

Utilization of Assistive Technology for Computer Access : The Challenges

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Agenda

- **Introduction**
- **Three challenges**
- **Proposed solutions**
- **Summary**

Introduction:

- **Computer access becomes available to more people but users with disabilities (UWD) are generally overlooked.**
- **Examples of UWD**
 - **U with Visual impairment: unable to see what's on the screen.**
 - **U with Hearing impairment : unable to hear audio responses.**
 - **U with Mobility impairment : unable to use keyboard or mouse.**
 - **U with Learning impairment : unable to perform complicated tasks.**
- **Assistive Technology (AT) helps remove the barriers**

Three challenges:



To help a UWD accessing a computer system:

- **Which AT products should a UWD use?**
- **Where can a UWD acquire AT products from?**
- **How does a UWD acquire such AT products?**

Which assistive technology products should a user with disability use?

No single product works for all:

- **There are AT products for just about every type of disabilities but none is for all types of disabilities**
- **Selecting the right AT products is crucial**

Examples of AT products:

- **Onscreen Keyboard**
- **Trackball mouse**
- **Switch mouse**
- **Voice commander**
- **Screen reader**
- **Adjustable desk**
- **Word prediction/completion software**

Things to consider when selecting AT products:

- **Assessment of UWD:**
 - Needs vs. Strengths
 - Interests/ Personality
- **Working environment**
 - Language / culture
 - Compatibility
- **Training time**
- **Reliability**

Examples:



Where can a user with disability acquire assistive technology products from?

AT market's unattractiveness

- **Fragmented market**
- **Low demand volume**
- **Highly specific development**

Thailand's AT market:

- **Mostly imported by few local distributors**
- **Direct oversea purchasers face:**
 - **Language barrier**
 - **High transaction costs**
 - **Security**
- **Language not supported**
- **Local R&D face investment issues**

How does a user with disabilities acquire assistive technology products they need to be able to access computers?

Costly products

AT products are costly because of:

- **High development cost**
- **Low volume manufacturing**
- **Limited market**
- **High logistic cost**
- **High service cost**

Other issues:



- **Installation**
- **Training**
- **Inaccessible information**

Responding to the challenges

Provide information and services to help UWD selecting the right AT products



- **Centralize information on AT products**
- **Use various accessible mediums**
- **Advise on selecting AT products**

Support R&D in AT:



Government or NGO may:

- **Establish AT R&D institution**
- **Fund/ Subsidize private AT R&D**
- **Encourage AT R&D in academic institutions**

ASTECC of NECTEC Thailand:

- **Assistive Technology Center (ASTECC) is a division of Thailand's National Electronics and Computer Technology Center (NECTEC)—a government funded R&D institution.**
- **ASTECC conducts, funds, networks R&D in AT in Thailand**

Increase demand volume figure of an AT product:



Develop AT products that:

- **Support more languages and cultures**
- **Easily customizable to specific needs**
- **Compatible to various types of information systems**
- **Benefit non-disabled users**

Computers with AT ready:



- **Equip public computer systems with AT**
 - **Libraries**
 - **Schools**
 - **Information centers**
- **Provide AT for employees with disabilities**

AT loans and giveaways:



Government or NGO may:

- **Lend AT products**
- **Subsidize AT purchases by UWD**
- **Provide loans for AT purchases at low or no interest**
- **Give AT products to UWD**

Regional collaboration:

- **Joint R&D between organizations in countries whose languages and cultures are similar**
- **AT information network**
- **AT investors/ manufacturers/ service providers network**

Universal design:

“Universal design is 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

- **Develop products/ services/ information with UWD in mind**
- **Support and promote products/ services / information that are accessible by various types of users (including UWD)**

Summary:

- **To bridge digital divide that sets apart UWD from non-disabled users three questions must be answered:**
 - Which AT products should a UWD use?
 - Where can a UWD acquire AT products from?
 - How does a UWD acquire such AT products?
- **Some of solutions may be to:**
 - Collaborate on AT R&D, information and servicing in regions of similar cultures and languages
 - Provide loans/ subsidies to UWD, AT R&D, or manufacturer
 - Provide public systems with AT ready