Wearables
Tools in UDL in Higher Education

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Survey of college students on use of wearable technology

Wearable technology devices ranging from physical fitness trackers to smartwatches are quickly gaining traction in the market. Based on a recent study of 454 young adults at a southwestern university, findings show that we are just at beginning of the adoption curve of this innovation and its potential use in higher education.

Reasons for Adoption

Reasons for Non-Adoption

Over 80% know what wearable tech is

16% own a wearable tech device.

Wearable Technology Device Use in Educational Settings

- 74% could see it used for recording a class lecture
- 55% could see it used for note-taking in class
- 52% could see it used for taking photos related to class topic
- 51% could see it used for information gathering for class
Digital textiles - one kind of wearable technology

Clothing is being connected digitally through use of conductive thread and Arduino Lilypads, Teensy, etc. Using these elements, clothing can be made interactive, and as in these examples, light up LED lights for camping and or use lights to play Tetris, act as a keyboard, or be an interactive computer.
Wearable Devices

Potential as imagined by IBM and implemented this year by Google and Levi in their Jacquard Jacket.
Wearable keyboards/controllers

Keyglove - in development
Mimu glove project (music)
Twiddler3
Tap
Fitness watches or other body devices

Fitbit - required for fitness at Oral Roberts
Mio Fuse for activity
Garmin HRM Tri - heartbeat
Up by Jawbone
Vivosmart, Garmin’s Wrist Activity Tracker
Firstbeat for heartbeat
Tynetic Fall Detector - Bracelet and necklace
Keeps track of exercise, heart rate, skin temperature, etc.
Some have GPS, texting, and call notification. Social networking among users will help users encourage one another. PE teachers can use these in classes.
Common wearable devices and Current school uses

Smartwatches:

Communicate with students and parents.
Allow instructors to keep track of questioning, so all students get a chance to respond.
Can be used to track fitness.
Can collect data or track attendance.
Can be used as timers for completion of assignments.
Can help present multimedia projects.

Finger IO – uses smart phones as nearby trackpads by using sonar
Google Glass and its clones

Google Glass and its daughters, ie. Sony glasses, Shima glasses, Sony contact lenses, have the potential for many academic uses:

- Flip your class using the glasses.
- Give glasses to students to create their projects.
- Instructors can improve skills using real-time video.
- Virtual field trips.
Virtual reality headmounts like Oculus Rift, Playstation Morpheus, Samsung Gear, Microsoft Hololens, Google Cardboard. For training - Dagri Smart Helmut.

For medical imaging - Evena glasses
3D movies
Virtual field experiences
Real-time experiences like dissections
3D game-playing
Medical uses
Gesture technology

Uses wearable technology like Myo wrist band to interact with games, control devices, and to record what you are doing.
Wearable cameras

Go Pro
MeCam mini-camera
Narrative Clip

Lifelogging
How-to videos
Remote tutoring and online classes
Attendance with facial recognition
Recording teaching
Recording problem-solving
Authentic instruction
Augmentative Reality Apps for wearable devices: Aurasma
Augmentative Reality Apps for wearable devices: Blippar

Try Blippar (free for teachers: https://blippar.com/en/products/blippbuilder/)

Blippar to see the app on wearable; Blippbuildar to develop your own.
Emotional wearables

Thync - mood-changing wearable (like a digital drug)
Emotiv Insight - portable EEG to measure cognitive health.
Mood vest (Intel)
Bubelle - mood dress
Wearable devices for visually impaired

Braille Smart watches
Finland Research Center radar environmental-sensing device
Facial recognition canes
Facial recognition devices for glasses (Orcam)
Horus device describes what the VI person sees
Wearable devices for hearing impaired

Smartwatch controls for hearing aids
Starkey’s hearing aids

SoundHawk

Real-time translation wearable - WaverlyLabs - Solution for ELL folks with disabilities.
Wearable devices for physically disabled

Magnetic tongue studs control wheel chairs. 3D printed prosthetics controlled by brain implants. Rewalk, wearable wheelchair
Wearable devices increase access to higher education classroom