DIGITAL TOOLS FOR LEARNER EXPERIENCE AND ASSESSMENT

Presenters: Ms Tam Nguyen

Ms Quynh Tran

Ms Thanh Thanh Nguyen

Outline

I. Learner Experience

II. Assessment

III. Digital tools

IV. Action plan

I. Learner Experience

Student's experience while engaging in a learning process

- Engagement
- Relevance
- Interaction
- Feedback
- Support
- Technology
- Assessment

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Australia Awards

DEAKIN UNIVERSITY

How to enhance learner experience

- Design thoughtful lesson plan
- Use multiple teaching methods
- Use digital tools
- Diverse assessment methods

Designing thoughtful lesson plan

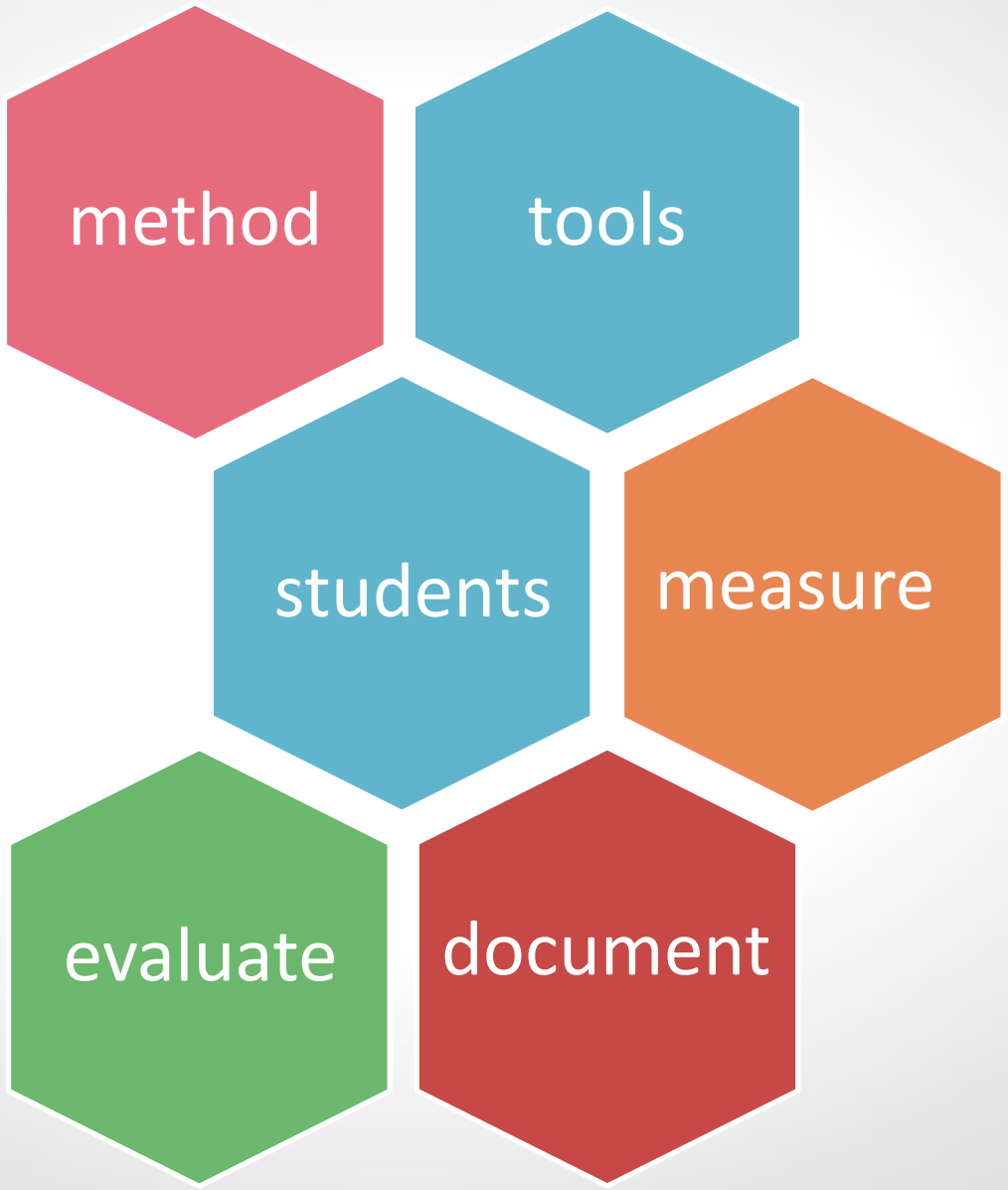
- Define the specific learning outcomes
- Align with curriculum standards
- Understand prior knowledge
- Choose relevant content
- Design learning activities
- Give clear instructions
- Appropriate assessment methods

- **Use multiple teaching methods**
- **Use digital tools**
  - Pallet, Jamboard
  - Slack
  - Mentimeter
  - Beetot
  - VR ,360 Videos

Assessment in a lesson: 3 levels

- Diagnostic
- Informative
- Summative

Assessment in education



Assessment in education

systematic process

collecting and summarizing

the progress of learners

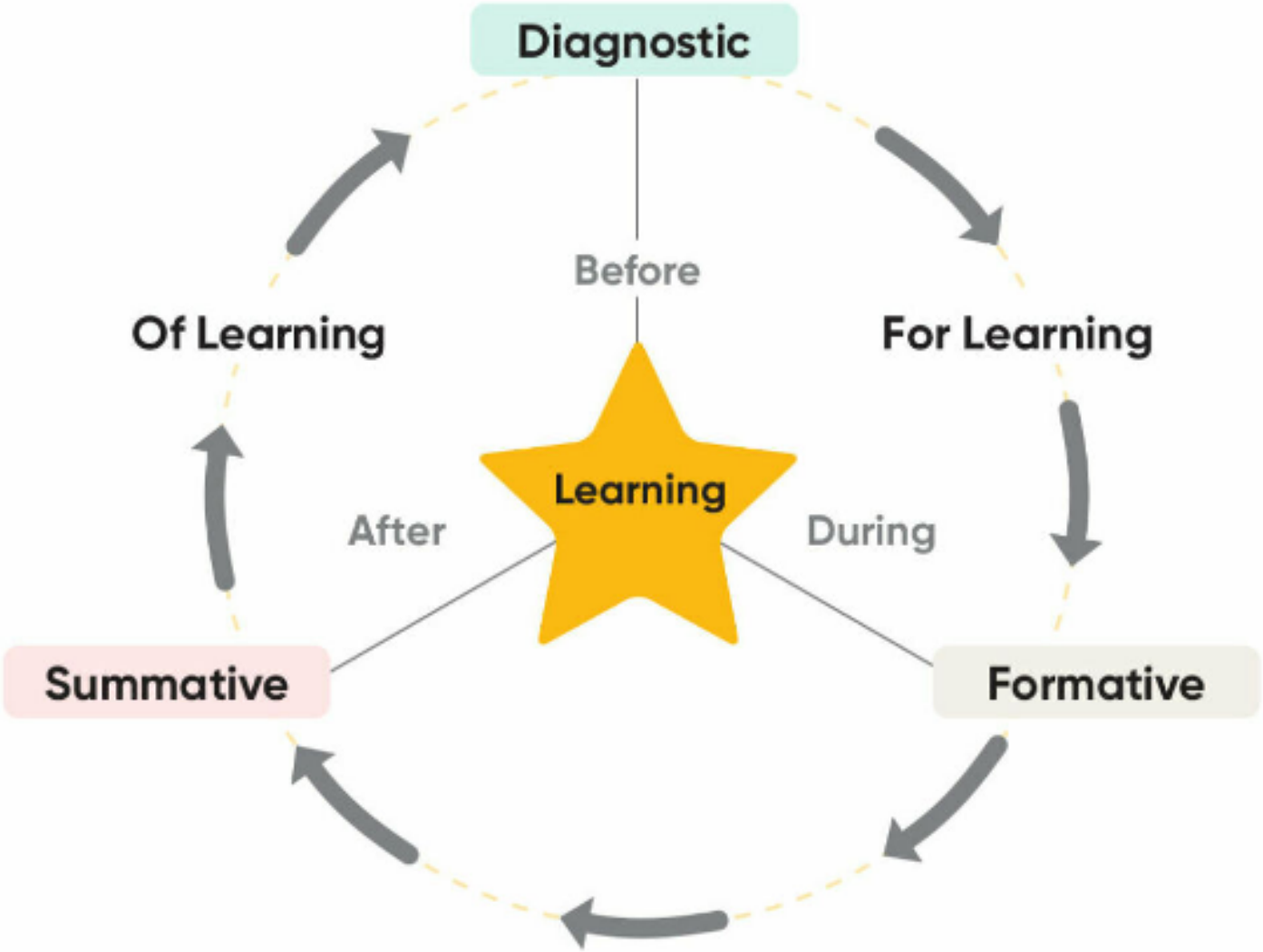
learning outcomes

What is the role of assessment in education

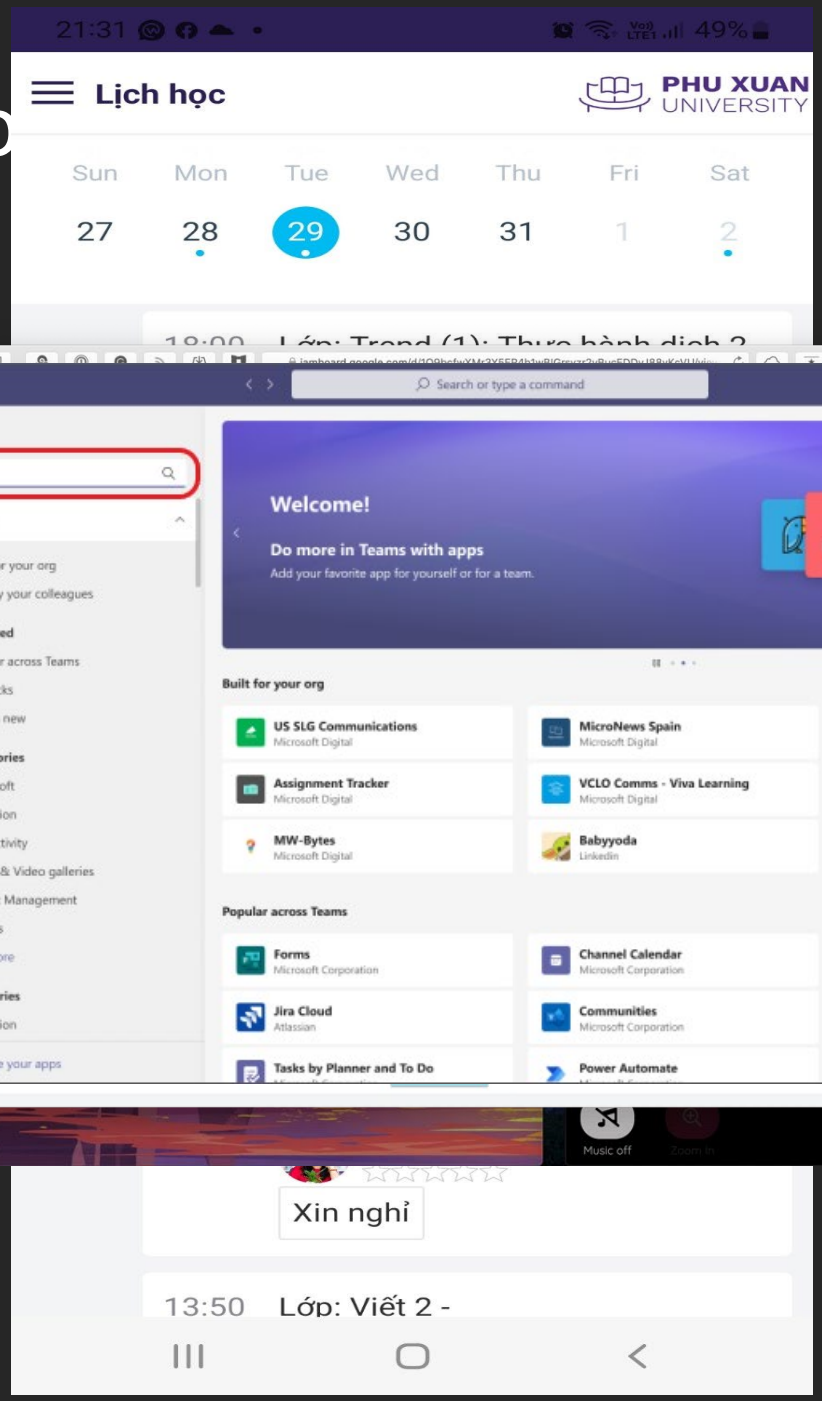
01 Help students: learn, determine, motivate

02 Support the decision-making process

Assessment in education at PXU



So in assessment at PXU



Diagnostic assessments (10%)

IAE app

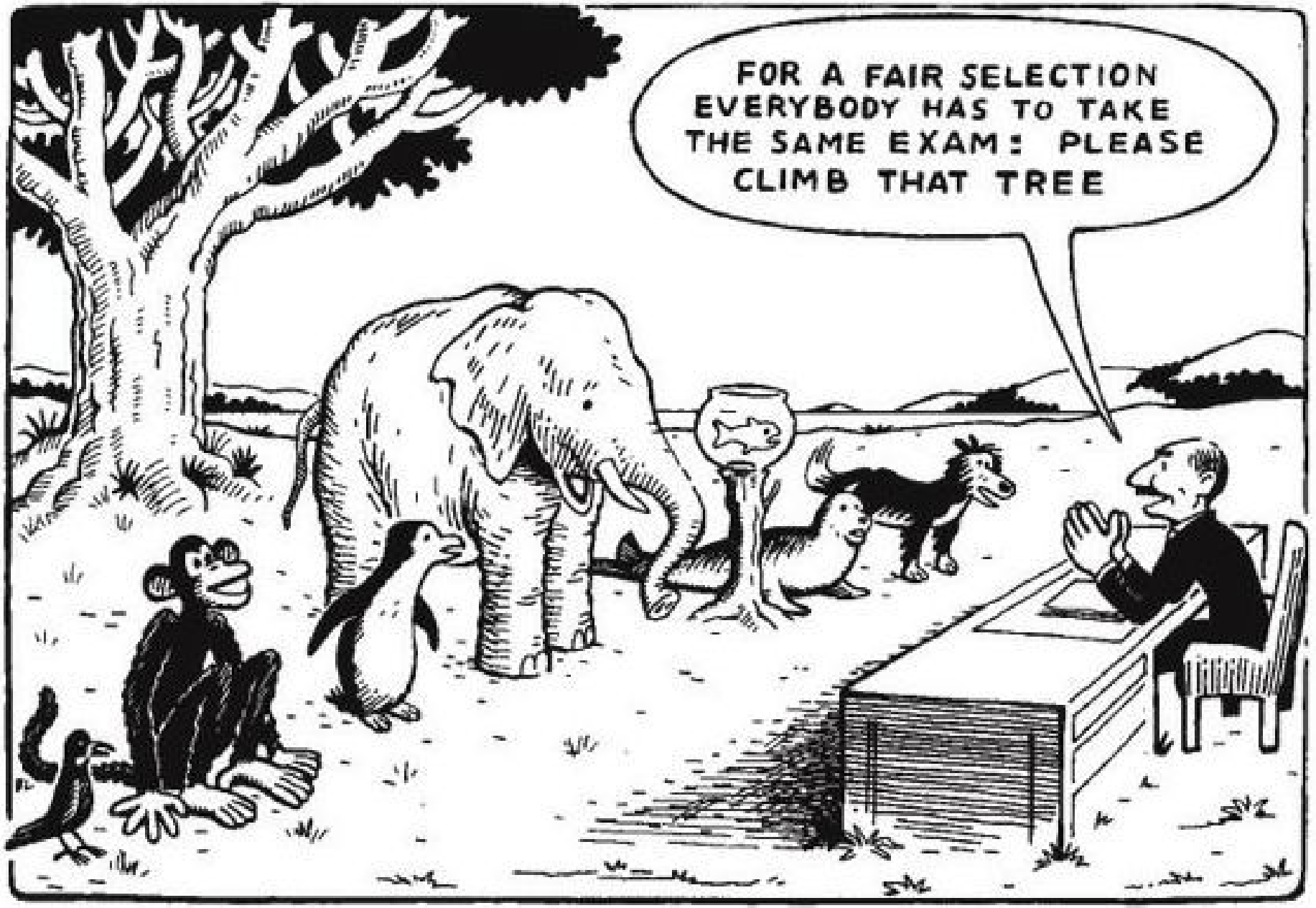
Formative assessments (30%)

Kahoot, Quizziz, Jamboard, Google classroom

Summative assessments (60%)

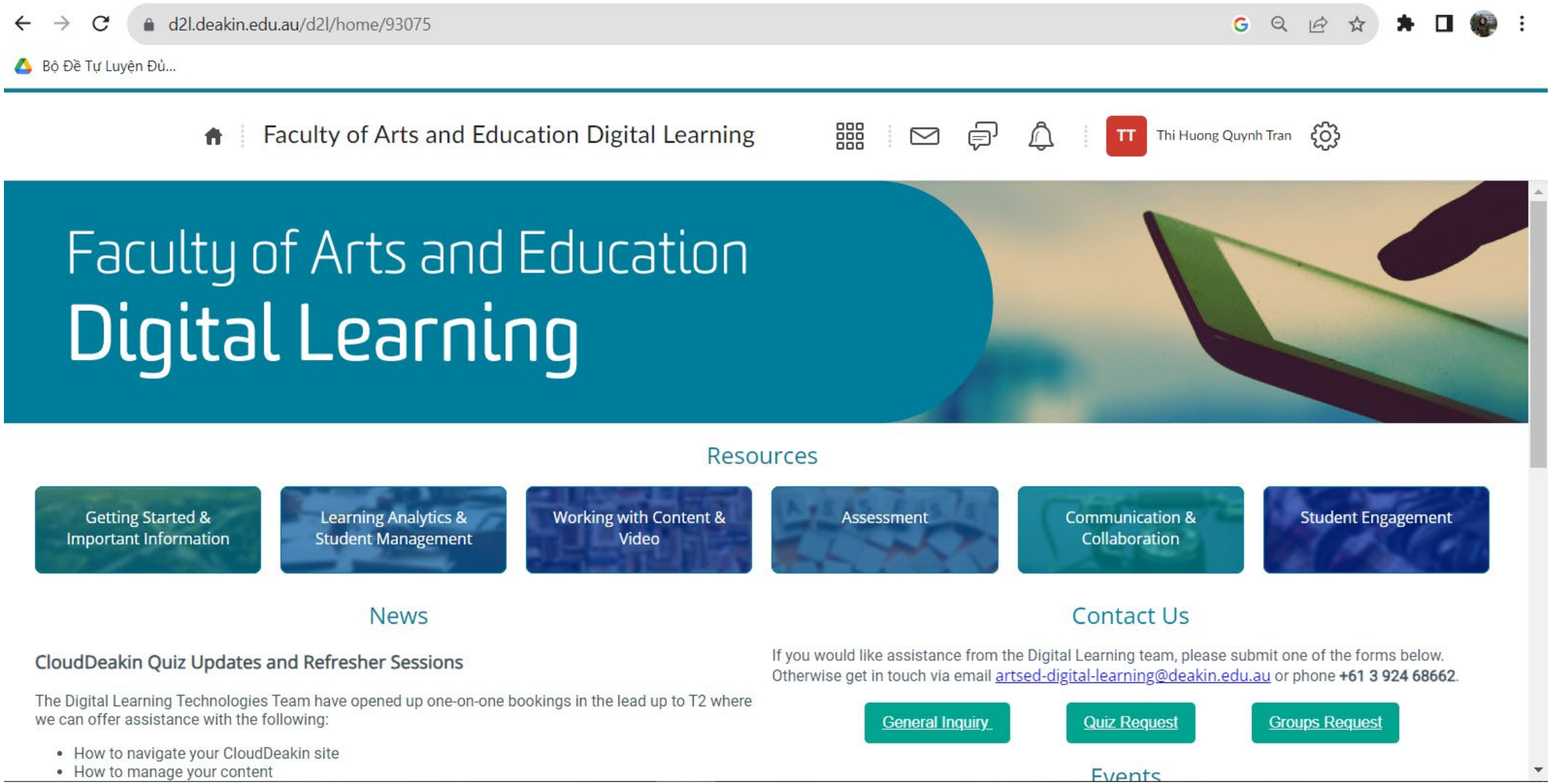
Multiple choice, project, essay, skill demonstration, case study, internship programe...

MS Teams


FOR A FAIR SELECTION EVERYBODY HAS TO TAKE THE SAME EXAM: PLEASE CLIMB THAT TREE

LIBRAL EDUCATION

What we learn from Deakin University – AAF program

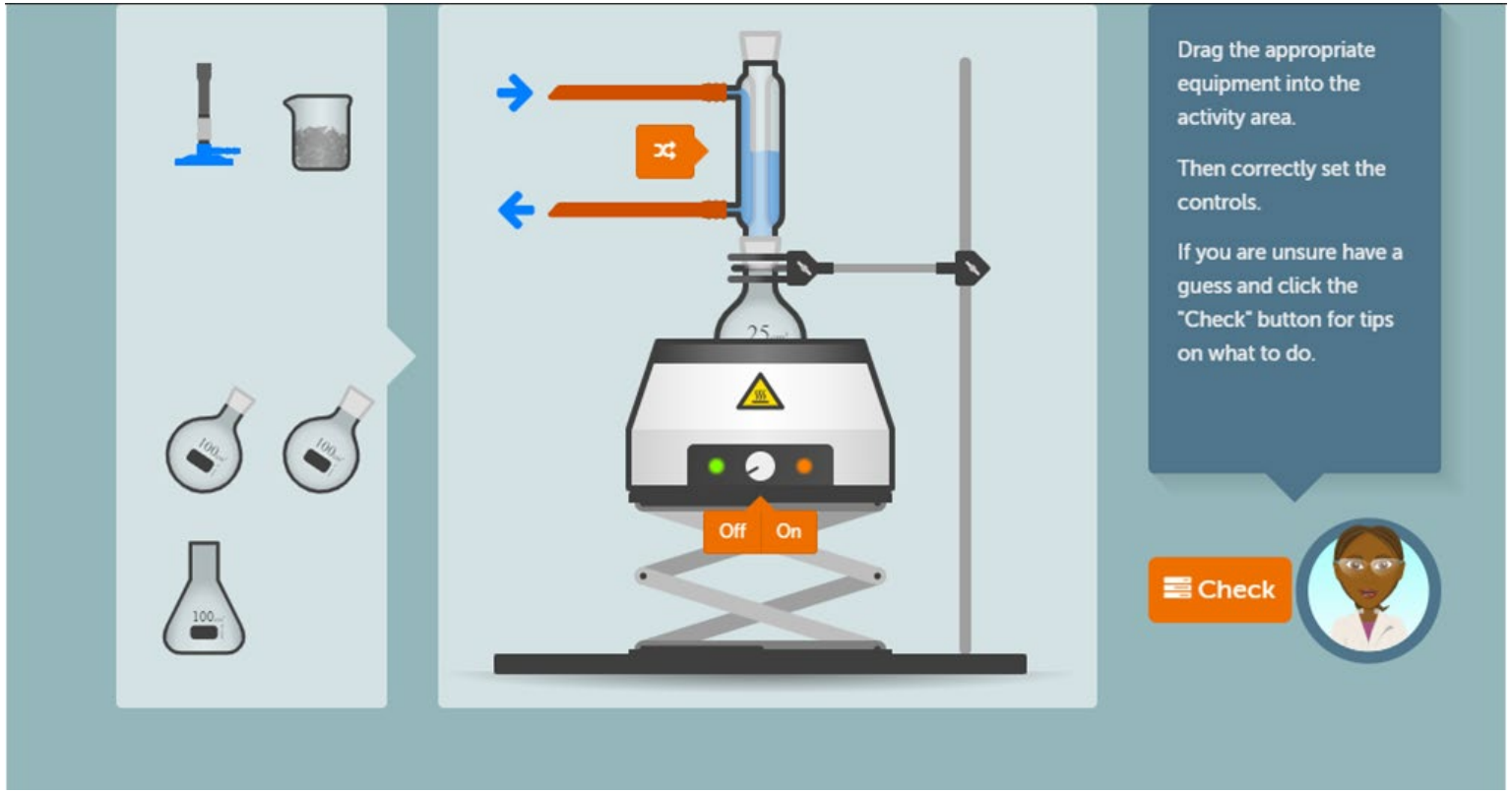


What we learn from Deakin University – AAF program

AR

VR

What we learn from Deakin University – AAF program



Simulation experiment

What we learn from Deakin University – AAF program

Simulation company

What we learn from Deakin University – AAF program

GenAI's challenge in assessment

What is transforming? Is it technology, is it society, or is the process of change itself that is transforming?

APPS AND WEBSITES

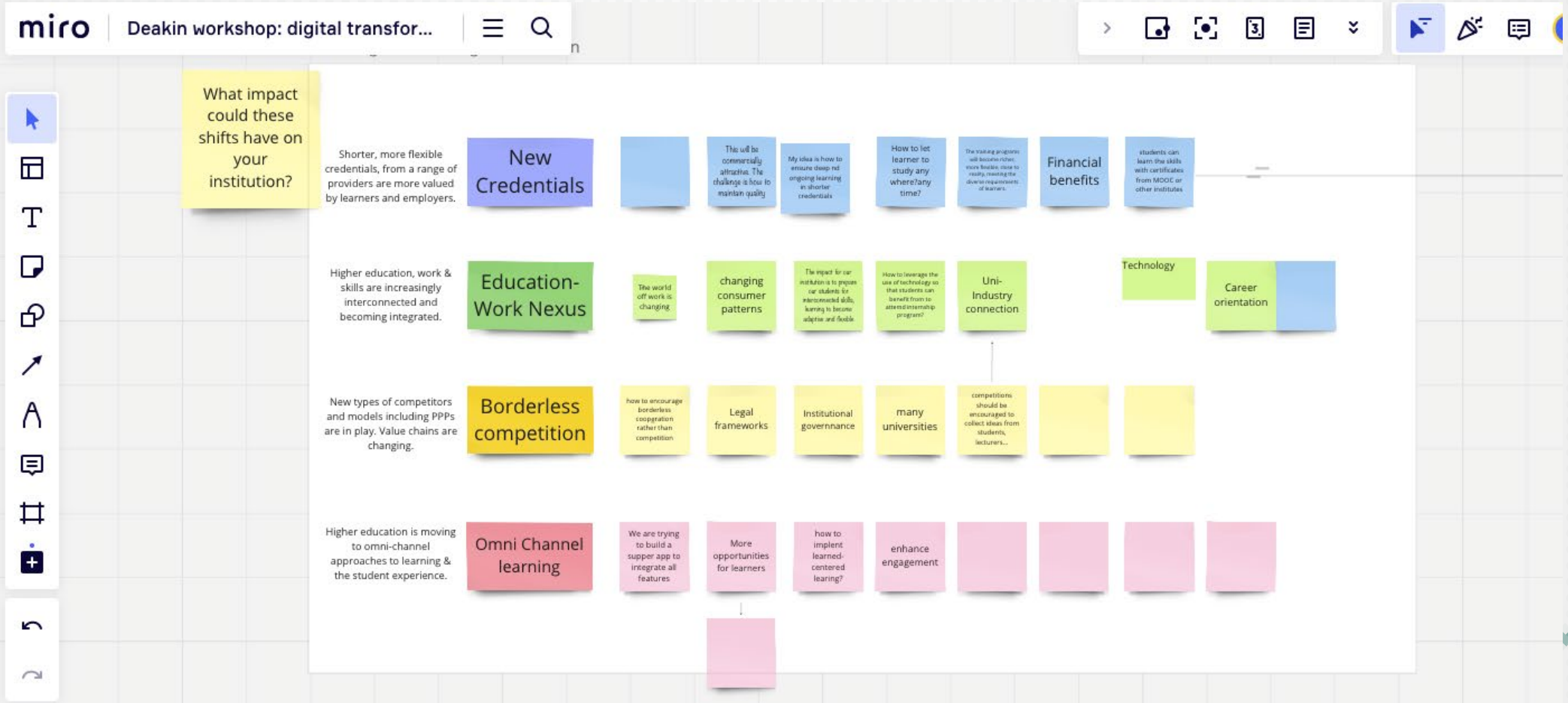
- Kahoot
  https://kahoot.it/
- Quizlet
  https://quizlet.com/
- Mentimeter
  https://www.mentimeter.com/

APPS AND WEBSITES

- Poll everywhere (https://www.polleverywhere.com/)

- Wordart (https://wordart.com/)

Miro.com



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- Padlet
- Jamboard

Edpuzzle

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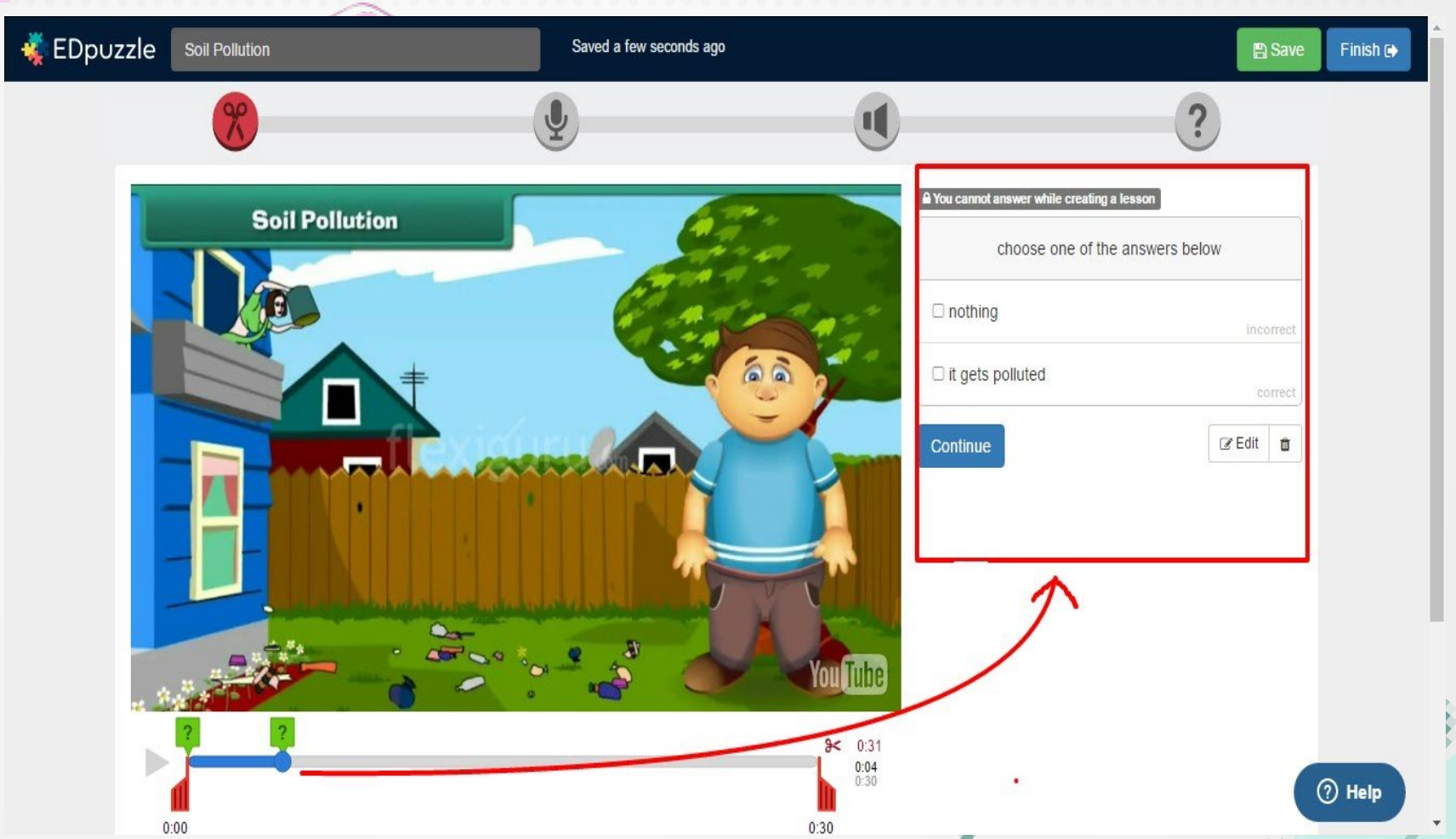
Teachers can customize it by adding voiceovers, questions, audio notes, and comments. They can also trim or crop the video to show only the relevant parts for the lesson



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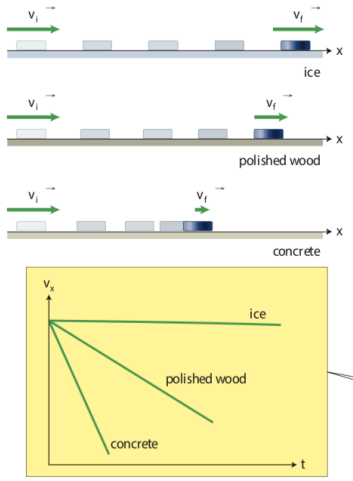
In the preceding two chapters, we developed a mathematical framework for describing motion along a straight line. In this chapter, we continue our study of motion by investigating inertia, a property of objects that affects their motion. The experiments we carry out in studying inertia lead us to discover one of the most fundamental laws in physics—conservation of momentum.

4.1 Friction

Picture a block of wood sitting motionless on a smooth wooden surface. If you give the block a shove, it slides some distance but eventually comes to rest. Depending on the smoothness of the block and the smoothness of the wooden surface, this stopping may happen sooner or it may happen later. If the two surfaces in contact are very smooth and slippery, the block slides for a longer time interval than if the surfaces are rough or sticky. This you know from everyday experience: A hockey puck slides easily on ice but not on a rough road.

Figure 4.1 shows how the velocity of a wooden block decreases on three different surfaces. The slowing down is due to friction—the resistance to motion that one surface or object encounters when moving over another. Notice that, during the interval covered by the velocity-versus-time graph, the velocity decrease as the block slides over ice is hardly observable. The block slides easily over ice because there is very little friction between the two surfaces. The effect of friction is to bring two objects to rest with respect to each other—in this case the wooden block and the surface it is sliding on. The less friction there is, the longer it takes for the block to come to rest.

Figure 4.1 Velocity-versus-time graph for a wooden block sliding on three different surfaces. The rougher the surface, the more quickly the velocity decreases.



CONCEPTS

Figure 4.2 Low-friction track and carts used in the experiments described in this chapter.

You may wonder whether it is possible to make surfaces that have no friction at all, such that an object, once given a shove, continues to glide forever. There is no totally frictionless surface over which objects slide forever, but there are ways to minimize friction. You can, for instance, float an object on a cushion of air. This is most easily accomplished with a low-friction track—a track whose surface is dotted with little holes through which pressurized air blows. The air serves as a cushion on which a conveniently shaped object can float, with friction between the object and the track all but eliminated. Alternatively, one can use wheeled carts with low-friction bearings on an ordinary track. Figure 4.2 shows low-friction carts you may have encountered in your lab or class. Although there is still some friction both for low-friction tracks and for the track shown in Figure 4.2, this friction is so small that it can be ignored during an experiment. For example, if the track in Figure 4.2 is horizontal, carts move along its length without slowing down appreciably. In other words:

In the absence of friction, objects moving along a horizontal track keep moving without slowing down.

Another advantage of using such carts is that the track constrains the motion to being along a straight line. We can then use a high-speed camera to record the cart's position at various instants, and from that information determine its speed and acceleration.

4.1 (a) Are the accelerations of the motions shown in Figure 4.1 constant? (b) For which surface is the acceleration largest in magnitude?

4.2 Inertia

We can discover one of the most fundamental principles of physics by studying how the velocities of two low-friction carts change when the carts collide. Let's first see what happens with two identical carts. We call these standard carts because we'll use them as a standard against which to compare the motion of other carts. First we put one standard cart on the low-friction track and make sure it doesn't move. Next we place the second cart on the track some distance from the first one and give the second cart a shove toward the first. The two carts collide, and the collision alters the velocities of both.

Cory: I remember, in high school, being amazed at how quickly carts could travel on these tracks - air would blow up through these tiny holes evenly distributed along the length of the track and the cart would essentially float on the air and consequently - the cart would move very quickly with the slightest push.

Alison: Although there is no way to create frictionless surfaces, I find it interesting that we consider experiments "in the absence of friction." In a way, this relates back to Chapter 1.5 where we talked about the importance of having too little or too much information in our representations. In some cases, the friction is so insignificant that we ignore it (simplifying our representation).

Beth: Does this only apply to solid surfaces? I feel as if a sub - stance that floats on water either has negligible or very little friction.

Cory: Why is this? I don't get it.

Alison: I believe this applies to almost every surface, although I'm not sure if water would count more as resistance than friction. Anyways, the best example I could think of would be a surf board. If people who were paddling in the same direction as the waves experienced no resistance, they would continually speed up, and eventually reach very high speeds. However, in reality if they were two stop paddling they'd slow down and only the waves would slowly push them to shore.

Beth: Is it possible to have a surface, in real life, that inflicts NO friction at all?

Beth: Doesn't air resistance factor into this at all?

Alison: The key word is "appreciably". In the absense of friction, the cart does not slow down appreciably but still would a little due to air resistance

Cory: a) yes b) concrete has the acceleration of greatest magnitude

Beth: I would think that they are not constant because if we think of the formula F=ma, the force of friction is different in every case.

Alison: As a theoretical question about inertia, if an object in motion will stay in motion, but is being affected by friction, will it slow down perpetually but remain in motion, or will it eventually stop completely due to the friction? Just curious.

Beth: With friction everything slows down to a half at one point or another. It is only if an outside force acts on the object if that object will maintain motion after the effects of inertia.

Cory: Standard carts: identical carts in mass, shape, etc. I like this notion of standard carts, it provides a good baseline to compare other motion and to understand the concepts before building on it.

Cory: Great visual representation of friction! It is interesting how this compares the velocity of things on different surfaces

Alison: The rougher the surface, the more friction between the surface and the wooden block, and thus acceleration will be greater.

ACTION	WHO	WHEN	HOW
Workshop (Digital Tools)	Fellow	1-2024	Train for all lecturers
Demonstration	Fellow	2-2023	Lecturers observe fellow's class
Pilot teaching	Lecturers	3-6/2023	Lecturers choose a suitable tools for their subjects
Observation	Lecturers	3-6/2023	Observe class

ACTION	WHO	WHEN	HOW
Survey	Lecturers	After finish the courses	Deliver Questionnaire to students, interview lecturer
Review and Evaluate	Lecturers	6-2024	Give Feedback and improvement

THANKS FOR YOUR LISTENING