Homework Assignment – 1

Tushar Goel
NUID: 001356901

Problem – 1

(a) What are the five principles of assistive technology service delivery? Very briefly explain each principle please.

Ans – (a) The five principles of assistive technology service delivery are as follows:

1. The process is person-centered: Needs and goals are often defined by a careful consideration of the activities to be performed by the individual. However, it is rare that the activity will be performed in only one context, so it is important to identify the influence of the physical, socio-cultural, and institutional elements in the contexts in which the activities will be performed.

2. The outcome is enablement of participation in desired activities: The primary purpose of assistive technology intervention is not remediation or rehabilitation of an impairment, but provision of hard and soft technologies that enable an individual with a disability to be functional in the activities of daily living. This principle places the focus on functional outcomes.

3. Assistive Technology Assessment Is Ongoing and Deliberate: Although assessment is typically considered a discrete event in the direct service delivery process, it is actually an ongoing process. Assistive technology assessment entails a series of activities linked together and undertaken over time. The activities that occur and the decisions that are made during the intervention are deliberate rather than haphazard. Information is gathered and decisions are made from the moment of the initial intake referral through follow-along.

4. Any AT service delivery is provided in an ethical manner: Professional and clinical code of ethics: Principles of beneficence (do only good) and nonmaleficence (do no harm). Social/distributive justice: Equitable access to rights and resources within society.

5. Assistive Technology Assessment and Intervention Require an Understanding of How to Gather and Interpret Data: The assessment process (either initial or ongoing) involves determination of what needs to be assessed and the most effective method of completing the assessment. It occurs in both formal and informal manners, using a variety of methods. Commonly, formal assessments involve use of standardized instruments, following the protocol established by the instrument developers.

(b) The simplistic explanation of the Human Activity Assistive Technology (HAAT) model is deliberately worded to demonstrate where assistive technology fits in the model. The emphasis of the model is on the person engaged in an activity within chosen environments. Consequently, any application of the model starts with someone doing something in context and then introduces the assistive technology. Please choose an assistive device and fit it into a HAAT model. Describe the elements of your HAAT model.

Ans – (b) The assistive device chosen here is prosthetic arm. The elements of HAAT Model are as follows:

1) **Human (H):** Sensory input, Central processing and Effector(Motor)

2) **Activity (A):** Activities of daily living, work, play, leisure and productive activities as the actuating component. [All the interactional activities]

3) **Assistive Technology (AT):** Human Technology Interface, Processor, Environmental Interface and Activity Output.

Problem – 2

(a) What are the principles of Universal Design? Identify some examples that violate these principles.

Ans – (a) The Principles of Universal Design are as follows:

1. **Equitable Use:** The design is useful and marketable 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:** 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:** Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

8. **Flexibility in Representation: Provide Multiple Means of Representation** (the "what" of learning) i.e. there is not one means of representation that will be optimal for all learners; providing options for representation is essential.

9. **Flexibility in Expression: Provide Multiple Means of Action and Expression** (the "how" of learning) i.e. there is not one means of action and expression that will be optimal for all learners; providing options for action and expression is essential.

10. **Flexibility in Engagement: Provide Multiple Means of Engagement** (the "why" of learning) i.e. Some learners might like to work alone, while others prefer to work with their peers. In reality, there is not one means of engagement that will be optimal for all learners in all contexts; providing multiple options for engagement is essential.

Some examples that violate these principles are mentioned below:

1. All staff not prepared to communicate with patrons with hearing impairments.
2. Library Web site is not organized in an intuitive way.
3. Signs only use text to convey information (e.g., no Braille, pictures).
4. Directions for use conveyed only visually (e.g., no auditory instructions).
5. Floors are slippery, uneven.

6. Electrical cords in pathways.
7. Table heights don't allow for work in standing and sitting positions.
8. Computer screens not adjustable for different users.
9. Doors at entrances too heavy or have handles at inconvenient heights.
10. Table/desk heights don't allow space for wheelchair.
11. Shelves too tall for some users to reach.
12. Aisles between shelves not wide enough.

(b) Describe how Internet of Things (IOT) can improve your learning in classroom. Please provide examples.

Ans – (b)

1) Student Engagement : Because IoT is an interactive technology that connects offline devices to online devices.

- ➢ Introduces more interactivity and engagement in its applications.
- ➢ Students can get more feedback on their work, while interactive teaching software increases interest, creativity, and passion for the student.
- ➢ Reduce the chances of a student misplacing information or assignments.
- ➢ If students are prevented from attending school due to disability or weather problems, their teachers can still connect with them

2) Better Use of Resources : IoT systems use many sensors and devices, in addition to software, to collect and analyze data in real-time.

- ➢ School systems can allow students to use their mobile phones to "tune into" the class and smart learning software.
- ➢ Provide opportunities to make lessons mobile to different locations. Tablets are much easier to carry around then textbooks or papers.
- ➢ Connect students to peer knowledge, internet information and text-based learning materials.

3) Helping Disabled Students: Disabled students without the extra attention, this group of students doesn't receive the same quality of education that their peers do, their teachers can still connect with them.