



Powerful learning using Moodle, UDL, and adaptive devices

a disabled student's experience

Paul Benson

MDE Paul Benson

Prof Avgoustos Tsinakos

paulb@access2life.net or pbenson1@athabasca.edu

tsinakos@teiemt.gr

Universal Design

- ▮ *the design of products and environments to be **usable by all people, to the greatest extent possible**, without the need for adaptation or specialized design. -Ron Mace*



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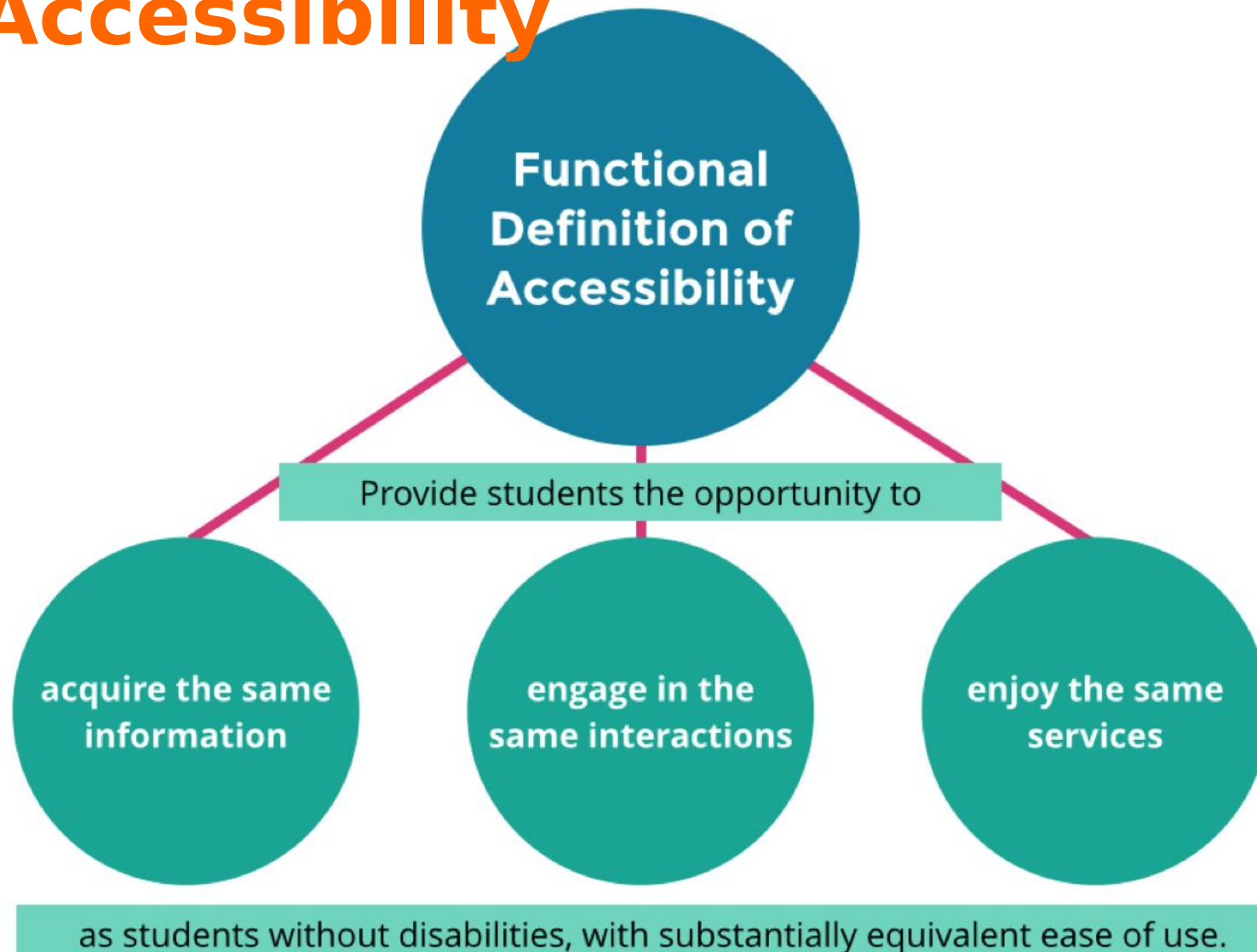
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Why Be Accessible?

- ▢ Benefits for All Individuals
 - ▢ with alternative learning styles, specific preferences, and environmental conditions
- ▢ Better site usability
- ▢ Usable on mobile devices
- ▢ Search engine optimized
- ▢ Facilitates use of assistive technologies
- ▢ Design is Cost Effective (retrofit costs)
- ▢ Responsibility
- ▢ Law

Accessibility





Universal Design

- ❑ Sprang from the Civil Rights Movement
- ❑ Design physical spaces in order to allow access to people with disabilities.
- ❑ With UD all people benefit
- ❑ Systemically applicable (min code)
- ❑ Started the conversation that the designed environment creates barriers



7 UD Principles

- ▢ Equitable Use – everybody can use it (ramp, elevator)
- ▢ Flexibility – use in many ways (doors)
- ▢ Simple, intuitive use
- ▢ Perceptible information
- ▢ Tolerance for error – set up for success minimal risk
- ▢ Low physical effort - 2 finger test
- ▢ Size, space, approach for ease of use



Universal Design for Learning (UDL)

- a framework to improve and optimize teaching and learning
- For all people based on scientific insights into how humans learn.
- Not based in disability
- Debunks one size fits all curricula
- Helps us reduce unintentional barriers

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Using Moodle - my studies at Athabasca University

- ▢ I started working with Moodle in 2007, when I enrolled in the M.Ed. in Distance Education at Athabasca University in Alberta, Canada.
- ▢ Athabasca's M.Ed. program is 100% online and has students participating in it from all over the world - including many from Greece.
- ▢ During my M.Ed., I took two courses with Dr. Tsinakos.
- ▢ My latest studies: pursuing an M.A. in Interdisciplinary Studies at Athabasca University.
 - ▢ Another 100% online program using Moodle.



Challenges and successes

- ▢ I am a disabled student – diagnosed with MS in 1976.
- ▢ I am unable to operate a regular mouse or keyboard.
- ▢ I move the mouse pointer based on head movement.
- ▢ My left wrist operates a microswitch that gives me a left mouse click.
- ▢ I use Dragon NaturallySpeaking to give commands to my computer and to dictate text.
- ▢ Earlier this year, I completed my M.Ed. In distance education (after 10 years!)



Engaging with Moodle

- Constructing “cognitive presence”
 - Easy access to the learning materials.
 - Strong engagement with classmates and the instructor through discussion forums, group work, and journals.
- Building “social presence”
 - Creating a cohort through positive interactions with classmates.
 - Being a supporter and a “study buddy.”
 - Consistently participating in discussion forums.
 - Being a reliable teammate in group activities.




Receiving feedback in Moodle

- Easy to access.
 - Ensuring that I am on track in my current studies.
- Available for later review
 - Review feedback afterwards to see how I have changed to reflect advice and direction given.



File submission in Moodle

- More difficult than usual due to limited dexterity.
 - Drag-and-drop using my left wrist to press and hold the micro-switch and moving my head to reposition the mouse is a challenge.
 - It sometimes takes several attempts.
 - How does a blind student manage?
- Are there alternatives to using the mouse for this operation?
- I love that I can submit assignments from anywhere.



Using voice commands to input and edit data in Moodle

- ▢ Words dictated through Dragon NaturallySpeaking generally recognized with high accuracy, but:
 - ▢ The problem of sound-alike words (there – their).
 - ▢ Uncertain capitalization.
 - ▢ Incorrect words still creep in.
- ▢ Some editing commands in Dragon do not work in Moodle(e.g., “delete,” “replace,” “insert new line”).
- ▢ Workaround is to dictate the file into a word processor and use cut-and-paste.



Potential use of add-ins

- Currently I do not use any add-ins.
- It would be nice if there was an add-in for Dragon NaturallySpeaking that would make all the editing commands in Dragon work in Moodle.
- Alternatively, the add-in for Microsoft Office might support more of the editing commands in Dragon (more research needed on my part).



Moodle provides good support for Universal Design for Learning (UDL)

- UDL's three principles are:
 - Multiple means of representation – give learners various ways of acquiring information and knowledge
 - Multiple means of expression – provide learners with alternatives for demonstrating what they know
 - Multiple means of engagement – tap into learners' interests, offer appropriate challenges, and increase motivation

Extracted from <https://www.kurzweilededu.com/udl-three-principles-p4.html>

- Multiple means of representation – learning materials in text, graphical, video, audio, and multimedia formats
- Multiple means of expression – achieved through alternative assignments (e.g., research projects, essays, presentations, blogs).
- Multiple means of engagement – interactions with discussion forums, student-populated wikis, team presentations, online chat).




Suggestions for improvement

- ▮ integration with synchronous tools (e.g., Adobe Connect, Skype)
- ▮ native support for instant messaging (instead of using add-ins such as edumessenger, VM Chat, etc.)
- ▮ Build up a support community of Moodlers with disabilities
- ▮ Create an aggregation point in Moodle where someone can select one or more assistive tools.
- ▮ Include Universal Design approach as an integral part of Moodle



Conclusions

- ❑ Moodle has provided a supportive and flexible learning environment that has enabled me to engage in deep, meaningful learning during the last 10+ years.
- ❑ It has proved usable and effective even as my physical capabilities have changed during this time.
- ❑ Moodle has proven itself to be able to interact effectively with adaptive technology with very few limitations (as described above). This capability to support adaptive technology seems to be improving with each new release of Moodle.
- ❑ Moodle provides good support for the principles of Universal Design for Learning (UDL). When instructional designers incorporate UDL in their course design and construction, my learning experience becomes richer and I am less likely to require “accommodations.”



AT Does NOT Fix Barriers. Good Design Does

UDL

Universal Design for Learning focuses on providing access to the general curriculum for all students regardless of abilities.

AT

Assistive Technology focuses on providing access for one particular student or group with a disability.

Contact information

- **MDE Paul Benson**
- Email: paulb@access2life.net or pbenson1@athabasca.edu
- Skype ID: paul.benson2010
- Phone: +1-289-208-9405
- My e-portfolio:
<https://portfolio.elab.athabascau.ca/user/paulbenson/introduction>

THANK YOU

- **Prof. Avgoustos Tsinakos,**
- Director of **Advanced Educational Technologies and Mobile Applications Lab**
- Eastern Macedonia and Thrace Institute of Technology
- E-mail: tsinakos@teiemt.gr