missions



Even if the Accessibility Unit's vehicles have been purchased to transport SwDs from their home to the premises of the University of Athens and vice versa, there are some special cases that these vehicles and their drivers have been used so far. For example, during the current period, that the whole planet suffers from the COVID-19 Coronavirus Pandemic, the Unit's drivers were called to transport:


- antiseptics to the University premises
- armchairs and blood collection materials for antibody testing as far as the disease control of the University of Athens staff



**Accessibility Unit**
<http://access.di.uoa.gr>

**Thank you
very
much
for your time!**

**InSIDE: Including Students with Impairments in Distance Education**
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

Co-funded by the
Erasmus+ Programme
of the European Union 



A.4.1.2 training in Greece on the operation
of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens

HERMOPHILOS: A web-based Information System for the Workflow Management and Delivery of Accessible e-Textbooks



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[2] <https://opendefinition.org/od/2.1/en/>

[3] <https://freedomdefined.org/Definition>

[4] <http://opendefinition.org/buttons/>

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 - the Third-party Notice (if applicable),
- along with the associated hyperlinks.



Academic Textbooks

- ❑ Each year the academic staff propose a set of book titles for their courses (≈ 3).
- ❑ Pre-graduate students of the public universities of Greece are entitled to receive free textbooks for their studies, 1 textbook/course.
- ❑ Students attending study programs for a second bachelor's degree are also entitled to free printed copies of academic textbooks.
- ❑ The electronic service of integrated textbooks management [EUDOXUS](#) offers free academic textbooks to all active students of first cycle programs since 2010-2011.
- ❑ Students who have exceeded the officially set course duration or post-graduate students can either borrow textbooks from the university libraries or buy them.
 - ❑ Returns of EUDOXUS textbooks that are part of the Library's collection fall under the borrowing regulations of the Library (short-term, long-term lending).



Print Disabilities

- ❑ A print disability is a difficulty or inability to read printed material due to a perceptual, physical or visual disability.
- ❑ The reasons for print disability vary but may include:
 - ❑ vision impairment or blindness
 - ❑ physical dexterity problems such as multiple sclerosis, Parkinson's disease, arthritis or paralysis
 - ❑ learning disability, such as dyslexia
 - ❑ brain injury or cognitive impairment
 - ❑ literacy difficulties
 - ❑ early dementia



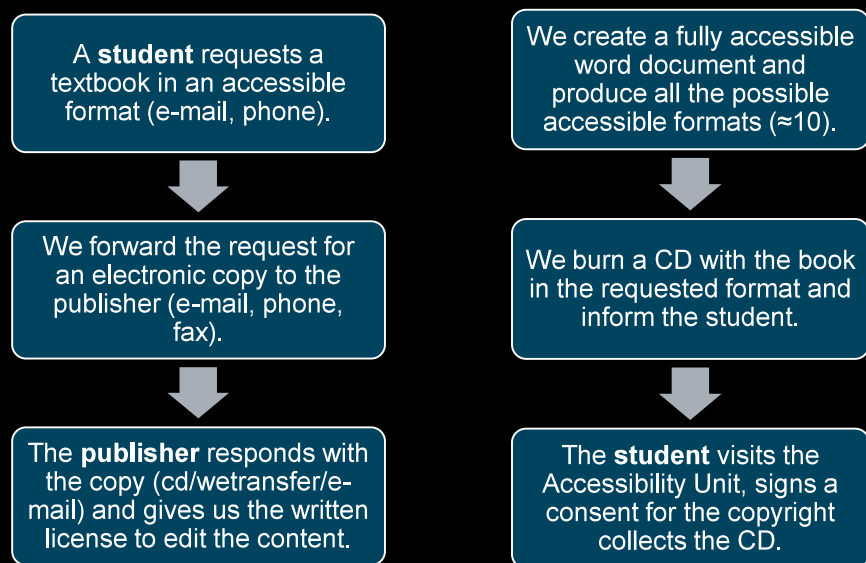
Accessible Academic Textbooks

Print books are transformed to other formats to become accessible.

- Braille
- Audio
- Large print
- PDF
- DAISY
- epub
- midi
- Images to be printed in a haptic form



Flow of a Request/Response of Accessible Textbooks before HERMOPHILOS



Hermophilos homepage



ERMOFILOS
Accessible Academic Textbooks' e-Services
for Students with Disabilities

ERMOFILOS
Accessible Academic Textbooks' e-Services
for Students with Disabilities

The ERMOFILOS system:

- was developed in order to raise the barriers and discrimination students with disabilities face, and ensure their equal access to knowledge.
- incorporates a comprehensive set of online services supporting the whole process of conversion and distribution of academic manuscripts in various accessible digital formats (according to the type of disability) for students who are print-disabled.
- aims to simplify, accelerate, automate and improve all stages of production and distribution of Accessible Digital Manuscripts developed by the e-Accessibility Unit for Students with Disabilities of the National and Kapodistrian University of Athens, following all obligations directed by national legislation.

Σε περίπτωση που θέλετε να γίνει εθελοντής στη Μονάδα Προσβασιμότητας για Φοιτητές με Αναπηρίες και να συνεισφέρετε στην διαδικασία παραγωγής προσβασιμών συγγραμμάτων ή συγγραμμάτων, παρακαλούμε να εαυτοπροσέτε τη [Voluntary Support](#)

Student Login

Admin Login

Design & Development
FORTH-ICS

Logos: European Union, NSRF, W3C, WCAG 2.0, WCAG 2.1, WCAG 2.2, WCAG 2.3, WCAG 2.4, WCAG 2.5, WCAG 2.6, WCAG 2.7, WCAG 2.8, WCAG 2.9, WCAG 3.0

This site conforms to Web Content Accessibility Guidelines and Standards (WCAG), Supported Browsers: Internet Explorer 6+, Mozilla Firefox and Opera 8+, Google Chrome 30+, and Safari 5+.

Stakeholders

- Blindness
- Low-vision
- Upper limbs motion
- Dyslexia

Print-disabled students



- Computer scientists
- Pre-primary school teacher
- Philologists
- GSL interpreter

Accessibility Unit's personnel



- Publishers
- Publishing houses
- Authors

Textbook publishers



Interconnections with external academic systems

- ❑ GRNET
- ❑ MyStudies
- ❑ Eudoxus
- ❑ Pergamos



Delos Federation – Authentication and authorization Infrastructure (AAI)

- ❑ allows different organizations that span across the country to cooperate in the assignment of access rights for bi-institutional applications, such as access to digital libraries
 - ❑ LDAP server for the lookup of NKUA directory information of faculty, staff, and students
 - ❑ institutional user account
- ❑ Delos Federation consists of 57 institutions of the academic, research and educational community in Greece
- ❑ GRNET participation in the GÉANT pan-European research and educational network



MyStudies system

- ❑ Electronic secretariat of the NKUA
- ❑ Uses for students
 - ❑ View curriculum (teaching units, teaching hours, teacher, books, etc.)
 - ❑ Select courses per semester
 - ❑ View course scores
 - ❑ Apply for certificates



EUDOXUS system

- ❑ **Immediate and integrated provision of university books to Higher Education students**
- ❑ GRNET “**EUDOXUS**” is an innovative online service for the immediate and integrated provision of university books to Higher Education students
- ❑ EUDOXUS was launched in the academic year 2010-2011 and it offers:
 - ❑ accurate online information about the pool of books that are available for each course
 - ❑ quick delivery of the books to the students
 - ❑ effective mechanisms for publishers' compensation
 - ❑ parallel distribution of free e-books and notes
 - ❑ public resources' abuse prevention
 - ❑ more transparency and less bureaucracy



PERGAMOS digital library

- Integrated platform of the institutional repository / digital library of the NKUA
- Users
 - Students:** Deposit PhD, graduate and postgraduate theses.
 - Professors and researchers:** Deposit research papers.
 - Accessibility Unit:** Manage the collection of Accessible Academic Textbooks
 - General public:** Easy access to NKUA research data
- Uses
 - Navigation & Search:** Unified access to scientific, cultural and archival items of UoA.
 - Personalized services:** My items, Favorites, Social networking, Notifications.
 - Open Data:** Interoperability based on international standards and best practices.



LDAP: sign-in



MyStudies: department program view

Γραμματείες Πανεπιστημίου

my-studies.uoa.gr/Secr3w/app/

Γραμματείες Πανεπιστημίου Αθηνών

Πρόγραμμα Σπουδών 2020-2021

1 Εξάμηνο

Βασικός Κύκλος

Υποχρεωτικά Κορμού

Ελεύθερες Επιλογές

2 Εξάμηνο

3 Εξάμηνο

4 Εξάμηνο

5 Εξάμηνο

6 Εξάμηνο

7 Εξάμηνο

8 Εξάμηνο

9 Εξάμηνο

10 Εξάμηνο

Πρόγραμμα Σημειωτικά Κορμού

Δηλώση

Κατάσταση

Κωδικός	Περιγραφή	Πληροφορίες
69MO71	ΘΕΩΡΙΑ ΚΑΙ ΠΡΑΞΗ ΤΗΣ ΤΟΝΙΚΗΣ ΜΟΥΣΙΚΗΣ (ΑΡΜΟΝΙΚΗ ΚΑΙ ΔΟΜΙΚΗ ΑΝΑΛΥΣΗ) I+II	
69MS01	ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΙΣΤΟΡΙΚΗ ΚΑΙ ΣΥΣΤΗΜΑΤΙΚΗ ΜΟΥΣΙΚΟΛΟΓΙΑ	
69MS02	ΕΘΝΟΜΟΥΣΙΚΟΛΟΓΙΑ I (ΕΙΣ.ΣΤΗΝ ΕΘΝΟΜΟΥΣ.Ι)	
69MS03	ΒΥΖΑΝΤΙΚΗ ΜΟΥΣΙΚΟΛΟΓΙΑ (ΕΙΣ.ΣΤΗΝ ΒΥΖ.ΜΟΥΣ.)	
69MS06	ΕΛΛΗΝΙΚΗ ΠΑΡΑΔΟΣΙΑΚΗ ΜΟΥΣΙΚΗ (ΕΙΣ.ΣΤΗΝ ΕΛΛΗΝ.ΔΗΜ.ΜΟΥΣ.)	
69MM94	ΣΥΝΟΠΤΙΚΗ ΙΣΤΟΡΙΑ ΤΗΣ ΕΥΡΩΠΑΪΚΗΣ ΜΟΥΣΙΚΗΣ I	
69MM78	ΠΟΛΙΤΙΣΜΙΚΗ ΚΑΙ ΜΟΥΣΙΚΗ ΑΝΘΡΩΠΟΛΟΓΙΑ I	

ΒΟΗΘΕΙΑ

Πως μπορείς:

- να εντοπίσω ένα μάθημα μέσα στο πρόγραμμα σπουδών;
- να κάνω δήλωση ενός μαθήματος;
- να καταθέσω αίτηση για παροχή πιστοποιητικού;
- να δω το προφίλ μου (ιστορικό, αλλαγή e-mail, αλλαγή κωδικού, κ.α.);

Απόκρυψη Βοήθειας>>

Πρόσβαση

Ιστορικό Δηλώσεων

Βαθμολογία

Αποσύνδεση

EUDOXUS: book info

Γιατί κυλά στο αίμα μας

Πληροφορίες συγγραφέα

Εξωτερικοί

Παραπομπές

Κωδικός Συγγραφέα

Συγγραφέας

ISBN

Εκδόσεις

Αριθμός Σελίδων

Διαθέσιμος (Εκδόσεις)

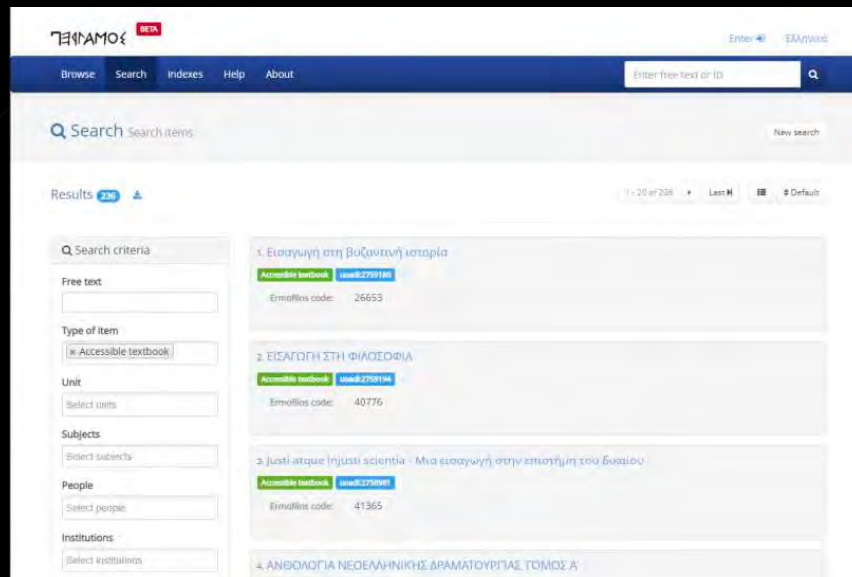
Παράδοση Συγγραφέα

Πίνακας Περιεχομένων

Ενδεικτικό Απόσπασμα

- Book Code
- Writers
- ISBN
- Publishing house
- Number of pages
- Publisher
- Webpage
- Table of Contents
- Indicative excerpt

PERGAMOS: accessible book collection



User Information

Students with Disabilities

- ❑ Basic info is pulled from MyStudies (*academic ID, name, surname, university, department, semester, phone, email*)
- ❑ Further info about disabled students is gathered from our Student's Activity and Participation Restrictions' Registration Form in user sign-up
- ❑ A subset of these students is print-disabled and also asks for accessible textbooks
 - ❑ *Eudoxus student ID* and *list of received textbooks* are pulled from Eudoxus
 - ❑ Books obtained from Hermophilos along with signed acknowledgment forms are saved in Hermophilos



MyStudies: student info

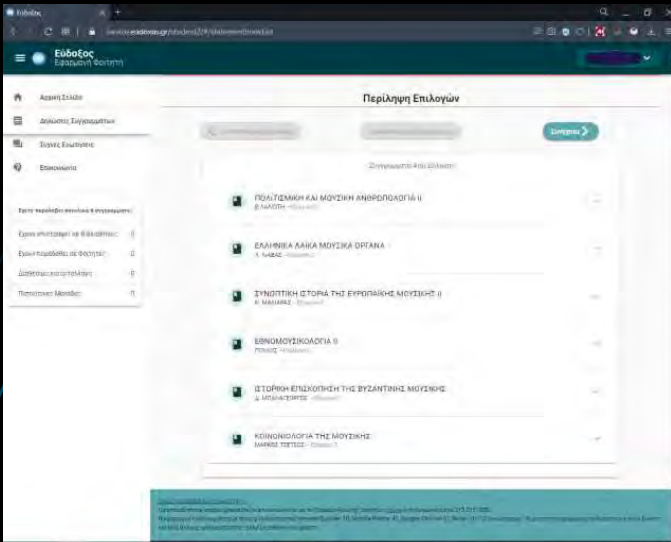
- ❑ About my studies
 - ❑ Semester of first registration
 - ❑ Academic year of first registration
 - ❑ Date of first registration
- ❑ Personal Info
 - ❑ Father's name
 - ❑ Mothers name
 - ❑ Date of birth
 - ❑ ...
 - ❑ ID number
 - ❑ ...
- ❑ Contact info
 - ❑ Permanent residence address
 - ❑ Permanent residence city
 - ❑ Permanent residence phone number
 - ❑ ...
 - ❑ E-mail



Hermophilos: student profile

Student Profile:	
Name:	
Surname:	
Father's name:	
Date of Birth:	
Sex:	
Student No.:	
University:	National and Kapodistrian University of Athens
Department:	ΜΟΥΣΙΚΗ ΣΧΟΛΗ
Year:	2019
Year of Study:	IV
Have you completed your studies?	No
Program of Studies:	ERMONELOS_USER
Contact Information:	
Tel. number (home):	
Tel. number (mobile):	
E-mail address:	
Alternative email:	
Street:	
City:	
Postal Code:	
Teleconference systems used:	onYou skype Other
Disability Info:	
Type of disability:	ΤΥΦΛΟ
Other disability:	ΕΤΥ
Profile:	Προφίλ χρήστη με Τύφλωση
Available Filetype:	Έγγραφο του Word (.docx), Ηχητικά αρχεία με συνθετική φωνή (.mp3), Αρχείο μουσικής (.midi),
Other:	
Means of transport used:	
How did you enter the University:	

EUDOXUS: semester student book selection



Students declare one book to receive form the available textbooks for each course

Summary of selected textbooks

[illegible]

- Students declare one book to receive form the available textbooks for each course
- Summary of selected textbooks

Volunteers

- ❓ Students-only
- ❓ Basic info is pulled from MyStudies
- ❓ Further info is gathered from our Volunteer Registration Form
- ❓ They may wish to become book "correctors"

Volunteer support registration form

Mandatory fields are marked with an *

Σημειώνεται ότι η φόρμα είναι η θύρα είσοδο της Μονάδας Προσβασιμότητας για άτομα με αναπηρία με στόχο, καθώς και τα θέματα τακτικού των λειτουργιών τους ως τις ανάγκες της Μονάδας με Αποστολή του ΕΠΕΑΕΚ. Τα προσωπικά στοιχεία που θα καταχωρηθούν στη φόρμα υποβάλλονται από το άτομο ΕΠΙΜΟΝΙΜΟ και η χρήση σε αυτό (όσον αφορά τη Υποβολή της Μονάδας Προσβασιμότητας). Τα στοιχεία θα είναι διαθέσιμα σε όλους.

Account Information

* Username:

* Password:

* Confirm password:

General Info

* First Name:

* Last Name:

* Fathers Name:

Image File

Παρακαλώ ανεβάστε μια φωτογραφία του εαυτού σας.
 Η επεξεργασία του αρχείου κοστίζει σύμφωνα με την Πολιτική μας.
 File (up to 2000 MB)

* Date Birth: Year: (1945) Month: January Day: 1

* Gender: ☐ Female ☐ Male

Εκπαιδευτική Πληροφορία

* Student number:

* Educational Institute:

* Department:

* Year:

* Year of study:

* Have you completed your studies? ☐ Yes ☐ No

Program of Studies: ☐ Undergraduate ☐ Postgraduate ☐ PhD

CONTACT INFORMATION

Phone number:

Mobile phone number:

* E-mail address:

Alternative email:

Publishers & Editorial Houses

- ❓ Get basic information from Eydoxus
- ❓ Ask for further info (contact person) on the phone

User Profile

Login Information

Username:

Password:

Personal Information

First Name:

Last Name:

E-mail address:

Phone number:

Mobile phone number:

Mobile Phone 2:

Business Phone:

Fax:

Διεύθυνση:

Postal Code:

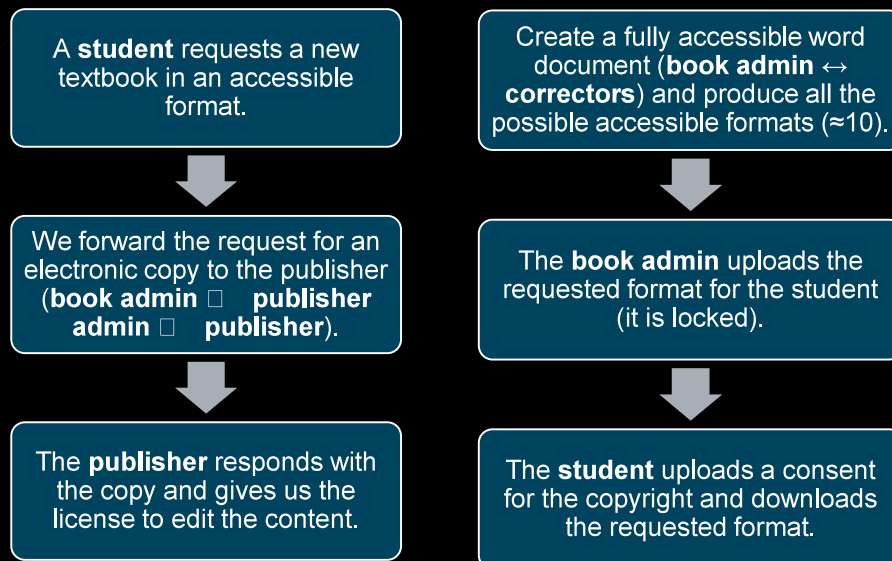
City:

Hermophilos Administrators

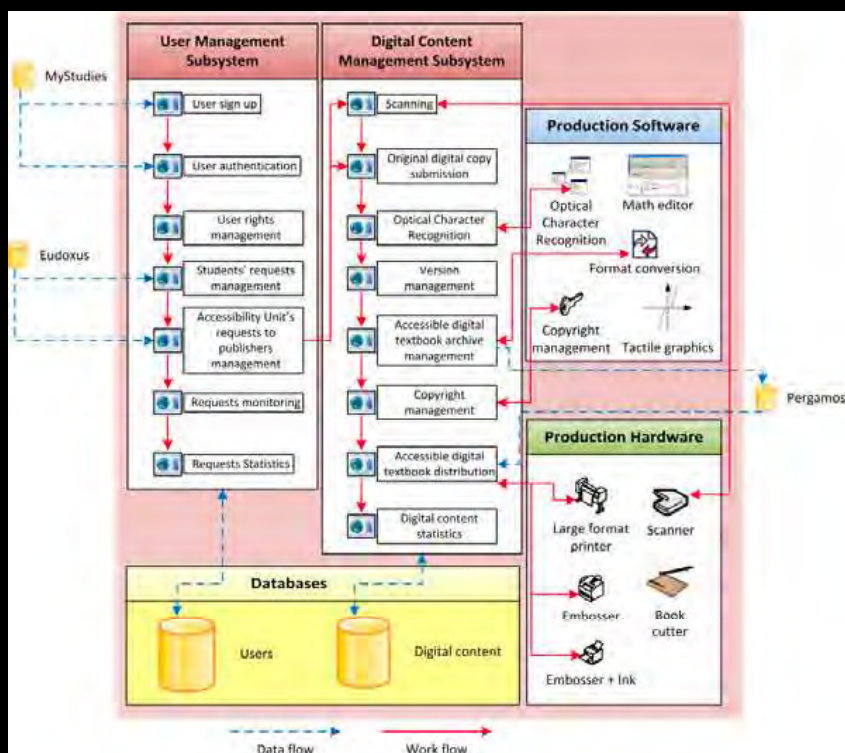
- Student-
- Publisher-
- Book-
- Correctors-
- General-

User Profile	
Login Information	
Username:	
Password:	
Personal Information	
First Name:	
Last Name:	
E-mail address:	
Phone number:	
Mobile phone number:	
Mobile Phone 2:	
Business Phone:	
Fax:	
Διεύθυνση:	
Postal Code:	
City:	

Flow of a Request/Response in HERMOPHILOS




Functional Architecture



Services

Services for Students with disabilities

- ❓ List of books received through Eudoxus
- ❓ Requests
- ❓ Registration form – student profile
- ❓ Contact



- # Students with Disabilities: screenshots

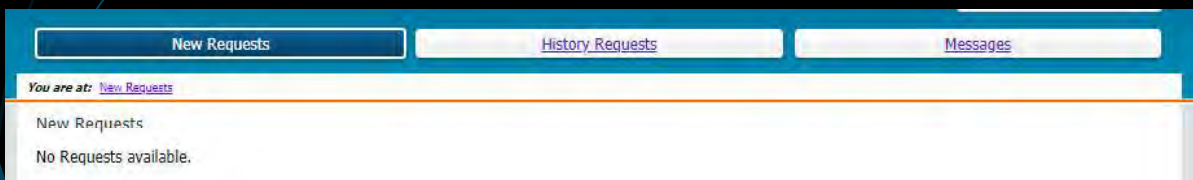
Services for Correctors

- ❑ Registration form (volunteers)
- ❑ Tasks per textbook
- ❑ File per task

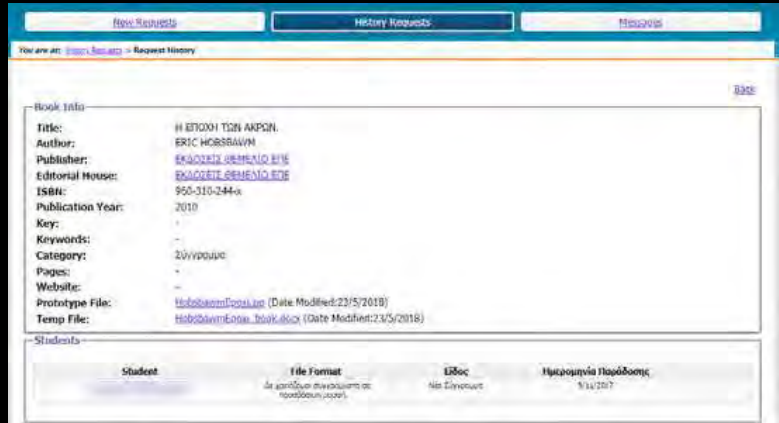
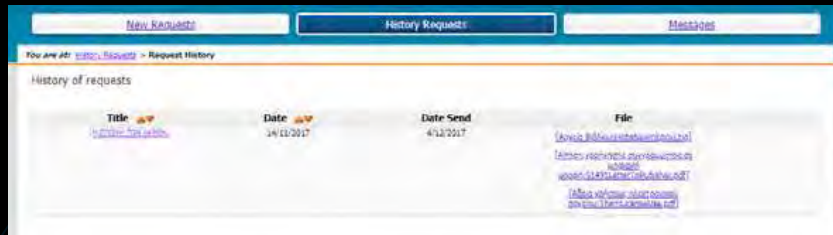


Services for Publishers

- ❑ Requests
- ❑ For each provided textbook
 - ❑ List of recipient students
 - ❑ Textbook e-files
 - ❑ License for textbook



Publisher: screenshots



Services for Student Admin

- ❑ New students
- ❑ Students' needs registration forms

Student Admin: screenshots

Αρχική σελίδα ΦΜΣΔ Επισκοπές Αθλητισμού Ενημέρωση

Επισκοπές Αρχική σελίδα

Για να παραβλέψετε τα αποτελέσματα επιλέξτε [από](#)

ΑΠ	Ονοματεπώνυμο	Τμήμα	Έτος	Σχόλια
	ΓΑΝΩΝΗΣ ΓΙΩΣΣΑΣ ΚΑΙ ΦΙΛΟΠΟΛΙΤΗΣ	2017	-	
	ΠΟΛΙΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΔΗΜΟΣΙΑΣ ΔΙΟΙΚΗΣΗΣ	2017	-	
	ΟΙΚΟΝΟΜΙΚΩΝ ΕΠΙΣΤΗΜΩΝ	2017	-	
	ΠΛΗΡΟΦΟΡΙΚΗΣ ΚΑΙ ΤΗΛΕΠΙΚΟΙΝΩΝΙΩΝ	2019	-	
	ΤΕΡΜΑΤΩΣΗΣ ΓΥΝΑΙΚΑΣ ΚΑΙ ΦΙΛΟΛΟΓΙΑΣ	2018	-	
	ΚΟΙΝΩΝΙΑΣ	2003	-	
	ΠΑΙΔΑΓΩΓΙΚΟ ΔΗΜΟΤΙΚΗΣ ΕΚΠΑΙΔΕΥΣΗΣ	2008	-	
	ΜΑΘΗΜΑΤΩΝ	2011	-	
	ΗΘΕΡΟΔΟΧΟΥΣ ΠΕΡΙΟΧΗΣ ΚΑΙ ΗΘΕΡΩΣ ΤΗΣ ΕΠΙΣΤΗΜΗΣ	2006	-	
	ΦΥΛΟΛΟΓΙΑΣ	2009	-	

1 2 3 4 5 6 7 8 9 10 / 59 Σελίδα 1 από 6

Επιστροφή

Αρχική σελίδα ΦΜΣΔ Επισκοπές Αθλητισμού Ενημέρωση

Επισκοπές Αρχική σελίδα

Για να παραβλέψετε τα αποτελέσματα επιλέξτε [από](#)

ΑΠ	Επίσημο	Τμήμα	Έτος	Ανταρσία	Κατάσταση
	ΠΡΟΚΑΤΑΡΚΤΙΚΟ	2011	970	Δεν έχει επανέλθει	
	ΗΘΕΡΟΔΟΧΟΥΣ ΠΕΡΙΟΧΗΣ ΚΑΙ ΗΘΕΡΩΣ ΤΗΣ ΕΠΙΣΤΗΜΗΣ	2006	1040	Δεν έχει επανέλθει	
	ΦΙΛΟΛΟΓΙΑΣ	2010	971	Δεν έχει επανέλθει	
	ΒΟΤΑΝΙΚΗΣ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΔΗΜΟΣΙΑΣ ΔΙΟΙΚΗΣΗΣ	2019	971	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	2010	971	Δεν έχει επανέλθει	
	ΠΟΛΙΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΔΗΜΟΣΙΑΣ ΔΙΟΙΚΗΣΗΣ	2019	1040	Δεν έχει επανέλθει	
	ΟΙΚΟΝΟΜΙΚΩΝ ΕΠΙΣΤΗΜΩΝ	2019	971	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	1992	971	Δεν έχει επανέλθει	
	ΕΚΠΑΙΔΕΥΣΗΣ ΚΑΙ ΑΓΩΓΗΣ ΣΤΗΝ ΠΡΩΤΟΒΑΘΜΙΑ ΕΚΠΑΙΔΕΥΣΗ	2009	1040	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	1998	971	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	2004	971	Δεν έχει επανέλθει	
	ΔΙΟΙΚΗΣΗΣ	2010	1070	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	2019	1070	Δεν έχει επανέλθει	
	ΒΟΤΑΝΙΚΗΣ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΔΗΜΟΣΙΑΣ ΔΙΟΙΚΗΣΗΣ	2019	1040	Δεν έχει επανέλθει	
	ΚΟΙΝΩΝΙΑΣ	2019	971	Δεν έχει επανέλθει	
	ΦΙΛΟΛΟΓΙΑΣ	1998	971	Δεν έχει επανέλθει	
	ΓΕΩΓΡΑΦΙΑΣ ΚΑΙ ΚΑΤΑΓΕΓΡΑΦΗΣ	2019	971	Δεν έχει επανέλθει	

Services for Volunteer Admin

- Volunteers' list & registration forms
- Pending volunteers

Αρχική σελίδα Επισκοπές Αθλητισμού ΕΒΕΛΟΝΤΩΝ Ενημέρωση

Επισκοπές Αρχική σελίδα

Για να παραβλέψετε τα αποτελέσματα επιλέξτε [από](#)

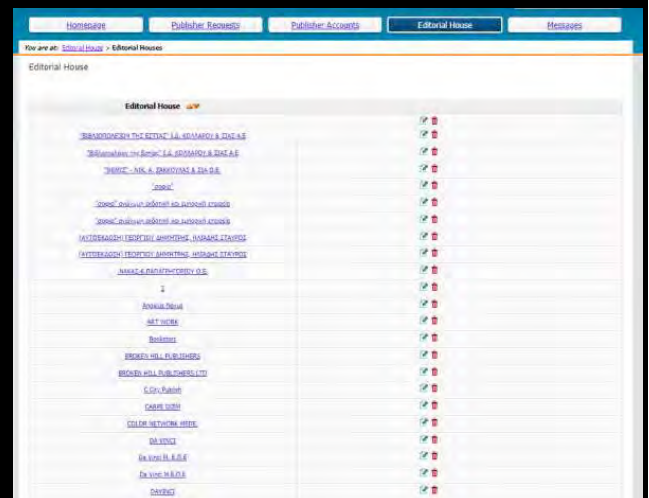
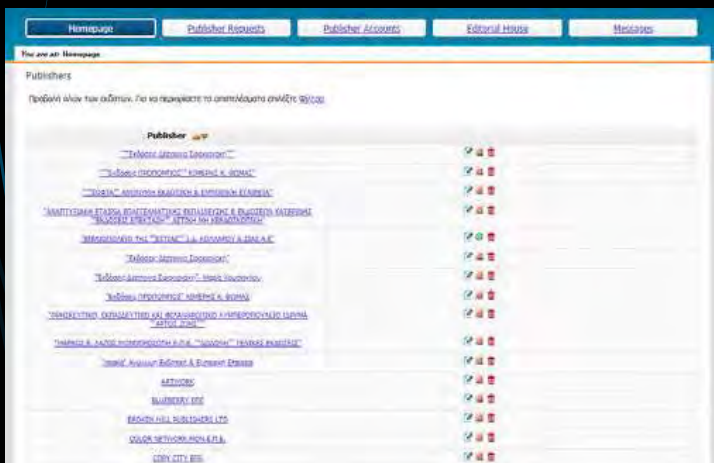
ΑΠ	Ονοματεπώνυμο	Ρόλος	Εργασίες που ανατίθενται	Εργασίες που ολοκληρώνονται	Αντικείμενο δημιουργίας προσφορών συγγραμμάτων	Κατάσταση ΕΒΕΛΟΝΤΩΝ	Σχόλια
	Δοσθητής Συντονιστής Δοσθητής Συντονιστής Δοσθητής Συντονιστής	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία
111220140001	Δοσθητής Συντονιστής ΕΒΕΛΟΝΤΩΝ	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία
118750150001	Δοσθητής Συντονιστής ΕΒΕΛΟΝΤΩΝ	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία
149020130003	Δοσθητής Συντονιστής ΕΒΕΛΟΝΤΩΝ	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία
114020140003	Δοσθητής Συντονιστής ΕΒΕΛΟΝΤΩΝ	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία
1180104	Δοσθητής Συντονιστής ΕΒΕΛΟΝΤΩΝ	Καμία	Καμία	Καμία	Δεν	ενεργός	Καμία

Services for Publisher Admin

- ❑ All publishers
- ❑ All book requests to publishers
- ❑ All publisher accounts
- ❑ All editorial houses




Publisher Admin: screenshots (1/2)




Publisher Admin: screenshots (2/2)

User Services: Book Admin

- ☐ All books (homepage)
- ☐ All requests
- ☐ All tasks
 - ☐ Tasks per textbook per corrector
 - ☐ Check every submitted task
- ☐ Contact



- # User Services: Book Admin
- ☐ All books (homepage)
 - ☐ All requests
 - ☐ All tasks
 - ☐ Tasks per textbook per corrector
 - ☐ Check every submitted task
 - ☐ Contact
- 

Book Admin: screenshots (1/2)

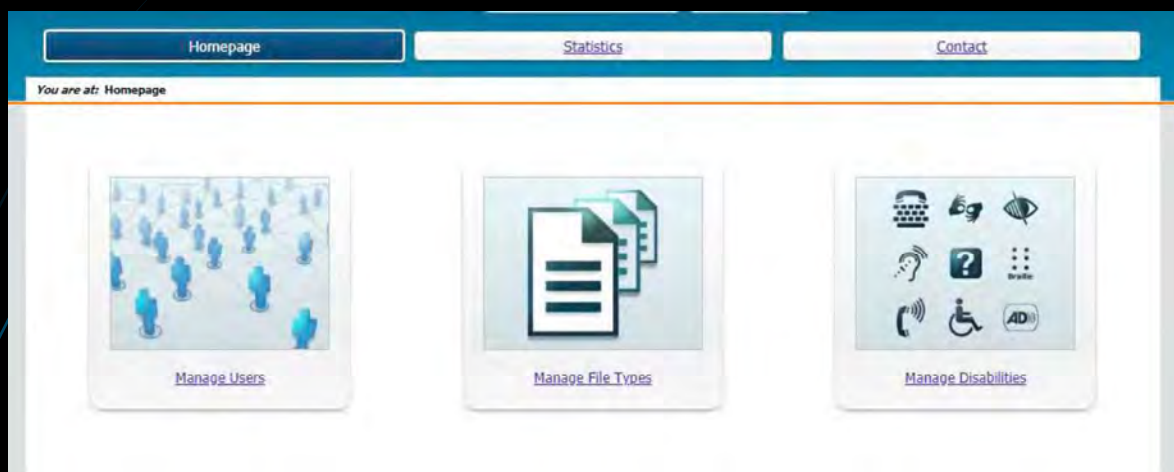
Book Admin: screenshots (2/2)

User Services: General Admin

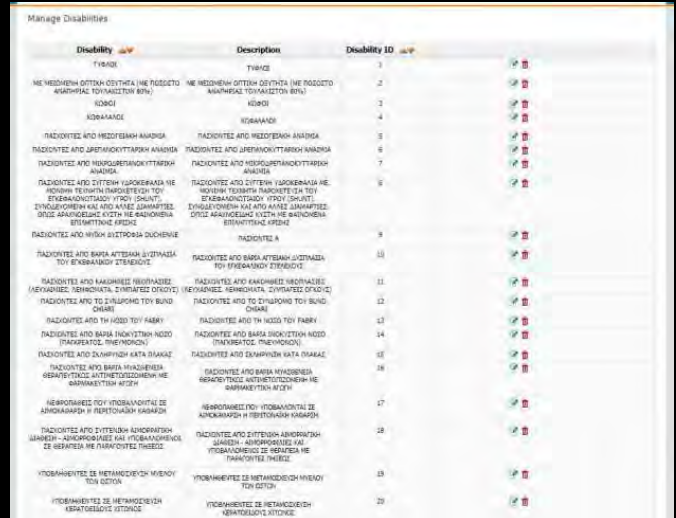
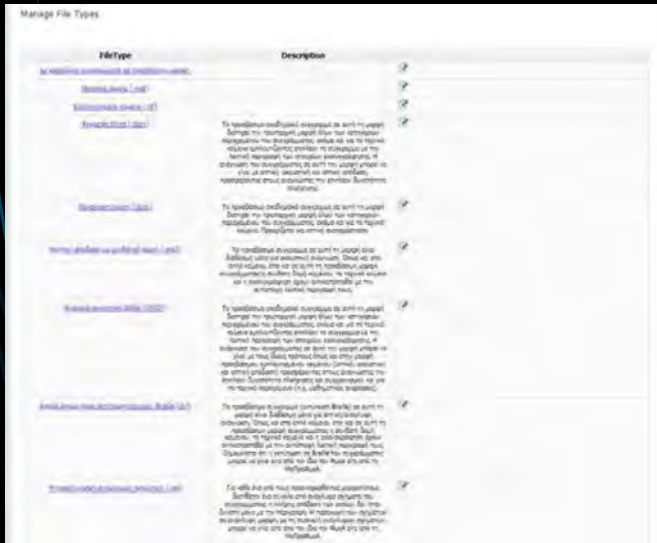
- ❓ [Book formats list](#)
- ❓ [Diseases/disabilities list](#)
- ❓ [Statistics](#)
- ❓ [New admins](#)



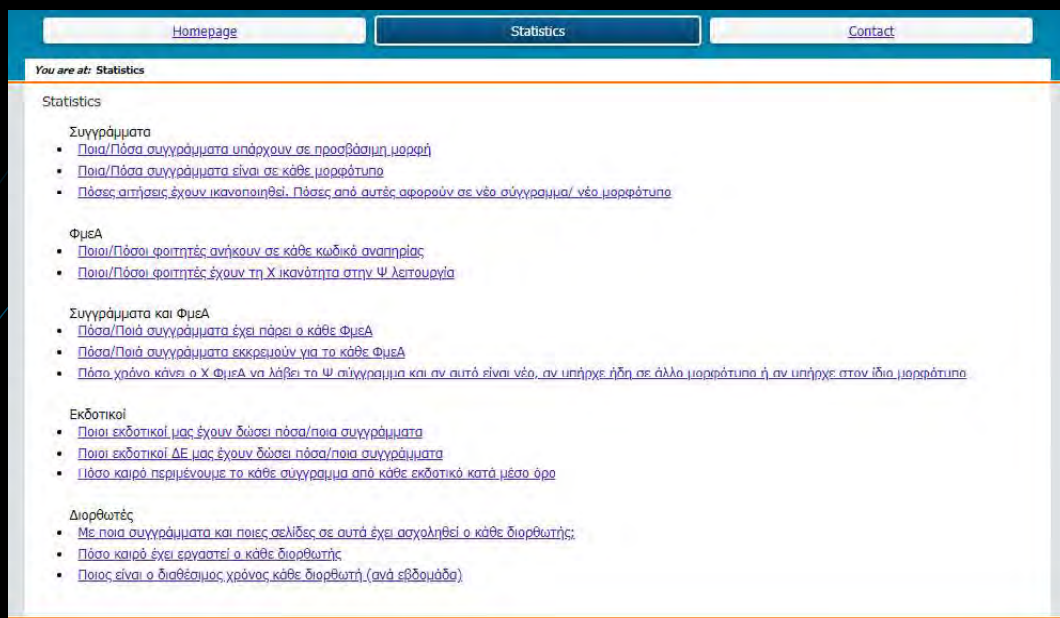
General Admin: screenshots (1/3)



General Admin: screenshots (2/3)



General Admin: screenshots (3/3)





Thank you!

Any questions?

Link to HERMOPHILOS: <https://ermofilos.uoa.gr/>

Link to EUDOXUS: <https://eudoxus.gr>


Link to PERGAMOS: <https://pergamos.lib.uoa.gr/>




InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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of the European Union






HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
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Accessibility Unit
<http://access.di.uoa.gr>

A.4.1.2 training in Greece (Athens-UoA) on the operation
of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens


Production of Accessible Textbooks






InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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Introduction

- The following instructions aren't guidelines used in Greece, but the practices we use as Accessibility Unit
- What is our goal?
 - To create a document in any accessible format without losing any of the content of the original textbook.

Stages of conversion

- Conversion of the textbook into editable electronic form
- Description of images and graphs
- Conversion of mathematical expressions into accessible formats
- Conversion of music to an accessible format
- Production of accessible file formats

1. Scanning

- **When?**
 - In case the print book doesn't exist in any digital form
- **Tools:**
 - KW-TRIO Cutter
 - Fi-6770 Scanner
- **Disadvantages:**
 - Requires great physical strength
 - Destroys the textbook



2. Optical Character Recognition (1/2)

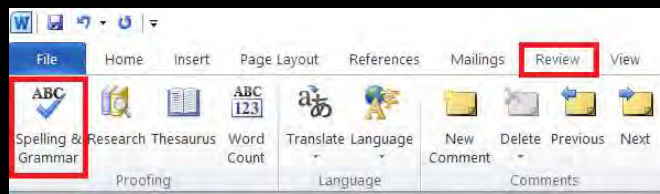
- **When?**
 - In case of a book in an non accessible pdf form or a scanned book
- **Tool:**
 - ABBYY FineReader 12.0 Professional
- **Characteristics:**
 - 190 languages, including the Greek language
 - Simultaneous recognition of more than 2 languages
 - Language and recognition templates creation
 - Analysis of the structure of the entire document and identification of areas containing text, images and tables and editing of the result

2. Optical Character Recognition (2/2)

- Procedure:
 - Automatic OCR based on program settings selected after testing
- Disadvantages:
 - Strange font
 - Decorative characters and pictures
 - Polytonic writing system
 - Mathematics
 - Music

3. OCR errors correction (1/4)

- Procedure:
 - Spelling and Grammar Proofing
 - Review > Proofing > Spelling and Grammar

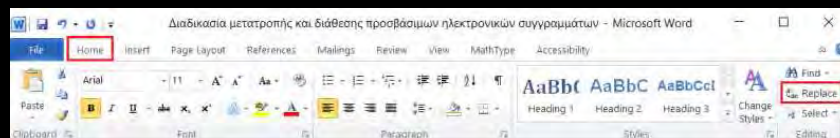


- Look over page by page
- Special characters insertion: polytonic characters, linguistic characters

3. OCR errors correction (2/4)

- Error categories:

- Non-word errors: “grornd” instead of “ground”, “&##-@”, “BN234” instead of “8N234”
 - Home > Editing > Replace or Ctrl+H



- Junk: “the way W ξ^οuiz (, mptT ka sT^ο center> cele_brates with hundreds f”
- Images

3. OCR errors correction (3/4)

Εικ. 1. Ε. R. Kandel, J. H. Schwartz & T. M. Jessel, *Essentials of Neural Science and Behavior*, νέα Υόρκη: McGraw-Hill Companies, 1995· Εικ. 2-2

Παραχώρηση: κ. κωτσάκης· Εικ. 3-3 I. P. Mallory, *Οι Ινδοευρωπαίοι*, μτφρ. Ε. αστεριάδου, αθήνα: Δελφίνι/στάχυ, 1995· Εικ. 4 Sir A. H. Gardiner, *Egyptian Grammar: Being an Introduction to the Study of Ieroglyphs*, οξφόρδη: Griffith Institute, 1957, 3η έκδ· Εικ. 5 I. I. Gelb, *A Study of Writing: The Foundations of Grammatology*, σικάγο: University of Chicago Press, 1952· Εικ. 6 αμερικανική σχολή κλασικών σπουδών της αθήνας: ανασκαφές αρχαίας αγοράς· Εικ. 7, 8 L. H. Jeffery, *The Local Scripts of Archaic Greece*, οξφόρδη: Oxford University

† παρασκευή κοτζιά, Κλασική Φιλολογος, αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης
 ηλίας κούβελας, Γιατρός Φυσιολόγος, Πανεπιστήμιο Πατρών δημήτριος i. κυρτάτας, Ιστορικός, Πανεπιστήμιο Θεσσαλίας
 κώστας κωτσάκης, αρχαιολόγος, αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης
 pierre-yves lambert, Γλωσσολόγος (κελτικές γλώσσες), Centre National de la Recherche Scientifique και École Pratique des Hautes Études, Γαλλία
 nicholas de lange, Γλωσσολόγος (εβραϊκές, ιουδαϊκές σπουδές),

3. OCR errors correction (4/4) - Books in polytonic greek

- What is the polytonic system?
- Standard system of Ancient Greek which used a variety of diacritics: an acute accent (´), a grave accent (`), a perispomeni accent (~), a rough breathing (ˆ), a smooth breathing (ˊ)
- Until 1982
- Ancient Greek, purist Greek/archaising form of Modern Greek, Modern Greek
- Unicode symbols: Time consuming process
- MANGENTA - Automated Accentuator

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+1F0x	ᾀ	ᾁ	ᾂ	ᾃ	ᾄ	ᾅ	ᾆ	ᾇ	ᾈ	ᾉ	ᾊ	ᾋ	ᾌ	ᾍ	ᾎ	ᾏ
U+1F1x	῀	῁	ῂ	ῃ	ῄ	῅	ῆ	ῇ	Ὲ	Έ	Ὴ	Ή	ῌ	῍	῎	῏
U+1F2x	ῐ	ῑ	ῒ	ΐ	῔	῕	ῖ	ῗ	Ῐ	Ῑ	Ὶ	Ί	῜	῝	῞	῟
U+1F3x	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1F4x	῰	῱	ῲ	ῳ	ῴ	῵	ῶ	ῷ	Ὸ	Ό	Ὼ	Ώ	ῼ	´	῾	῿
U+1F5x	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1F6x	῰	῱	ῲ	ῳ	ῴ	῵	ῶ	ῷ	Ὸ	Ό	Ὼ	Ώ	ῼ	´	῾	῿
U+1F7x	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1F8x	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1F9x	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FAx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FBx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FCx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FDx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FEx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
U+1FFx	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`

4. Insets (1/21)

- What are the insets?
 - Images, graphs, tables, text boxes, etc.
- What we have to do?
 - Delete the text boxes
 - Correct the tables
 - Describe the images and the graphs
 - Place the insets in the right position
 - Don't delete or change the content

4. Insets (2/21)

Procedure for text boxes

- Object with which we place and type text anywhere in a document
- Find the paragraph it is referring to or the closest neighbor and place it right after that paragraph
- State the beginning and ending of the text box
 - [beginning of text box]
 - Content
 - [ending of text box]



4. Insets (3/21)

- Images (most common):
 - Decorative
 - Informative
- Graphs (most common):
 - Flow Charts
 - Bar graphs
 - Line graphs
 - Pie Charts
 - Venn Diagrams
 - Scatter plots
 - Hierarchy/Tree Diagrams
 - Maps

4. Insets (4/21)

- Guidelines for descriptions:
 - be objective
 - be brief
 - be descriptive
 - be logical
 - be accurate

4. Insets (5/21)

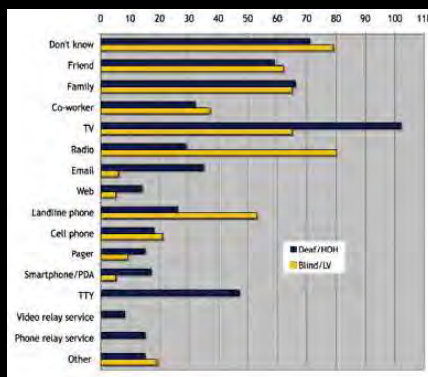
- Guidelines for STEM images' descriptions:
 - be brief
 - focus on data, not extraneous visual elements
 - be clear
 - use a drill-down organization
 - use narrative description if necessary

4. Insets (6/21)

- Procedure for images/graphs:
 - The description of each image/graph is placed below the paragraph where the image starts at height
 - State the beginning and ending of the image/graph:
[beginning of image/graph]
Caption:
Description:
[ending of image/graph]

4. Insets (7/21)

- Vertical bar charts



[beginning of graph]

Caption: How people who are deaf, hard-of-hearing, blind or have low vision are alerted to emergencies.

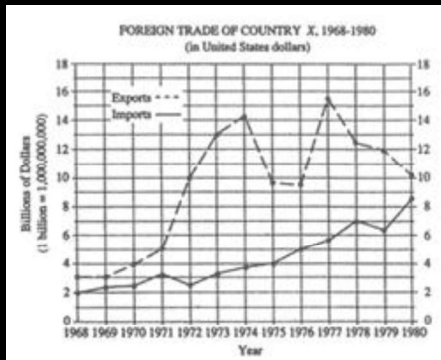
Description: The figure is a bar chart that has been converted into the following list. The first number represents the deaf or hard of hearing, the second number represents the blind or visually impaired. The numbers are given approximately.

- Don't Know: 70, 79
- Friend: 59, 62
- Family: 65, 64
- Co-worker: 33, 38
- TV: 102, 65
- Radio: 30, 80
- Email: 36, 5
- Web: 16, 4
- Landline Phone: 25, 53
- Cellphone: 8, 11
- Pager: 17, 10
- Smartphone/PDA: 18, 8
- TTY: 47, 0
- Video relay service: 4, 0
- Phone relay service: 8, 0
- Other: 7, 9

[ending of graph]

4. Insets (8/21)

- Line graph



[beginning of graph]

Caption: FOREIGN TRADE OF COUNTRY X, 1968-1980 (in United States dollars)

Description: The figure is entitled "FOREIGN TRADE OF COUNTRY X, 1968 through 1980, in United States dollars". There are two lines on the graph, a dashed line labeled "Exports" and a solid line labeled "Imports". The vertical axis is labeled "Billions of Dollars," beginning with zero to eighteens, in increments of 2. A note: one billion equals a one followed by 9 zeros. The horizontal axis is labeled "Year" and lists all the years from 1968 through 1980.

In the graph, the Exports line begins in 1968 at 4 billion dollars, rises steeply to 14 billion in 1974, then drops to 9.5 billion in 1975 and 1976. In 1977, the Exports line shoots up to 15.5 billion, then trails off to 10 billion in 1980. The Imports line begins in 1968 at 2 billion and rises steadily to 8.75 billion in 1980, except for minor dips in 1972 and 1979.

The data are summarized in the following table. Figures are in billions of dollars. All data are approximate.

Year	Exports	Imports
1968	4	2
1969	5	2.3
1970	6	2.4
1971	7	3.1
1972	10	2.5
1973	13	3.3
1974	14.2	3.7
1975	9.7	4
1976	9.5	5
1977	15.5	5.7
1978	12.5	7
1979	12	6.3
1980	10.2	8.6

[ending of graph]

4. Insets (9/21)

- Pie Chart



[beginning of graph]

Caption:

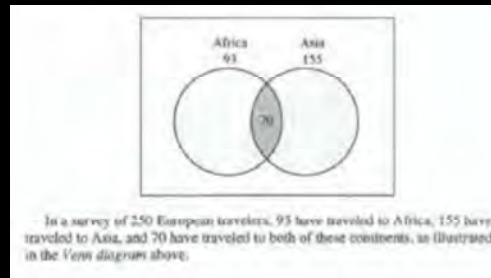
Description: The figure is a pie chart. The data can be shown in the following table.

Expense	% of total	Dollar Amount
Program supplies and expenses	2%	\$3,939
Registry Participation Initiatives	12%	\$26,053
Registry Operation and Enhancements	28%	\$63,820
Personnel	28%	\$63,868
Education Initiatives	30%	\$68,860

[ending of graph]

4. Insets (10/21)

- Venn diagram



[beginning of graph]

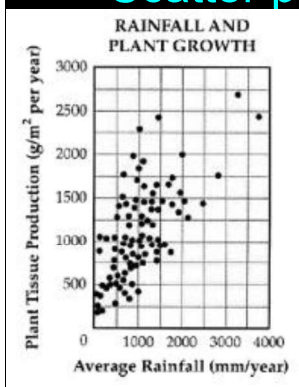
Caption: In a survey of 250 European travelers, 93 have traveled to Africa, 155 have traveled to Asia, and 70 have traveled to both of these continents, as illustrated in the Venn diagram above.

Description: The Venn diagram shows 2 intersecting circles, one labeled Africa 93 and the other labeled Asia 155. The area of intersection is labeled 70.

[ending of graph]

4. Insets (11/21)

- Scatter plot



[beginning of graph]

Caption: Rainfall and Plant Growth

Description: The graph is a scatter plot that shows the relationship between annual rainfall and plant tissue growth rates in an ecosystem.

The horizontal X axis shows Average Rainfall ranging from zero to four thousand, in units of millimeters per year, in increments of one thousand.

The vertical Y axis shows Plant Tissue Production in units of grams per meter squared per year, ranging from zero to three thousand, in increments of five hundred.

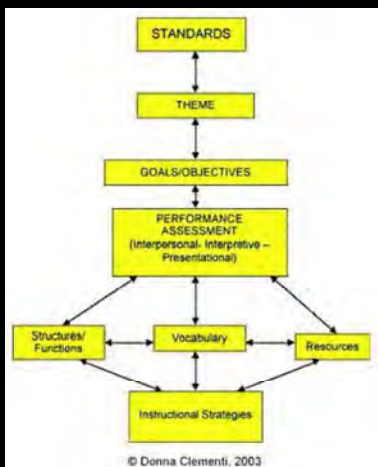
The graph has approximately 85 points scattered in a pattern beginning in the lower-left corner where Plant Tissue Production and Average Rainfall are the lowest. The pattern extends toward the upper-right corner where Plant Tissue Production and Average Rainfall are the highest.

The majority of points are concentrated in the lower-left corner and diminish in concentration as the pattern extends toward the upper-right corner.

[ending of graph]

4. Insets (12/21)

• Flow chart



[beginning of graph]

Caption: Donna Clementi, 2003

Description: The figure is a flow chart with eight labeled boxes linked by arrows. The chart is multi-directional. At each step, arrows point forward to one or more boxes and back to the previous box or boxes. Here the flow chart is described as lists in which the possible next steps are listed beneath each box label.

1. → Standards

a. → forward to Theme

2. → Theme

a. → back to Standards

b. → forward to Goals/Objectives

3. → Goals/Objectives

a. → back to Theme

b. → forward to Performance Assessment

4. → Performance Assessment (Interpersonal, Interpretive, Presentational)

a. → back to Goals/Objectives

b. → forward to Structures/Functions

c. → forward to Vocabulary

d. → forward to Resources

5. → Structures/Functions

a. → back to Performance Assessment

b. → lateral to Vocabulary

c. → forward to Instructional Strategies

6. → Vocabulary

a. → back to Performance Assessment

b. → lateral to Structures/Functions

c. → lateral to Resources

d. → forward to Instructional Strategies

7. → Resources

a. → back to Performance Assessment

b. → lateral to Vocabulary

c. → forward to Instructional Strategies

8. → Instructional Strategies

a. → back to Structures/Functions

b. → back to Vocabulary

c. → back to Resources

[ending of graph]

4. Insets (13/21)

• Illustrated diagram



[beginning of graph]

Caption: Adaptive radiation: Darwin's Finches

Description: An illustration showing 10 different finches and their variation is depicted in the following table.

NAME	FINCH	BILL	FOOD
Vegetarian tree finch	Tree finches	Parrot-like bills	Fruit eaters
Large insectivorous tree finch	Tree finches	Grasping bills	Insect eaters
Small insectivorous tree finch	Tree finches	Grasping bills	Insect eaters
Woodpecker finch	Tree finches	Probing bills	Insect eaters
Warbler finch	Warbler finches	Probing bills	Insect eaters
Cactus ground finch	Ground finches	Probing bills	Cactus eaters
Sharp-beaked ground finch	Ground finches	Crushing bills	Seed eaters
Small ground finch	Ground finches	Crushing bills	Seed eaters
Medium ground finch	Ground finches	Crushing bills	Seed eaters
Large ground finch	Ground finches	Crushing bills	Seed eaters

[ending of graph]

4. Insets (14/21)

• Tree diagram



[beginning of image]

Caption:

Description: A tree diagram shows different branches of science. There are three levels given in the following list, where each list level corresponds to a tree diagram level from top to bottom.

A. Natural Science

a. Physical Science

i. Physics

ii. Chemistry

b. Earth and Space Science

i. Geology

ii. Meteorology

iii. Astronomy

iv. Oceanography

c. Life Science

i. Botany

ii. Ecology

iii. Zoology

iv. Genetics

[ending of image]

4. Insets (15/21)

• Map



[beginning of image]

Caption:

Description: A map of North America with present day borders shows European claims in 1682. Two different, mostly water-routes are marked to show La Salle's route in 1679 and 1682. La Salle's route in 1679 starts in Montreal and goes south, through Lake Ontario and Lake Erie, and then loops north, around Michigan, ending in Peoria, Illinois. La Salle's route in 1682 starts in Peoria and goes south, along the Mississippi River and the Kentucky and Illinois border. Large swaths of color show English, French, and Spanish claims.

- The English claims area is almost the entire East coast, including several major cities like New York and Philadelphia. The English claims area goes from southern Maine to just north of Florida. The area extends from the coast in toward the Appalachian Mountains. Another English claims area covers much of Southern Canada, with a dip into Minnesota and North Dakota.
- The French claims area is most of the Midwest and some of the South, including Kentucky and Louisiana. It goes from north of Quebec, to Louisiana in the south, and Idaho in the west.
- The Spanish claims area is all of Florida and the southern parts of Georgia and Alabama. Another Spanish claims area is most of Texas, New Mexico, and Arizona, with a small portion in Southern California, and most of Northern Mexico.
- The rest of the present-United States, mostly the northwestern states, is not claimed.

[ending of image]

4. Insets (16/21)

- Image



[beginning of image]

Caption: Skyline of Louisville, Kentucky

Description: Colour photo at dusk across a wide river with a bridge and lit skyscrapers beyond; the river reflects the purple of the sky.

[ending of image]

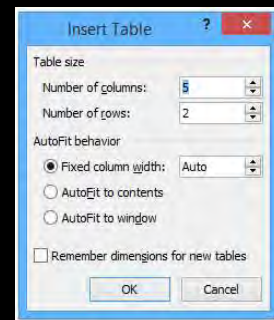
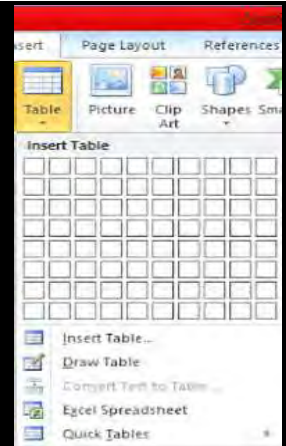
4. Insets (17/21)

- References

- “Effective Practices for Description of Science Content within Digital Talking Books”, National Center for Accessible Media
- “Image Description Guidelines”, DIAGRAM Center
- “Basics of Inclusive Design for Online Education” (MOOCS)

4. Insets (18/21)

- Procedure for tables:
 - The caption is placed before the table
 - Insert table
 - Define the headings of columns and rows
 - Do not merge cells
- How to insert?
 - Insert > Tables > Insert Table...
 - Insert Table > Table Size > Number of columns and Number of rows



4. Insets (19/21)

• Tables (1/3)

Πίνακας 17.1 Μερικές συνήθειες αντιθέσεις μεταξύ ποσοτικής και ποιοτικής έρευνας

Ποσοτική	Ποιοτική
Αριθμοί	Λέξεις
Οπτική του ερευνητή	Οπτική των ερευνώμενων
Αμέτοχος ερευνητής	Συμμέτοχος ερευνητής
Δοκιμή θεωρίας	Ανάδυση θεωρίας
Στατικότητα	Διαδικασία
Δομημένη	Μη δομημένη
Γενίκευση	Ανάδειξη πλαίσιου δράσης
Απτά, αξιόπιστα δεδομένα	Πλούσια, βαθιά δεδομένα
Μακροεπίπεδο	Μικροεπίπεδο
Συμπεριφορά	Νόημα
Τεχνητές συνθήκες	Φυσικές συνθήκες

Πίνακας 17.1 Μερικές συνήθειες αντιθέσεις μεταξύ ποσοτικής και ποιοτικής έρευνας

Ποσοτική	Ποιοτική
Αριθμοί	Λέξεις
Οπτική του ερευνητή	Οπτική των ερευνώμενων
Αμέτοχος ερευνητής	Συμμέτοχος ερευνητής
Δοκιμή θεωρίας	Ανάδυση θεωρίας
Στατικότητα	Διαδικασία
Δομημένη	Μη δομημένη
Γενίκευση	Ανάδειξη πλαίσιου δράσης
Απτά, αξιόπιστα δεδομένα	Πλούσια, βαθιά δεδομένα
Μακροεπίπεδο	Μικροεπίπεδο
Συμπεριφορά	Νόημα
Τεχνητές συνθήκες	Φυσικές συνθήκες

4. Insets (20/21)

• Tables (2/3)

Before

Πίνακας 10.1 Τα πλεονεκτήματα των επισκοπήσεων μέσω ηλεκτρονικού ταχυδρομείου και του Παγκόσμιου Ιστού σε σύγκριση με την κατά πρόσωπο συνέντευξη, την τηλεφωνική συνέντευξη και τις επισκοπήσεις βάσει ταχυδρομικού ερωτηματολογίου

Ζητήματα που θα πρέπει να ληφθούν υπόψη	Τρόπος χορήγησης της επισκόπησης				
	Κατά πρόσωπο συνέντευξη	Τηλεφωνική συνέντευξη	Ταχυδρομικό ερωτηματολόγιο	Ηλεκτρονικό ταχυδρομείο	Παγκόσμιος Ιστός
Ζητήματα πόρων					
Σχετικά χαμηλό κόστος χορήγησης:	✓	✓✓	✓✓✓	✓✓✓	✓ (εκτός αν υπάρχει πρόσβαση σε φθινό λογισμικό)
Σχετικά υψηλή ταχύτητα χορήγησης:	✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Σχετικά χαμηλό κόστος χείρισμού διάσπαρτου δείγματος:	✓✓✓ (αν είναι σε δέσμες)	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Απαιτείται μικρή τεχνική εξειδίκευση για τον σχεδιασμό του ερωτηματολογίου:	✓✓✓	✓✓✓	✓✓✓	✓✓	✓
Ζητήματα δειγματοληψίας					
Τείνει ο τρόπος χορήγησης να έχει καλό ποσοστό απόκρισης:	✓✓✓	✓✓	✓	✓	✓
Μπορεί ο ερευνητής να ελέγξει ποιος απαντά (π.χ. απαντά πράγματι ο επιδιωκόμενος ερωτώμενος):	✓✓✓	✓✓✓	✓✓	✓✓	✓✓
Έχουν όλα τα μέλη του δείγματος πρόσβαση στον τρόπο χορήγησης:	✓✓✓	✓✓	✓✓✓	✓ (επειδή πρέπει οι ερωτώμενοι να έχουν πρόσβαση στο διαδίκτυο)	✓ (επειδή πρέπει οι ερωτώμενοι να έχουν πρόσβαση στο διαδίκτυο)

4. Insets (21/21)

• Tables (3/3)

After

Πίνακας 10.1 Τα πλεονεκτήματα των επισκοπήσεων μέσω ηλεκτρονικού ταχυδρομείου και του Παγκόσμιου Ιστού σε σύγκριση με την κατά πρόσωπο συνέντευξη, την τηλεφωνική συνέντευξη και τις επισκοπήσεις βάσει ταχυδρομικού ερωτηματολογίου

Ζητήματα που θα πρέπει να ληφθούν υπόψη	Τρόπος χορήγησης της επισκόπησης Κατά πρόσωπο συνέντευξη	Τρόπος χορήγησης της επισκόπησης Τηλεφωνική συνέντευξη	Τρόπος χορήγησης της επισκόπησης Ταχυδρομικό ερωτηματολόγιο	Τρόπος χορήγησης της επισκόπησης Ηλεκτρονικό ταχυδρομείο	Τρόπος χορήγησης της επισκόπησης Παγκόσμιος Ιστός
Ζητήματα πόρων: Σχετικά χαμηλό κόστος χορήγησης:	✓	✓✓	✓✓✓	✓✓✓	✓ (εκτός αν υπάρχει πρόσβαση σε φθινό λογισμικό)
Ζητήματα πόρων: Σχετικά υψηλή ταχύτητα χορήγησης:	✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Ζητήματα πόρων: Σχετικά χαμηλό κόστος χείρισμού διάσπαρτου δείγματος:	✓✓✓ (αν είναι σε δέσμες)	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Ζητήματα πόρων: Απαιτείται μικρή τεχνική εξειδίκευση για τον σχεδιασμό του ερωτηματολογίου:	✓✓✓	✓✓✓	✓✓✓	✓✓	✓
Ζητήματα δειγματοληψίας: Τείνει ο τρόπος χορήγησης να έχει καλό ποσοστό απόκρισης:	✓✓✓	✓✓	✓	✓	✓
Ζητήματα δειγματοληψίας: Μπορεί ο ερευνητής να ελέγξει ποιος απαντά (π.χ. απαντά πράγματι ο επιδιωκόμενος ερωτώμενος):	✓✓✓	✓✓✓	✓✓	✓✓	✓✓
Ζητήματα δειγματοληψίας: Έχουν όλα τα μέλη του δείγματος πρόσβαση στον τρόπο χορήγησης:	✓✓✓	✓✓	✓✓✓	✓ (επειδή πρέπει οι ερωτώμενοι να έχουν πρόσβαση στο διαδίκτυο)	✓ (επειδή πρέπει οι ερωτώμενοι να έχουν πρόσβαση στο διαδίκτυο)

5.Deletion of structural elements (1/10)

- What are the structural elements?

ABC Fruit Wholesaling Company
Monthly Sales

Header

Fruit	Supplier	Qty	Container	Price	Value
Apples	Tasmania Growers	5	Box	\$ 10.00	\$ 50.00
Pears	Somerset Distributors	6	Bags	\$ 6.00	\$ 36.00
Bananas	Coffs Farmers	10	Crates	\$ 20.00	\$ 200.00
Grapes	Vineyard Enterprises	15	Crates	\$ 15.00	\$ 225.00
Peaches	Tasmania Growers	8	Cartons	\$ 12.00	\$ 96.00
Apricots	Victoria Cooperative	10	Bags	\$ 8.00	\$ 80.00
Plums	Somerset Distributors	12	Box	\$ 6.00	\$ 72.00
Oranges	Murrumbidgee Growers	20	Crates	\$ 5.00	\$ 100.00
Total					\$ 859.00

Footers

fruit.xlsx, 17/11/2012

Page 1

5.Deletion of structural elements (2/10)

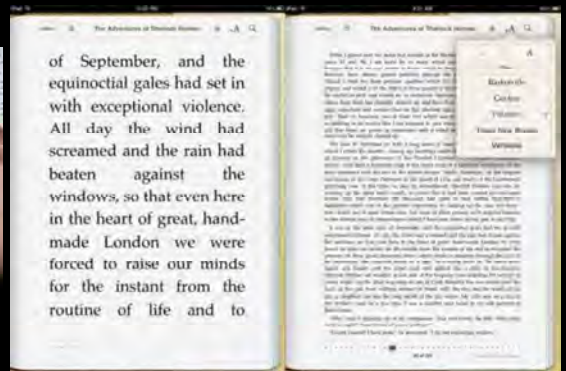
- Headers and footers



5.Deletion of structural elements (3/10)

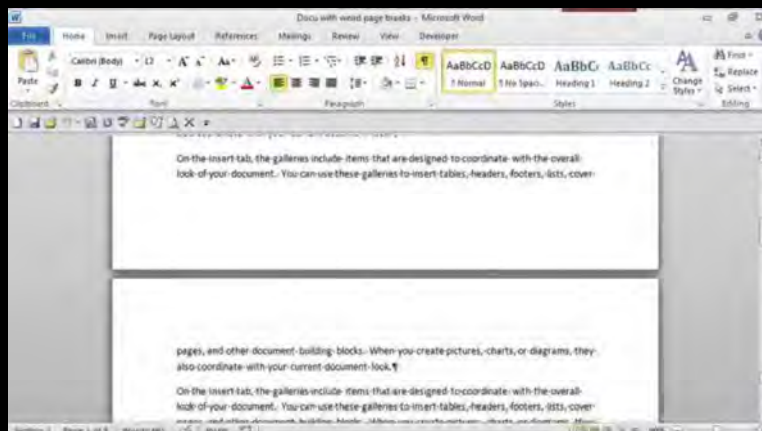
- Why should structural elements be erased?

1. Expensive printing.



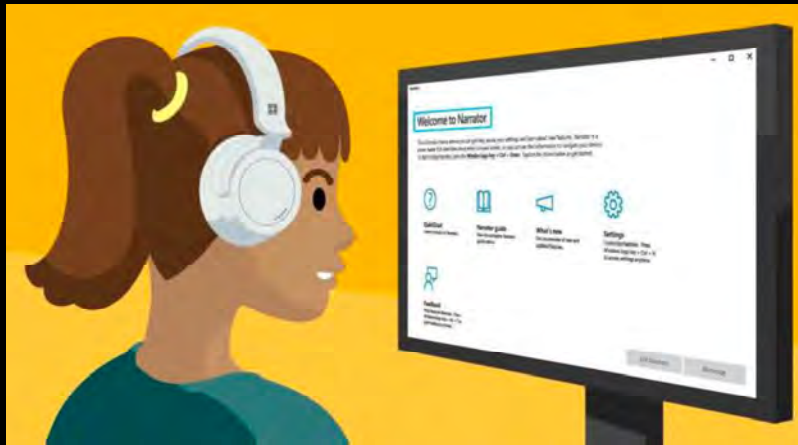
5.Deletion of structural elements (4/10)

2. Broken paragraph and the meaning is lost.



5.Deletion of structural elements (5/10)

3. In the text box the screen reader does not read the information.



5.Deletion of structural elements (6/10)

4. Tiring for people with visual disabilities

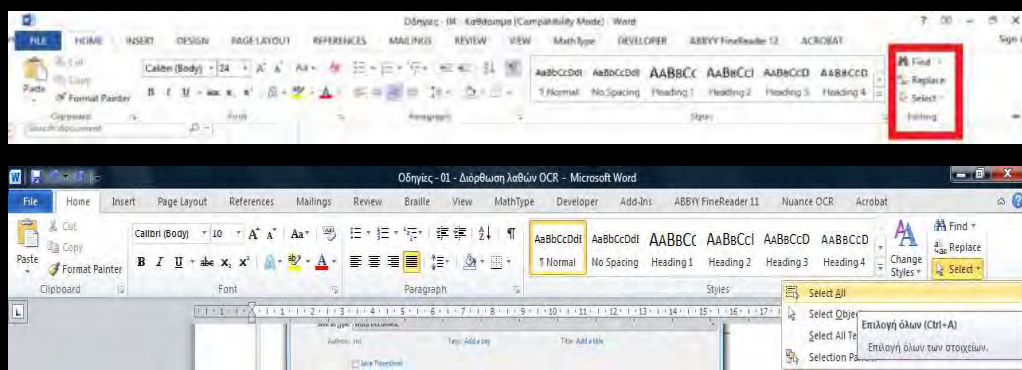


5. Deletion of structural elements 7/10)

- The editors delete the images, text boxes, and tables that existed in the document, since they were already described in the previous step, because they remain scattered throughout the text.

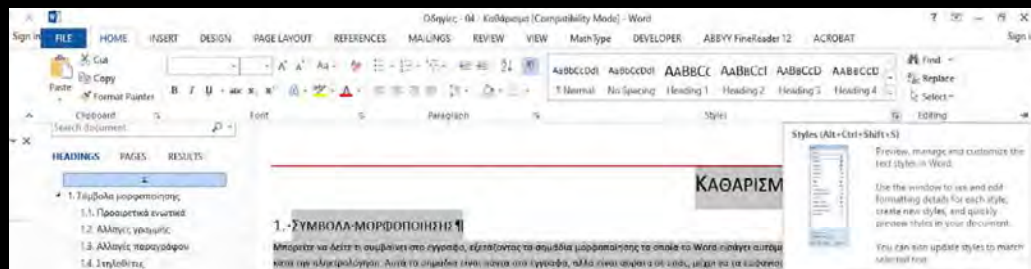
5. Deletion of structural elements (8/10)

- Clear all.
 - Select the text (**Ctrl+A** or **Home** tab > **Editing** area > **Select** button > **Select All**).



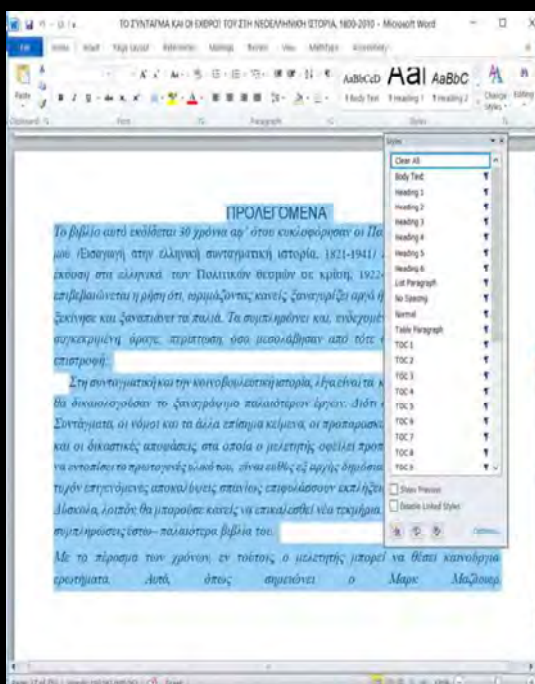
5. Deletion of structural elements (9/10)

- Clear all.
– Home tab > Styles area > Clear all.



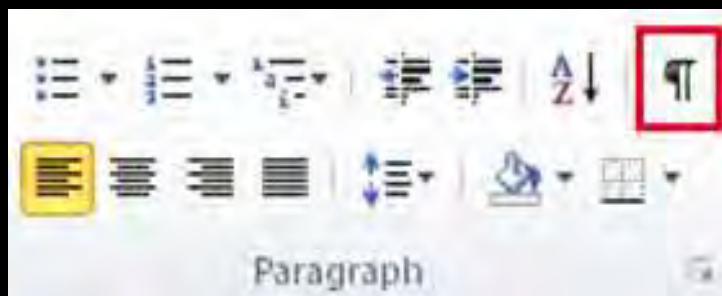
5. Deletion of structural elements (10/10)

- Clear all.



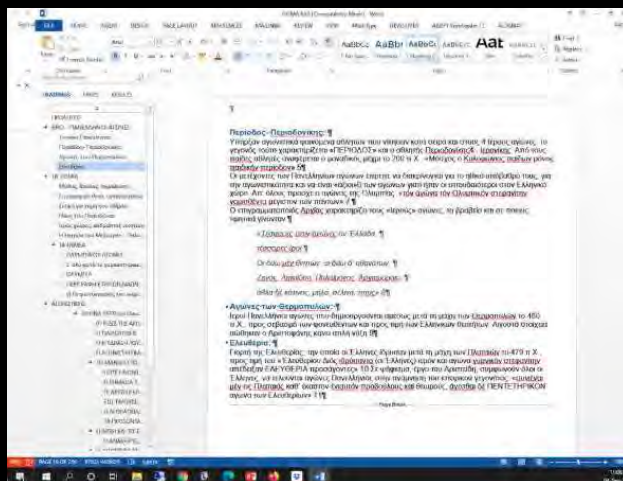
6. Cleaning (1/17)

- Formatting symbol
 - Home tab > Paragraph area > Show/Hide symbol.



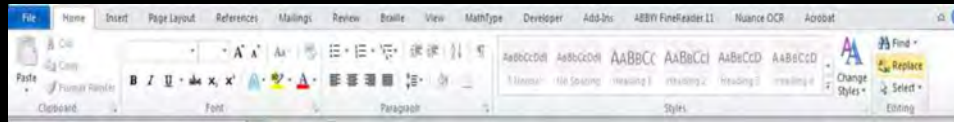
6. Cleaning (2/17)

Example of Show/Hide symbol in a word document.

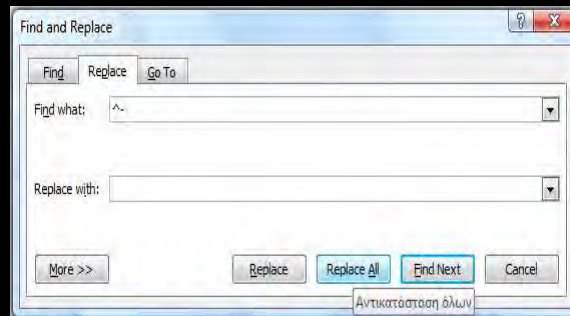


6. Cleaning (3/17)

- Delete:



– optional binders ()



6. Cleaning (4/17)

Example with optional binders ()

ἀρχαῖστον κτήμα ἦν καὶ τοῦ Πάριονος· τοῦ
 Το χρηστήριον τῆς γῆς δημιουργήθηκε ἀπὸ το φυσικὸ χάσμα, που ἐβγαζε ἀναθυμιάσεις καὶ
 ἐπιδρούσε ὑπνωτικὰ στὰ ζῶα καὶ στοὺς τοσπάνηδες που βρισκόνταν ἐκεῖ κοντὰ. 161¶
 Το Δελφικὸ ἱερατεῖο ἐντέχνα καλλιέργησε το φυσικὸ τοῦτο φαινόμενο. Ἡ σκαπάνη δὲν μπόρεσε νὰ
 ἐντοπί-σε ἀνάλογο χάσμα, πιθανόν οἱ διαχρονικοὶ σεισμοὶ το ἐκλείσαν. Ἡ Ἀπολλωνολατρεία
 ἐπιδράσε σ' ὅλον τον Ἑλληνικὸ χώρο καὶ ἰδιαίτερα στην Ἐπίδαυρο καὶ στην Ὀλυμπία. Στο δυτικὸ
 αὐτῶμα του Νεοῦ του Δία στην Ὀλυμπία, ἔχει φιλοτεχνηθεῖ ολόκληρη ἡ πολυδιάστατη φιλοσοφία
 του· εἰκονίζεται ὁ Ἀπόλλων ὡς διαιτητὴς στην πάλη των Ἀσπηθῶν· ὡς κατὰ των Κενταύρων·
 σκότος· ὑπῆρχε δὲ καὶ ξεχωριστὸς βωμὸς του θεσμίου, των θεσμών, του δίκαιου Ἀπόλλωνα. 162¶
 Θυιάδες· Ἡ πρώτη ἱερεία του Διόνυσου ἦταν ἡ Θύϊα, ἐνῶ του Ἀπόλλωνα ἡ Φημονόη· κάθε δεῦτερο
 Δελφικὸ χρόνο, ἐποχὴ χειμῶνα γυναῖκες τῆς Ἀπικῆς με ἀντίστοιχες των Δελφῶν, ἀνέβαιναν πρὸς
 τον Παρνασσὸ γιὰ θρησκευτικὲς τελετὲς πρὸς τιμὴ του Διόνυσου. Στο ὄρομο ἔστηναν χορὸ σὲ
 διάφορα μέρη, ὅπως στον Καλλίχορο του Πανοπέα. 163¶
 Πυθία· Το ἐπίθετο τῆς ἱερείας του Ἀπόλλωνα. Πρῶτος ἀνδρας 164 προφήτης του Ἀπόλλωνα·
 μνημονεύεται ὁ Ἀκήρατος, ὁ Ὠλύντας, ὁ Ἐχεκράτης, ὁ Νικανδρος κ.ά., εἶναι οἱ «ἱεροφάντες», οἱ
 «Βακίδες». 165¶
 Πρῶτη προφήτισσα· χρησμοδόπισσα ἦταν ἡ Σιβυλλὰ 166 που προέρχεται ἀπὸ την περιοχή τῆς
 Λιβύης.¶
 Κατὰ τον Πausanία 167 το ἐπίθετο Σιβυλλὰ εἶναι· Αἰγυπτιακὸ καὶ βαβυλω-νιακὸ· Δεύτερη ἱερεία
 εἶναι ἡ Ἡροφίλη, που χρίεται το ὄνομα Σιβυλλὰ· χαρακτηριστικὸ γνῶρισμα των Σιβυλλῶν ἦταν ἡ
 μανία, ἡ θεοληψία, ἡ ἑκσταση, ἡ ἱερὴ ἀσθένεια, που καταλαμβάνονταν, καθισμένες πᾶνω σὲ πέτρα·

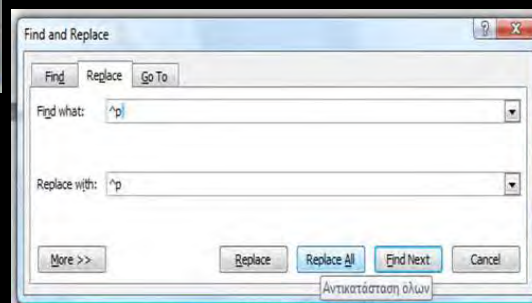
6. Cleaning (5/17)

Example without optional blinders (↵)

επιδρούσε υπνωτικά στα ζώα και στους ταύπηνδες που βρίσκονταν εκεί κοντά.161¶
Το Δελφικό ιερατείο έντεχνα καλλιέργησε το φυσικό τούτο φαινόμενο. Η σκαπάνη δεν μπόρεσε να
εντοπιστεί ανάλογο χάσμα, πιθανόν οι διαχρονικοί σεισμοί το έκλεισαν. Η Απολλωνολατρεία
επίδρασε σ' όλον τον Ελληνικό χώρο και ιδιαίτερα στην Επίδαυρο και στην Ολυμπία. Στο δυτικό
αέτωμα του Ναού του Δία στην Ολυμπία έχει φιλοτεχνηθεί ολόκληρη η πολυδιάστατη φιλοσοφία
του· εικονίζεται ο Απόλλων ως διαπτήης στην πύλη των Λαπηθών· φως, κατά των Κενταύρων·
σκότος· υπήρχε δε και ξεχωριστός βωμός του θεσμιού, των θεσμών, του δίκαιου Απόλλωνα.162¶
Θυιάδες· Η πρώτη ιέρεια του Διόνυσου ήταν η Θύ'ια, ενώ του Απόλλωνα η Φημονόη· κάθε δεύτερο
Δελφικό χρόνο, εποχή χειμώνα γυναίκες της Αττικής με αντίστοιχες των Δελφών, ανεβαίνουν προς
τον Παρνασσό για θρησκευτικές τελετές προς τιμή του Διόνυσου. Στο δρομά εστήναν χορό σε
διάφορα μέρη, όπως στον Καλλίχορο του Πανοπέα.163¶
Πυθία· Το επίθετο της ιέρειας του Απόλλωνα. Πρώτος άνδρας164 προφήτης του Απόλλωνα
μνημονεύεται ο Ακίρατος, ο Ολίνας, ο Εχεκράτης, ο Νικανδρος κ.ά· είναι οι «Ιεροφάντες», οι
«Βάκιδες».165¶
Πρώτη προφήτισσα· χρησμοδότισσα ήταν η Σίβυλλα166 που προέρχεται από την περιοχή της
Λιβύης.¶
Κατά τον Πausανία167 το επίθετο Σίβυλλα είναι Αιγυπτιακό και Βαβυλωνιακό. Δεύτερη ιέρεια
είναι η Ηροφίλη, που χρίεται το όνομα Σίβυλλα· χαρακτηριστικό γνώρισμα των Σίβυλλων ήταν η
μανία, η θεοληψία, η έκσταση, η ιερή ασθένεια, που καταλαμβάνονταν, καθισμένες πάνω σε πέτρα
ή σε τσίπιδες· η Σίβυλλα τη διαδέχεται η Πυθία.168¶

6. Cleaning (6/17)

– blanks and tabs ↵



6. Cleaning (7/17)

Example with blanks and tabs

τημή του Απόλλωνα, αλλά διθύραμβοι προς τιμή του Διονύσου. 158 Η επιστροφή από τα Τέμπη του Φοίβου γιορταζόταν με «τά Θεοφάνεια». 159¶
Κατέβαλε προσπάθεια η Απολλώνεια φιλοσοφία για να εδραιωθεί και να επιβληθεί γιατί αντιμετώπισε στους Δελφούς και την αντίδραση της λατρείας του Ποσειδώνα: «τό μαντεῖον τό ἀρχαιότατον κτήμα ἦν καὶ τοῦ Ποσειδῶνος». 160¶
Το χρηστήριο της γης δημιουργήθηκε από το φυσικό χάσμα, που έβγαζε αναθυμιάσεις και επιδρούσε υπνωτικά στα ζώα και στους τσοπάνηδες που βρίσκονταν εκεί κοντά. 161¶
Το Δελφικό ιερατείο έντεχνα καλλιέργησε το φυσικό τούτο φαινόμενο. Η σκαπάνη δεν μπόρεσε να εντοπίσει ανάλογο χάσμα, πιθανόν οι διαχρονικοί σεισμοί το έκλεισαν. Η Απολλωνολατρεία επίδρασε σ' όλον τον Ελληνικό χώρο και ιδιαίτερα στην Επίδαυρο και στην Ολυμπία. Στο δυτικό αέτωμα του Ναού του Δία στην Ολυμπία, έχει φιλοτεχνηθεί ολόκληρη η πολυδιάστατη φιλοσοφία του Απολλών ως διαιτητής στην πάλη των Ασπηθών, φως, κατά των Κενταύρων, σκοτός υπήρχε, δε και ξεχωριστός βωμός του θεσμιού, των θεσμών, του δίκαιου Απολλώνα. 162¶

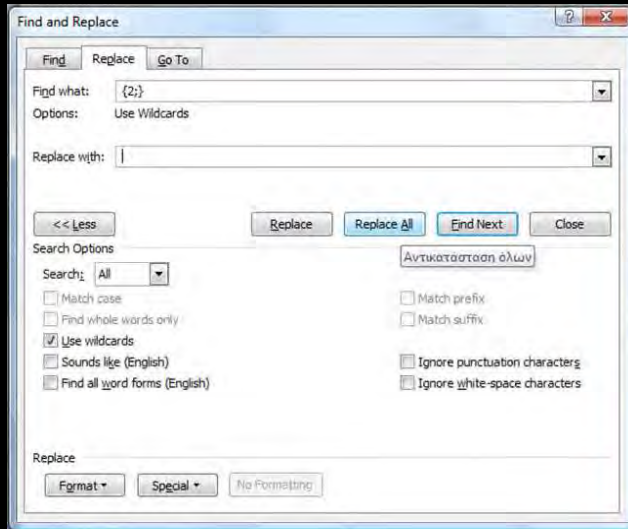
6. Cleaning (8/17)

Example without blanks and tabs

τημή του Απόλλωνα, αλλά διθύραμβοι προς τιμή του Διονύσου. 158 Η επιστροφή από τα Τέμπη του Φοίβου γιορταζόταν με «τά Θεοφάνεια». 159¶
Κατέβαλε προσπάθεια η Απολλώνεια φιλοσοφία για να εδραιωθεί και να επιβληθεί γιατί αντιμετώπισε στους Δελφούς και την αντίδραση της λατρείας του Ποσειδώνα: «τό μαντεῖον τό ἀρχαιότατον κτήμα ἦν καὶ τοῦ Ποσειδῶνος». 160¶
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6. Cleaning (9/17)

– excessive vacancies/tabs



6. Cleaning (10/17)

Example **with** excessive vacancies/tabs

Κατὰ τὸν Πausanías 167· τὸ ἐπιθετὸ Σίβυλλα εἶναι· Αἰγυπτιακὸν καὶ Βαβυλωνιακόν· Δεύτερη· ἔρεϊα· εἶναι ἡ Ηροφίλη, που χρίεται τὸ ὄνομα Σίβυλλα χαρακτηριστικὸ γνῶρισμα τῶν Σιβύλλων· ἦταν· ἡ μανία, ἡ θεοληψία, ἡ ἔκστασις, ἡ ἐρη-σθένεια, που καταλαμβάνονταν, καθισμένες πάνω· σε· πέτρα ἢ σε τρίποδα τῇ Σίβυλλᾳ τῇ διαδέχεται ἡ..... Πυθία, 168¶
Η..... ἀπάντησις, ὁ χρησμός, ἀπὸ τῆς Πυθίᾳ· εἶχε φιλοσοφικὴν ἔννοιαν" ἀπαντοῦσε· σ' ὅλες τῖς· ἐρωτήσεις με· ἀκατανόητες φράσεις· που τὸ μορφωμένο εἰδικὸν ἱερατεῖον τῖς διαμόρφωνε; [... σ'· ἄλλες ἐρωτήσεις ἔδινε· σκολιὰς καὶ..... ἀμφίβολες ἀπαντήσεις· σ' ἄλλες πολὺ· σκοτεινὰς, γιατί· καὶ τὸ σκοτεινὸν φαίνονταν προσὸν τῶν χρησμάτων. Σ' ἄλλους ἐπέτρεπε· ἢ προέτρεπε· ὅπως ἔκρινε· καλὺτερον· καὶ πιθανότερον, σ' ἄλλους προέλεγε..... θεραπεῖας, συμβουλὰς· δαίαιες". 169¶
Τὸ χρησμοδοτικὸν προσωπικόν του· Μαντείου: «ἔχων· συνεργός, ὕπην· ρετὰς καὶ πειθύνων καὶ· χρησμοποιούς καὶ χρησμοφύλακες· καὶ ὑπογράφας καὶ ἐξηφραγίστας καὶ ἐξηγητάς» 170 ὅγλ· [ἔχει τὸ μαντεῖον, συνεργάτης, ὑπηρέτης, κατασκόπους, χρησμοποιούς, χρησμοφύλακες, γραφεῖς,

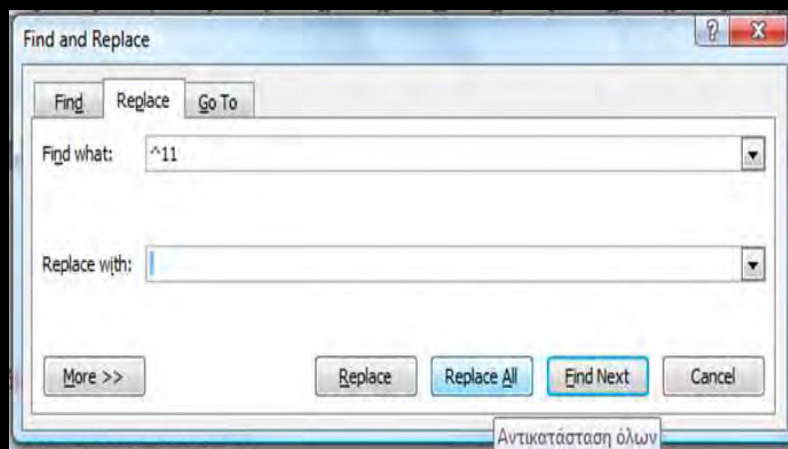
6. Cleaning (11/17)

Example **without** excessive vacancies/tabs

Κατά τον Πausanία¹⁶⁷ το επίθετο Σίβυλλα είναι Αιγυπτιακό και Βαβυλωνιακό. Δεύτερη ιέρεια είναι η **Ηροφίλη, που χρίεται** το όνομα Σίβυλλα χαρακτηριστικό γνώρισμα των **Σιβύλλων** ήταν η μανία, η θεοληψία, η έκσταση, η ιερή ασθένεια, που καταλαμβάνονταν, καθισμένες πάνω σε πέτρα ή σε τρίποδα τη Σίβυλλα τη **διαδέχεται η Πυθία**.¹⁶⁸ Η απάντηση, ο χρησμός, από την Πυθία είχε φιλοσοφική έννοια" απαντούσε σ' όλες τις ερωτήσεις με ακατανόητες φράσεις που το μορφωμένο ειδικό ιερατείο τις διαμόρφωνε; [... σ' άλλες ερωτήσεις έδινε σκολιές και **αμφίβολες** απαντήσεις σ' άλλες πολύ σκοτεινές, γιατί και το σκοτεινό φαινόταν προσόν των χρησμών. Σ' άλλους επέτρεπε ή προέτρεπε όπως έκρινε καλύτερο και πιθανότερο, σ' άλλους **προέλεγε θεραπείες**, συμβουλές, δίαιτες].¹⁶⁹

6. Cleaning (12/17)

– Line changes 



6. Cleaning (13/17)

Example **with** line changes 

ή·σε·τρίποδα·τη·Σίβυλᾶ·τη·διαδέχεται·η·Πυθία·[168¶]
Η·απάντηση·,·ο·χρησμός·,·από·την·Πυθία·είχε·φιλοσοφική·έννοια·
απαντούσε·σ'·όλες·τις·ερωτήσεις·με·ακατανόητες·φράσεις·που·το·μορφωμένο·ειδικό·ιερατείο·τις·
διαμόρφωνε·,·[...·σ'·άλλες·ερωτήσεις·έδινε·σκολιές·και·αμφίβολες·απαντήσεις·σ'·άλλες·πολύ·
σκοτεινές·,·
γιατί·και·το·σκοτεινό·φαίνονταν·προσόν·των·χρησμών·,·Σ·
άλλους·επέτρεπε·ή·προέτρεπε·όπως·έκρινε·καλύτερο·και·πιθανότερο·,·σ'·άλλους·προέλεγε·
θεραπείες·,·συμβουλές·,·δΐαιτες·[169¶]
Το·χρησιμοδοτικό·προσωπικό·του·Μαντείου·:·«εχών·συνεργούς·,·ὑπη·ρέτας·καί·πευθήνας·καί·

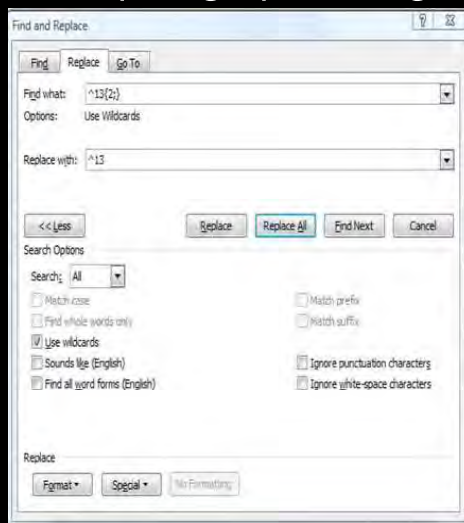
6. Cleaning (14/17)

Example **without** line changes 

ή·σε·τρίποδα·τη·Σίβυλᾶ·τη·διαδέχεται·η·Πυθία·[168¶]
Η·απάντηση·,·ο·χρησμός·,·από·την·Πυθία·είχε·φιλοσοφική·έννοια·απαντούσε·σ'·όλες·τις·ερωτήσεις·
με·ακατανόητες·φράσεις·που·το·μορφωμένο·ειδικό·ιερατείο·τις·διαμόρφωνε·,·[...·σ'·άλλες·
ερωτήσεις·έδινε·σκολιές·και·αμφίβολες·απαντήσεις·σ'·άλλες·πολύ·σκοτεινές·,·γιατί·και·το·σκοτεινό·
φαίνονταν·προσόν·των·χρησμών·,·Σ·άλλους·επέτρεπε·ή·προέτρεπε·όπως·έκρινε·καλύτερο·και·
πιθανότερο·,·σ'·άλλους·προέλεγε·θεραπείες·,·συμβουλές·,·δΐαιτες·[169¶]
Το·χρησιμοδοτικό·προσωπικό·του·Μαντείου·:·«εχών·συνεργούς·,·ὑπη·ρέτας·καί·πευθήνας·καί·

6. Cleaning (15/17)

– Redundant paragraph changes ¶



6. Cleaning (16/17)

Example with redundant paragraph changes ¶

διαμάχη των δύο θεοτήτων, οι συνειδήσεις των ανθρώπων διεχώρησαν τις λατρείες σε
διαφορετικούς χρόνους. Η Διονυσιακή λατρεία διαφαίνεται κυρίως κατά τους τρεις χειμερινούς
μήνες τότε που ο Απόλλωνας έλειπε στα Τέμπη¶
κατά τη λατρεία, ψάλλονταν όχι παιάνες προς τιμή του Απόλλωνα, αλλά διθύραμβοι προς τιμή του
Διόνυσου 158 Η επιστροφή από τα Τέμπη του Φοίβου¶
γιορταζόταν με «τά Θεοφάνεια». 159¶
Κατέβαλε προσπάθεια η Απολλώνεια φιλοσοφία¶
για να εδραιωθεί και να επιβληθεί γιατί αντιμετώπισε στους Δελφούς και την αντίδραση της
λατρείας του Ποσειδώνα: «τό μαντεϊόν τό αρχαιότατον κτήμα ἦν¶
καί του Ποσειδῶνος». 160¶

6. Cleaning (17/17)

Example **without** redundant paragraph changes 

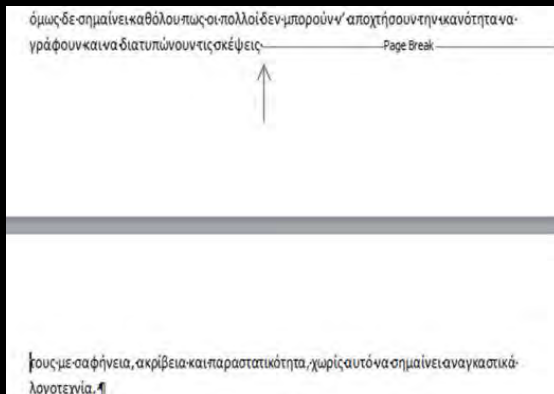
διαμάχη των δύο θεοτήτων, οι συνειδήσεις των ανθρώπων διεχώρησαν τις λατρείες σε διαφορετικούς χρόνους. Η Διονυσιακή λατρεία διαφαίνεται κυρίως κατά τους τρεις χειμερινούς μήνες τότε που ο Απόλλωνας έλειπε στα Τέμπη κατά τη λατρεία, ψάλλονταν όχι παιάνες προς τιμή του Απόλλωνα, αλλά διθύραμβοι προς τιμή του Διόνυσου. 158 Η επιστροφή από τα Τέμπη του Φοίβου γιορταζόταν με «τά Θεοφάνεια». 159 ¶ Κατέβαλε προσπάθεια η Απολλώνεια φιλοσοφία για να εδραιωθεί και να επιβληθεί γιατί αντιμετώπισε στους Δελφούς και την αντίδραση της λατρείας του Ποσειδώνα: «τό μαντεῖον τό ἀρχαιότατον κτήμα ἦν καὶ τοῦ Ποσειδῶνος». 160 ¶

7. Paging (1/7)

- Match the page of the developing word document with the original text.
- **Procedure:**
 1. Page break where needed on every page.
 2. Section break when the number of pages or footnotes changes.
 3. Remove temporary additional page breaks and section breaks that caused from OCR procedure.
 4. Change font size or spacing if needed.
 5. Insert page breaks in a uniform and correct way.

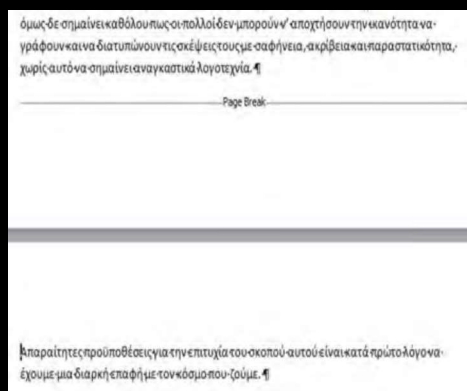
7. Paging (2/7)

- Cases of page break:
 - Midpoint of a paragraph – space before page break



7. Paging (3/7)

- Cases of page break:
 - End of paragraph – space & enter, before page break

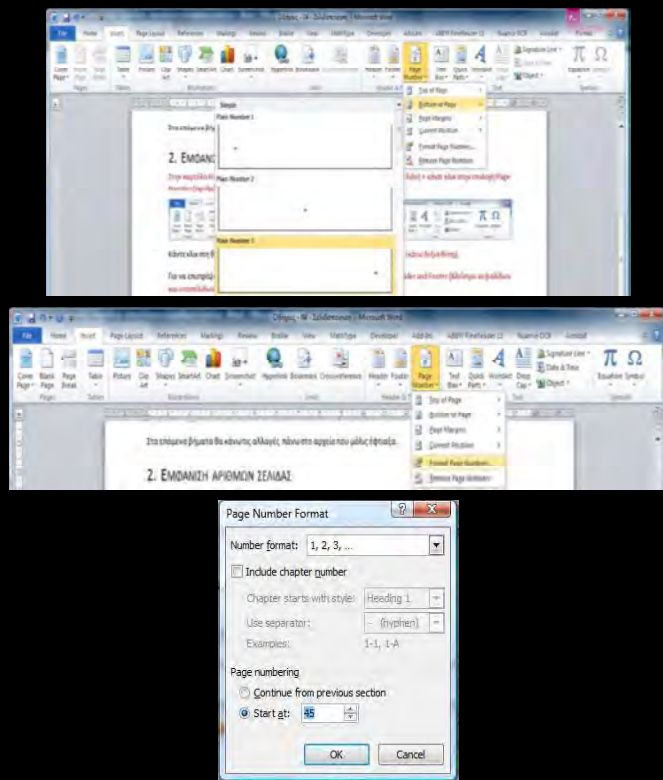


- Tables in the working document (table of content etc.)

7. Paging (4/7)

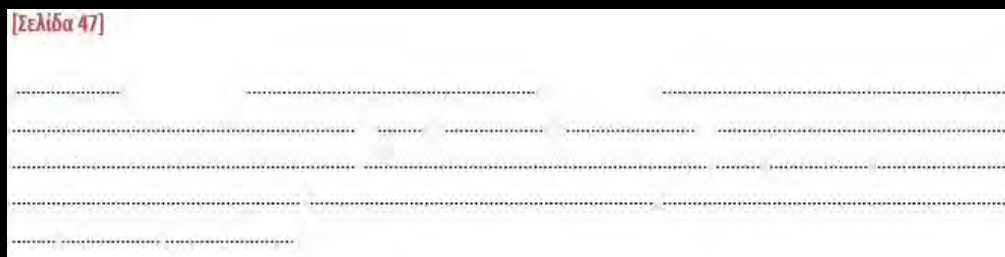
Practical Ways of Paging:

- Appearance of the page number



7. Paging (5/7)

- Practical Ways of Paging:
 - Entering page number
 - Manually



8. Line changing (1/2)

- Break or unite paragraphs
 - Manually

Example in the original textbook:

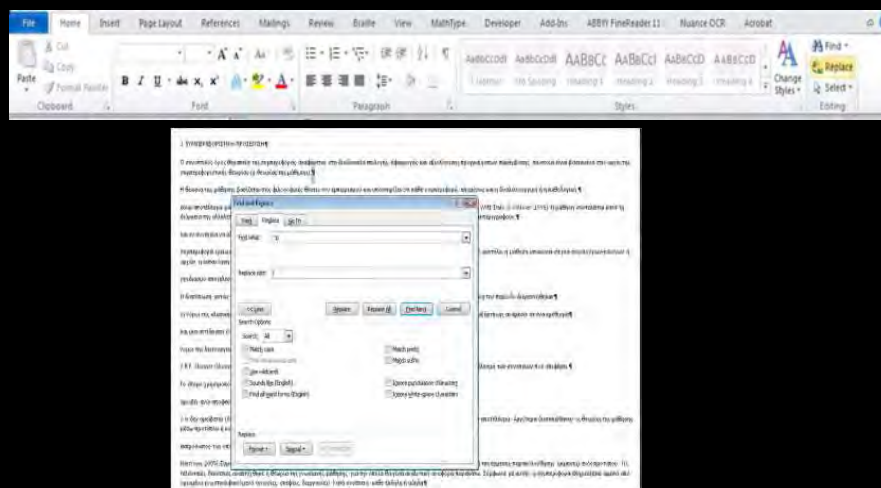
3. ΣΥΜΠΕΡΙΦΟΡΙΣΤΙΚΗ ΠΡΟΣΕΓΓΙΣΗ
Ο συνοπτικός όρος θεωρείται της συμπεριφοράς αναφέρεται στη διαδικασία επιλογής, εφαρμογής και αξιολόγησης προγραμματιών παρεμβάσεων, τα οποία είναι βασισμένα στις αρχές της συμπεριφοριστικής θεωρίας (ή θεωρίας της μάθησης).

Example of how it may look like in the Word file:

3. ΣΥΜΠΕΡΙΦΟΡΙΣΤΙΚΗ ΠΡΟΣΕΓΓΙΣΗ
Ο συνοπτικός όρος θεωρείται της συμπεριφοράς αναφέρεται στη διαδικασία επιλογής, εφαρμογής και αξιολόγησης προγραμματιών παρεμβάσεων, τα οποία είναι βασισμένα στις αρχές της συμπεριφοριστικής θεωρίας (ή θεωρίας της μάθησης).

8. Line changing (2/2)

- Break or unite paragraphs
 - Automated



9.Text Structure (1/8)

- What it consists of:
Title,
Subtitle,
Headings,
Table of Contents

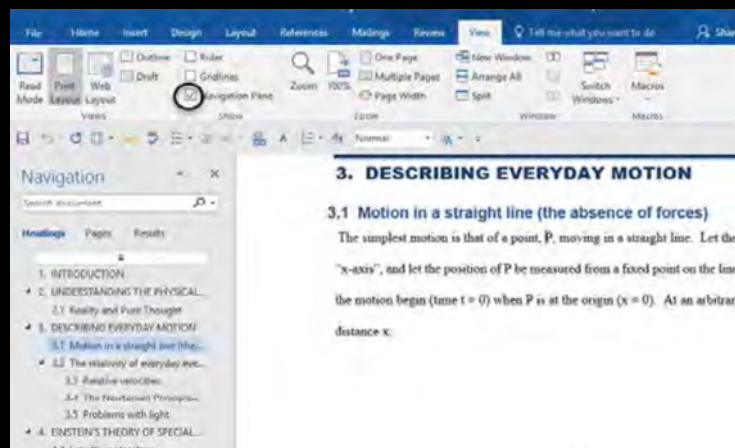


Table of Contents

1.0 Introduction	1
2.0 Evaluation Criteria	3
2.1 Adequacy	3
2.2 Administrative Efficiency	5
2.3 Equity	6
2.4 Economic Efficiency	7
2.5 Evasion and Avoidance	9
2.6 Feasibility	13
3.0 Estimating VMT-Related Revenue	15
3.1 Estimating Truck VMT	15
3.2 Registration Fees	18
3.3 Fuel Taxes	22
3.4 Weight-Distance Taxes	24
4.0 Adequacy	27
4.1 Yield	27
4.2 Other Considerations	29
5.0 Administrative Efficiency	33
5.1 Public-Sector Administrative and Enforcement Costs	33
5.2 Compliance Costs	42
6.0 Equity	47
6.1 Basic Issues	47
6.2 Attribution of User-Charge Revenue	53
6.3 Converting Between Operating Weight and Registered Weight	61
7.0 Economic Efficiency	63
7.1 Evaluations of Potential Tax-System Changes	64
7.2 Comprehensive Evaluations	65
8.0 Evasion and Avoidance	69
8.1 Use of Audit and Enforcement Information	69
8.2 Comparisons to Independent Estimates of Tax Liabilities	73
8.3 Avoidance	75
9.0 Feasibility	77
10.0 Summary Evaluation	79

9.Text Structure (2/8)

- Why is it necessary?
For easier navigation



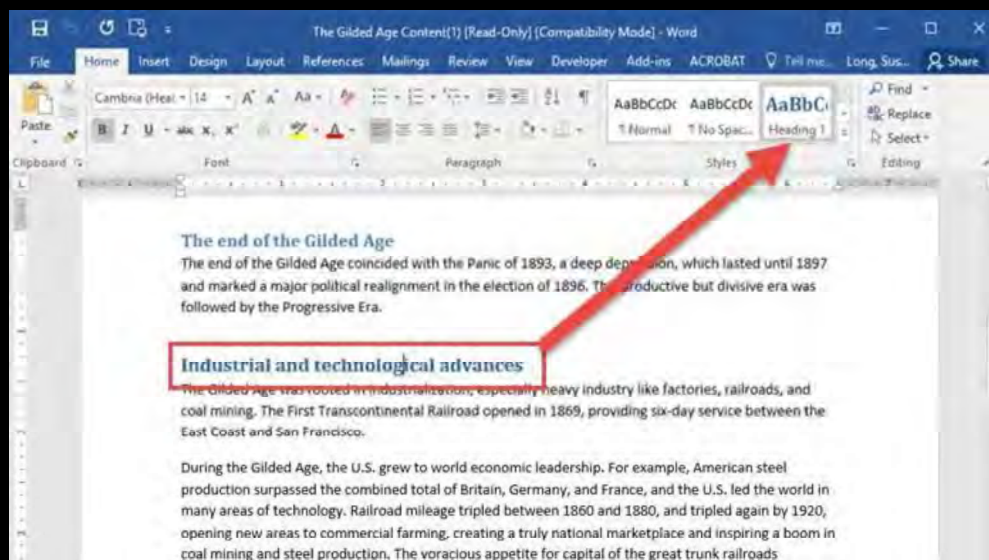
9.Text Structure (3/8)

- Take into consideration:
 - Content Table of the original textbook.
 - Document optical features.
 - Editor's judgment.



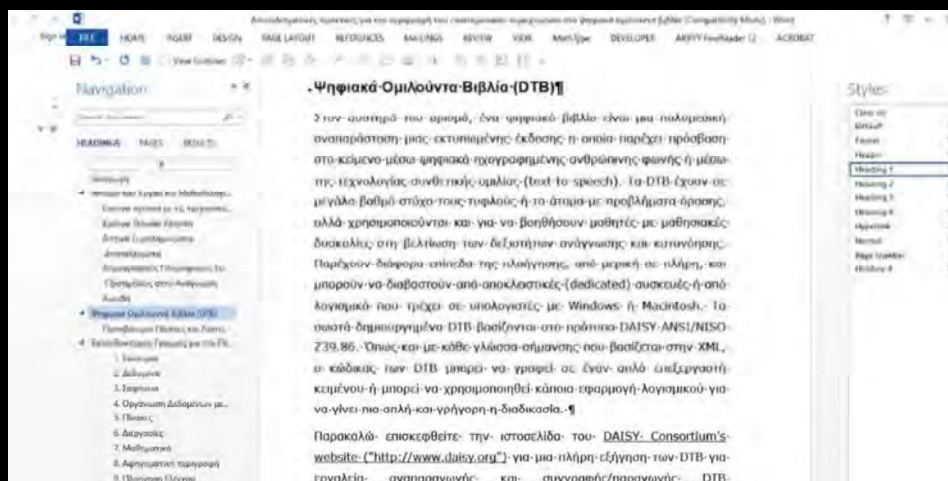
9.Text Structure (4/8)

- How to set Headings:



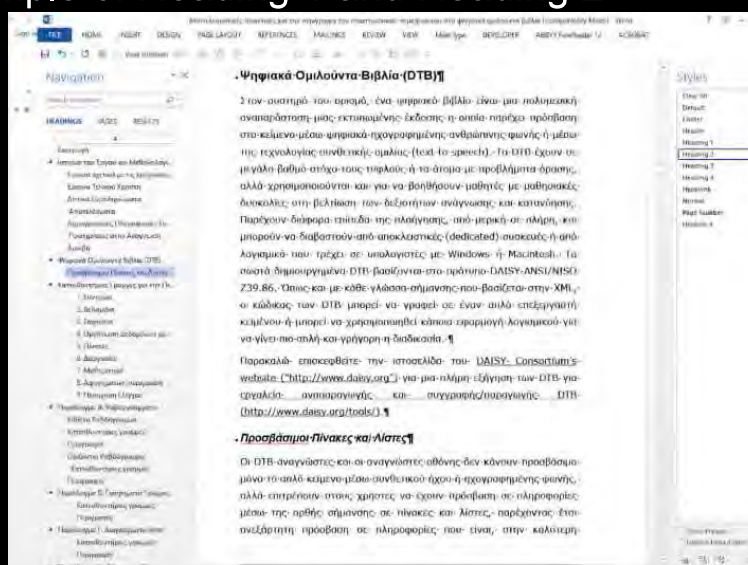
9.Text Structure (5/8)

Example of Heading 1



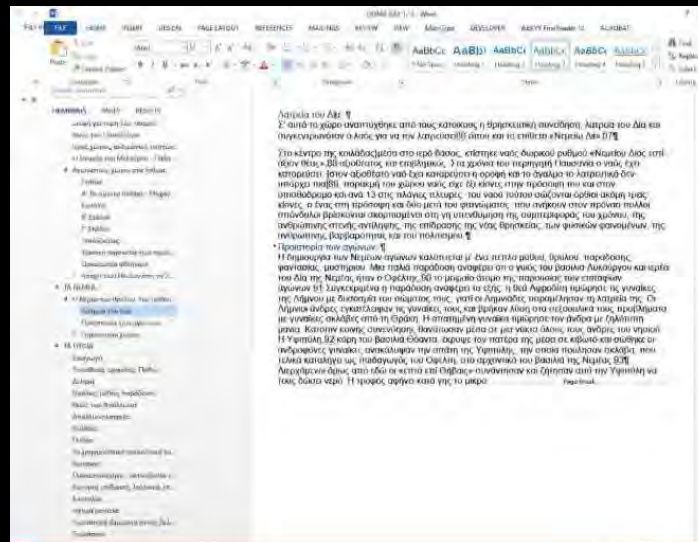
9.Text Structure (6/8)

Example of Heading 1 and Heading 2



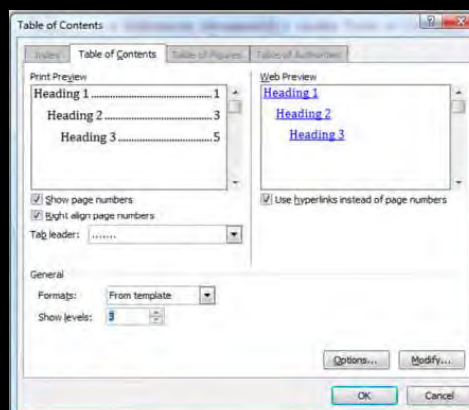
9.Text Structure (7/8)

Example of Heading 3



9.Text Structure (8/8)

- How to insert the Table of Contents:



10.Lists (1/15)

Types of Lists:

- Numbering of Headings
- Numbering of paragraphs
- Lists inside the main text

Set manually: Numbering of Headings and Paragraphs

Set automatically: Lists inside the main text

10.Lists (2/15)

Numbered Headings and Paragraphs:

Example in the original textbook:

I. Learning to Write in School

To learn how to write well, where do people turn for help? Most look first to the schools, but few find help there. Indeed, a growing number of critics blame the schools themselves for bad writing.¹³ Let me add my voice to that chorus.

Example of how it may look like in the Word file:

Learning to Write in School

To learn how to write well, where do people turn for help? Most look first to schools, but few find help there. Indeed, a growing number of critics blame the schools themselves for bad writing. Let me add my voice to that chorus

10.Lists (3/15)

Numbered Headings and Paragraphs:

We set the number manually: We place the cursor before the Heading and type the number

1. Learning to Write in School

To learn how to write well, where do people turn for help? Most look first to schools, but few find help there. Indeed, a growing number of critics blame the schools themselves for bad writing. Let me add my voice to that chorus

10.Lists (4/15)

• Numbered Headings and Paragraphs:

1 Heading 1

1.1 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus sed viverra massa. Sed placerat viverra orci in accumsan. In sollicitudin nisl a dui blandit ullamcorper.

10.Lists (5/15)

Lists inside the main text:

Example in the original textbook:

The following is a list of some of the key features of a graph that should be described:

- Read the labels on the axes and any marking or scale on the axes.
- If possible, read from left to right, and state in which quadrant the graph begins and in which it ends.
- As the graph traverses from left to right, state where it goes up or down and over what point on the x-axis it changes direction.

Example of how it may look like in the Word file:

The following is a list of some of the key features of a graph that should be described:

Read the labels on the axes and any marking or scale the axes

If possible, read from left to right, and state in which quadrant the graph begins and in which it ends

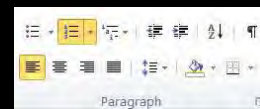
As the graph traverses from left to right, state where it goes up or down and over what point on the x-axes it changes direction

10.Lists (6/15)

Lists inside the main text:

We set the list automatically using the Word icon

1. We mark the listed items
2. We select Home →Paragraph →Numbering icon
3. We select the correct type of list. We may have to create a custom list by choosing Home → Paragraph → Numbering Icon → Define New Number Format



10.Lists (7/15)

Lists inside the main text:

How the previous example looks like after setting the list:

The following is a list of some of the key features of a graph that should be described:

- Read the labels on the axes and any marking or scale the axes
- If possible, read from left to right, and state in which quadrant the graph begins and in which it ends
- As the graph traverses from left to right, state where it goes up or down and over what point on the x-axis it changes direction

It is important to set lists automatically because screen readers recognize the list as one item.

10.Lists (8/15)

Listed items as part of a sentence:

Example:

the entire diagram. An example of the former case is a flow chart, a chart consisting of circles, squares, triangles, etc., with connecting arrows. An example of the latter case would be a pie diagram, where a circle is cut into pie-shaped sections or wedges. Besides stating the basic

We leave the list as it is

10.Lists (9/15)

Multilevel lists:

Example in the original textbook:

We are now ready to create a nested list. First create another unordered list.

- Parent Item 1
 - Child Item 1.1
 - Child Item 1.2
 - Child Item 1.3
- Parent Item 2
 - Child Item 2.1
 - Child Item 2.2
 - Child Item 2.3

Example of how it may look like in the Word file:

We are now ready to create a nested list. First create another unordered list.

Parent Item 1
Child Item 1.1
Child Item 1.2
Child Item 1.3
Parent Item 2
Child Item 2.1
Child Item 2.2
Child Item 2.3

10.Lists (10/15)

Multilevel lists:

It is best to set only the first level automatically

How it looks after setting the first list automatically:

We are now ready to create a nested list. First create another unordered list.

- Parent Item
 - Child Item 1.1
 - Child Item 1.2
 - Child Item 1.3
- Parent Item 2
 - Child Item 2.1
 - Child Item 2.2
 - Child Item 2.3

10.Lists (11/15)

Multilevel lists:

Example



How to insert:

1. Set all items as the first level

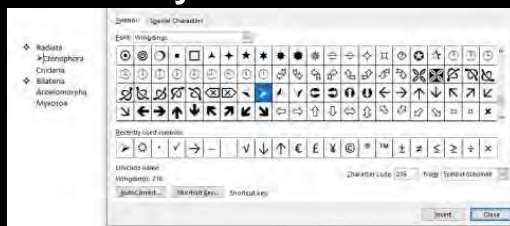


10.Lists (12/15)

2. Delete the numbering mark before every second level item



2. Insert the symbol of second level items manually



10.Lists (13/15)

Formatting the text:

Formatting: Parts in bold, italics and quotes

Why it is important: Formatting is part of the **content** and not just a matter of styling

Example in the original textbook:

Principles of operant conditioning predict that there are two options available for increasing or maintaining obedient behavior: *positive reinforcement* or *negative reinforcement*. Reinforcements are acts that have a positive outcome and, as such, will be rewarding, thereby increasing the likelihood that a behavior will be

10.Lists (14/15)

Formatting the text:

How it may look on the Word file:

Principles of operant conditioning predict that there are two options available for increasing or maintaining obedient behavior: *positive reinforcement* or *negative reinforcement*. Reinforcements are acts that have a positive outcome and, as such, will be rewarding, thereby increasing the likelihood that a behavior will be

How to format the text:

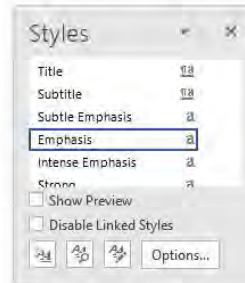
1. We mark the text
2. We select Home → Styles → down right arrow
3. We select Strong for bold, Emphasis for italics and Quote for quotes

10.Lists (15/15)

Formatting the text:

How it looks after formatting

Principles of operant conditioning predict that there are two options available for increasing or maintaining obedient behavior: *positive reinforcement* or *negative reinforcement*. Reinforcements are acts that have a positive outcome and, as such, will be rewarding, thereby increasing the likelihood that a behavior will be



11.Pictures (1/4)

What we have to do?

- Place the images at the correct position
- Add alternative text to image

[beginning of picture]

Caption: Picture 1: Boy and a bike

My description: A little boy wearing a helmet sitting on its bike and pointing to the right

[ending of picture]

11.Pictures (2/4)

How to add pictures:

1. Place it right before the [Ending of Picture] tag
2. Insert image: Illustrations area → Picture



11.Pictures (3/4)

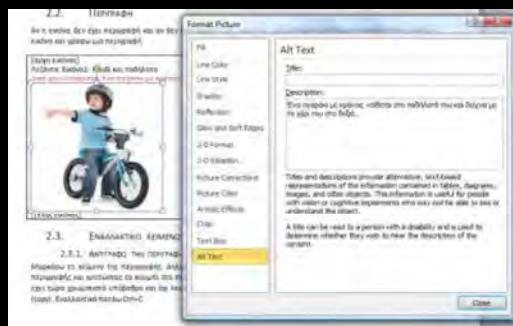
3. Adjust the size of the image to avoid splitting pages



11. Pictures (4/4)

How to add alternative text:

1. Copy the description and caption
2. Place the description as alternative text in the Alt text description box

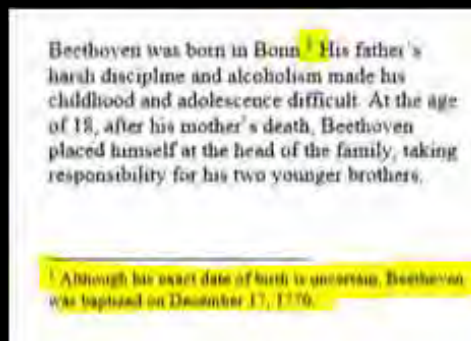


12. Footnotes/Endnotes (1/3)

Footnotes and endnotes are notes that exist at the end of a page, chapter or a book:

- **Footnotes:** End of a page or a chapter
- **Endnotes:** End of the book

Example :



12. Footnotes/Endnotes (2/3)

Example of how the Word file might look like:

Beethoven was born in Bonn¹. His father's harsh discipline and alcoholism made his childhood and adolescence difficult. At the age of 18, after his mother's death, Beethoven placed himself at the head of the family, taking responsibility for his two younger brothers,

How the example looks after adding the footnote:

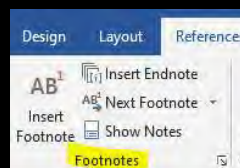
Beethoven was born in Bonn¹. His father's harsh discipline and alcoholism made his childhood and adolescence difficult. At the age of 18, after his mother's death, Beethoven placed himself at the head of the family, taking responsibility for his two younger brothers,

¹ Although his exact date of birth is uncertain, Beethoven was baptized on December 17, 1770.

12. Footnotes/Endnotes (3/3)

How to add Footnotes/Endnotes:

1. Copy Endnote/Footnote
2. Place the cursor at the spot where the footnote is supposed to be
3. Select References → Footnotes → Insert Footnote/Insert Endnote.
4. Paste the note



13. Accessible Mathematics (1/20) Overview

In general we refer to many objects such as equations, graphs, charts etc.

Here we will talk about how to make **mathematical equations** accessible

There is not a universally preferred modality:

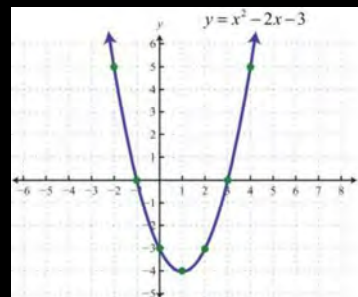
Speech

Braille

Tactile graphics (for graphs)

13. Accessible Mathematics (2/20) Difficulties

- Difficult to get an overview
- Complexity
- Ambiguity of symbolism



13. Accessible Mathematics (3/20)

Practical Difficulties

Cost of resources: Tools like MathType require a subscription

- Language specific problems: A lot of tools don't support a variety of languages

13. Accessible Mathematics (4/20)

General guideline

Use of **MathML** to provide mathematical equations



```
 $x + 5 = 0$   
Answer  
<math xmlns="http://www.w3.org/1998/Math/MathML">  
  <mi>x</mi>  
  <mo>+</mo>  
  <mn>5</mn>  
  <mo>=</mo>  
  <mn>0</mn>  
</math>
```

13. Accessible Mathematics (5/20) MathML

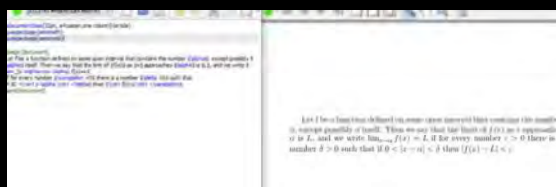
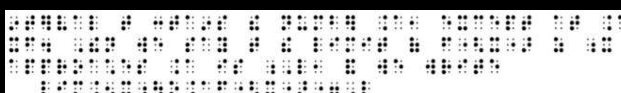
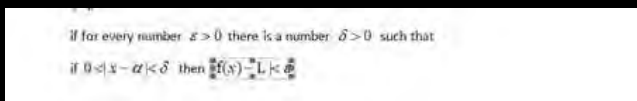
- Is a markup language
- Can be rendered in different formats
- Can be written using an editor, like **MathType**
- **MathType**: Word add-in that translates mathematical notation to MathML



13. Accessible Mathematics (6/20) Formats

We can provide students with a variety of formats:

- docx
- Brf+Nemeth
- DAISY
- LaTeX



13. Accessible Mathematics (7/20) Step 13

- We insert equations after we have inserted footnotes and endnotes
- Any images of mathematical content have already been removed in previous steps
- We use MathType to insert equations.

13. Accessible Mathematics (8/20) Step 13- Example

Example from a textbook:

2 Precise Definition of a Limit Let f be a function defined on some open interval that contains the number a , except possibly at a itself. Then we say that the limit of $f(x)$ as x approaches a is L , and we write

$$\lim_{x \rightarrow a} f(x) = L$$

if for every number $\varepsilon > 0$ there is a number $\delta > 0$ such that

$$\text{if } 0 < |x - a| < \delta \quad \text{then} \quad |f(x) - L| < \varepsilon$$

Word file before equation insertion:

2. Precise Definition of a Limit: Let f be a function defined on some open interval that contains the number, except possibly at itself. Then we say that the limit of $f(x)$ as x approaches is L and we write

if for every number there is a number such that

if then

13. Accessible Mathematics (9/20) Step 13- Example

How to insert symbols:

1. Place the cursor where the equation is supposed to be
2. Select MathType → Inline
3. Choose symbols

How it looks after symbols are inserted:

2. Precise Definition of a Limit: Let f be a function defined on some open interval that contains the number α , except possibly at α itself. Then we say that the **limit of $f(x)$ as x approaches α is L** , and we write

$$\lim_{x \rightarrow \alpha} f(x) = L$$

if for every number $\varepsilon > 0$ there is a number $\delta > 0$ such that

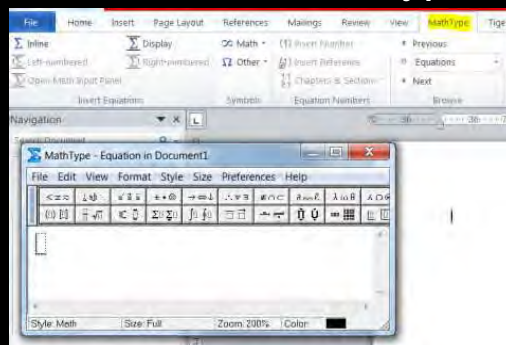
if $0 < |x - \alpha| < \delta$ then $|f(x) - L| < \varepsilon$

13. Accessible Mathematics (10/20) Step 13- Example 2

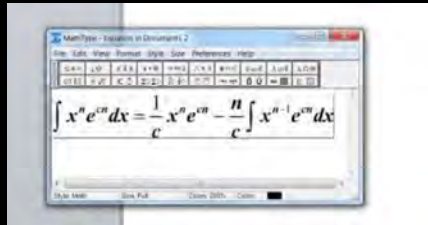
- Math image:

$$\int x^n e^{cx} dx = \frac{1}{c} x^n e^{cx} - \frac{n}{c} \int x^{n-1} e^{cx} dx$$

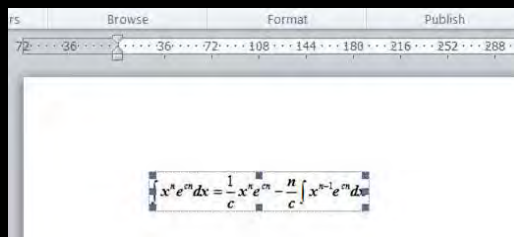
- How to insert with MathType:



13. Accessible Mathematics (11/20) Step 13 - Example 2



- Result:



13. Accessible Mathematics (12/20) Step 13

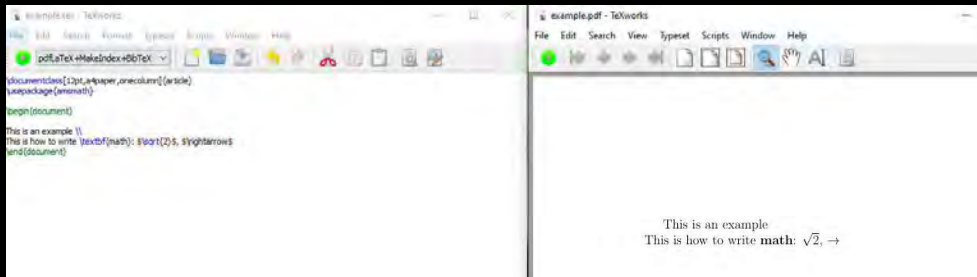
After we insert the mathematical symbolism using MathType, the information can then :

- become accessible using **MathPlayer** (MathML+ NVDA+ MathPlayer)
- be converted to a **DAISY** book using MathDAISY
- (MathML +Save As Daisy + MathDaisy →DAISY book)

MathPlayer: a supporting math and speech options add-in

13. Accessible Mathematics (13/20) Textbooks in Latex

Latex: a language used to produce scientific textbooks.



13. Accessible Mathematics (14/20) Latex in accessibility

- MathType doesn't offer the full extend of mathematical symbolism
- Latex like MathML can be used to convert to multiple formats
- A lot of scientific content is already provided in Latex

13. Accessible Mathematics (15/20) Textbooks in Latex

Tools that can be used to convert Latex to different formats:

- Latex2nemeth: conversion to Nemeth
- Braille Blaster: conversion to Nemeth
- Infty: conversion to speech formats

Note: Tools are not always accurate.

13. Accessible Mathematics (16/20) Textbooks in Latex

Useful tools:

Introduction to Latex

Information on Latex commands and packages

Wiris editor



14. Accessible Mathematics (17/20) Nemeth

- Nemeth is a standard for representing mathematical symbolism in Braille
- Nemeth is not the only representation of mathematics in Braille
- In Greece we use the Nemeth code



13. Accessible Mathematics (18/20) Nemeth

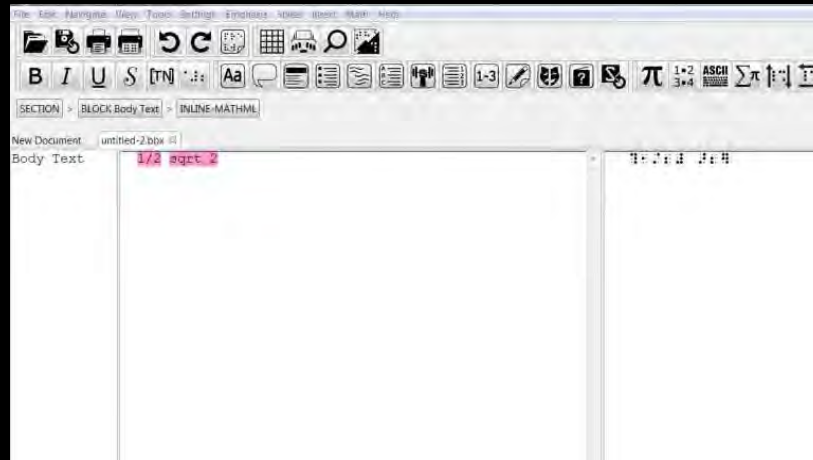
Nemeth translation tools:

- Latex2Nemeth
- BrailleBlaster
- Tiger Software Suite (with MathType)

We have to be careful when using translation tools

13. Accessible Mathematics (19/20) Nemeth

Translation tool example: Braille Blaster

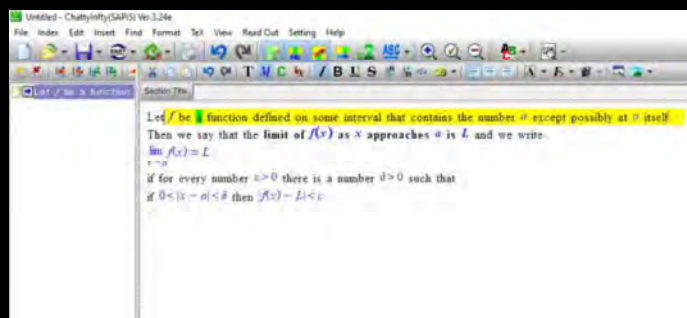


13. Accessible Mathematics (20/20) Infty Project

Infty Reader: optical recognition for math

Infty Editor: Authoring tool

ChattyInfty: Navigation, exporting to accessible formats (DAISY, EPUB3, MathML, LaTeX)



14. Classical Music (1/16)


- Music excerpts - converted to an accessible format using:
 - image descriptions
 - creating additional support files in a variety of formats:
 - MusicXML
 - MIDI
 - standard audio files (MP3, WAV or AIFF files).

(DIAGRAM CENTER: A BENETECH INITIATIVE, 2019)

14. Classical Music (2/16)

- How an image description is displayed:
 - reading tool

(DIAGRAM CENTER: A BENETECH INITIATIVE, 2019; Emilia Gómez, 2002)



Pitch sequence [293.66, 329.63, 349.23, 392, 349.23, 329.63, 293.66, 277.18, 329.63, 220, 329.63, 698.46, 783.99, 440, 783.99, 349.23, 329.63, 293.63, 440, 220, 293.66]

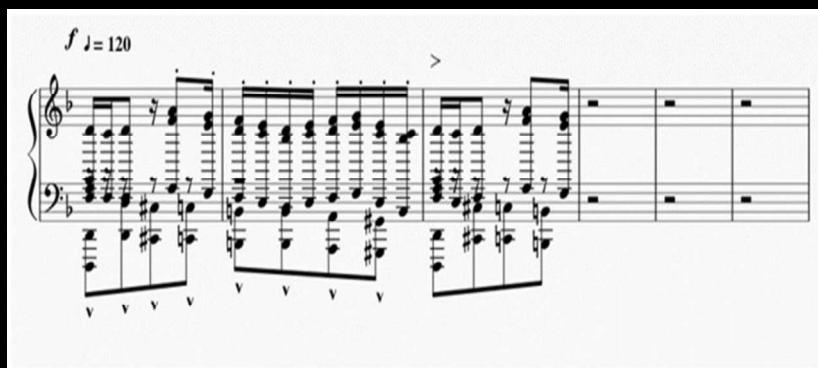
Duration sequence (multiples of the eighth note duration) [2, 1, 1, 0.5, 0.5, 0.5, 0.5, 2, 1, 3, 2, 1, 1, 0.5, 0.5, 0.5, 0.5, 1, 1, 1, 3]

14. Classical Music (3/16)

- Accessible formats:
 - MusicXML
 - MIDI
 - Recorded Audio
 - Text or Audio Description

14. Classical Music (4/16)

- Music excerpts - converted to electronic midi audio files
 - Easy conversion to audio files
 - Convert to music scores

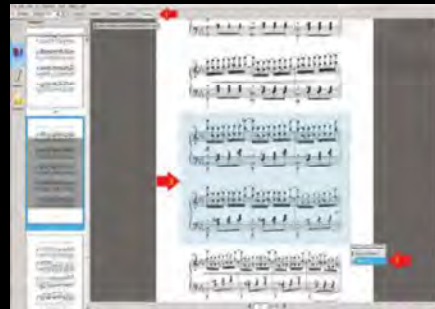


14. Classical Music (5/16)

- Process of producing electronic music files



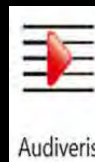
1. Crop the musical excerpts from the textbook using the ocular software and saved as a picture file (png or jpg format)
 - Excerpts resolution has to be 300 dpi
 - If necessary, enlarge the excerpt to 350% - 500%
 - Crop excerpts and saved as image (png or jpg)



14. Classical Music (6/16)

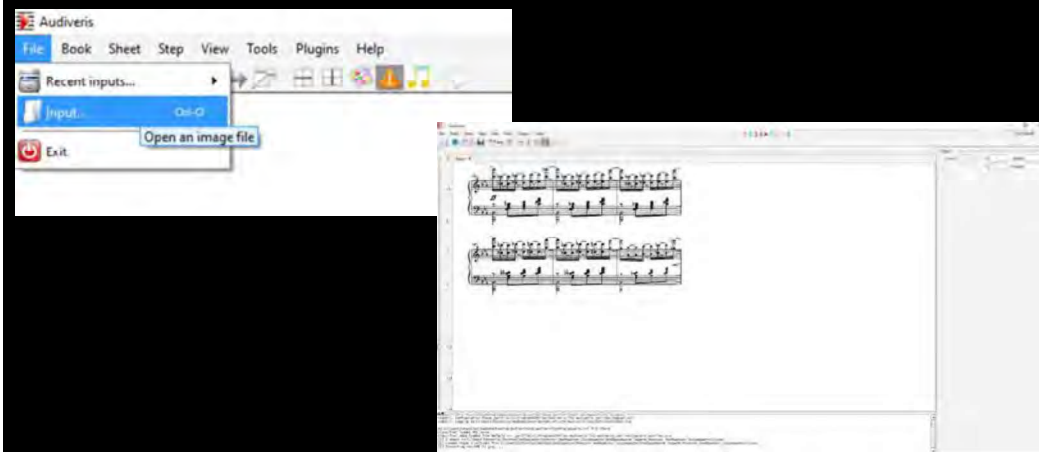
2. Digitizing the image of the music excerpt (omr - optical music recognition)

- Optical music excerpts recognition (omr):
audiveris software version 5.1.0:0bf6826
[Audiveris software](#)



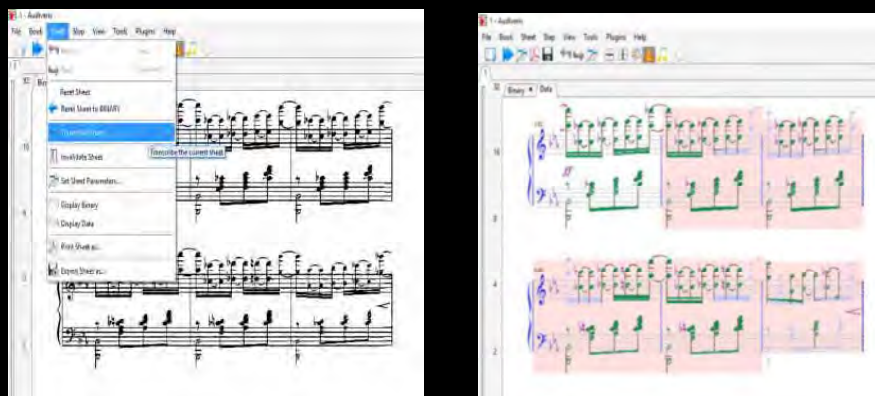
14. Classical Music (7/16)

- Accessing the image file with the score:
 - Open an image file with Audiveris software



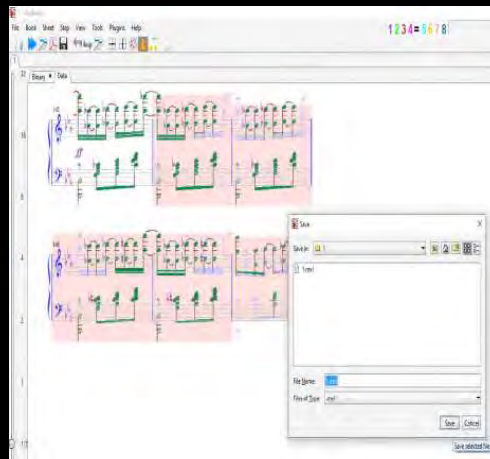
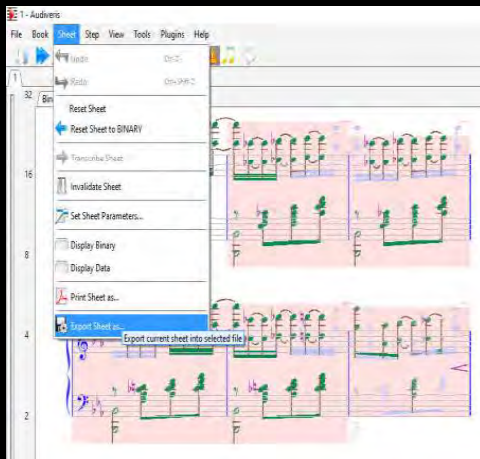
14. Classical Music (8/16)

- Reading the score:
 - Sheet (from home tab) > Transcribe sheet



14. Classical Music (9/16)

– Export Sheet As – select the export location – format (*.mxl)



14. Classical Music (10/16)

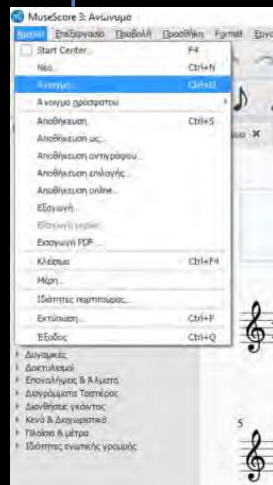
3. Editing and converting the digitized excerpt

- MuseScore software version 2.3.2 [MuseScore software](#)
- Editing the music excerpt from mistakes made in the previous step
- Completion of musical elements. (Symbol restriction)
- Improved excerpt performance based on the composer – Knowledge of music and related software
- The file is saved in MuseScore format (*.mscz)



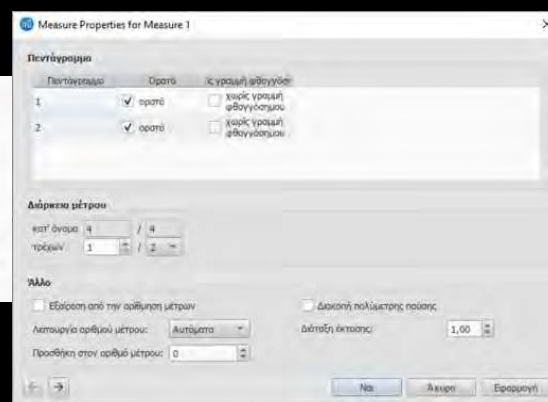
14. Classical Music (11/16)

- Accessing the score file:
 - Open a score file with the "MuseScore" software



14. Classical Music (12/16)

- Editing the music excerpt from mistakes made in the previous step:
 - Modify the music measure accordingly



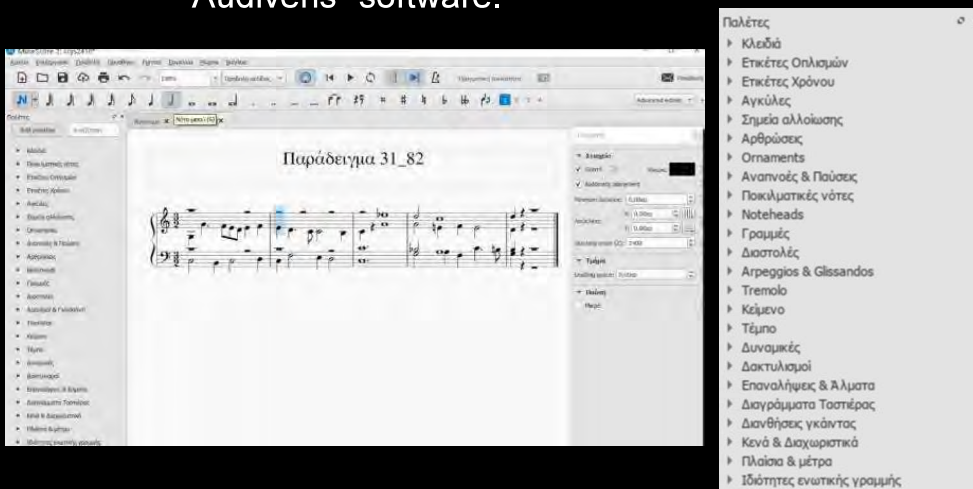
14. Classical Music (13/16)

- Scores that have been written to be played by piano.



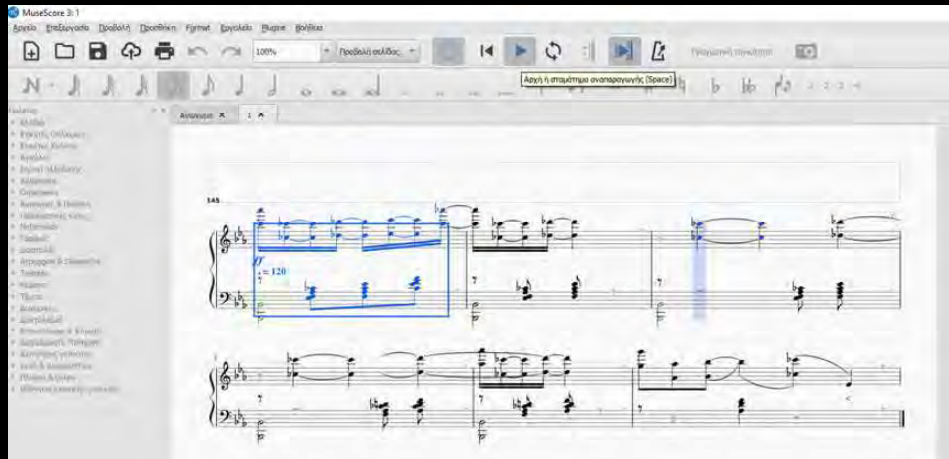
14. Classical Music (14/16)

- Scores that have not been read at all by the “Audiveris” software.



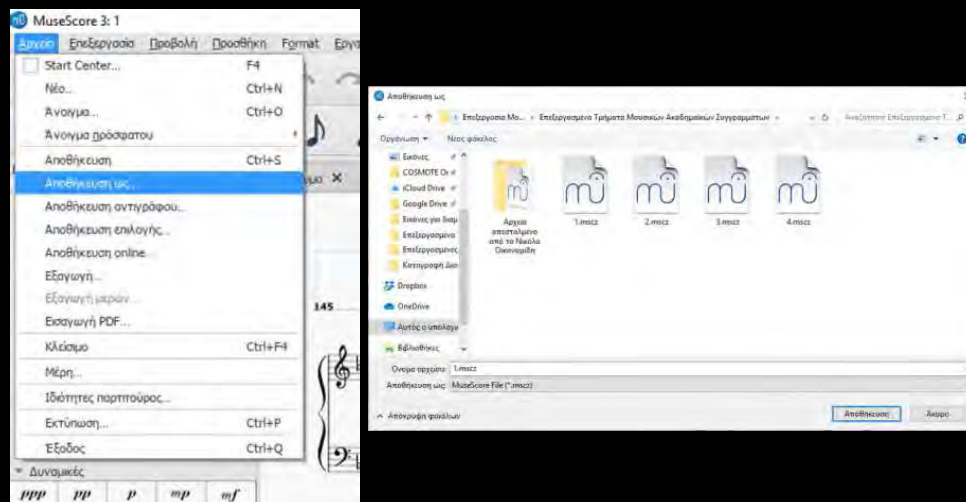
14. Classical Music (15/16)

- Reproduce the final file



14. Classical Music (16/16)

- Save the file in MuseScore format (*.mscz)



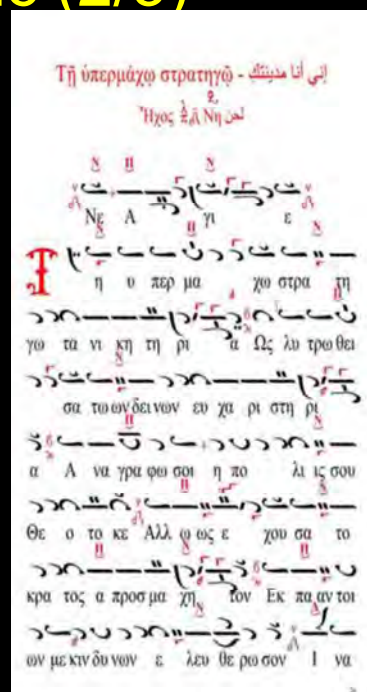
15. Byzantine Music (1/3)

- dates back to the 4th century AD
- liturgical music used in the Greek Orthodox Church
- consisted of songs and hymns composed to Greek texts
- different notes, measures and colors



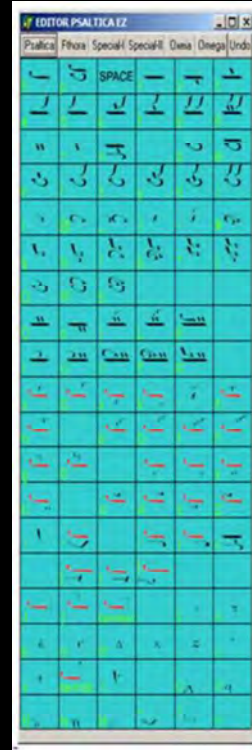
15. Byzantine Music (2/3)

- Studying the basic rules of Byzantine music
 - [Θεωρία Πράξη της Βυζαντινής Μουσικής Μέρος Πρώτο](#)
 - [Stanthony's monastery](#)
 - [Papline](#)



15. Byzantine Music (3/3)

- Byzantine music authoring package EZ(ez Psaltica Editor)
 - a musical font (the user remembers the matches of the Byzantine symbols with the corresponding positions on the keyboard)



This is the end of the process

The accessible document we produced is a matrix document that can be converted to various accessible formats

16. Production of Accessible file Formats

- Type of formats:
 - accessible markup - XML
 - DAISY
 - audio - MP3
 - Braille-ready
 - large-print-ready
 - Tactile graphics
 - EPUB
 - PDF



Production delays

- Most common difficulties/Reasons for delay:

Books that contain the following:

- Polytonic system
- Specific linguistics notation
- Byzantine musical notation
- Plenty of maps, pictures, tables, graphs, illustrations
- Text Frames
- Need for multiple styles (Emphasis, Quote, Strong)

Errors occur during OCR recognition

Time-consuming placement of textboxes content

Accessible Notes



- from lectures, in the case they are in digital form
- The same process as in accessible textbooks
- We keep in mind the specific needs of the student
- may be created by volunteers

References (1/2)

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- [Latex2Nemeth](#)
- [A Method for Labeling a Tactile Graphic Using Tiger Software Suite](#)
- [Braille Blaster](#)
- MathType, MathPlayer, MathDAISY: [Design Science](#)
- Latex: [CTAN Network](#)
- Wiris Editor: [Wiris editor](#)
- Infty Project: [Infty project](#)
- Other Tools: [W3C Math Tools](#)




Accessibility Unit
<http://access.di.uoa.gr>

Thank you!





InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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Erasmus+ Programme
of the European Union 



Introduction to Digital Accessibility and Assistive Technologies

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[3] <https://freedomdefined.org/Definition>

[4] <http://opendefinition.org/buttons/>

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Rehabilitation



- Rehabilitation allows people with disabilities whose **functions** are limited to stay or return home or to society, to live independently and **to participate** in education, the labour market and social life.

Challenges of Informatics/Computer Science in the domain of rehabilitation

- Concerning the reduced **functioning**:
 - Augmentation/improvement of the reduced functionality,
 - Provision of alternative functionality
- Concerning the **participation** in the main activities:
 - Augmentation/improvement of the participation,
 - Provision of alternative mean for participation



Rehabilitation Solutions provided by Informatics/Computer Science

- Computer based **Assistive Technologies (AT)**
 - *by themselves they do not guarantee accessibility*
- Content **Digital Accessibility**
 - Guidelines/ standards
 - Methods & Tools for evaluating Digital Accessibility
- *Implementation of **Universal Design / Design for All***

Assistive Technology

Any: equipment, product, system, software, or service

whether: purchased ready to use, modified or customized,

used to increase, maintain or improve:

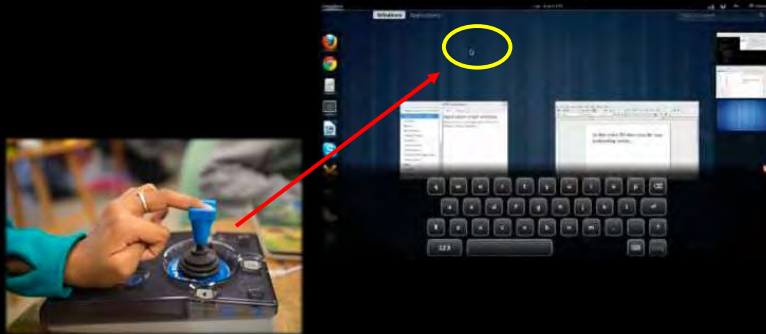
**the functional abilities of the disabled and / or
their participation in the main activities of life**

Computer based Assistive Technology (AT)

- Beyond medical solutions for PwD(e.g. surgical methods, prostheses, implants)
- They require an interdisciplinary approach
- The important role of Information Technology professionals in the selection and implementation of a suitable AT solution

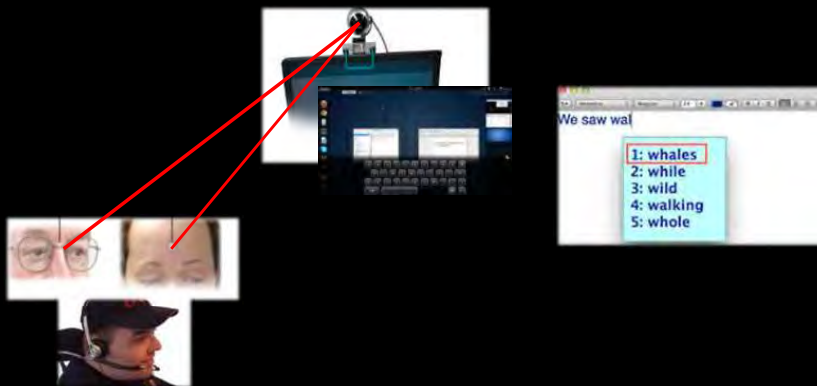
Example-1a

- **Writing (*function*)** > with a pen/pencil or computer keyboard
- **Users with reduced functioning of upper extremes:**
- *augmentation*: joystick with virtual / on screen keyboard



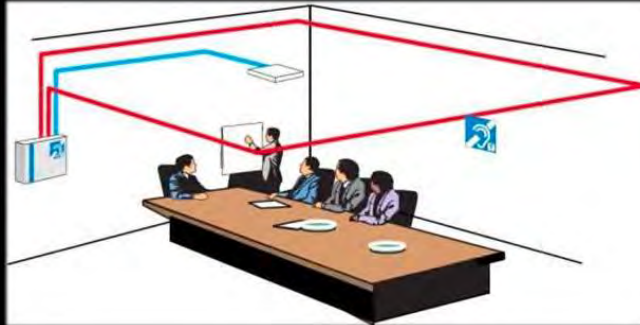
Example-1b

- **Writing (*function*)** > with a pen/pencil or computer keyboard
- **Users without any functionality in upper extremes:**
- *alternative*: cursor control with head movement detection combined with virtual on screen keyboard, puff switch and word prediction software



Example-2a

- **Conversation** (*participation*) > face to face or distance
- **Users with reduced hearing ability** (*hearing loss*):
- *augmentation*: inductive hearing loop system



Example-2b

- **Conversation** (*participation*) > face to face or distance
- **Users without any hearing ability** (*deaf*):
- *alternative*: relay service (Sign Language remote interpretation)



Computer based Assistive Technologies (1/2)

- Many times they are commercially available:

Challenges:

- not available on the local market,
- do not support the local language
 - or the local Braille system
 - or the Greek local language
- high cost> who should cover the cost?
 - Sometimes they are only available as a result of research or development efforts
 - Sometimes they require the development of standards / standardizations
 - Sometimes they require the development of special services



Computer based Assistive Technologies (2/2)

- Sometimes they are available as free software or even open source software
e.g. <http://access.uoa.gr/ATHENA/>
- They are integrated into the operating system following the Universal Design approach



Computer based Assistive Technologies Classification-1

- A) For usual desktop or laptop PCs
- B) For mobile devices – smart telephones or tablets
- C) Peripheral devices of A or B with wired or wireless connection
- D) Embedded or wearable or autonomous systems



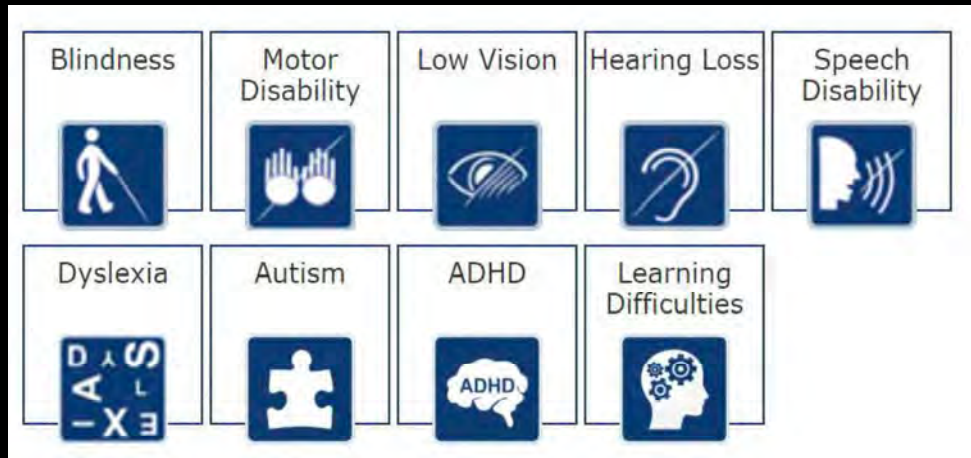
Computer based Assistive Technologies Classification-2

- **Personal AT**
 - act as an extension of the individual
 - Set / calibrated to that person
 - the person knows them and has practiced using them
- **Environmental adaptation AT**
 - Set / calibrated the disability category
 - the person do now knows them and do not has practiced using them



Computer based Assistive Technologies Classification-3

Per disability category



Computer based Assistive Technologies Classification-4

Per solution category



Indicative computer based Assistive Technologies (1/5)

Cursor control by brain waves or muscle signals



Switches



Wearable display



Indicative computer based Assistive Technologies (2/5)

Hand switch



Cheek switch



Special keyboard

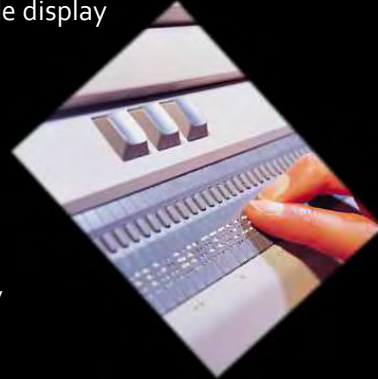


Indicative computer based Assistive Technologies (3/5)

Augmentative and Alternative Communication system



Braille display



Mobile braille display



Indicative computer based Assistive Technologies (4/5)

6 Degree of Freedom Mouse for the blind



Cursor control with head movements and lips switch



Sensors for Sign Language Synthesis and Recognition



Indicative computer based Assistive Technologies (5/5)



CCTV magnification system

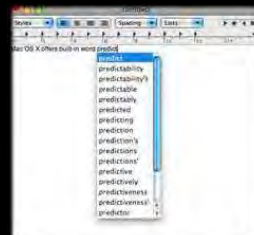


Indicative software Assistive Technologies (1/5)

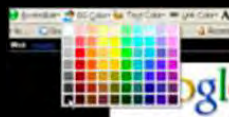
On screen magnifier



Word prediction for accelerating writing



Display color and contrast selection



Indicative software Assistive Technologies (2/5)

Speech-based rotation control



Non-queerty on screen keyboard



Text to Speech synthesis

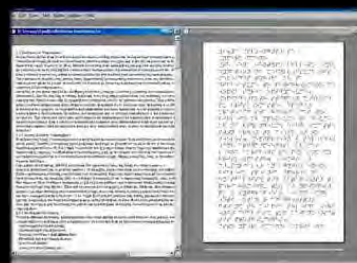


Indicative software Assistive Technologies (3/5)

Special browser for AAC users



Braille translator



Indicative software Assistive Technologies (4/5)

Alternative and Augmentative Communication systems



Screen reader



Indicative software Assistive Technologies (5/5)

Eye gazed cursor control



Cursor selection



Mouse settings





<http://access.uoa.gr/mATHENA/>



648

Design for All – D4All

Equivalent terms:

- **Universal Design**
- **Inclusive design**

“The conscious and systematic effort to **proactively** apply principles, methods and tools, in order to develop products and services which are **accessible and usable** by all citizens, thus avoiding the need for a **posteriori** adaptations or specialised design”

- The design process that maximizes user acceptability.

Universal Design / Design for All – D4All

- Essential for the 15% of the population (PwD)
- Supportive for the 40% of the population (PwD & elderly)
- Convenient for the 100% of the population

Design for All – D4All Implementation Examples

Operating systems

- MS-Windows 
- Linux 
- Mac OS 
- iOS 
- Android 
- ...

Accessibility support for Windows

On this page, you'll find links to topics about Windows accessibility features and tools. These features and tools make Windows more accessible and easier to use for everyone. If you don't find the help you need here, please visit the [Disability Answer Desk](#).

Windows 10

Windows 8.1

Windows 7

Vision

- [Make Windows easier to see](#)
- [Use Magnifier to make things on the screen larger](#)
- [Keyboard shortcuts in Windows](#)
- [Keyboard shortcuts in apps](#)
- [Windows keyboard shortcuts for accessibility](#)
- [Use high contrast mode](#)
- [Complete guide to Narrator](#)
- [Use the Movies & TV app with Narrator](#)
- [Use the Windows DVD Player app with Narrator](#)
- [Use color filters in Windows 10](#)

Accessibility support for Windows

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Windows 10

Windows 8.1

Windows 7

Dexterity & mobility

- [Use touch with Windows](#)
- [Use the On-Screen Keyboard \(OSK\) to type](#)
- [Windows Speech Recognition commands](#)
- [Use voice recognition in Windows 10](#)
- [Use your PC like a tablet](#)
- [Learn about Windows Hello and set it up](#)
- [Make your mouse, keyboard, and other input devices easier to use](#)
- [Open the touch keyboard](#)
- [Use dictation to talk instead of type on your PC](#)
- [Get started with eye control in Windows 10](#)

<https://support.microsoft.com/en-us/products/windows-accessibility?os=windows-10>

Accessibility support for Windows

On this page, you'll find links to topics about Windows accessibility features and tools. These features and tools make Windows more accessible and easier to use for everyone. If you don't find the help you need here, please visit the [Disability Answer Desk](#).

Windows 10

Windows 8.1

Windows 7

Hearing

- [Make Windows easier to hear](#)
- [Change Windows closed caption settings](#)
- [Use text or visual alternative to sounds](#)

Focus

- [Make it easier to focus on tasks](#)
- [How to use the taskbar in Windows 10](#)

Embedded AT in ipad, iphone, ipod touch

<https://www.apple.com/accessibility/vision/>

- | | |
|---------------------------|--|
| • VoiceOver | Hear what's happening on your screen. |
| • VoiceOver + Braille | Customize your braille experience. |
| • Magnifier | Use your camera to get a closer look. |
| • Spoken Content | Go from written word to spoken word. |
| • Zoom | Enlarge your screen to your liking. |
| • Hover Text | Get a quick size boost of what you're reading. |
| • Reduce Motion | Tone down the special effects. |
| • Audio Descriptions | A scene to be heard. |
| • Display | Find the right view for you. |
| • Text Size | Apps can automatically adapt to larger, bolder type. |
| • Dark Mode | Make everything easier on the eyes. |
| • Accessibility Shortcuts | Keep your apps close and your settings closer. |
| • Dictation | Everything you say goes. |
| • Siri | Find what you're looking for without looking at all. |

Embedded AT in ipad, iphone, ipod touch

<https://www.apple.com/accessibility/mobility/>
<https://www.apple.com/accessibility/hearing/>
<https://www.apple.com/accessibility/cognitive/>

Embedded AT in Android devices

<https://support.google.com/accessibility/android/answer/6006564?hl=en>

- Use a screen reader TalkBack, TalkBack braille keyboard, Select to Speak
- Change your display: Display size and font size, Magnification, Contrast and color options
- Interaction controls: Lookout, Voice Access, Switch Access, Action Blocks, Time to take action
- Use a braille display: BrailleBack
- Audio & on-screen text: Captions, Live Caption, Live Transcribe & Sound Notifications, Sound Amplifier, Hearing aid support, Real-time text (RTT) during calls

**Computer based Assistive
Technologies by themselves
do not guarantee the accessibility
of the digital content**

What is Digital Content (or e-content)

1. Any information displayed in a web page
2. Any file we open or download from a webpage or it is transferred through the internet, such as:
 - Presentation slides
(e.g. MS-Power point)
 - Document files
(e.g. MS-Word or PDF)
 - video or audio files

Digital Accessibility

Design and development of digital content

so that it can:

be used **effectively**

from more **people**

in more **circumstances or usage context**

more people (1 / 5)

Persons with Disability (PwD):

- **Sensory**
 - Blindness or low vision or achromatopsia
 - Deafness or hard of hearing
- **Motor**
 - Dexterity
 - Stretching and reaching
 - Movement

more people (2 / 5)

Persons with Disability (PwD):

- Cognitive
 - Dyslexia
 - Language / communication
 - Attention deficit
 - Memory
 - Understanding
- Multi-disabilities

more people (3 / 5)

PwD: > 10-15 % population



more people (4 / 5)

- **Accidental or occasional disability**
- **People without language proficiency**
- **Older technology users**
- **Users of new computer devices**

more people (5 / 5)

- **New or not frequent users of computer / telecom technology**
- **Users of smart phones or tablets**
- **.....**
- **Elderly**

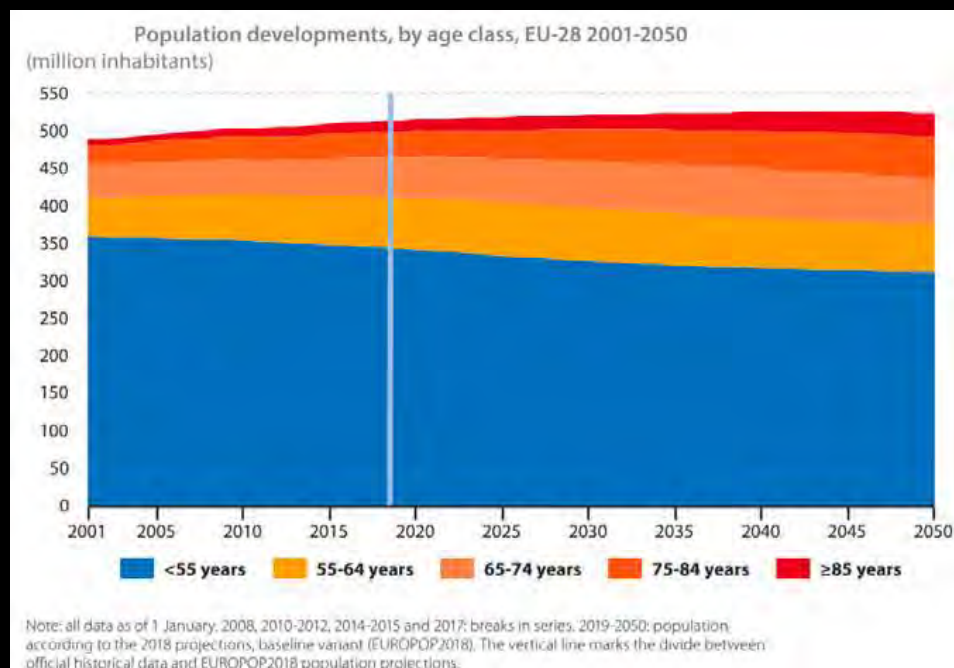
Elderly (65+ years) in European Union

% of the general population

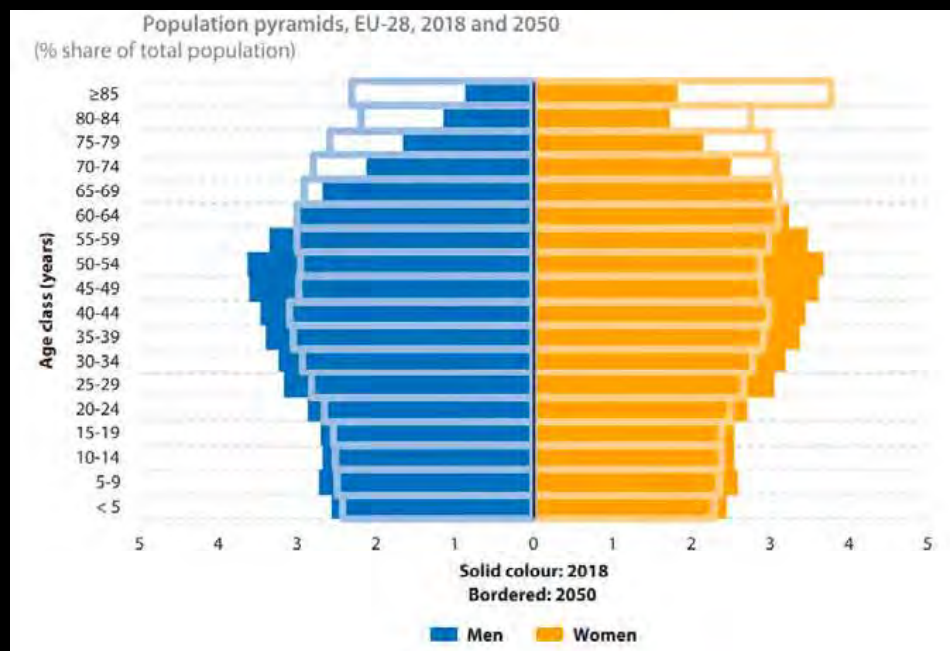
Year	65+ years	80+ years
2010	17%	5%
2020	20%	6%
2030	24%	7%
2040	27%	8%
2050	29%	12%



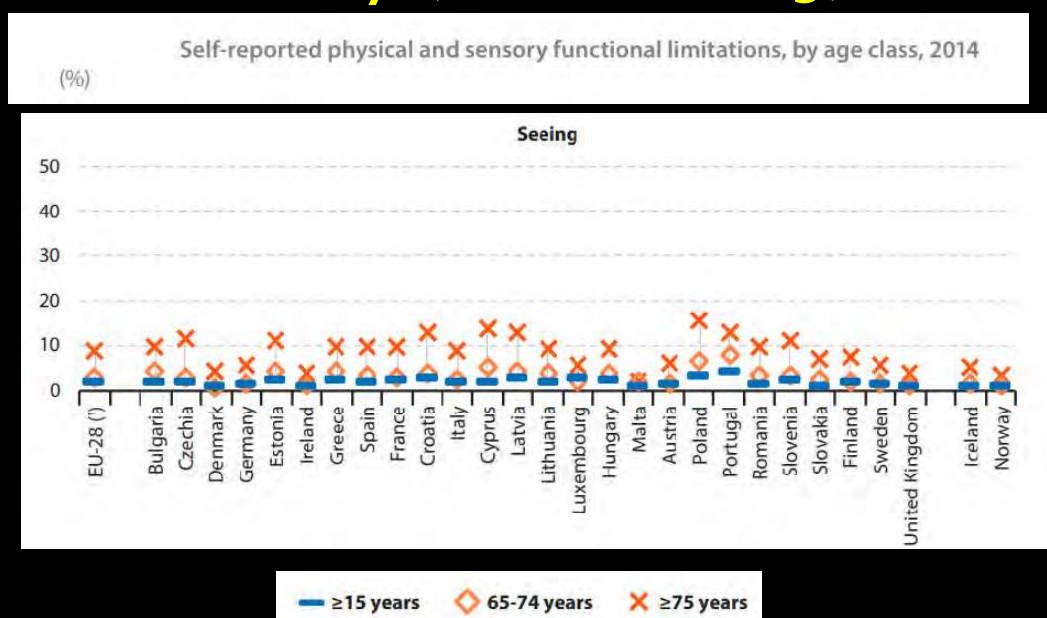
Elderly (Eurostat 2019)



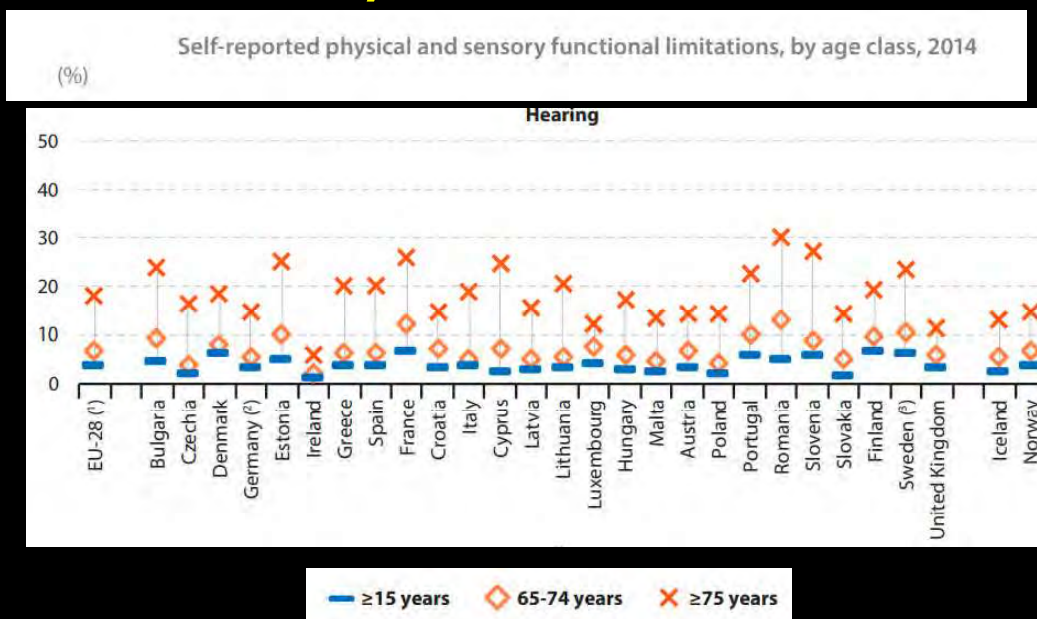
Elderly (Eurostat 2019)



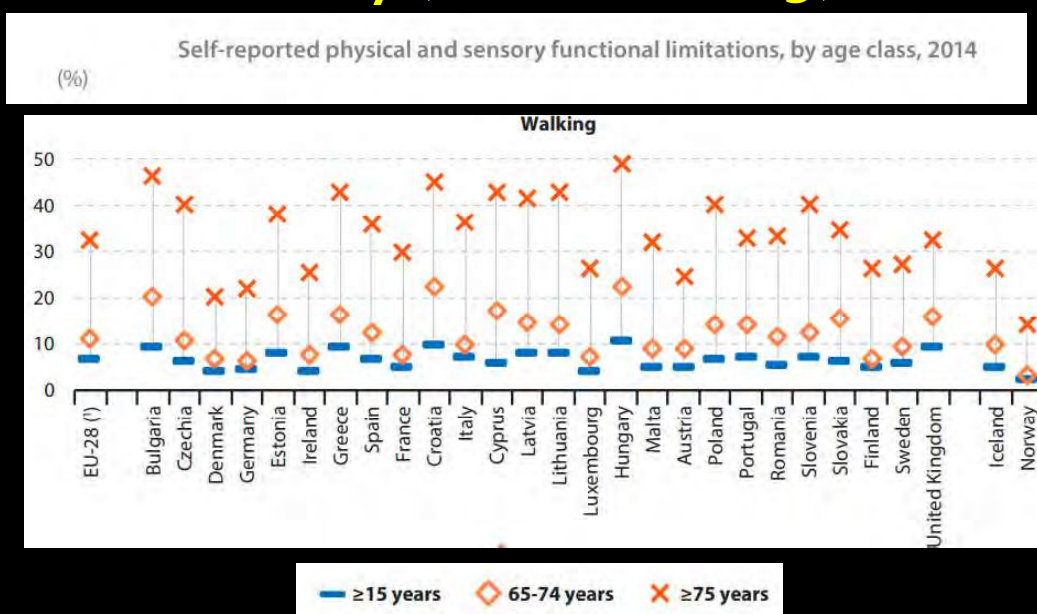
Elderly (Eurostat 2019)



Elderly (Eurostat 2019)



Elderly (Eurostat 2019)



more circumstances or usage context(1 / 3)



more circumstances or usage context(2 / 3)



more circumstances or usage context (3 / 3)



«57% of PC users aged 18 to 64 directly or indirectly benefit from accessibility technologies due to the difficulties and inability to use computers.»

Investigation Results by Forrester Research, Inc. for the Microsoft

Digital Accessibility

Dimensions:

- Legal
- Economic
- Societal / Ethical
- Technological

Economic Dimension of Digital Accessibility

- Development cost
- Profits from the application of DA

Cost for developing Accessible Digital Content

- **Proactively – Design for All approach**
 - Less than +2% of the total cost
- **Ex post modifications**
 - May be 30% of the development cost

Profits from the development of Accessible Digital Content (1 / 3)

- Increasing the usability of more people (e.g. tourists)
- Increase the ability to find content through search engines
- Increase usability in more situations
- Increasing the positive image of the institution / organization

Profits from the development of Accessible Digital Content (2 / 3)

- Reduce content maintenance costs
- Reduce the total storage volume of content on the servers of the websites
- Reduce the need to create multiple versions of content (e.g. for mobile devices)

Profits from the development of Accessible Digital Content (3 / 3)

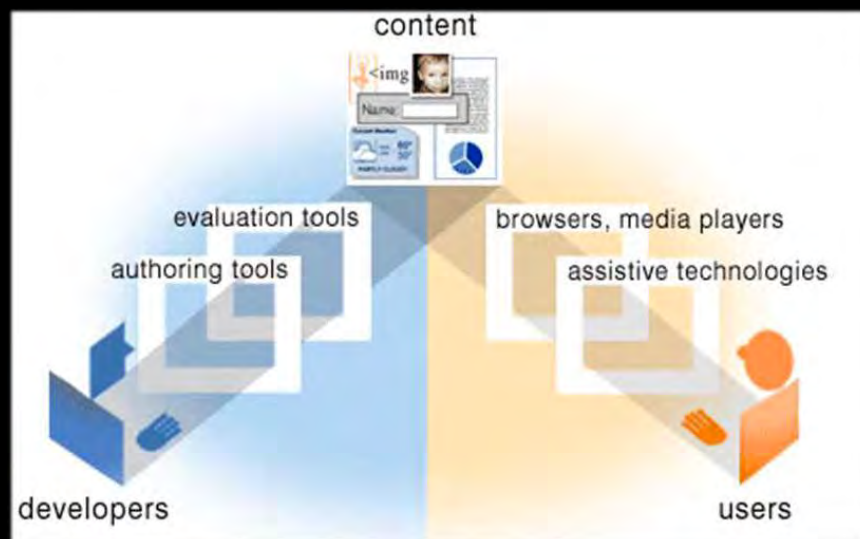
- Reduce the cost for penalties and court costs for non-compliance, in countries where relevant legislation exist
- Reduce the cost of producing content in alternative formats, e.g. production of audio books.

Social Dimension of Digital Accessibility

Content Digital Accessibility:

- constitutes an essential factor in providing equal opportunities
- helps to reduce the digital divide
- is included in the Social Responsibility of the organization / institution that provides the electronic content

Essential Web components for Digital Accessibility



Essential Web components for Digital Accessibility



content - the information in a web page or web application, including:

- natural information such as text, images, and sounds
- code or markup that defines structure, presentation, etc.

Essential Web components for Digital Accessibility



developers - designers, coders, authors, etc., including developers with disabilities and users who contribute content

They use:

- **authoring tools** - software that creates websites
- **evaluation tools** - web accessibility evaluation tools, HTML validators, CSS validators, etc.

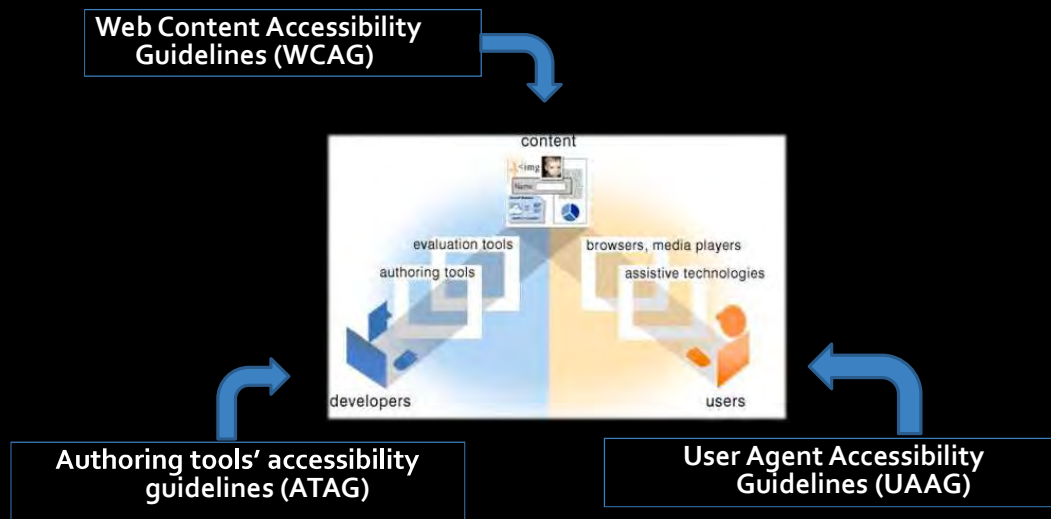
Essential Web components for Digital Accessibility



Users:

- **web browsers, media players**, and other “user agents”
- **assistive technology**, in some cases - screen readers, alternative keyboards, switches, scanning software, etc.

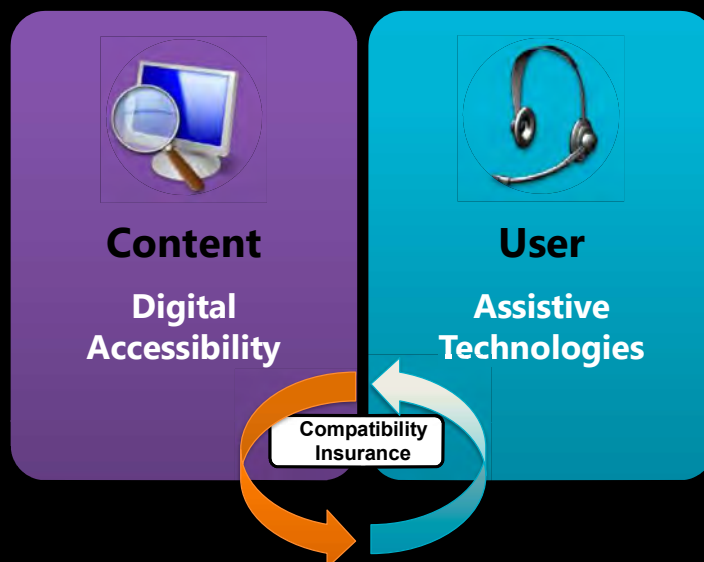
Accessibility Guidelines of the World Wide Web Consortium (W3C)



General Technical Specifications of W3C: HTML, XML, CSS, SVG, SMIL.....

Implementation of the Design for All approach

Digital Accessibility and AT = compatibility insurance



Web Content Accessibility Guidelines (WCAG) 2.1

- **Perceivable**
 - Provide **text alternatives** for non-text content.
 - Provide **captions and other alternatives** for multimedia.
 - Create content that can be **presented in different ways**, including by assistive technologies, without losing meaning.
 - Make it easier for users to **see and hear content**.
- **Operable**
 - Make all functionality available from a **keyboard**.
 - Give users **enough time** to read and use content.
 - Do not use content that causes **seizures** or physical reactions.
 - Help users **navigate and find content**.
 - Make it easier to use **inputs other than keyboard**.
- **Understandable**
 - Make text **readable and understandable**.
 - Make content appear and operate in **predictable** ways.
 - Help users **avoid and correct mistakes**.
- **Robust**
 - Maximize **compatibility** with current and future user tools.

Document Accessibility

- LibreOffice 4.0



- MS-Office 2007, 2010, 2013, 2016, 2019, 365,



- PDF



- LaTeX



Creating Accessible Documents

<https://www.washington.edu/accessibility/documents/>

- [Checking PDFs for Accessibility](#)
- [Creating accessible documents in Microsoft Word](#)
- [Creating accessible presentations in Microsoft PowerPoint](#)
- [Creating accessible PDFs from Microsoft Word](#)
- [Creating accessible PDFs from Adobe InDesign](#)
- [Creating accessible PDF forms using Adobe Acrobat Pro](#)

Effectiveness of the implementation of AT and Digital Accessibility



Indicative Results



Ten+1 myths for the Digital Accessibility (1 / 2)

1. Digital content accessibility is just for the PwD
2. Accessible content is ugly or boring and without high aesthetics
3. Digital accessibility is hard to be implemented
4. PwD are not going to read my content
5. I have to concentrate to the majority. Most of the people do have a disability
6. PDF and Flash files cannot become accessible

Ten+1 myths for the Digital Accessibility(2 / 2)

7. There is no one who will force me to do it. Why I have to worry?
8. I have to develop a second (accessible) version of my content
9. The cost of accessible content developing is large
10. Ultimately, I will not have any benefit or profit from my accessible content
11. Every electronic file (e.g. MS-Word) is accessible

Computer based Technologies for PwD

by themselves they do not solve problems, nor are they a panacea

The following play an important role:

- human factors
- synergies
- education
- staff training
- culture
- the participation of people with disabilities in all phases of technological development and decision making

Basic Reference

- **World Wide Web Consortium (W3C):**
Web Accessibility Initiative(WAI)
<https://www.w3.org/WAI/>



Thank you!



InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

Co-funded by the
Erasmus+ Programme
of the European Union





**Including
Students with
Impairments in
Distance
Education**

www.inside-project.org

Co-funded by the
Erasmus+ Programme
of the European Union



This project (598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP) has been co-funded by the Erasmus+ Programme of the European Commission. This publication [communication] reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

WP4 DEVELOPMENT

Task 4.1 Training of two accessibility advisors from each University on the use of assistive technology and the operation of the accessibility office in and beyond the context of DE programmes

A.4.1.2 8-days training in Greece (Athens-UOA) on the operation of the accessibility office

8-11 and 14-17 June 2021, Athens

Assistive Technology



HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
Department of Informatics and Telecommunications
Division of Communications and Signal Processing
[Speech and Accessibility Lab](#)

Dr Alexandros Pino

Laboratory Teaching Staff



Erasmus+



Assistive Technology (AT)

This presentation focuses to computer hardware and software designed to assist students with disabilities



Erasmus+





Students with Disabilities (SwD)

- Although the term "disabled" is sometimes used to refer to a compact population, it is actually a diverse group of people with a wide range of needs. Two people with the same type of disability can be affected in very different ways. Some disabilities may be hidden or inconspicuous.



Disability

According to the World Health Organization (WHO), disability has three dimensions:

1. **Impairment** in a person's body structure or function, or mental functioning; examples of impairments include loss of a limb, loss of vision or memory loss.
2. **Activity limitation**, such as difficulty seeing, hearing, walking, or problem solving.
3. **Participation restrictions** in normal daily activities, such as working, engaging in social and recreational activities, and obtaining health care and preventive services.





International Classification of Functioning, Disability and Health (ICF)

- A classification of health and health-related domains
- As the functioning and disability of an individual occurs in a context, ICF also includes a list of environmental factors.
- ICF is the WHO framework for measuring health and disability at both individual and population levels
- ICF was officially endorsed by all 191 WHO Member States in 2001 as the international standard to describe and measure health and disability.

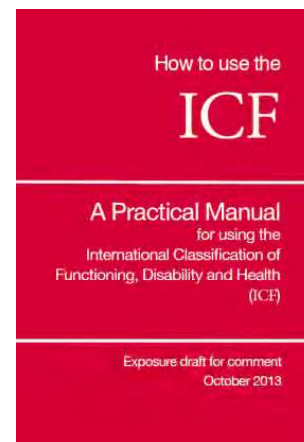


Types of Disabilities

There are many taxonomies for disabilities, functioning-wise we can just distinguish them as those that affect a person's:

- Vision
- Movement
- Thinking
- Memory
- Learning
- Communication
- Hearing
- Mental health
- Social relationships

[Link to the ICF](#)





Impairments, Activity Limitations, and Participation Restrictions

What is disability?

- A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions).

[Learn about disability @ CDC](#)



Centers for Disease
Control and Prevention



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Assistive Technology – Introduction



Definition of Assistive Technology (USA)

- A formal, legal definition of AT was first published in the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (The Tech Act)
- This act was amended in 1994
- In 1998, it was repealed and replaced with the Assistive Technology Act of 1998 (AT Act)
- Throughout this history, the original definition of assistive technology remained consistent
- The Federal Law known as public law 108-446 (2004), entitled **Individuals with Disabilities Education Act (IDEA)** further supported this definition of AT



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Assistive Technology – Introduction





..and the AT definition is

Assistive Technology (AT) is a term that applies both to AT devices, and AT services:

- **AT device** is any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.
- **AT service** means any service that directly assists an individual with a disability in the selection, acquisition or use of an AT device.



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Assistive Technology – Introduction



WHO's description of AT

Assistive devices and technologies are those whose primary purpose is to maintain or improve an individual's functioning and independence to facilitate participation and to enhance overall well-being. They can also help prevent impairments and secondary health conditions. Examples of assistive devices and technologies include wheelchairs, prostheses, hearing aids, visual aids, and specialized computer software and hardware that increase mobility, hearing, vision, or communication capacities. In many low-income and middle-income countries, only 5-15% of people who require assistive devices and technologies have access to them.

[WHO Assistive devices and technologies link](#)



World Health
Organization



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Assistive Technology – Introduction



Today More than **1 billion** people in the world need assistive technology



970 million people need glasses and low vision aids



35 million people need prostheses or orthoses



75 million people need wheelchairs



94 million people need hearing aids



150 million people need mobility aids



150 million people need cognitive aids

but only **1 in 10** have access to the products they need.



Why ?



High cost of products



Lack of skilled workforce



Lack of policy & standards

By 2030 More than **2 billion** people will need assistive technology

WHO is making UHC inclusive

Policy Support countries in developing national policy and standards

Products Support countries in developing a list of national priority assistive products

Personnel Support countries in building the capacity of their community-level workforce

Provision Support countries in developing integrated models of service provision



to ensure access to assistive technology for everyone, everywhere



[Global Cooperation on Assistive Technology \(GATE\) initiative link](#)

The **GATE** Initiative



The **GATE** Initiative

Priority Assistive Products List

✓1

Alarm signallers with light/sound/vibration



✓7

Closed captioning displays



✓2

Audioplayers with DAISY capability



8

Club foot braces



✓3

Braille displays (note takers)



9

Communication boards/books/cards



✓4

Braille writing equipment/braille



✓10

Communication software



5

Canes/sticks



11

Crutches, axillary/elbow



6

Chairs for shower/bath/toilet



✓12

Deafblind communicators



APL 1/4
















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 The GATE Initiative Priority Assistive Products List	13	Fall detectors		19	Incontinence products, absorbent	
	✓14	Gesture to voice technology		✓20	Keyboard and mouse emulation software	
	✓15	Global positioning system (GPS) locators		✓21	Magnifiers, digital hand-held	
	✓16	Hand rails/grab bars		22	Magnifiers, optical	
	17	Hearing aids (digital) and batteries		23	Orthoses, lower limb	
	✓18	Hearing loops/FM systems		24	Orthoses, spinal	

APL 2/4

 The GATE Initiative Priority Assistive Products List	25	Orthoses, upper limb		31	Prostheses, lower limb	
	✓26	Personal digital assistant (PDA)		32	Ramps, portable	
	27	Personal emergency alarm systems		✓33	Recorders	
	28	Pill organizers		34	Rollators	
	29	Pressure relief cushions		✓35	Screen readers	
	30	Pressure relief mattresses		36	Simplified mobile phones	

APL 3/4



The GATE Initiative

Priority Assistive Products List

37 Spectacles; low vision, short distance, long distance, filters and protection



44 Walking frames/ walkers



38 Standing frames, adjustable



✓45 Watches, talking/ touching



39 Therapeutic footwear, diabetic, neuropathic, orthopaedic



46 Wheelchairs, manual for active use



✓40 Time management products



✓47 Wheelchairs, manual assistant-controlled



41 Travel aids, portable



48 Wheelchairs, manual with postural support



42 Tricycles



49 Wheelchairs, electrically powered



APL 4/4



AT products

They are designed to provide additional accessibility to people with physical, sensory and mental disabilities. We will focus on those related to our accessibility lab, and computer access.



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Assistive Technology – Introduction





AT systems characteristics

Personalization

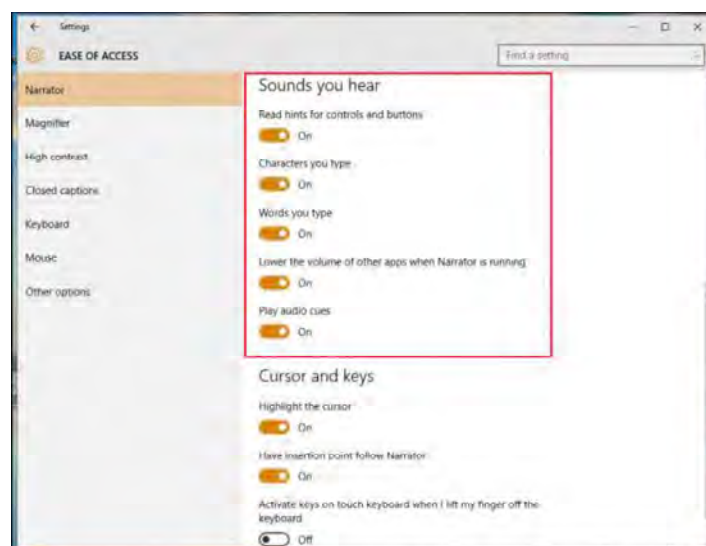
- An AT system does not always come in a box
- Each SwD may need a completely different solution than another individual with the same disability
- Usually AT systems are assembled using multiple pieces of h/w and s/w like puzzles
- Even similar systems usually accommodate different personalized settings

Adaptation

- Pieces of equipment and software often need customizations before applied
- Flexibility is a key, and the system must ideally adapt to the user's needs
- Users' needs are changing
 - due to change of their health condition
 - due to familiarization and training
 - due to changes in their environment



Windows accessibility

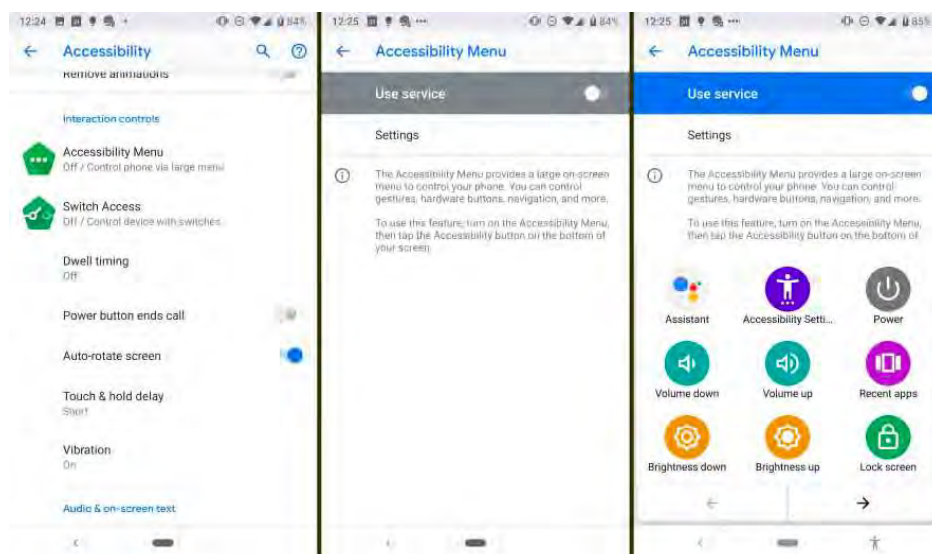




MacOS accessibility

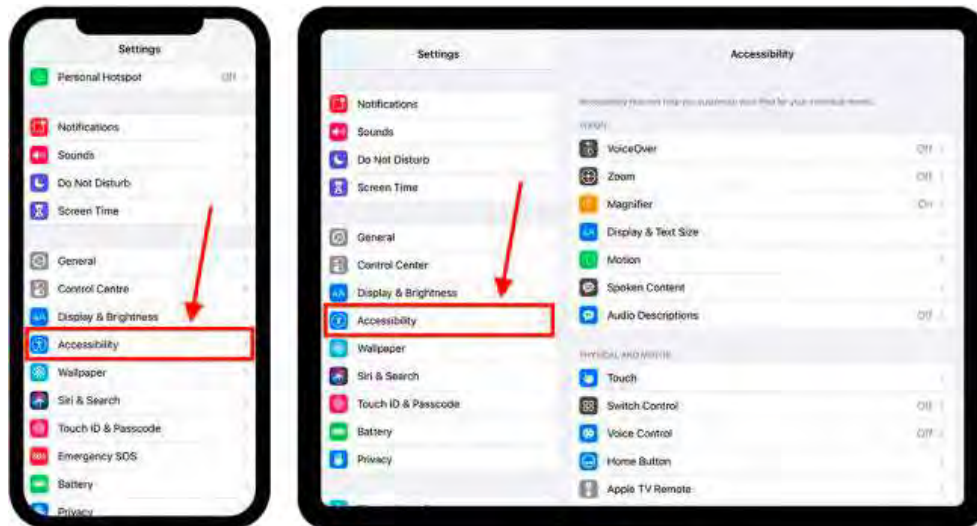


Android accessibility

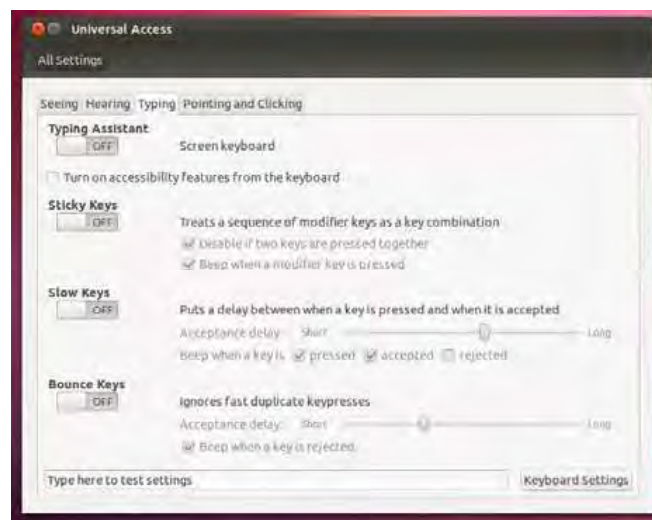




iOS accessibility



Ubuntu accessibility





Presentation structure

- Computer-based AT
 - AT Software
 - AT Hardware
 - For disabilities that affect
 - Speech
 - Cognitive/learning functions
 - Motion
 - Vision
 - Hearing
- Mainly to facilitate access to the computer/laptop/tablet/smartphone to use it as a tool for communication, education, entertainment, information, socialization**

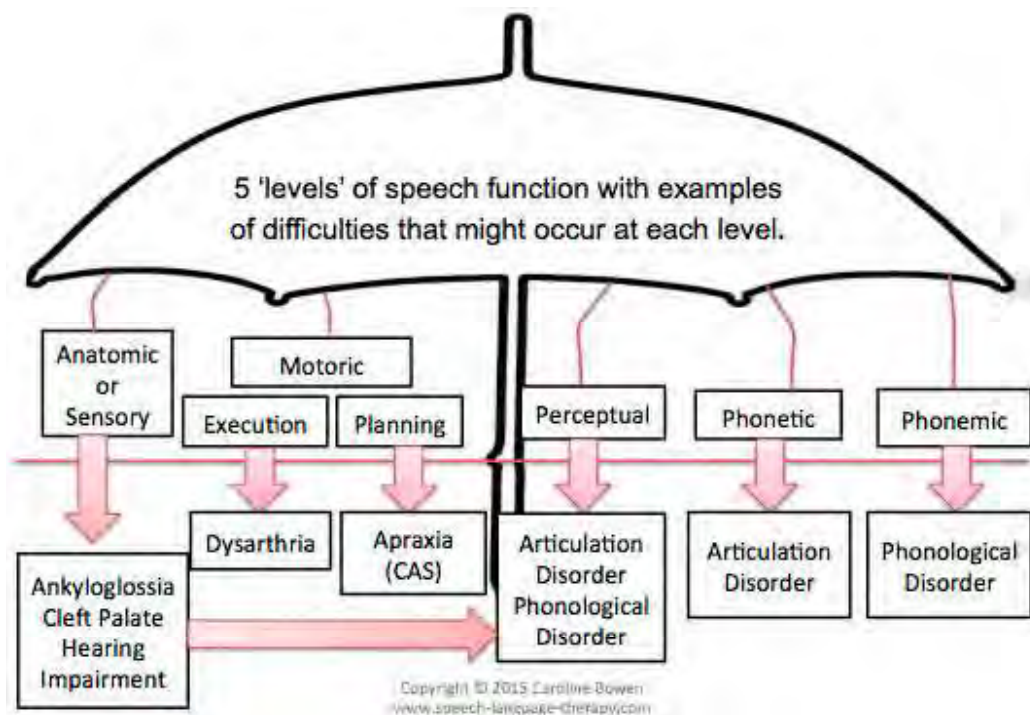


Speech



AT for speech disorders





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Assistive Technology – Speech



Congenital

- Autism spectrum disorders
- Cerebral palsy
- Developmental disorders
- Intellectual disabilities
- Developmental apraxia of speech
- Developmental verbal dyspraxia
- Genetic disorders



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Assistive Technology – Speech





Acquired

- Strokes
- Traumatic brain injury
- Neurodegenerative diseases
 - Amyotrophic lateral sclerosis
 - Progressive supranuclear palsy
 - Primary progressive aphasia
 - Aphasia
 - Apraxia
- Disabilities after surgery
 - Glossectomy
 - Laryngectomy
 - Intubation
 - Patients in the intensive care unit



Speech and language related

- Alalia
- Tachylalia
- Cognitive impairments
- Mental disabilities
- Down syndrome
- Rett syndrome
- Speech and language disorders
 - Developmental speech delay
 - Specific language impairment
 - Phonological disorders
 - Voice disorders
 - Laryngitis
 - Paradoxical vocal fold movement
 - Vocal cord paresis
 - Spasmodic dysphonia





Movement related

- Dysarthria
- Dysphagia
- Articular cartilage disorders
- Neurogenic dysphonia
- Ataxic dysphonia
- Spastic dysphonia
- Stuttering
- Myotonic dystrophy
- Degenerative diseases
 - Muscular dystrophy
 - ALS
 - Multiple Sclerosis
 - Parkinson's disease
 - Huntington's disease
 - Myasthenia Gravis



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Assistive Technology – Speech



Combinations

- Speech and language disorders
- Motor disabilities
- Neurological disorders
- Intellectual disabilities

Along with multiple severity degrees

➤ Lead to a vast variety and diversity of communication needs



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Assistive Technology – Speech





Text-to-Speech (TTS)



- Software that transforms digital text (characters, numbers, punctuation marks, symbols) to synthetic speech. Runs in the background, outputs humanlike speech sound to speakers.

tts process



TTS basic features

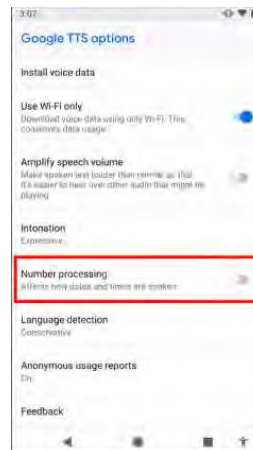
- Language dependent
 - Few choices for small languages
 - Still not available for some
- Gender (male-female)
- Adjustable
 - Speed
 - Pitch
 - Volume





TTS advanced features

- Polyglot or multilingual
- Advanced intonation and prosody
- Localism (local dialects)
- Age (children/teenagers/adults/seniors)
- Pronunciation correction
- Advanced handling of numbers, symbols, acronyms
- Affective (sad/happy/laugh/cough/kiss)



Synthetic voices



You can click on each one of these TTS projects/resellers/services/developers' logos to visit their websites and download voices or hear samples





TTS & typing apps

- May accelerate typing on a PC/laptop/tablet/smartphone
 - Word prediction
 - Learns user's vocabulary
 - Extends to phrase prediction
 - Spell checking
 - Autocorrect
 - Whole phrases bank
 - Frequently used words/phrases quick selection
- TTS outputs written text to the device's speakers





Additional communication methods

- Voice amplifiers
- Electrolarynx
- Speaking valves for people with tracheostomy or ventilators
- Vibration systems
- Morse code systems
- Braille systems



Voice amplifiers



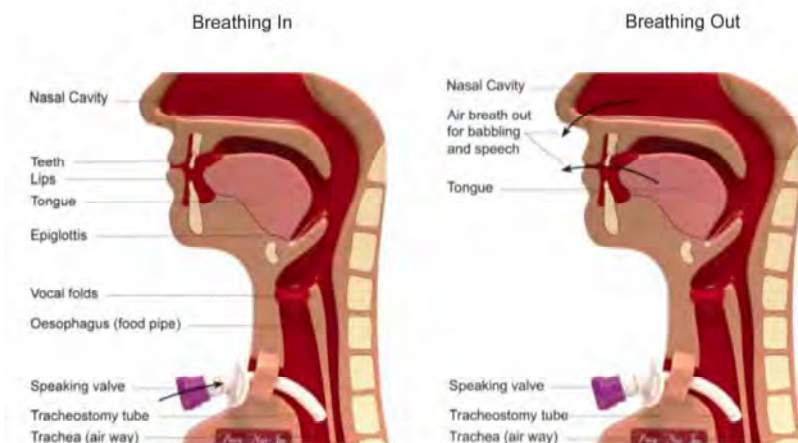


What is a speaking valve?

A speaking valve is a one way valve that fits over the tracheostomy tube. At PMH, we use Passy Muir valves.

How does a speaking valve work?

The valve only opens to allow air to be breathed in via the tracheostomy. On breathing out, the valve closes and air is pushed up via the larynx (voice box) to exit via the nose and mouth. This may facilitate improvements in voice, cough, smell and taste, and secretion management (information taken from Passy Muir website).



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Assistive Technology – Speech



Electrolarynx



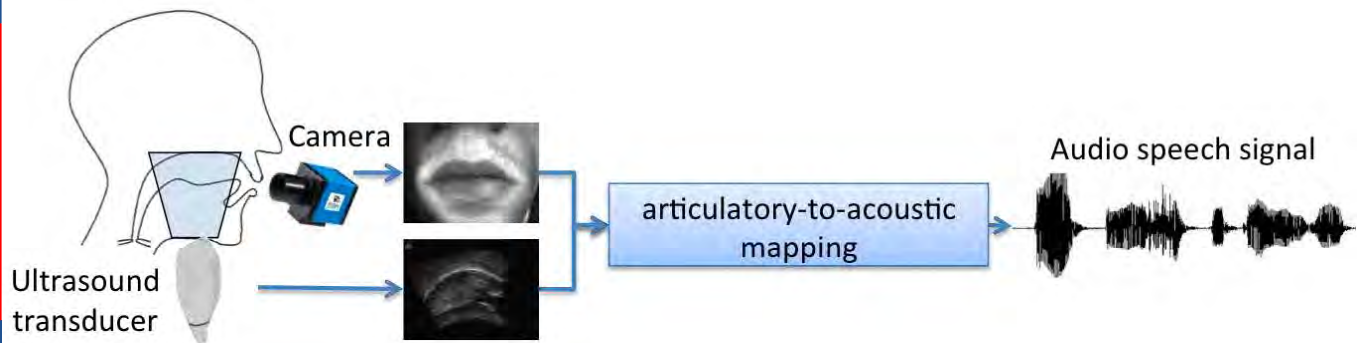
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Assistive Technology – Speech





Silent speech research



Short video

[YouTube Link](#)





Augmentative and Alternative Communication (AAC)

- **Augmentative (speech disorders):** For people who can handle their natural language but cannot speak, or their speech is unintelligible. For example, use of artificial voice; the computer speaks for them.
- **Alternative (language disorders):** For people who can not handle their natural language. Use of alternative language. For example, use of symbols by people who cannot speak/write in natural language/alphabet.

AAC is the formal title for non-speech communication, and the difference between augmentative and alternative communication is merely the difference between partial and total dependency on non-speech communication.



Cognitive



AT for cognitive/learning disabilities





Talking Word Processors

- Using TTS while writing allows people with learning disabilities to listen to what they type and to relate the writing to their pronunciation. Some have tools such as word prediction, talking dictionaries, spellchecker, and thesaurus.



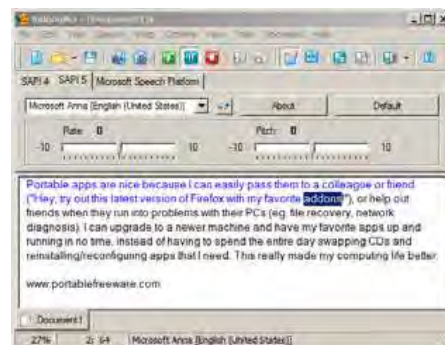
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Assistive Technology – Cognitive



Reading tools

- Render educational material (text) more accessible to students with reading difficulties
 - Reorder text
 - Summarize text
 - Simplify text
 - Translate text
 - Smart text navigation
 - Screen masking
 - Display adjustments
 - TTS reading aloud with simultaneous highlighting of text



[Here is a link to learn more and find reading software](#)



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Assistive Technology – Cognitive





Augmentative and Alternative Communication (AAC) definition

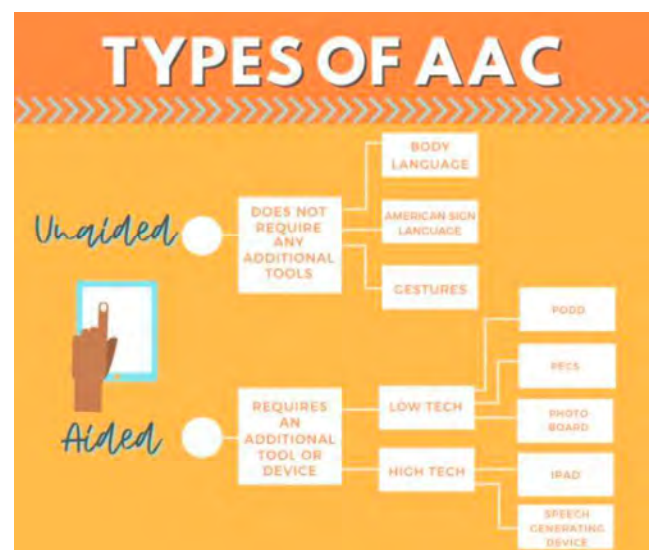
American Speech-Language-Hearing Association ([ASHA](https://www.asha.org/)):

- AAC describes multiple ways to communicate that can supplement or compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders



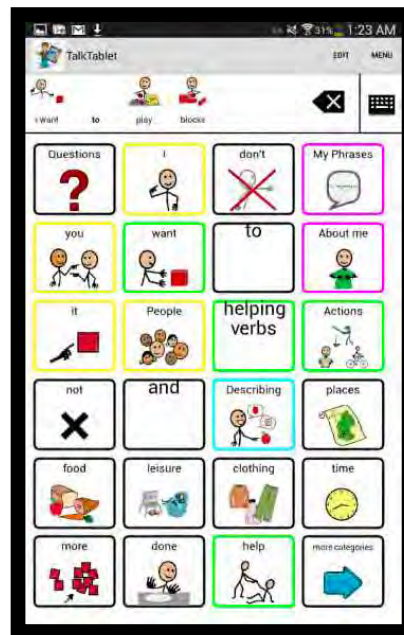
Aided and unaided ACC

- AAC can involve unaided communication, such as facial expression, body posture, gesture, or sign language, and aided modes (e.g., communication books, tablets). The appropriate mode or modes of communication are determined by the needs of the individual with disabilities and their communication partners.





AAC Symbols



[Here is a link of a comprehensive AAC symbol sets list](#)



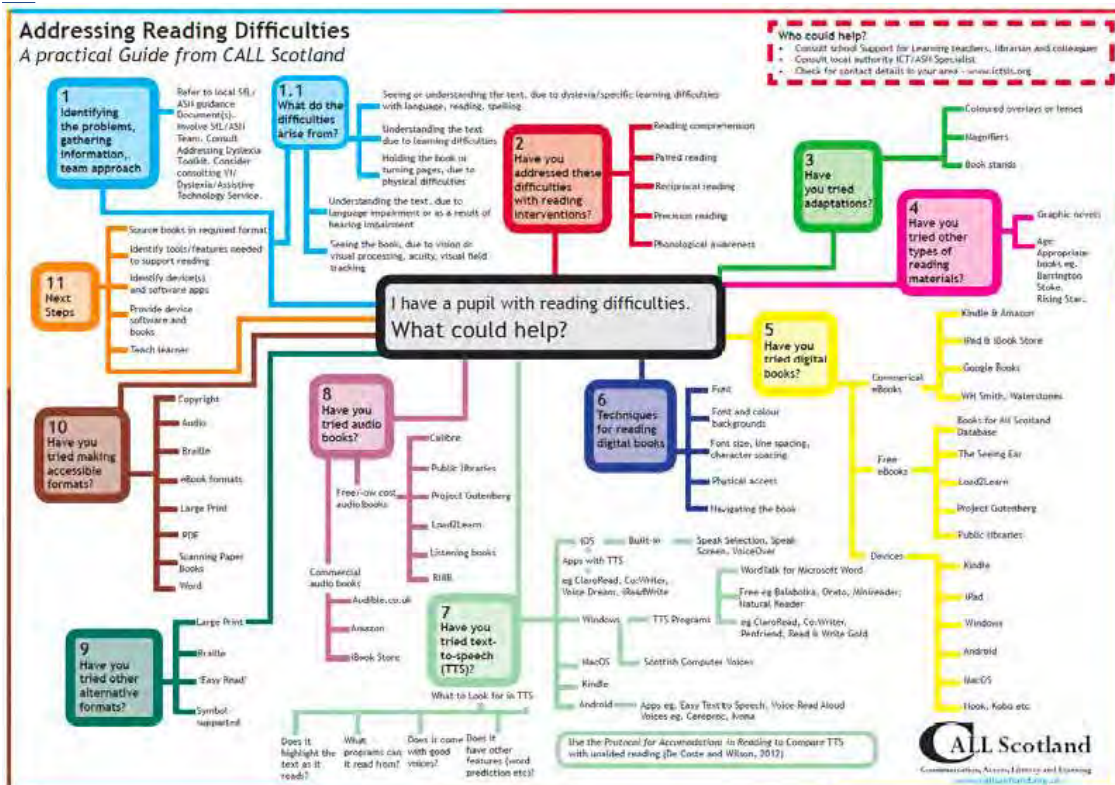
Our Aeneas project (screenshots)



A young man with dark hair and glasses is seated at a desk, looking at a computer monitor. He is wearing a grey long-sleeved shirt. His right hand is on a computer mouse. The monitor displays a colorful grid or map with various shades of green, yellow, and purple. A small, white, boxy device is visible on the desk between the man and the monitor. The background shows a window with green blinds.



Assistive Technology – Cognitive

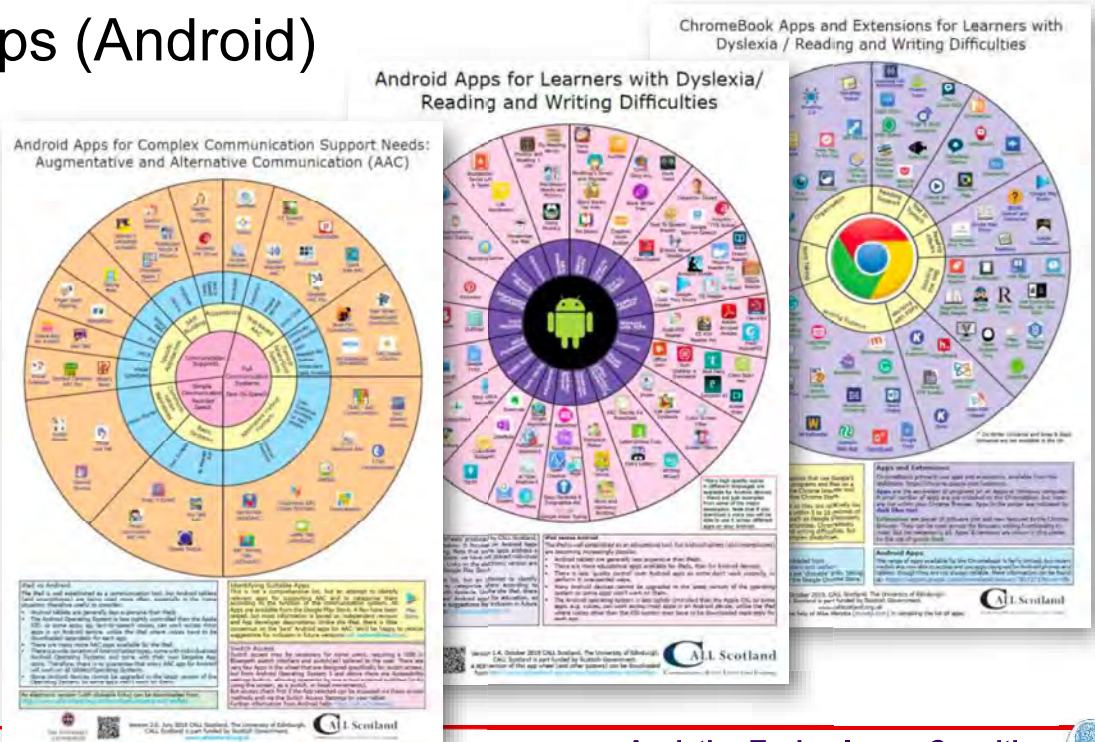


You can click on the image to see an accessible and detailed breakdown of this poster



Apps (Android)

You can click on each pedagogy wheel for details

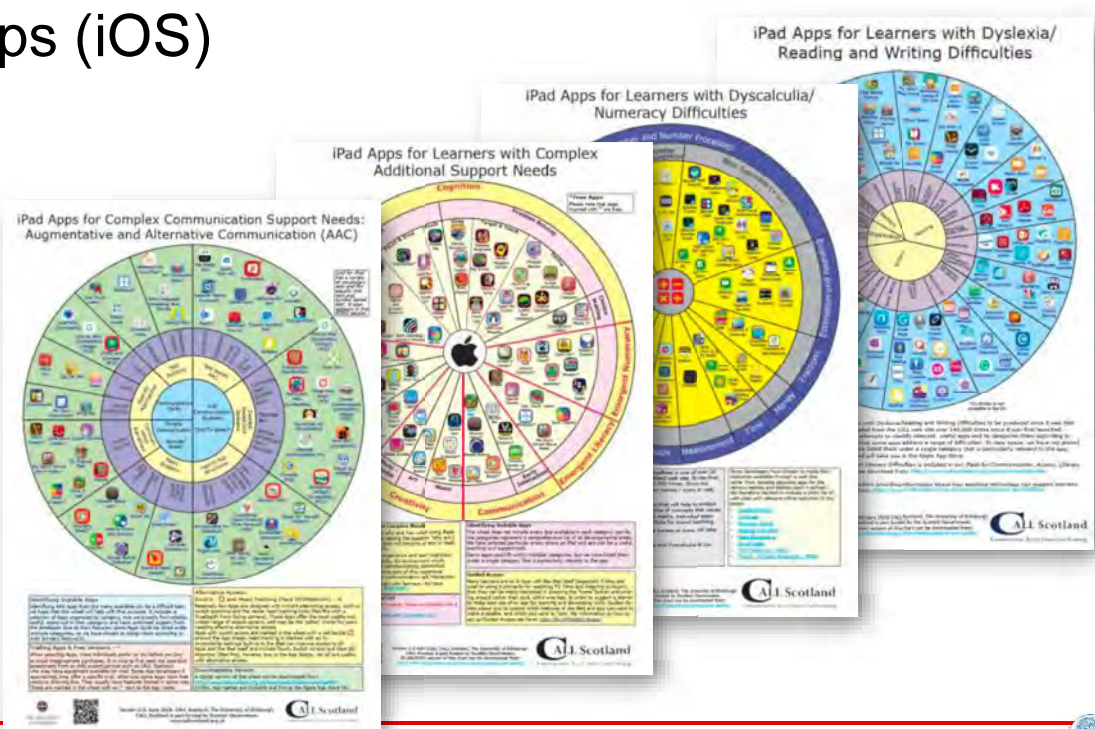


Assistive Technology – Cognitive



Apps (iOS)

You can click on each pedagogy wheel for details



Assistive Technology – Cognitive



Motion



AT for students with physical disabilities



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Alternative input devices

Allow computer/tablet/smartphone control by other means instead of the typical keyboard, mouse and touchscreen

- for typing
- for positioning the mouse pointer on a target (point)
- for selecting a target (click)
- for double click, right click, drag & drop, scrolling, swiping, zooming, rotating, etc.



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Assistive Technology – Motion





Typing

- Upper limbs impairments may relate to
 - Pain
 - Fatigue
 - Positioning
 - Limb amputation
 - Coordination
 - Tremor
 - Control
 - Movement range



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Assistive Technology – Motion



Ergonomic keyboards



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Split keyboards



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Concave keyboards



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One-hand keyboards



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Alternate key layouts



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Small keyboards



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Large keys



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Keyguards



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Intellikeys



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Sticks



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Mouth stick



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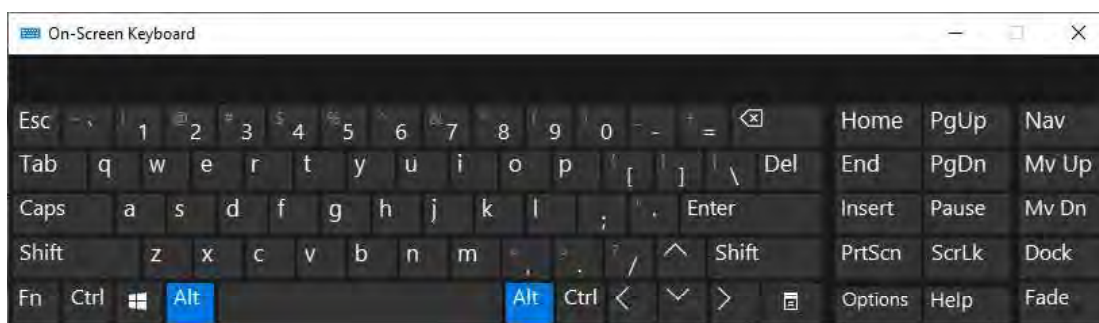




Ergonomic mice



On-screen keyboards



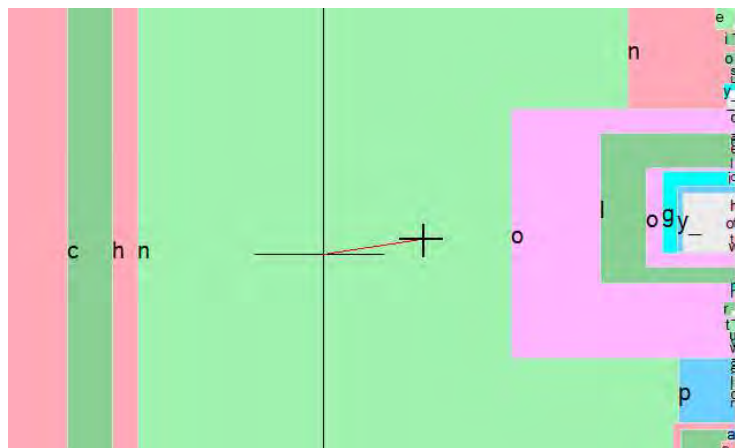


Word prediction



Dasher typing software

- By moving the mouse pointer



[Demonstration Video](#)





Joysticks



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Assistive Technology – Motion



Trackballs



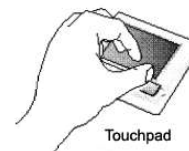
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Touchpads



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Touchscreens



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Mounting arms



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Sip-puff switches



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Tongue switch

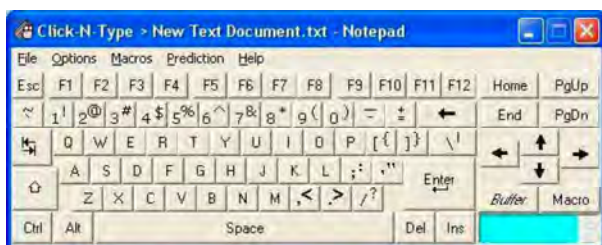


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Keyboard scanning



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Screen scanning



CrossScanner provides complete access to Windows from a single-switch!



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Handsfree pointing devices

They are used to control the mouse pointer on the screen without the use of hands.

- Infrared cameras (head control)
- Eye tracking (eye control)
- Mouth devices (tongue or lip control)
- Speech recognition (speech control)
- Brain wave devices (control with EEG, EOG, EMG)



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Mouth controlled



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Head controlled



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Handsfree control



Glass@use
Assistive Device

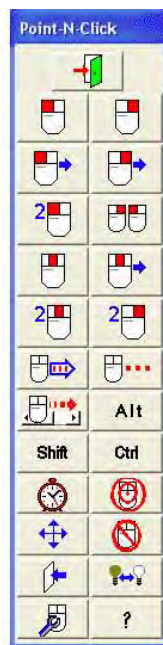
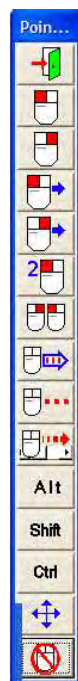
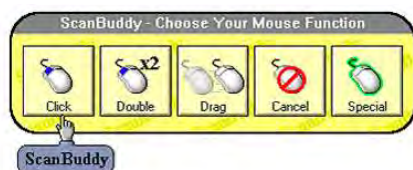


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Assistive Technology – Motion



Click helpers



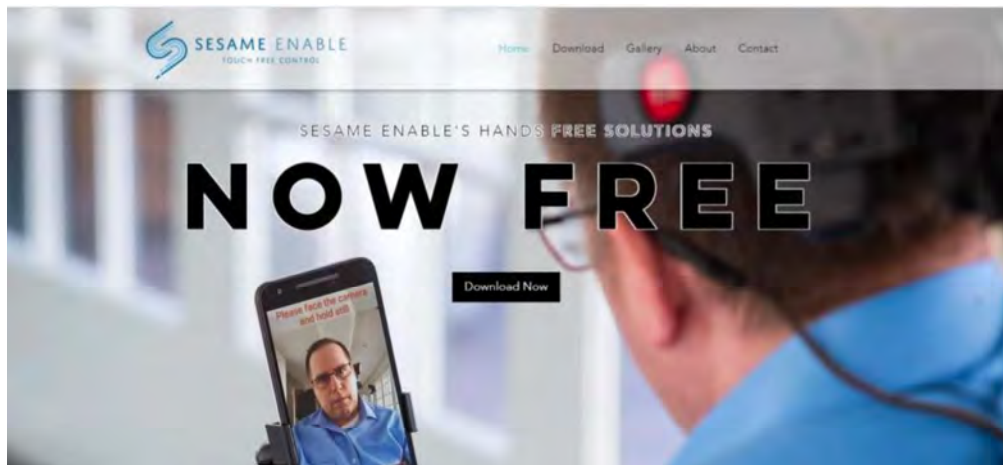
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Just with a webcam!



smyle™ mouse



You can click on
each image to
visit the website
and try the
software

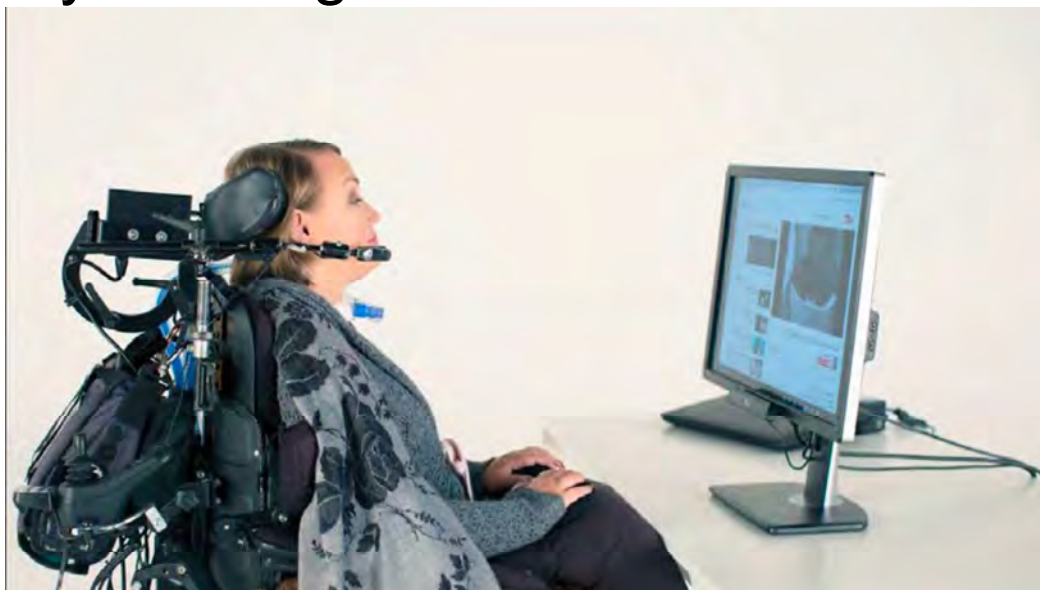


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Eye Gazing



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Assistive Technology – Motion





[Eye gazing Video 1](#)

[Eye gazing Video 2](#)



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Assistive Technology – Motion



Speech Recognition

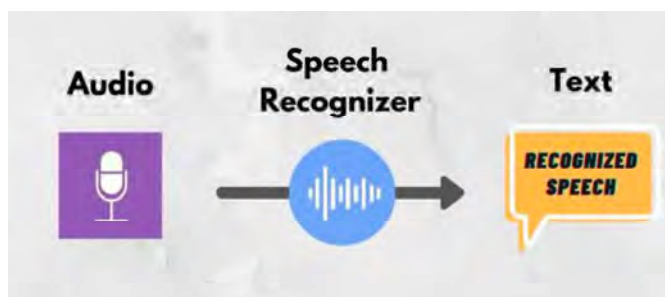


Speech



Text

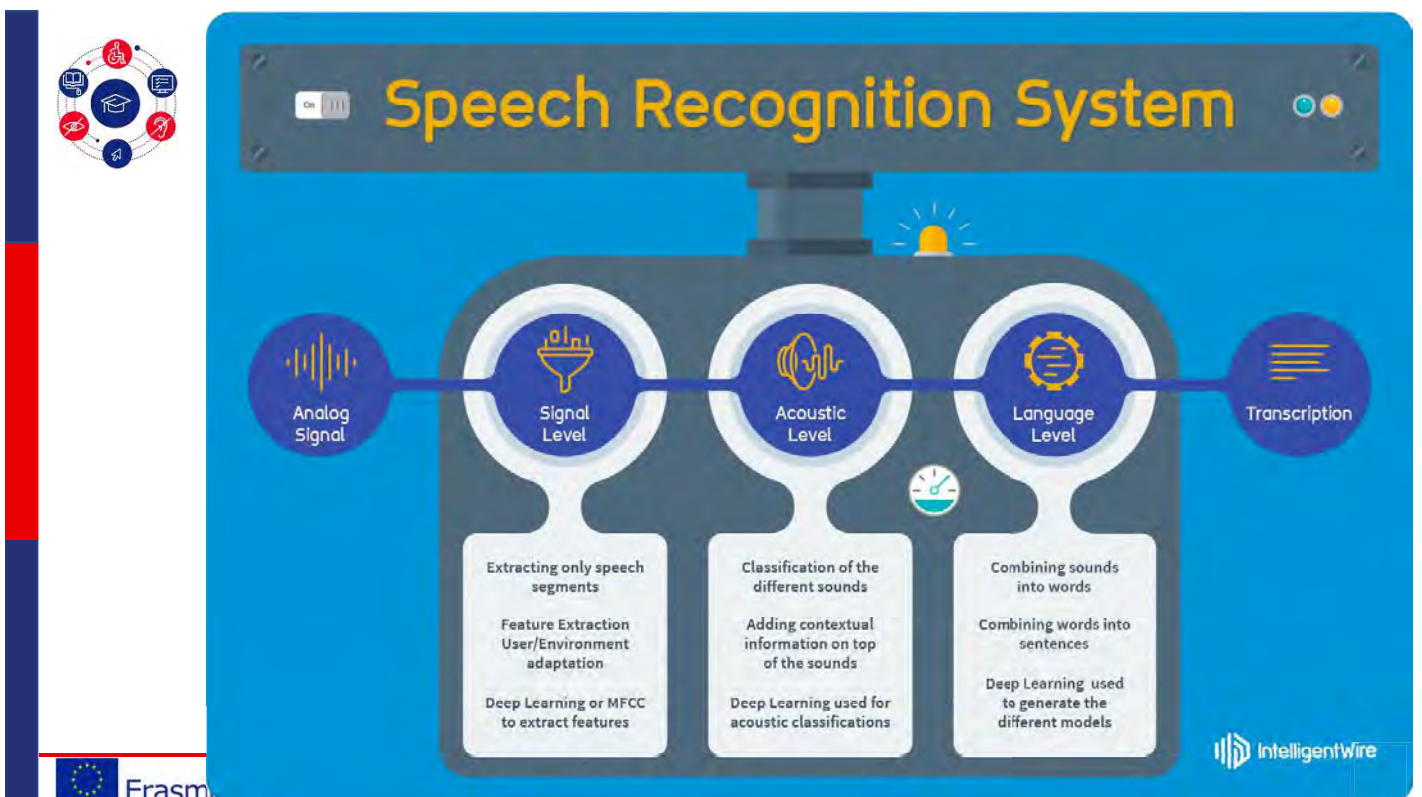
- Software that allows users to give commands and enter data using their voice. Uses a microphone connected to a PC. Facilitates the creation of texts such as letters or e-mails, browsing the Internet, but also navigating applications and menus by voice only.



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Assistive Technology – Motion



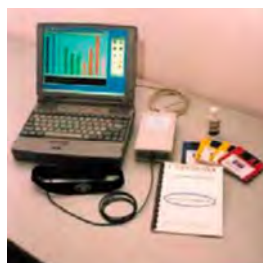




Brain Computer Interface (BCI)



- EEG ElectroEncephaloGraphy
- EMG ElectroMyoGraphy
- EOG ElectroOculoGraphy



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Assistive Technology – Motion



[Click to see BRAINFINGERS BCI website](#)

Brainfingers Hands-Free Computer Control

[Home](#)

[What It Does](#)

[How It Works](#)

[Who Can Use It](#)

[Testimonials](#)

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[Research](#)

[Brain Actuated Technologies, Inc](#)

[937.767.2674](#)

[e-mail us](#)

How It Works

Brainfingers is hardware and software. The hardware includes headband, amplifier and connecting cables. The software enables training and computer access.

The headband senses and responds to surface electrical signals generated from muscle, eye movement, and brainwave activity detected at the forehead. The headband connects to the amplifier which filters, amplifies and digitizes the forehead signal.

The amplifier connects to computer through a USB port. The Brainfingers Software within the computer further amplifies the forehead signal and uses patented algorithms to decode the signal into eleven frequency bands of information. These eleven bands span the controllable frequency range of the forehead signal. The four lowest frequency bands are responsive to lateral eye movements and theta brainwaves. The middle three frequency bands are responsive to alpha brainwaves. The four highest bands are responsive to beta brainwaves and muscle activity. The eleven bands can be used in combination or individually to produce virtual controls or Brainfingers. The Brainfingers are amplified over two million times. In this way Brainfingers become responsive to the subtlest of facial muscle, eye and brainwave activity.

The [Brainfingers Software](#) includes a number of training windows designed to help learn to bring Brainfingers under conscious control. Included with the training windows are help windows and adjustment windows to allow a fine tune control of Brainfingers.

Once control is mastered an editor window is used to build links or "Profiles" between Brainfinger controls and computer events. You then launch onto desktop and use Brainfinger controls to control computer and third party software.

For example a user with ALS/MND who could only control a muscle or beta brainwave switch, would link their muscle or beta switch to a Left Mouse Click event. Then launch onto desktop and control an on-screen keyboard such as the Grid 2 bundle "Speedy Keys" in a switch-scanning mode.



[Click to see EMOTIV website](#)

Choose your headset

Our EEG Brainwear® devices offer a wide range of sensor counts while maintaining full portability with the help of wireless technology.



EPOC Flex

32-channel wireless EEG cap with flexible electrode positioning. Choose Saline or Gel sensors.

[EXPLORE](#)



Insight

5-channel wireless easy-to-use EEG headset with innovative polymer sensor technology.

[EXPLORE](#)



EPOC +

14-channel award-winning wireless EEG headset that records high-resolution EEG data.

[EXPLORE](#)



MN8

MN8 is a first-of-its-kind Bluetooth stereo headset with integrated 2-channel EEG buds.

[PARTNER WITH US](#)

[Click to see NEXTMIND website](#)

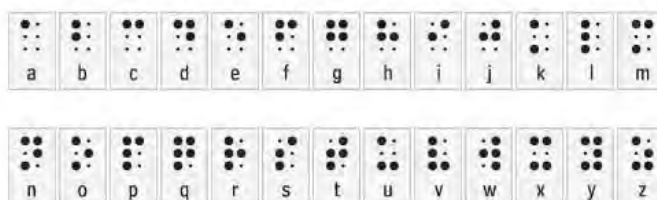
SIMPLY WEAR & PLAY

A small and wearable design that offers both comfort, discretion and the best signal quality on the market. It is designed to be 'wear and play', allowing it to be placed on the user's head in no time at all. No training is required, it just works.

[LEARN MORE](#)



REAL-TIME DECODING
OF BRAIN SIGNALS



Vision



AT for the blind or partially sighted



Screen magnifiers



- They work like magnifying glasses for the PC screen by enlarging a part of the screen, increasing the readability and making it easier for the user to see the graphics on the screen.



Assistive Technology – Vision





CCTV magnifiers

- They magnify natural objects
- May display the PC desktop at the same time



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Assistive Technology – Vision



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Assistive Technology – Vision





Handheld CCTV



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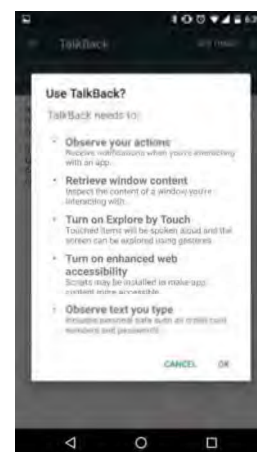
Assistive Technology – Vision



Screen readers



- They "speak" everything on the screen (text, graphics, control buttons and menu lists) in a synthetic voice using TTS.



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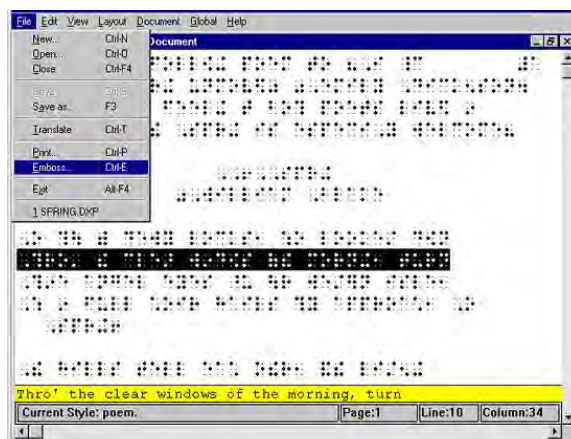
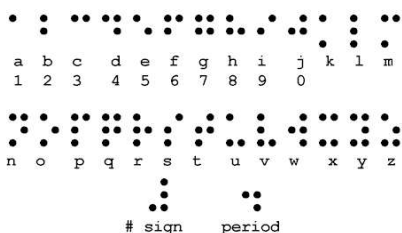
Assistive Technology – Vision





Braille translators

- Convert electronic text to Braille code that can be printed on a Braille printer or read in real time using a Braille display.



Embossers

They produce embossed "prints" of text in Braille.





Braille displays



- They provide tactile text output from the PC. A Braille character consists of a group of dots. The various combinations of dots are used in place of the letters.



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Assistive Technology – Vision



Greek Braille

<p>ΦΑΡΟΣ ΤΥΦΛΩΝ ΤΗΣ ΕΛΛΑΔΟΣ ΜΟΥΣΕΙΟ ΑΦΗΣ ΣΧΗΜΑΤΩΝ ΒΛΑΚΩΣ ΑΝΑΓΝΩΡΙΜΕΝΩ ΤΕΡΕΦΩΝΩΝ ΜΕΤΑΚΛΕΙΣΤΗΝ ΤΟ ΑΓΙΟ ΤΟ ΥΠΟΥΝΤΙ ΟΥ ΨΕΥΔΕΣ ΚΑΙ ΕΠΙΜΕΛΕΙ</p>							
ΕΛΛΗΝΙΚΟ ΑΛΦΑΒΗΤΟ BRAILLE							
Α	Β	Γ	Δ	Ε	Ζ	Η	Θ
Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω
ΔΙΦΘΟΓΟΙ BRAILLE							
ΑΙ	ΕΙ	ΟΙ	ΑΥ	ΕΥ	ΗΥ	ΥΙ	ΟΥ
ΑΡΙΘΜΟΙ BRAILLE							
1	2	3	4	5	6	7	8
9	0						



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Assistive Technology – Vision





Scanners and OCR



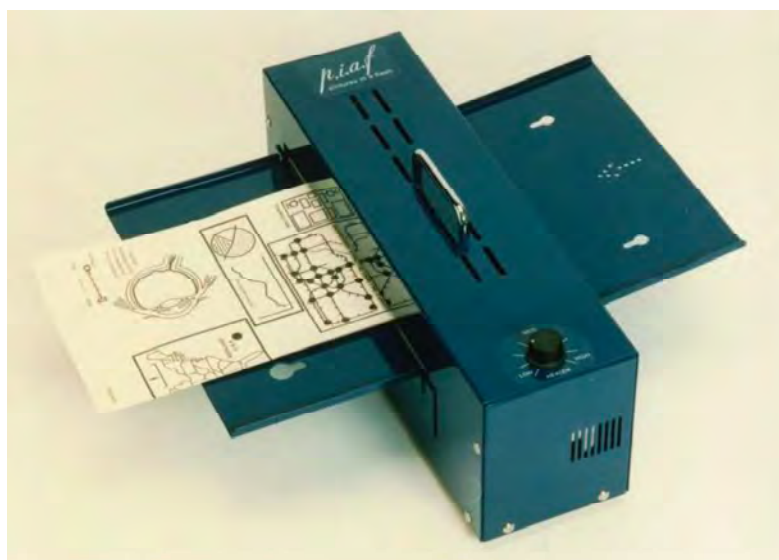
Used in the lab or at home for converting printed material into electronic form accessible to blind students.



Assistive Technology – Vision



Tactile Graphics

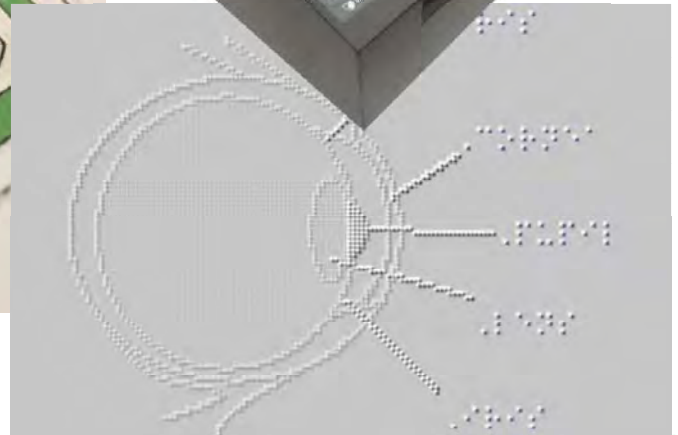
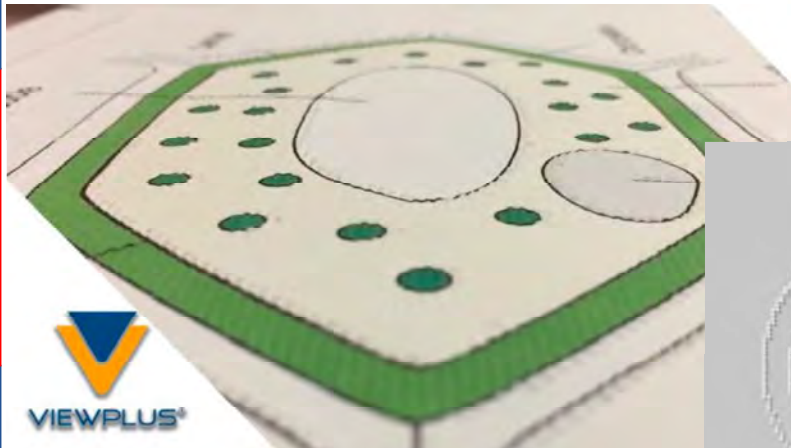


Assistive Technology – Vision





Tactile textures

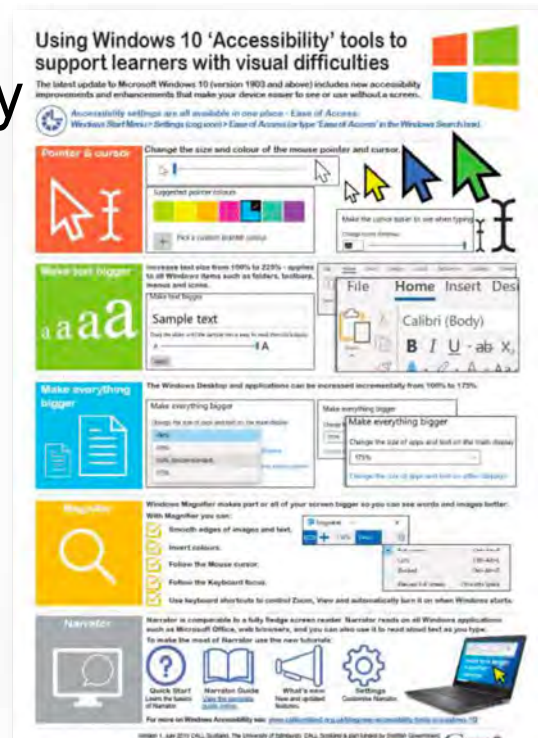
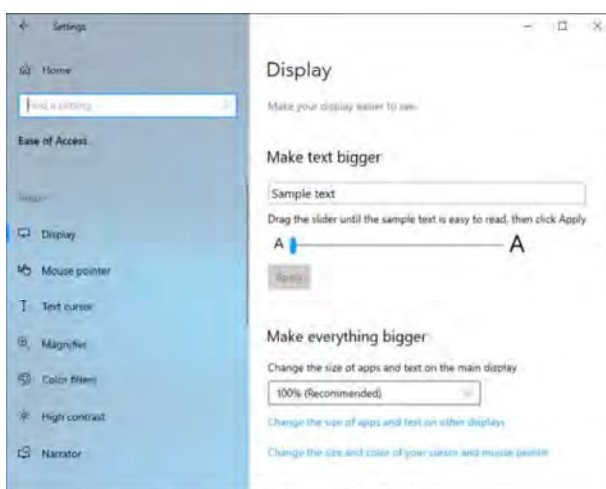


Assistive Technology – Vision



Windows accessibility

- Start>>Settings>>Ease of Access



Assistive Technology – Vision



Hearing

AT for the hearing impaired



Useful technologies

- Fax
- Text telephone (TTY)
- Telecom devices for deaf (TDD)
- Video communication
- Relay services
- Email
- Chat
- SMS, MMS



Assistive Technology – Hearing





Modems TTY/TDD



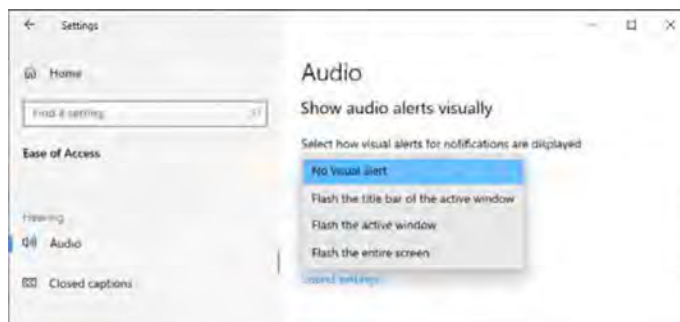
- They connect between PCs and phones and allow the user to type a message on the PC and send it to a TTY / TDD phone or other Baudot device.



Visual cues



- They monitor the sounds of the PC and alert the user with visual cues. This is useful when a user cannot hear the sounds produced by the computer. For example, a light may flash to alert the user that there are new emails or when a PC command has been completed





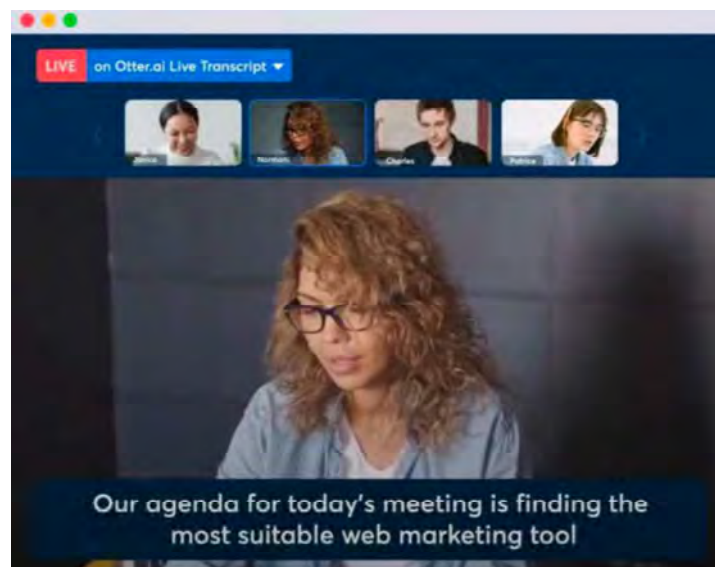
Closed captions

- For existing videos/multimedia
- Are prepared offline by trained annotators
- Special transcription/annotation rules for the deaf, such as
 - Sounds/sound effects/music annotated
 - Speaker name annotated (dialogues)
- User must enable them
- YouTube supports them



Real-time captioning

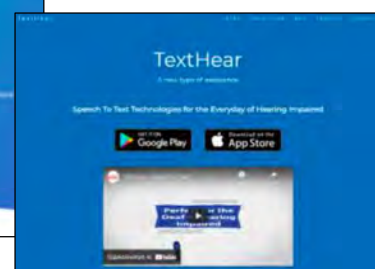
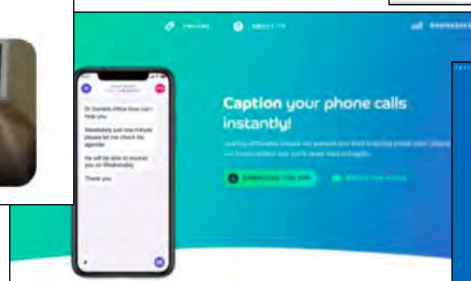
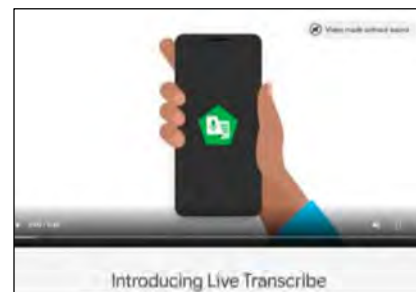
- Embedded to some teleconference apps
- Use speech recognition on the app server
- Only annotate speech
- Available for a few languages





Speech Recognition Apps

- Speech to text for some languages
- Translation apps can also do the work



You can click on the 4 screenshots to check out the apps



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Assistive Technology – Hearing



Voice relay service



- They connect people who use a regular telephone (with their voice) to interlocutors who use either a text telephone or a special telephone for the deaf.
- Calls are routed through a communication operator who has both types of devices and acts as an intermediary between the interlocutors.



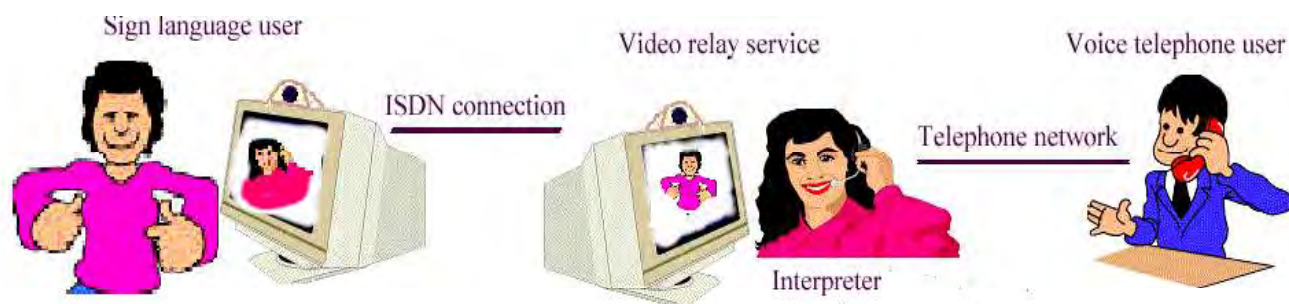
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Assistive Technology – Hearing





Video relay service

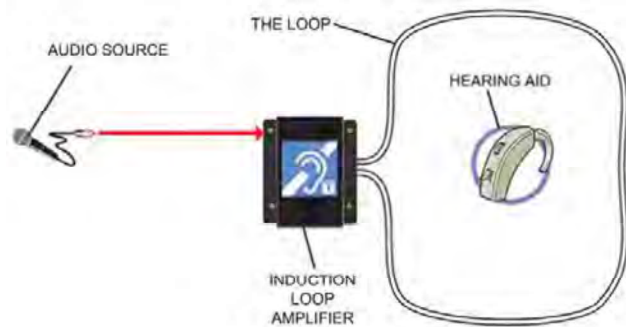
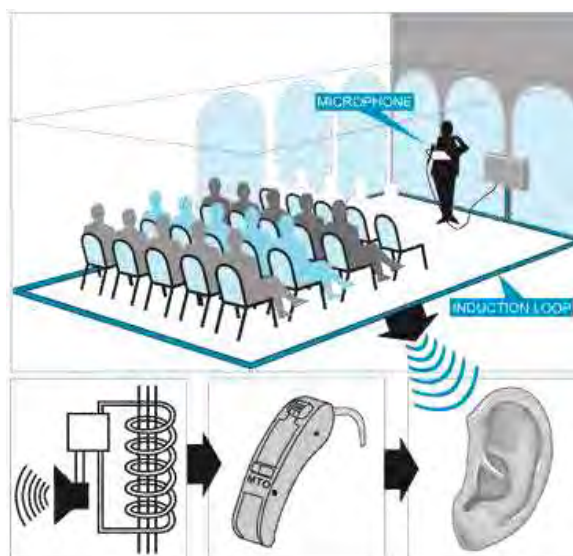


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Assistive Technology – Hearing



Induction loop (Telecoil)



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Assistive Technology – Hearing





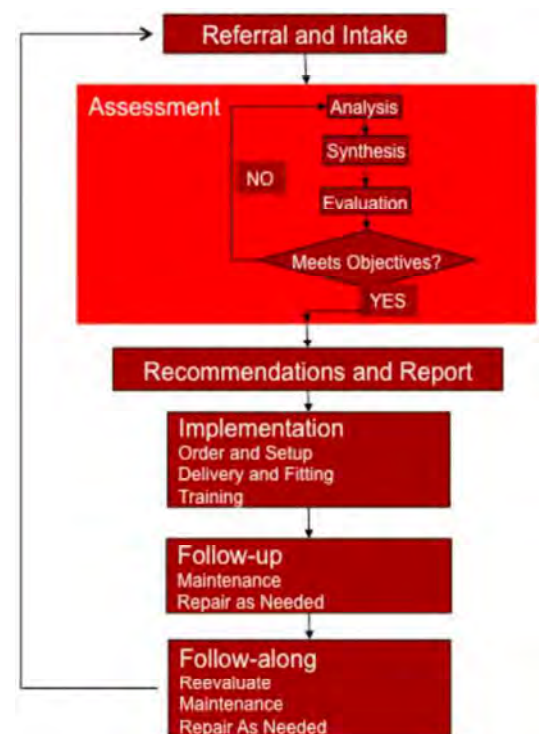
Avatars

- [Paula](#)
- [Hand Talk app](#)
- [Microsoft/ProDeaf Speech Translation API](#)
- [IBM Say it Sign it \(SiSi\)](#)
- Attempt to translate to the deafs' natural language (sign language)
- Country specific



Personnel

AT Professions, Stakeholders, and Interventions





AT Assessment Interdisciplinary Team

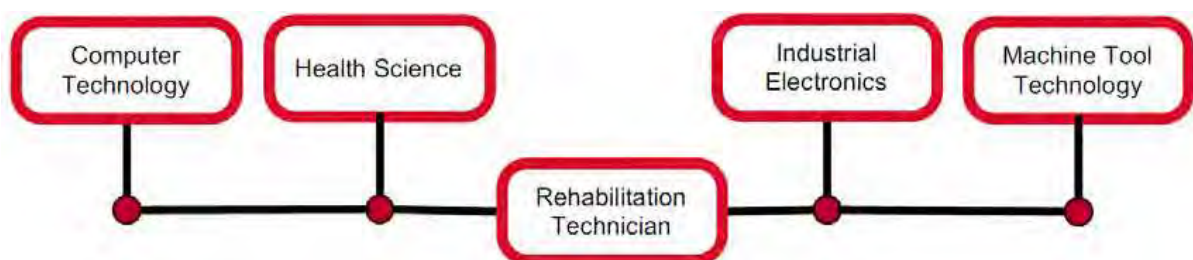
Before an AT intervention, an assessment must take place by an team of experts. This procedure may need multiple sessions, tests and follow-up, with the person with disability, his/her educators, and/or his/her family. Depending on each case the team may include:

AT Professional	Cognitive therapist	Educator
Phycologist	Occupational therapist	Speech-language pathologist
Optometrist	Computer scientist	Family physician
Neurologist	Physical therapist	Physiatrist (rehabilitation physician)
Orthopedic	Psychiatrist	Sociologist



AT professionals Rehabilitation Technicians (RTn)

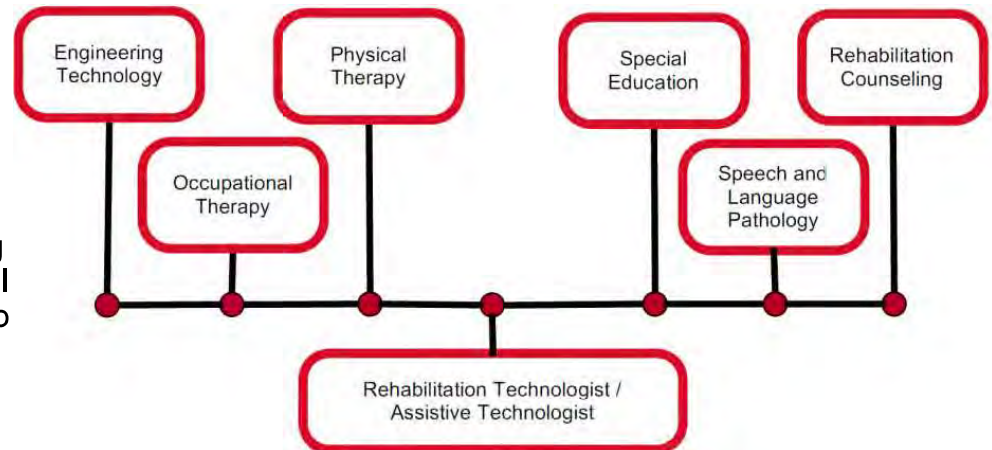
The Rehabilitation Technician (RTn) works with equipment, primarily assembling and testing component parts of devices or systems that have been designed by others for individuals with disabilities; usually under direct supervision of a rehabilitation engineer or rehabilitation/assistive technologist. Their specialize to assembly, repair, or evolutionary improvements to technical equipment by learning its characteristics, rather than by studying the scientific or engineering basis for its original design. Examples of educational programs that feed into becoming a RTn:





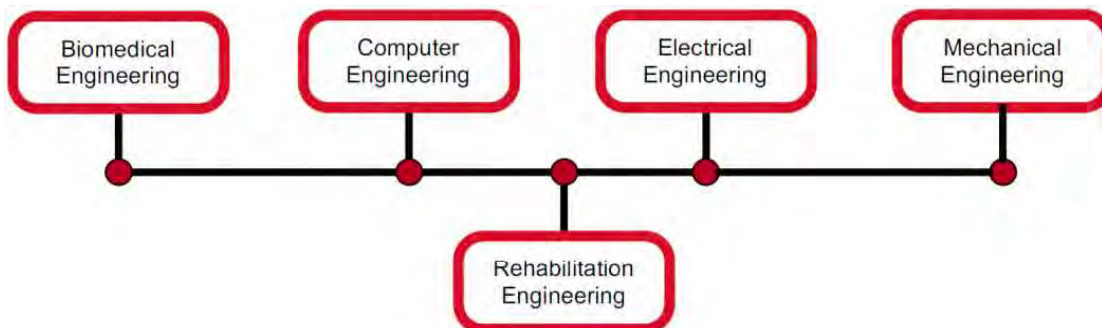
AT professionals Rehabilitation Technologists (RT/AT)

The Rehabilitation Technologist / Assistive Technologist (RT/AT) combines scientific and engineering knowledge and methods with technical skills to complement engineering activities for an individual with a disability. Can also do what a RTn can do. Examples of educational programs that feed into becoming a RT/AT:



AT professionals Rehabilitation Engineers (RE)

The Rehabilitation Engineer (RE) uses the innovative and methodical application of scientific knowledge and technology to design and develop a device, system or process, which is intended to satisfy the human needs of an individual with a disability. Can also do what a RT, and a RT/AT can do. Examples of engineering educational programs that feed into becoming a RE:





AT interventions stakeholders & roles (1/6)

1. Students with disabilities (SwD)

- Provide input related to
 - educational needs and decisions
 - personal and medical care
 - life choices and goals
 - social relationships
 - preferences
- The Doctors prescribe
- The State provides

May be students with



- Multiple combinations and severities



AT interventions stakeholders & roles (2/6)

2. AT facilitators

- Provide everyday assistance to SwD
- Support implementation of multimodal interventions
- Support unfamiliar communicative partners
- Maintain AT technology
- Prepare low-technology materials
- Assist SwD to select and program settings in their AT devices
- Serve as a liaison with other educational personnel and device manufacturers

May include

- AT professionals
- Family members
- Friends or peers
- Occupational therapists
- Speech-language pathologists
- Physiotherapists
- Computer savvies
- Teachers





AT interventions stakeholders & roles (3/6)

3. AT finders

- Identify SwD with disabilities who need AT
- Are aware of current, appropriate AT options for SwD
- Prepare potential decision makers
- Organize decision-making process to seek AT assessment
- Refer to appropriate AT intervention provider(s)
- Certify AAC prescription(s) (when appropriate)

May include

- AT professionals
- Family physicians
- Pediatricians, Orthopedics, Neurologists
- Physiatrists (i.e., rehabilitation physicians)
- Occupational therapists, Speech-language pathologists, Physiotherapists
- Social workers
- Teachers/professors
- AT resellers



AT interventions stakeholders & roles (4/6)

4. General practice clinicians or educators

- Implement multimodal interventions
- Integrate low-tech AT materials in restorative and compensatory interventions
- Implement appropriate low-tech AT options
- Implement routine high-tech AT options
- Monitor impact of individual AT interventions
- Prepare and support AT facilitators
- Instruct communication partners
- Train users on AT

May include

- AT professionals
- Generalists
- Speech-language pathologists, Occupational therapists, Physiotherapists
- Teachers
- Education paraprofessionals
- Computer scientists
- Others who work in educational and health care settings





AT interventions stakeholders & roles (5/6)

5. AT Specialists

- Implement complex or unique high-tech AT options
- Monitor impact of individual AT interventions
- Obtain funding for intervention technology
- Support general practice clinicians
- Provide continuing education to AT facilitators
- Collaborate to support technology transfer
- Collaborate to support AT research
- Support AT professional organizations and activities
- Provide expert testimony for legal and policy proceedings

May be

- AT professionals
- Scientists
- Rehabilitation engineers
- Researchers



AT interventions stakeholders & roles (6/6)

6. AT Experts

- Promote, sustain, and enhance AT services at program or agency level
- Provide preprofessional preparation of AT finders, intervention specialists, and experts
- Provide continuing education for AT finders for general practice clinicians, AT intervention specialists, and experts
- Develop AT policies
- Execute AT research
- Prepare AT educational material
- Participate in the leadership and management of AT professional organizations

May be

- AT professionals
- University faculty
- Master clinician specialists
- Policy makers
- Scientists
- Researchers





Resources

Important websites and references



Erasmus+



AAATE

You can click on the
screenshot to visit
AAATE

AAATE
Association for the Advancement of Assistive Technology in Europe

ABOUT AAATE ACTIVITIES EVENTS PUBLICATIONS BLOG BECOME A MEMBER LOG IN

Welcome to AAATE!

The Association for the advancement of Assistive Technology in Europe (AAATE) is happy to share with you our new Vision and Mission statements.

VISION

We envision an **inclusive society** where **assistive and accessible mainstream technologies** and **universally designed products and services** have levelled differences between people in terms of access to opportunities to live the lives they desire.

AAATE wants to be an active player and **interdisciplinary collaborative platform** uniting organisations and individuals that want to collaborate in making that vision come true.

MISSION

Our mission is to foster the role of **Assistive Technology (AT)** and **inclusive design** to create a world where all people can equally enjoy their human rights.

We aim to realise this mission by:

- **Connecting a variety of stakeholders** (people with disabilities of all ages, policymakers, care and technical professionals, industry researchers, educators) in Europe and beyond to collaborate adopting a human rights approach to assistive technology.

News

- Online Seminar on Emerging AT for Cognition
- AT Service Resilience Survey
- Third AAATE/WIPO seminar on Emerging Technologies...
- Future of Transport: Addressing the Barriers through Innovative...
- ENTELIS+ and the #RightToConnectNow Campaign

Blog

- ENTELIS+ and the #RightToConnectNow Campaign



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Assistive Technology – Resources





Versatile software

You can click on the image to view details and features



W3C videos about Web Accessibility

You can click on the screenshot to view the videos

Accessibility Fundamentals

- Introduction to Accessibility
- Components of Web Accessibility
- Accessibility Principles
- Perspectives Videos
 - Keyboard Compatibility
 - Colors with Good Contrast
 - Clear Layout and Design
 - Text to Speech
 - Large Links, Buttons, and Controls
 - Video Captions
 - Customizable Text
 - Voice Recognition


Web Accessibility Perspectives: Explore the Impact and Benefits for Everyone

Web accessibility is essential for people with disabilities and useful for all. Learn about the impact of accessibility and the benefits for everyone in a variety of situations.

Perspectives Videos



Keyboard Compatibility



Video Captions





[Back to Top](#)

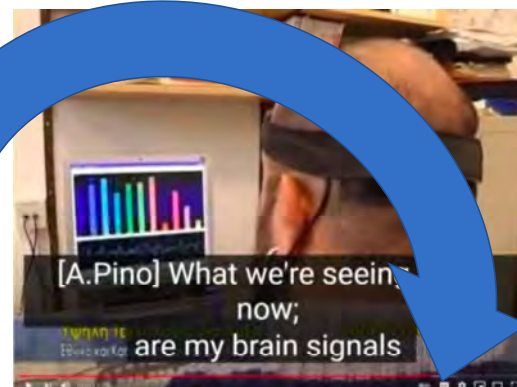




Accessibility Lab videos

- [Assistive Technologies-University of Athens Part 1](#) (17:36)
- [Assistive Technologies-University of Athens Part 2](#) (16:30)
- [Assistive Technologies-University of Athens Part 3](#) (15:00)

These videos have subtitles translated in English (closed captions); press the cc icon when you get on the YouTube video webpage to enable them.



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Assistive Technology – Resources



Additional resources 1/2

- EDUCAUSE. (2021). *Assistive Technology*. Retrieved from <https://library.educause.edu/topics/policy-and-law/assistive-technology>
- IAAP. (2021). *International Association of Accessibility Professionals*. Retrieved from <https://www.accessibilityassociation.org/>
- International Telecommunication Union. (2021). *ITU Report – ICT accessibility assessment for the Europe region*. Europe: ITU Publications. Retrieved from https://www.itu.int/pub/D-PHCB-ICT_ACCESS_EUR.01-2021
- RESNA. (2021). *Rehabilitation Engineering and Assistive Technology Society of North America*. Retrieved from <https://www.resna.org/>



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Assistive Technology – Resources





Additional resources 2/2

- Scientific Foresight Unit (STOA). (2018, January). *Assistive technologies for people with disabilities*. IP/G/STOA/FWC/2013-001/LOT 6/C3.
 - - *In Depth Analysis*, Retrieved from European Parliament:
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA\(2018\)603218_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218_EN.pdf)
 - - *Part I: Regulatory, health and demographic aspects*. Retrieved from European Parliament:
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA\(2018\)603218\(ANN1\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218(ANN1)_EN.pdf)
 - - *Part II: Current and emerging technologies*. Retrieved from European Parliament:
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA\(2018\)603218\(ANN2\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218(ANN2)_EN.pdf)
 - - *Part III: Perspectives, needs and opportunities*. Retrieved from European Parliament:
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA\(2018\)603218\(ANN3\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218(ANN3)_EN.pdf)
 - - *Part IV: Legal and socio-ethical perspectives*. Retrieved from European Parliament:
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA\(2018\)603218\(ANN4\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218(ANN4)_EN.pdf)



Assistive Technology – Resources



**Including
Students with
Impairments in
Distance
Education**

www.inside-project.org

Co-funded by the
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This project (598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP) has been co-funded by the Erasmus+ Programme of the European Commission. This publication [communication] reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

Thank you!

Dr Alexandros Pino, PhD, MSc, EE

pino@di.uoa.gr



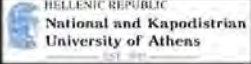
HELLENIC REPUBLIC
National and Kapodistrian
University of Athens

Department of Informatics and Telecommunications
Division of Communications and Signal Processing
[Speech and Accessibility Lab](#)




<https://speech.di.uoa.gr>





HELLENIC REPUBLIC
National and Kapodistrian
University of Athens





Accessibility Unit
<http://access.di.uoa.gr>

A.4.1.2 training in Greece on the operation
of the Accessibility Office for Students with Disabilities
8-11 and 14-17 June 2021, Athens

The mATHENA inventory for free mobile Assistive Technology applications


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pino@di.uoa.gr






InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

Co-funded by the
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InSIDE: Including Students with Impairments in Distance Education
Project No. 598763-EPP-1-2018-1-EL-EPPKA2-CBHE-JP

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of the European Union



Rationale

- mobile app stores do not include a category for AT or a classification by disability
- information for each mAT app is not consistent
- no easy way to compare available mAT apps for a specific disability
- cost of mAT apps



Online mAT software inventories or lists try to address these challenges

Existing Inventories for mAT apps

- **Special Needs Apps** <http://www.friendshipcircle.org/apps/>
- **BridgingsApps** <http://bridgingapps.org>
- **AppleVis** <http://www.applevis.com>
- **Apps for AAC** <http://www.appsforaac.net/>
- **AssistIreland** <http://www.assistireland.ie/>
- **Low Vision Bureau** <http://www.lowvisionbureau.com>



Main features of existing inventories for mAT apps

	a	b	c	d	e	f
Number of apps	357	1.515	150	300	70	326
iOS	YES	YES	YES	YES	YES	YES
Android	YES	YES	NO	YES	YES	NO
Free	YES	YES	YES	YES	YES	YES
Commercial	YES	YES	NO	YES	YES	YES
Searching filters	3	9	3	3	5	1
User rating	YES	YES	NO	YES	NO	YES
User comments	YES	NO	NO	YES	NO	NO
Other				only AAC apps	only for the visual impaired	

a: SpecialNeedApps, b: BridgingApps, c: AppleVis, d: AppsforAAC, e: AssistIreland, f: LowVisionBureau

Crucial requirements for Inventories of mAT apps

- i) to be developed in a systematic way,
- ii) to include apps after a selection and evaluation process, preferable by experts in the field
- iii) provide a consistent description of all apps



Methodology for the design and development of functional and reliable inventories of mAT apps

- *Search and locate mAT apps*
- *Download and install the apps*
- *Test and evaluate the installed mAT apps*
- *Create a consistent documentation for each app*
- *Design the facilities of the inventory*
 - Searching: a) by disability, b) by the operating system, c) by application category, d) using keywords, and e) alphabetically
 - Rating system and user comments
 - Follow Web Content Accessibility Guidelines (WCAG) 2.0 at least for the level AA of conformance



- *Update and maintain the Inventory*

the mATHENA Inventory of free mAT apps <http://access.uoa.gr/mATHENA>

- follows the above methodology
- based on the ATHENA Inventory of Open Source AT software <http://access.uoa.gr/ATHENA>
- more than 200 different forums, websites, blogs, newsletters, application stores were explored for mAT candidate apps
- all the apps included in mATHENA have been tested by AT experts of the Speech and Accessibility Lab, University of Athens



<http://access.uoa.gr/ATHENA>

The screenshot shows the homepage of the ATHENA Free Assistive Technology Software Inventory. At the top, there is a header with the National and Kapodistrian University of Athens logo and the Department of Informatics and Telecommunications Speech and Accessibility Lab. Below the header, there is a navigation bar with links: Homepage, All applications, Credits, Contact, and a search bar. The main content area is divided into two columns. The left column contains a 'Show All Applications' button and a 'Browse by Category' section with a list of categories and their respective counts. The right column contains a description of the ATHENA Free AT Software Inventory, a grid of icons representing various disabilities, and a section titled 'There are three ways to browse the ATHENA online free AT software inventory:'.

ATHENA: Free Assistive Technology Software Inventory

Homepage | All applications | Credits | Contact | Search: Go

Show All Applications
Show

Browse by Category

- Alternative Communication (2)
- Book Readers (2)
- Braille Translators (1)
- Calculators (3)
- Camera Mouse (1)
- Chatting (2)
- Click Helper (14)
- Clocks (1)
- Concept Maps (1)
- Contrast/Color Adjustment (10)
- DAISY (4)
- Document Accessibility (26)
- Entertainment (3)
- Games (11)
- Keyboard Shortcuts (7)
- Learning Activities (17)
- Math (2)
- Mouse Emulators (4)
- Mouse Pointers (6)
- Multimedia (3)
- Optical Character Recognition (OCR) (5)

ATHENA Free AT Software Inventory aims to inform and provide persons with disabilities, their facilitators as well the professionals of the domain, with the available costless **Assistive Technology (AT) solutions** (Open Source or Freeware). Free Assistive Technology applications for smartphones and tablets are given in the website **ATHENA Free AT Software Inventory for mobile devices**.

The AT software applications provided in ATHENA are presented in an organized and systematic way after they have been installed and tested in the **Speech and Accessibility Laboratory**, University of Athens. For each free AT software, the following information is given: application name, developer, version, AT category(ies), related disability(ies), description, operating system(s), installation procedure, settings and hints, download links, and a screenshot.

There are three ways to browse the ATHENA online free AT software inventory:

- Browse by Disability:** lists the related applications based on the chosen disability (Speech, Hearing, Motor, Blindness and Low Vision).
- Browse by Category:** lists the applications by type of AT software category (Voice Recognition, Screen Daisy Reader, Calculator, Mouse Cursor, Click Helper, Virtual Keyboard, Camera Mouse, Alternative Communication, Text To Speech, Screen Magnifier, Braille Translator, Web Browser, Mouse Emulator, Contrast Adjustment, Keyboard Shortcuts, Voice Mail, Clock, Video Call).
- Show All Applications:** simply lists the whole inventory's applications in an alphabetical order.

<http://access.uoa.gr/ATHENA>

The screenshot shows the 'All applications' page of the ATHENA Free Assistive Technology Software Inventory. The page displays a list of applications with their names, categories, and star ratings. The total number of applications is 150. The applications are listed in alphabetical order.

ATHENA: Free Assistive Technology Software Inventory

Homepage | All applications | Credits | Contact | Search: Go

Show All Applications
Show

Browse by Category

- Alternative Communication (2)
- Book Readers (2)
- Braille Translators (2)
- Calculators (3)
- Camera Mouse (1)
- Chatting (2)
- Click Helper (14)
- Clocks (1)
- Concept Maps (1)
- Contrast/Color Adjustment (10)
- DAISY (4)
- Document Accessibility (26)
- Entertainment (3)
- Games (11)
- Keyboard Shortcuts (7)
- Learning Activities (17)
- Math (2)
- Mouse Emulators (4)
- Mouse Pointers (6)
- Multimedia (3)
- Optical Character Recognition (OCR) (5)

All applications Total number of applications: 150

This category includes the following applications in alphabetical order:

- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- [Games] [Learning Activities]
- 2+2 math for kids (Math)
- Accessible [Contrast/Color Adjustment] [Screen Magnifier]
- Accessible PDF Reader [Document Accessibility]
- Accessible VML [Document Accessibility]
- AlphaCard [Learning Activities]
- AMIS [DAISY] [Document Accessibility]
- Antia Mouse (Mouse Emulators)

mAT apps located, tested, and selected by applying the proposed methodology

	Number	%
Total mobile AT apps located	1.100	100,0
Applications not free of charge	380	34,5
Applications failed to run	35	3,2
Non-AT apps	190	17,3
Applications not supporting the English language	75	6,8
Applications finally selected for mATHENA	420	38,2



Comparison of mAT apps inventories

A	B	C	D	E	F	G	
Details for each application							
•	•	•	•	•	•	•	Application Name
•	•	•	•	•	•	•	Description
•	•	•	•	•	•	•	Manufacturer
•	•	•	•	•	•	•	Application Logo
•	•	•	•	•	•	•	Version
•	•	•	•	•	•	•	Screenshots
•	•	•	•	•	•	•	System Requirements for App
•	•	•	•	•	•	•	Download URL
•	•	•	•	•	•	•	Developer URL
•	•	•	•	•	•	•	Add Comment
•	•	•	•	•	•	•	Languages

A: BridgingApps, B: SpecialNeedApps, C: AssistIreland, D: AppleVis, E: LowVisionBureau, F: AppsforAAC, G: mATHENA



Comparison of mATT apps inventories

A	B	C	D	E	F	G	
Inventory features							
•	•		•	•		•	Search field
•	•	•	•	•	•	•	Filter Categories
		•				•	Filter Disability
						•	Only Free of charge Apps
•	•					•	Rating System
•	•		•		•	•	Alphabetical List of all Apps
•	•				•	•	Filter Operating System

A: BridgingApps, B: SpecialNeedApps, C: AssistIreland , D: AppleVis,
E: LowVisionBureau, F: AppsforAAC, G: mATHENA



Fields for the Documentation of an mAT app

- official app name
- name and URL of the manufacturer/developer
- app's logo
- URL for downloading from the app store
- required operating system and the minimum version
- latest app version
- disability/ies it addresses
- classification according to its application domain or scope
- description of its functionality and its main characteristics
- languages it supports,
- the specific models of mobile devices used during the tests along with their version of their operating system



http://access.uoa.gr/mATHENA

Speech and Accessibility Lab
University of Athens
Department of Informatics

National and Kapodistrian University of Athens
Department of Informatics and Telecommunications
Speech and Accessibility Lab

mATHENA: Free Assistive Technology Software Inventory for mobile devices (smartphones and tablets)

[Home](#) [All applications](#) [All disabilities](#) [All operating systems](#) [All software categories](#) [Credits](#) [Contact](#) [Login](#)

Home

Search

General Filters

Disability

- ☐ Blindness (35)
- ☐ Motor Disability (0)
- ☐ Low Vision (191)
- ☐ Hearing Loss (178)
- ☐ Speech Disability (120)
- ☐ Dyslexia (0)

Operating System

- ☐ Android (247)
- ☐ iOS (144)
- ☐ MS-Windows 8 (0)

Category

mATHENA aims to inform and provide persons with disabilities, their facilitators as well as the professionals of the domain, with the available freeware Assistive Technology (AT) applications for mobile devices (smartphones and tablets). mATHENA is complimentary to the [ATHENA Free AT Software Inventory](#) for computers.

The AT software applications provided in mATHENA are presented in an organized and systematic way after they have been installed and tested in the [Speech and Accessibility Laboratory](#), University of Athens. For each free AT software, the following information is given: application name, developer, version, AT category(ies), related disability(ies), description, operating system(s), installation procedure, settings and hints, download links, and a screenshot.

There are three ways to browse mATHENA:

- **Browse by Disability:** Lists the related applications based on the chosen disability (Speech, Hearing, Motor, Blindness and Low Vision).
- **Lists the applications by the operating system of the device that uses it (Android, iOS).**
- **Browse by Category:** Lists the applications by type of AI software category.
- **Show All Applications:** Lists the whole inventory's applications in an alphabetical order.

Search

General Filters

Disability

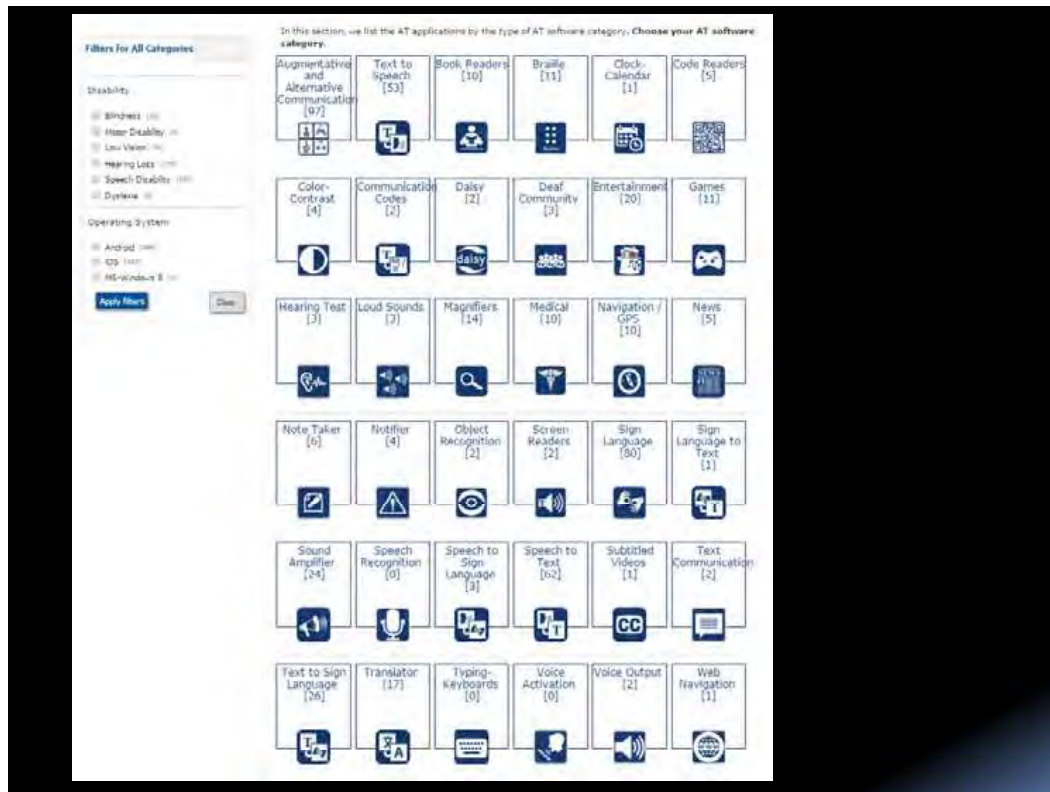
- ☐ Blindness (35)
- ☐ Motor Disability (0)
- ☐ Low Vision (191)
- ☐ Hearing Loss (178)
- ☐ Speech Disability (120)
- ☐ Dyslexia (0)

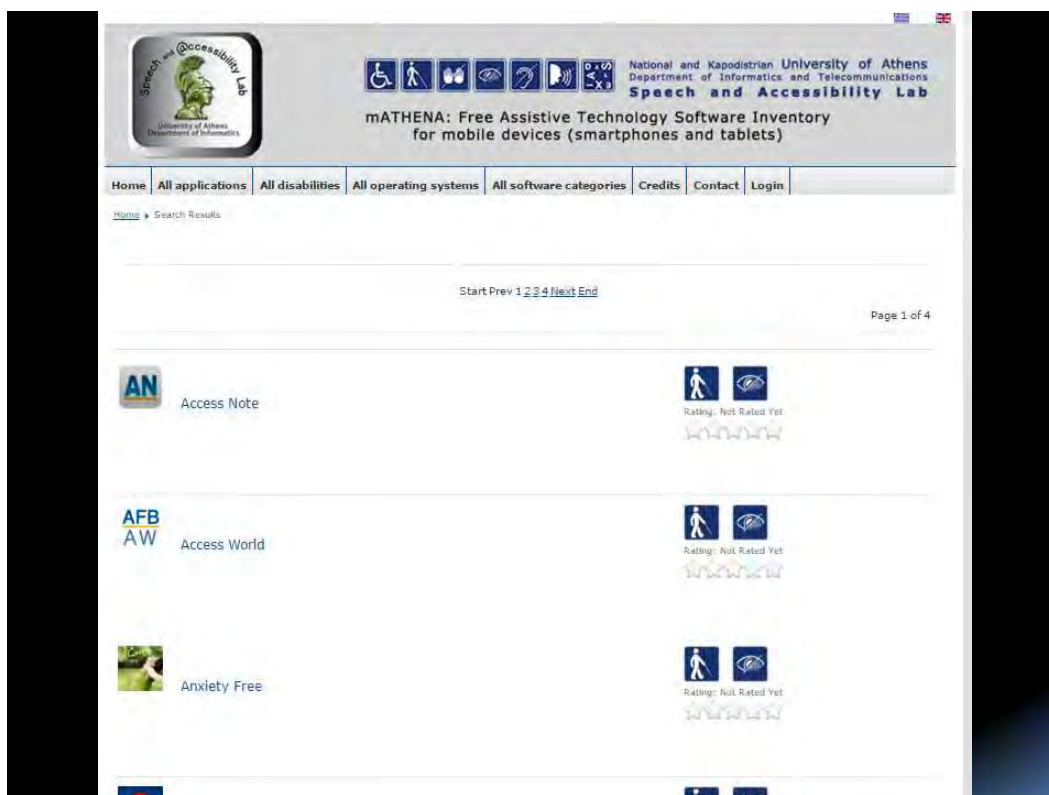
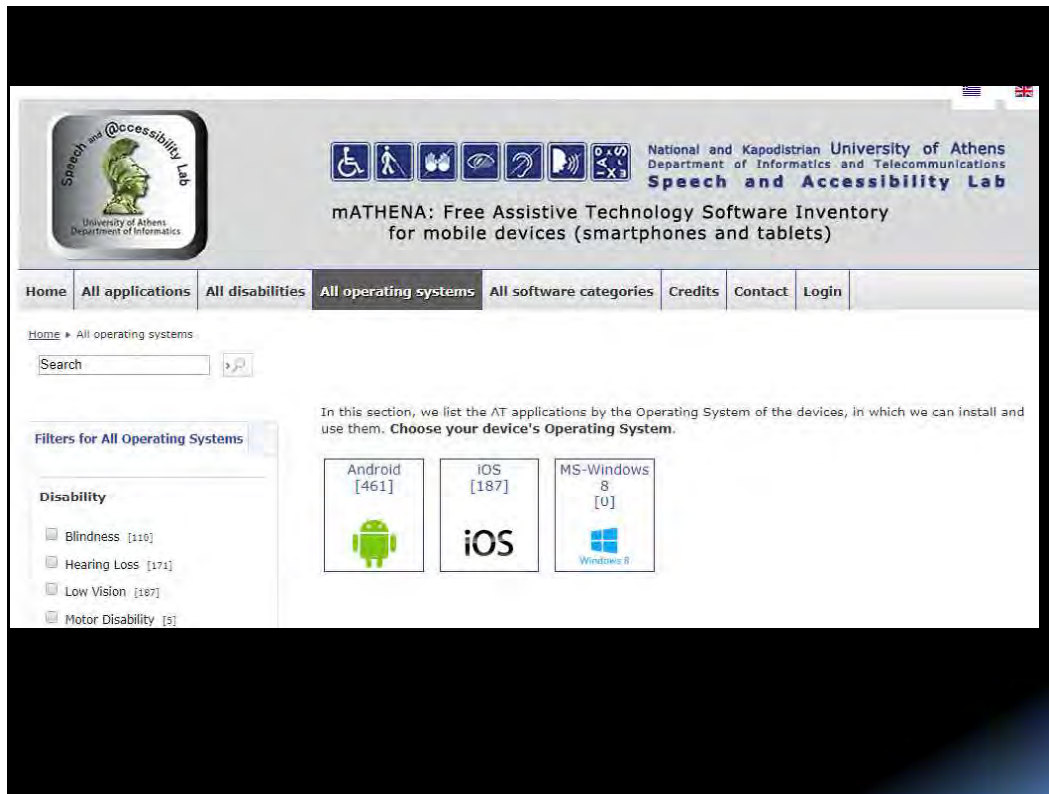
Operating System


- ☐ Android (247)
- ☐ iOS (144)
- ☐ MS-Windows 8 (0)


Category

- ☐ Augmentative and Alternative Communication (96)
- ☐ Book Reader (10)
- ☐ Braille (11)
- ☐ Clock - Calendar (1)
- ☐ Code Reader (15)
- ☐ Color - Contrast (4)
- ☐ Communication Code (2)
- ☐ Daisy (2)
- ☐ Deaf Community (3)
- ☐ Entertainment (19)
- ☐ Games (11)
- ☐ Hearing Test (3)
- ☐ Loud Sounds (3)
- ☐ Magnifier (14)
- ☐ Medical (10)
- ☐ Navigation / GPS (10)
- ☐ News (6)
- ☐ Note Taker (6)
- ☐ Notifier (4)
- ☐ Object Recognition (2)
- ☐ Screen Reader (2)
- ☐ Sign Language (80)
- ☐ Sign Language to Text (1)
- ☐ Sound Amplifier (23)
- ☐ Speech Recognition (0)
- ☐ Speech to Sign Language (3)
- ☐ Speech to Text (62)
- ☐ Subtitled Videos (1)
- ☐ Text Communication (2)
- ☐ Text to Sign Language (26)
- ☐ Text to Speech (53)
- ☐ Translator (17)









National and Kapodistrian University of Athens
Department of Informatics and Telecommunications
Speech and Accessibility Lab

**mATHENA: Free Assistive Technology Software Inventory
for mobile devices (smartphones and tablets)**

[Home](#)
[All applications](#)
[All disabilities](#)
[All operating systems](#)
[All software categories](#)
[Credits](#)
[Contact](#)
[Login](#)

[Home](#)
[Browse by Disability](#)
[Browse by OS](#)
[Audiobooks](#)

Filters for All Disabilities


Operating System

- ☐ Android (8)
- ☐ iOS (172)
- ☐ MS-Windows 8 (19)

Category

- ☐ Augmentative and Alternative Communication (6)
- ☐ Book Reader (4)
- ☐ Braille (77)
- ☐ Clock - Calendar (0)
- ☐ Code Reader (1)
- ☐ Color - Contrast (3)
- ☐ Communication Codes (1)
- ☐ Daisy (7)
- ☐ Email Community (8)
- ☐ Entertainment (14)
- ☐ Games (5)
- ☐ Hearing Test (0)
- ☐ Loud Sounds (8)
- ☐ Magnifier (3)
- ☐ Medical (4)

Audiobooks [Back to](#)



Rating: Not Rated Yet

Webpage: <https://itunes.apple.com/us/app/audiobooks/id421159749?mt=8>

Developer: [Cross Forward Consulting, LLC](#)

Description

Edition
4.9.1

Category
Book Readers

Description
Audio Books is a podcast library for visually impaired people who are using iOS devices. If user don't have time for an audiobook, he can listen to a Podcast instead. Podcasts are like your own personalized radio station, giving a steady stream of topical, fun episodes to enjoy. Needs registration before using this.

Languages
English

Operating System Compatibility
iOS 6.0 or later

Installation
Via iTunes


- ☐ Games (2)
- ☐ Hearing Test (0)
- ☐ Loud Sounds (8)
- ☐ Magnifier (3)
- ☐ Medical (4)
- ☐ Navigation / GPS (1)
- ☐ News (8)
- ☐ Note Taker (0)
- ☐ Notifier (0)
- ☐ Object Recognition (5)
- ☐ Screen Reader (1)
- ☐ Sign Language (0)
- ☐ Sign Language to Text (0)
- ☐ Sound Amplifier (0)
- ☐ Speech Recognition (8)
- ☐ Speech to Sign Language (8)
- ☐ Speech to Text (0)
- ☐ Subtitled Videos (1)
- ☐ Text Communication (0)
- ☐ Text to Sign Language (0)
- ☐ Text to Speech (8)
- ☐ Translator (0)
- ☐ Typing - Keyboard (1)
- ☐ Voice Activation (0)
- ☐ Voice Output (0)
- ☐ Web Navigation (0)

[Apply filters](#) [Clear](#)

Operating System Compatibility
iOS 6.0 or later

Installation
Via iTunes

Screenshot



Devices in which we tested the application
iPhone 5s, iPad Air 2

iOS [View](#)

Compatibility with Greek language [View](#)


Android [View](#)


Reviews
There are yet no reviews for this app.

Submit Review Be the first to write a review...

First, Rate the product. Please select a rating between 0 (poorest) and 5 stars (best).

Now please write a (short) review... (min. 100, max. 2000 characters)





National and Kapodistrian University of Athens
Department of Informatics and Telecommunications
Speech and Accessibility Lab

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Filters for All Disabilities


Operating System

- ☐ Android (9)
- ☐ iOS (14)
- ☐ MS-Windows 8 (6)

Category

- ☐ Augmentative and Alternative Communication (8)
- ☐ Book Reader (10)
- ☐ Braille (10)
- ☐ Clock - Calendar (17)
- ☐ Code Reader (3)
- ☐ Color - Contrast (4)
- ☐ Communication Codes (8)
- ☐ Daisy (2)
- ☐ Deaf Community (1)
- ☐ Entertainment (18)
- ☐ Game (14)
- ☐ Hearing Test (6)
- ☐ Loud Sounds (0)
- ☐ Magnifier (14)
- ☐ Medical (10)

Brighter and Bigger [Back to:](#)



Rating: Not Rated Yet

Webpage: <https://itunes.apple.com/us/app/brighter-and-bigger/id452482657?mt=8>

Developer: [Kazemul Akada](#)

Description

Edition
2.0.1

Category
Magnifiers

Description
Brighter and Bigger is a magnifying glass suitable for low vision people, who have problems recognizing items or texts. Using the device camera you can read small letters in printed text. This app can magnify up to 20 times the text. It is easy to use and accessible with VOICEROVER.

Languages
English, Japanese

OperatingSystem
Requires iOS 5.0 or later


Installation
via App Store

- [\[14\] Magnifier \(14\)](#)
- [\[10\] Medical \(10\)](#)
- [\[10\] Navigation / GPS \(10\)](#)
- [\[4\] News \(4\)](#)
- [\[0\] Note Taker \(0\)](#)
- [\[0\] Notifier \(0\)](#)
- [\[2\] Object Recognition \(2\)](#)
- [\[2\] Screen Reader \(2\)](#)
- [\[0\] Sign Language \(0\)](#)
- [\[0\] Sign Language to Text \(0\)](#)
- [\[4\] Sound Amplifier \(4\)](#)
- [\[0\] Speech Recognition \(0\)](#)
- [\[0\] Speech to Sign Language \(0\)](#)
- [\[0\] Speech to Text \(0\)](#)
- [\[0\] Subtitled Videos \(0\)](#)
- [\[0\] Text Communication \(0\)](#)
- [\[0\] Text to Sign Language \(0\)](#)
- [\[1\] Text to Speech \(1\)](#)
- [\[0\] Translator \(0\)](#)
- [\[0\] Typing - keyboard \(0\)](#)
- [\[0\] Voice Activation \(0\)](#)
- [\[0\] Voice Output \(0\)](#)
- [\[1\] Web Navigation \(1\)](#)

[Apply filters](#) [Close](#)

Installation
via App Store

Screenshot



Devices in which we tested the application
iPad Air 2, iPhone 3s

iOS Yes

Compatibility with Greek language No

Android No

Reviews
There are yet no reviews for this app.

Submit Review Be the first to write a review...

First: Rate the product. Please select a rating between 0 (poorest) and 5 stars (best).

Now please write a (short) review....(min. 100, max. 2000 characters)

Characters written: 0

[Submit Review](#)

References

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