Computer - Human Interaction

Input Devices

Part II

Objectives of today's class

- to learn how **to describe function**
- to **review how to use the gerund** and the **infinitive forms**
- to talk about **new ways of interacting with computers**

Students, follow the instructions on the slide

REVISION

HOW WOULD YOU DEFINE AND DESCRIBE INPUT DEVICES?

TRY TO GIVE A SHORT DEFINITION AND DESCRIPTION OF DIFFERENT INPUT DEVICES USING THE STRATEGIES DISCUSSED LAST WEEK.

READ THE FOLLOWING TEXT AND COMPLETE THE GAPS WITH THE APPROPRIATE FORM OF THE VERBS GIVEN IN BRACKETS.

Input devices allow you _____ (ENTER) data into your computer. There was a time when the only way to get data into your computer was by _____ (TYPE). Early computers only accepted numbers and texts as input. As the other types of data users wanted _____ (INPUT) changed, so did input devices. Modern computer users have a number of ways to input different types of data.

A keyboard is the most fundamental input device, for any computer system. In the early days of computing, it was the only input device. When operating systems started _____ (USE) graphical user interface (GUI) the mouse was developed as a pointing device. One or more buttons on the mouse allow you to enter instructions by _____ (CLICK).

READ THE FOLLOWING TEXT AND COMPLETE THE GAPS WITH THE APPROPRIATE FORM OF THE VERBS GIVEN IN BRACKETS.

Pointing devices are the input devices by which we can point out and select items rapidly from the multiple options displayed on the screen. These devices can also be used _____ (CREATE) graphic elements on the screen.

Tablets allow you _____ (DRAW) directly into the computer. Using a pen-like object called a stylus, you write on the tablet's surface as if it were a sheet of paper. Newer tablets, and some computer monitors allow the _____ (USE) of fingers instead of a stylus.

Joysticks are most commonly used when _____ (PLAY) games. Originally, they consisted of a single moveable stick and a button or two, allowing you _____ (CONTROL) a game's character movement. Modern joysticks group a number of sticks and buttons together.

Students, draw anywhere on this slide!

GRAMMAR BOX

THE GERUND

The **gerund / -ing form** is used:

- as **the subject** of a sentence:
  *e.g. Nowadays **getting** a good job can be difficult.*
- **after prepositions** and **phrasal verbs:**
  *e.g. She's **thinking about leaving** her job and moving abroad.*
- after certain verbs, for example:

avoid	*enjoy*	*finish*	*keep (on)*
practice	*finish*	*suggest*	*see*
observe		*hear*	

THE INFINITIVE

The **(to +) infinitive** is used:

- to express a reason or purpose:
  *e.g. I came here **to learn** about AI.*
- after **adjectives**:
  *e.g. It is **difficult to learn** all the intricacies of English grammar.*
- after certain verbs, for example:

afford	*aim*	*choose*	*decide*
hope	*learn*	*mean*	*promise*
want	*manage*	*refuse*	*offer*

GRAMMAR BOX

Certain verbs can be followed by both a gerund and infinitive forms. Depending on the verb, we normally distinguish two cases:

A. LITTLE / NO CHANGE IN MEANING

Some verbs can be followed by both a gerund and an infinitive, with little change in meaning. For example:

begin	*continue*	*intend*	*like*
love	*prefer*	*start*	

NOTE: **If the verb is already in the progressive, we don't usually use the gerund, e.g.** *We are starting to learn*. **NOT** ~~*We are starting learning.*~~

B. SIGNIFICANT CHANGE IN MEANING

Some verbs allow the use of both the gerund and the infinitive, with a significant change in meaning. For example:

Compare: I stopped to talk to my neighbour. vs. I stopped talking to my neighbour.

forget	*go on*	*hate*	*regret*
remember	*try*	*stop*	

GERUND VS. THE INFINITIVE

COMPLETE THE SECOND SENTENCE SO THAT IT HAS A SIMILAR MEANING TO THE FIRST SENTENCE. DO NOT CHANGE THE WORD GIVEN IN BOLD.

1. I should have turned the computer off this morning, but I didn't remember.
   FORGOT
   I _____ the computer this morning.

2. I'll always remember when I wrote my first piece of software.
   NEVER
   I'll _____ first piece of software.

3. I must complete an assignment later today.
   REMEMBER
   I must _____ later today.

4. They let me attend an interesting online event for free.
   ALLOWED
   I was _____ an interesting online event for free.

5. I think it is interesting to learn about new technologies.
   LEARNING
   I think _____ interesting.

Students, draw anywhere on this slide!

GERUND VS. THE INFINITIVE

COMPLETE THE SECOND SENTENCE SO THAT IT HAS A SIMILAR MEANING TO THE FIRST SENTENCE. DO NOT CHANGE THE WORD GIVEN IN BOLD.

1. I came here so that I could learn about new technologies and software.
   TO
   I came here _____ and software.

2. “I won’t help!”, Tom said.
   REFUSED
   Tom _____.

3. I find getting up early unbearable.
   STAND
   I _____early.

4. I think it would be a great idea if you joined the beginner’s class.
   SUGGEST
   I _____ the beginner’s class.

5. Paul asked me to help him with his project and I said yes.
   AGREED
   I _____ with his project when he asked me.

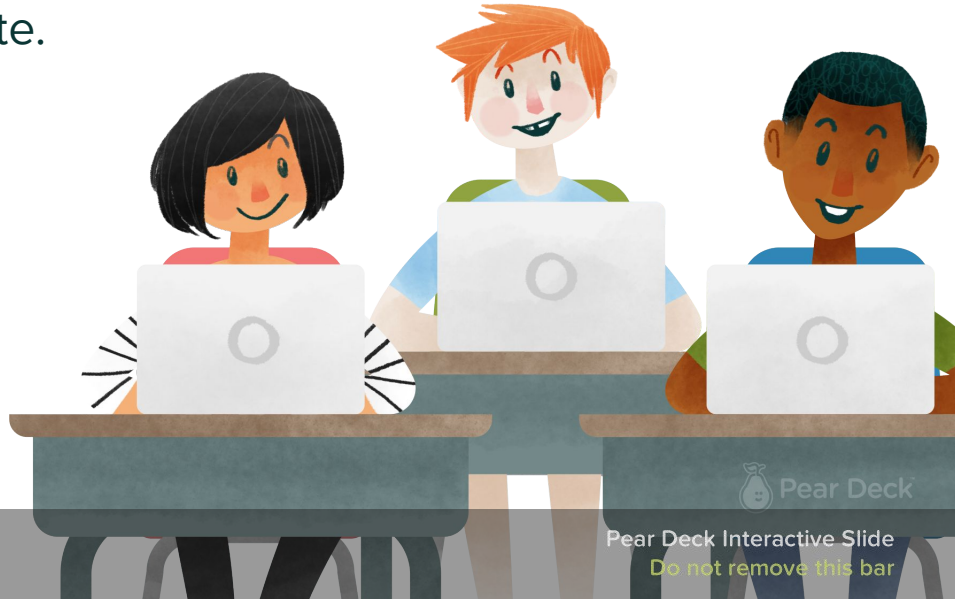
Students, draw anywhere on this slide!

CHOOSE WHICH ENDING, A OR B, COMPLETES THE SENTENCES BELOW.

We stopped to consult the manual

A when we realised it was totally inaccurate.

B when we realised we'd made a mistake.

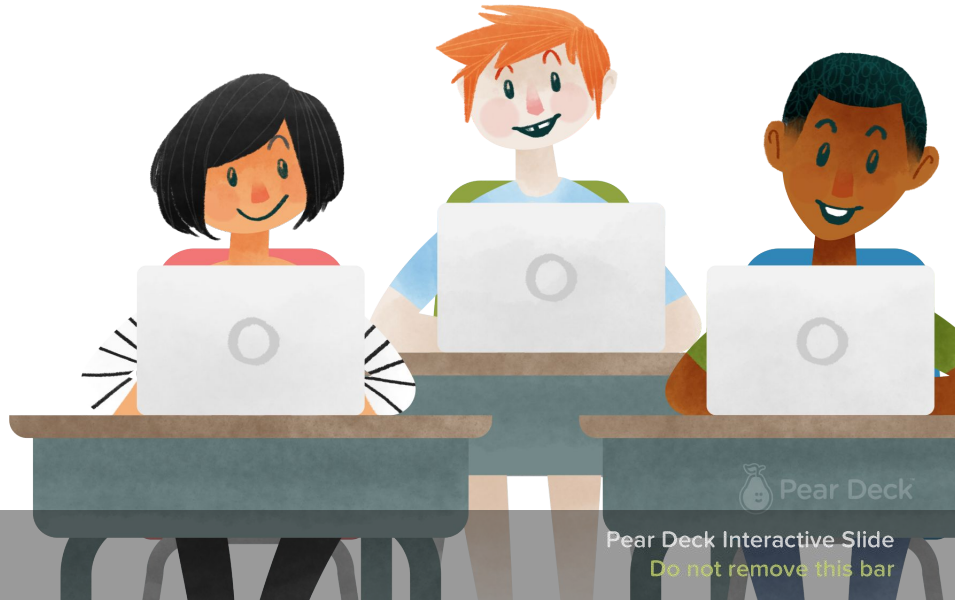


CHOOSE WHICH ENDING, A OR B, COMPLETES THE SENTENCES BELOW.

This time, I remembered

A getting a receipt for your photocopies.

B to get a receipt for your photocopies.

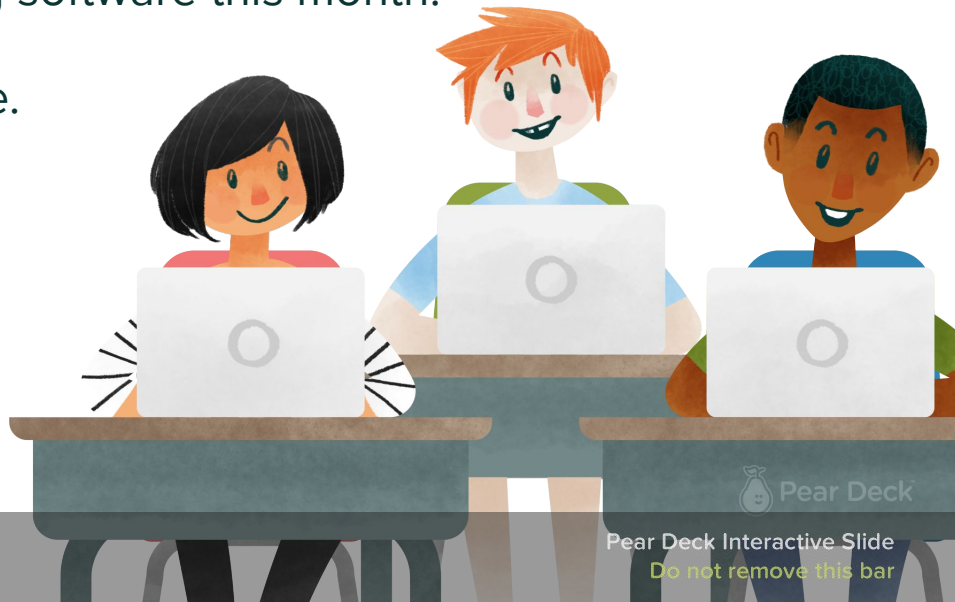


CHOOSE WHICH ENDING, A OR B, COMPLETES THE SENTENCES BELOW.

I hate

A to spend yet more money on computing software this month.

B spending money on computing software.

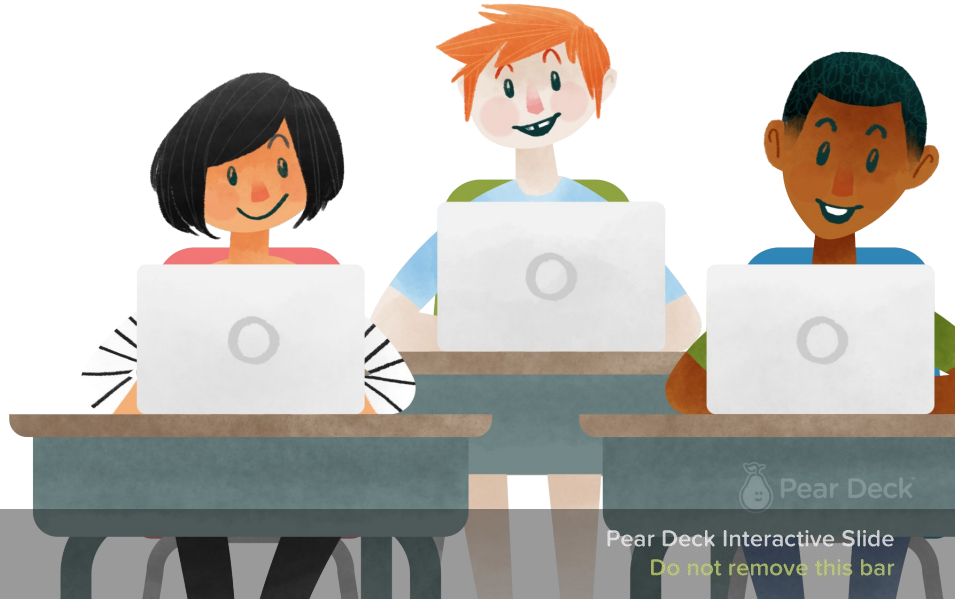


CHOOSE WHICH ENDING, A OR B, COMPLETES THE SENTENCES BELOW.

The computer has frozen again. I'll try

A to restart it.

B restarting it.



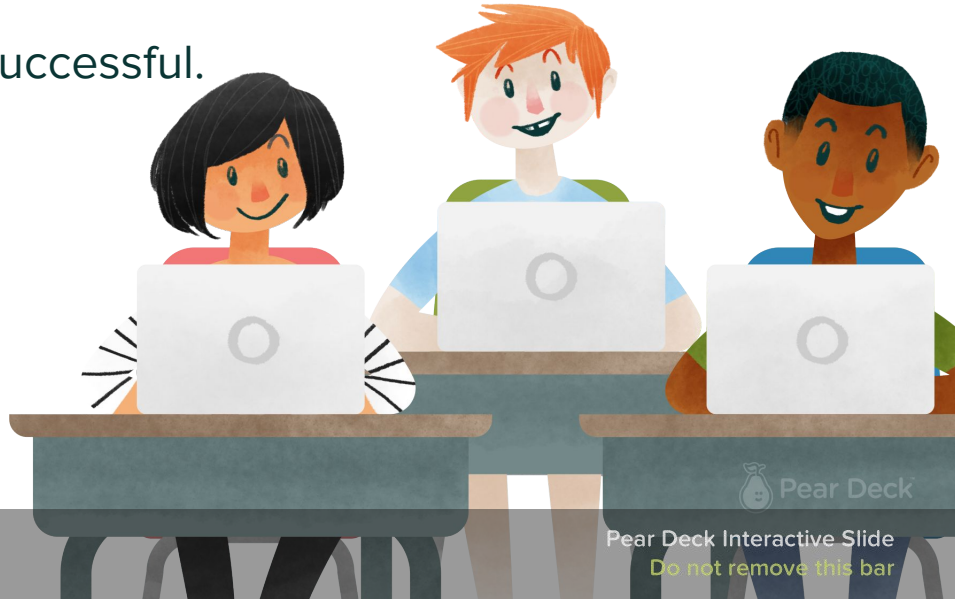
Students choose an option

CHOOSE WHICH ENDING, A OR B, COMPLETES THE SENTENCES BELOW.

I regret to tell

A my boss that I'd applied for another job.

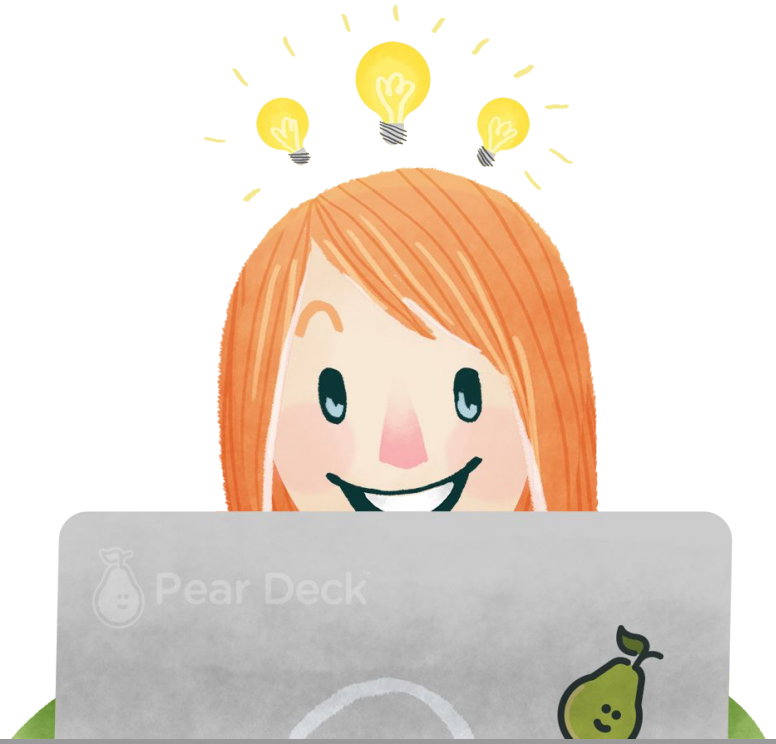
B you that your application has not been successful.



IT'S QUIZ TIME!

Go to kahoot.it and follow the instructions from there!

Let's see who can win!



BRAINSTORMING

INPUT DEVICES OF THE FUTURE

REFLECT ON THE FOLLOWING QUESTIONS:

1. What types of input devices do you know that allow for a more intuitive and natural interaction between humans and computers?

2. How do you think these new technologies compare to more traditional methods of interacting with computers? What are the advantages and disadvantages of both?

3. How do you think people will input data and interact with computers in the future?

Students, draw anywhere on this slide!

TED TALK

A HEADSET THAT READS YOUR BRAINWAVES

TAN LE is the founder & CEO of Emotiv, a biometrics company that is working on identifying biomarkers for mental and other neurological conditions using electroencephalography (EEG).

Tan Le's astonishing new computer interface reads its user's brainwaves, making it possible to control virtual objects and even physical electronics, with mere thoughts (and a little concentration). She demos a headset, and talks about its far-reaching applications.

You are going to watch an edition version of a TED Talk by Tan Le, called *A headset that reads your brainwaves.* Read the text about the speaker and the talk. Then work in pairs and discuss the questions:

1. What has been Tan Lee's focus in creating this new device?

2. What do you think are the 'far-reaching applications' of this device? Where could it be used efficiently?

3. Can you think of other devices that allow people to interact with computers in alternative ways? What are these devices and how do they compare to more traditional methods?

Students, draw anywhere on this slide!

VOCABULARY IN CONTEXT

READ THE SENTENCES BELOW. THE WORDS AND PHRASES IN BOLD ARE USED IN THE TED TALK. GUESS THE MEANING OF THE WORDS.

1. In our personal interactions, we **intuit** feelings and emotions based on facial expressions and body language.

2. The aim was to introduce a new **realm** of human interaction into human-computer interaction.

3. The results will provide a good **baseline** for technology-related decisions in the coming years.

4. The type of technology needs to **work out of the box**.

5. Even newer technologies are only **scratching the surface** of what human-computer interaction in the future could look like.

Students, draw anywhere on this slide!

MATCH THE TERMS FROM THE EXERCISE ABOVE TO THE DEFINITIONS BELOW.

intuit ***realm*** ***baseline*** ***work out of the box*** ***scratching the surface***

1. work immediately, without intervention or modification;
2. an initial set of critical observations of data used for comparison or control;
3. to know or understand something because of a feeling that you have rather than because of facts or what someone told you;
4. an area of interest or activity;
5. to deal with only a very small part of a subject or a problem;

1. _____
2. _____
3. _____
4. _____
5. _____

Students, draw anywhere on this slide!

LISTEN & WATCH

WATCH THE FIRST PART OF THE EDITED VERSION OF THE TED TALK AND ANSWER THE QUESTIONS BELOW.

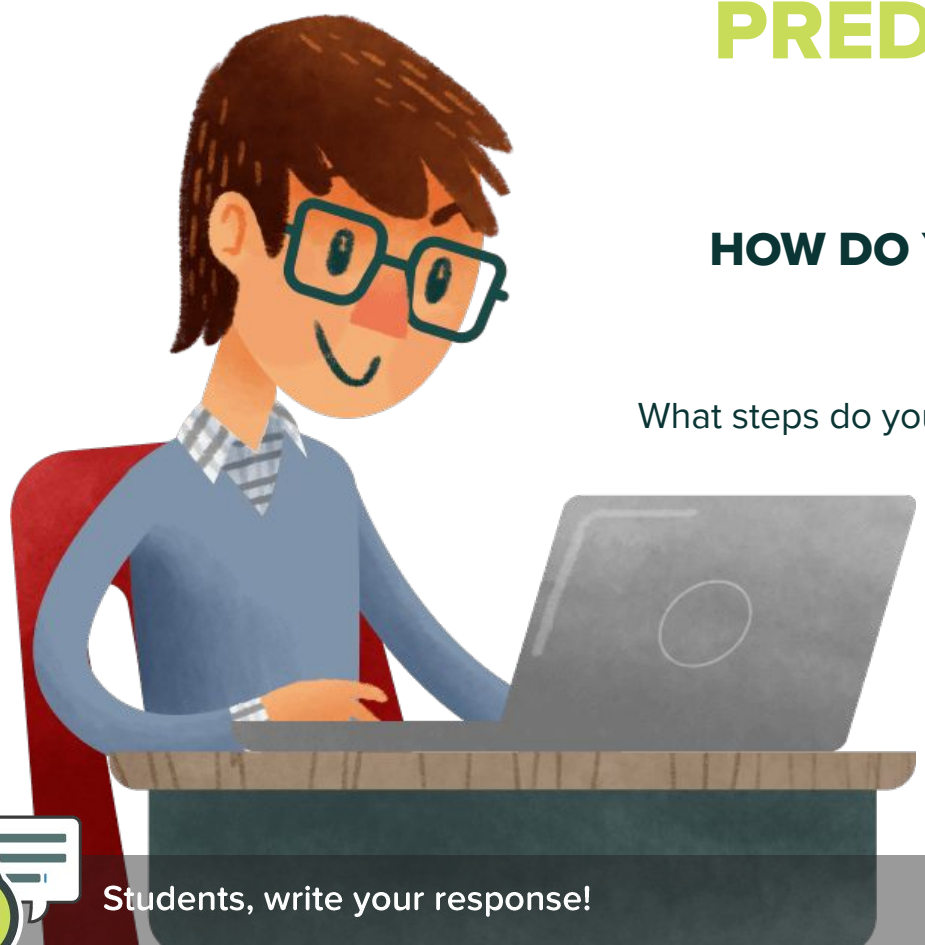
1. What two reasons are mentioned that make it difficult to make human-computer interactions more intuitive?

2. What breakthrough allowed Tan Le to develop this new technology?

3. What are the main advantages of the new device as compared to a traditional EEG system?

Students, draw anywhere on this slide!

PREDICT



HOW DO YOU THINK THE COGNITIVE SUITE WORKS?

What steps do you think might be required to allow the device to read brainwaves and move objects?

Students, write your response!

LISTEN & WATCH

WATCH THE SECOND PART OF THE PRESENTATION. COMPLETE THE STEPS INVOLVED IN ALLOWING EVAN TO CONTROL THE OBJECT.

1. Before anything else, a _____ needs to be created.
2. After that, what needs to be done is to _____ for the normal state of his brain.
3. Once the training is done, a _____ can be chosen, that can be clearly visualised in mind
4. The thought then needs to be maintained for the entire duration of _____.
5. Once that is done, the cube is _____.
6. As the user becomes more familiar with the system, they can continue to add _____.
7. Once you've trained up the detection, the thoughts can be _____to any computing platform, application or device.

Students, draw anywhere on this slide!

DISCUSS

What possible applications do you think the device might have?

Students, write your response!

LISTEN & WATCH

IN THE THIRD PART OF THE VIDEO, TAN LE DISCUSSES POSSIBLE APPLICATIONS FOR THE NEW INTERFACE. COMPLETE THE TABLE WITH THE MISSING INFORMATION.

Applications	What the device detects	Example of function
games and virtual worlds	facial expressions	(1) _____
	(2)_____	add colour, lighting, and sound effects
(3)_____ or simple machines	(4)_____	fly a helicopter
(5)_____		(6)_____
		control the system to open / close curtains
electric wheelchairs	(7)_____	give movement commands

Students, draw anywhere on this slide!

ANSWER THE QUESTIONS BELOW.

1. What are your thoughts about this device?

2. Do you think it will ever catch on? Why, why not?

3. At the end of her talk, Tan Le says that the new interface device is only scratching the surface of what is possible with technology today. How do you think her invention could be further enhanced or used? Can you think of any other applications where the device could be used?

Students, draw anywhere on this slide!

THINK & REFLECT

READ THE COMMENTS ABOUT THE TED TALK BELOW. DO YOU AGREE WITH THE VIEWER'S COMMENTS? WAS THEIR OPINION SIMILAR TO YOURS?

JE Jack Eales

Input devices such as this will drastically change how the average consumer interacts with and uses technology; even more so with those that do not utilise technology normally, as new, more accessible devices and interfaces may be developed that could make the transition almost instantaneous and natural for them - such as this one. Devices as such as this may improve workflows as the actions required to interact would be much more natural; with much fewer peripheral devices, we could make the technology we use transition into a much more natural form. Currently, a keyboard and mouse, whilst they can be used effectively, may require much learning from those that are not used to them, e.g. the elderly, young, and tech impaired (for lack of a better term). If they were introduced to technology more easily, more investment into the technology market would be seen, then leading to further progress and innovation. Education may change, with these devices introducing better workflows through a natural transition; so may the work space. The closer these input devices get to how humans naturally interact with the world, the better and more human the interactions and use of technology will be.

Reply Upvote Report

Students, write your response!

THINK & REFLECT

READ THE COMMENTS ABOUT THE TED TALK BELOW. DO YOU AGREE WITH THE VIEWER'S COMMENTS? WAS THEIR OPINION SIMILAR TO YOURS?

TB Tom Barratt

This technology is a great step in showing what we have to come in the future, it could make lives easier and give lives back to those who have had it taken from them and struggled to manipulate the physical world. But it could also lead to many people not being bothered to manipulate the physical world because they wont have to. It will be a step forward for many but could also be a step backward for others.

Reply Upvote

AB Austin Beech

Input devices like these are revolutionary, a whole new way for us to interact with machines. From controlling virtual objects to real life objects, like: wheelchairs, prosthetic limbs, eventually even planes or transport! This will change the way people interact and learn, even for some how they get around. Input devices already allow us to hear, see, type and speak to others already, wether it be on the internet or in real life.

Reply Upvote Report

Students, write your response!

ANSWER THE QUESTIONS BELOW.

1. Which input device do you think has had the greatest impact on how humans interact with computers? Why?

2. How do you think people will interact with computers in the future? Which input devices do you think will no longer be used? Which devices will replace them instead?

3. What are the advantages and disadvantages of using biometric sensors and devices as a way of inputting information?

Students, draw anywhere on this slide!

THAT'S ALL FOR TODAY! THANK YOU FOR YOUR ATTENTION & SEE YOU ALL NEXT WEEK!

As always, feel free to rate today's lesson and leave a message if you prefer:

Or, you can write a short feedback here, if you prefer: