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- Ambassador and Coordinator Member of Charles Walter'S Society and Innovation and Research (INDIA)
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- Coordinator International Conference of LEAD Indonesia-Philippine
- Country Director of IIU and Country Director of YES You Can International
- International Board Professors and Expert of Scientific Innovation Research (EGYPT)
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- ADRI 0909909170058004 APSPBI Number 180717 TEFLIN number 1020180047

https://scholar.google.co.id/citations?user=6OEh6QMAAAAJ&hl=id

https://www.researchgate.net/profile/Muthmainnah

- Quality of education
- *Every child has the fundamental right to quality education – one that helps them acquire basic literacy and numeracy, enjoy learning without fear, and feel valued and included, irrespective of where they come from.*
-

Accelerating Digital Transformation on Educational Sector

- Injected AI in Education

- Education will be Profoundly transformed by AI (UNESCO)
- Teaching tools, ways of learning, access to knowledge and teacher training will be revolutionized (UNESCO, 2019)
- AI tools are software that students use to learn (Baker and Smith, 2019)

- MobiTech

- Remote Teaching
- Virtual Classroom
- Distance Education
- ICT Culture
- Redesign Curriculum
- Injected technology
- Infused Hybrid/ Blended Environment

- **Infused SDCM**

- Quantum Learning
- Quantum Teaching
- Quantum Technology
- Mobilized e-learning
- Mobile learning is being digital support
- Accelerated Learning
- Facilitate students and parents
- Staff have access their own digital technology

- **Cybergogy**

- Pedagogy
- Technology
- Metacognitive Skill (knowing how to learn)
- Freedom to Learn

- **5IR**

- The fifth Industry Revolution (5IR)
- Embraces the notion of harmonious human-machine collaboration
- Encouraging students to make informed, ethical decisions without losing sight of the overall picture

ARTIFICIAL INTELLIGENCE AND 21ST CENTURY SKILL

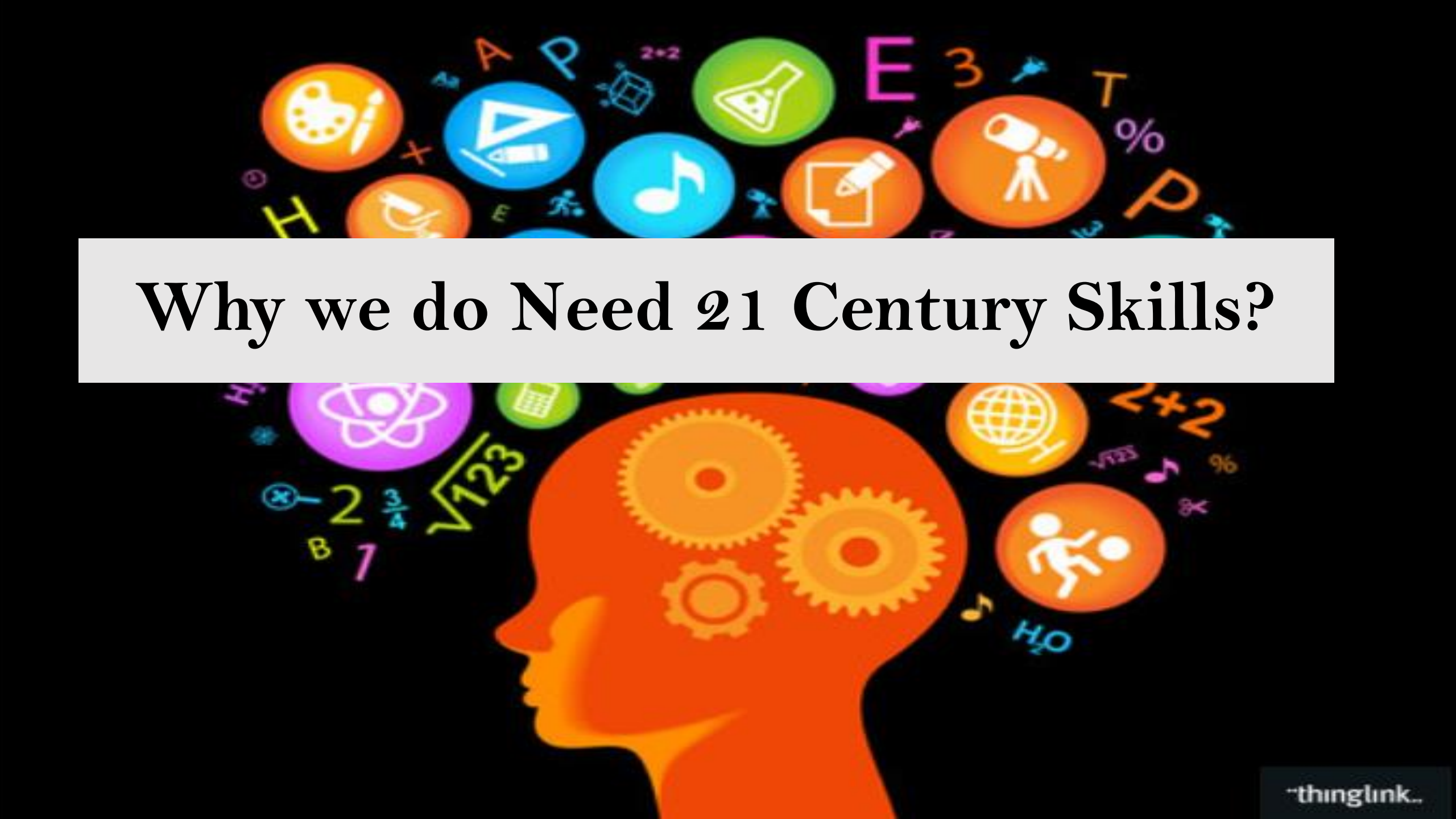
Today's Menu

Why we do Need 21 Century Skills?

Instructional Designs Aggregated into Blended Learning

An Investigating Human-Computer Interaction in Classroom

Why we do Need 21 Century Skills?



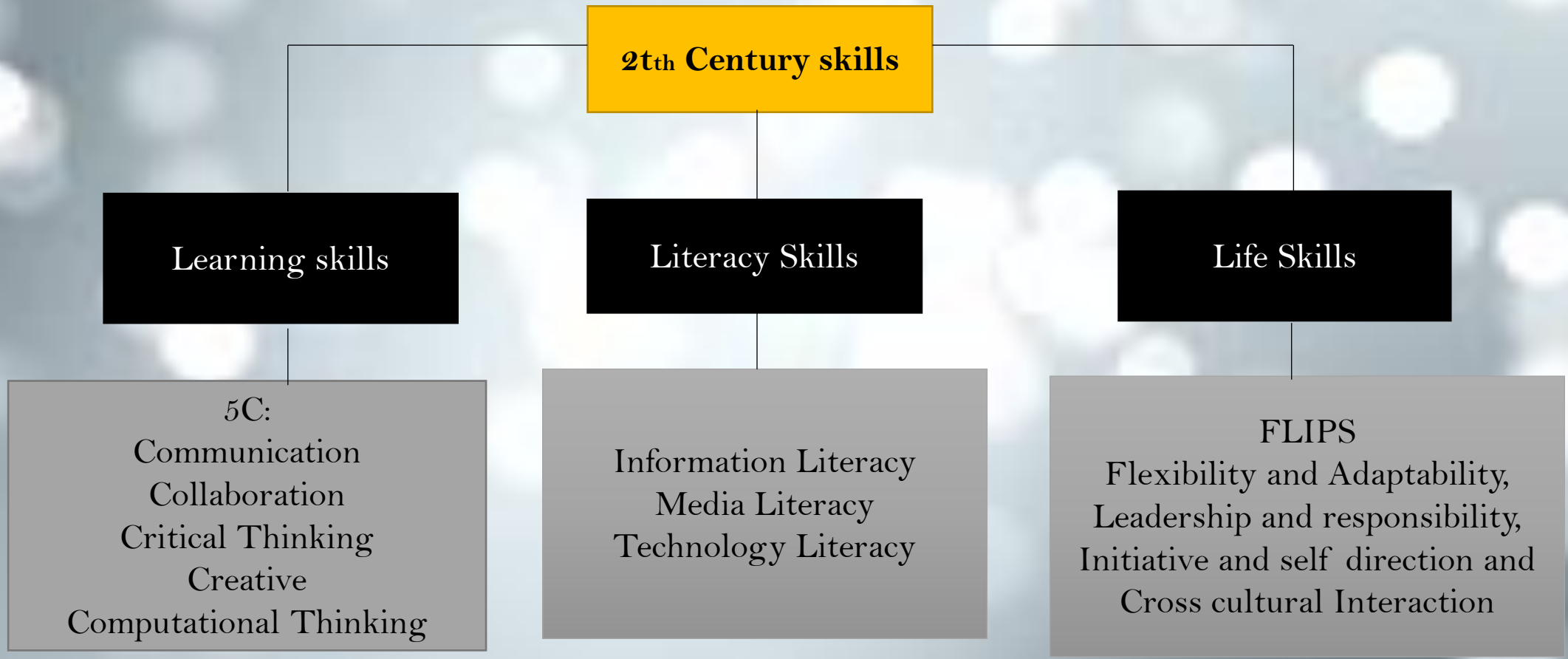
Meaning of 21st Century Skills

The term 21th century skills refer to the broad set of knowledge, skills, work habits and character trait that are believed by educators, school reformers, college, professor, employer sand others-to be critically important to success in todays world.

In simple terms, 21st Century Skills refer to the skills that are required to enable an individual to face the challenges of the 21st century world that is globally-active, digitally transforming, collaboratively moving forward, creatively progressing, seeking competent human-resource and quick in adopting changes

With the onset of the 21st century, the entire world has witnessed an era of intense transformation in all areas, whether it is education, global trade and economy, technology or society. Recently, the covid-19 pandemic is also throwing up challenges for an individual to cope

An easy way to understand and remember the classification is



We need 21st Century Skills because:

- Learning is complete and holistic only when a student is able to effectively perform and fulfil his/her responsibilities and duties towards self, school, family, society and above all, the nation. The goal is to enable today's student to be a good citizen and a responsible human-being who is well-aware of his potential and competence

- Simply teaching to test or learning for exams is not going to help a student face everyday life situations. 21st Century Skills are key to the empowerment of Children and adolescents to deal with the issues and concerns related to their life. They experience a number of feelings, many of which are related to their growth and development from childhood to adolescence and beyond.

- Today, because of rapid economic and social change, schools have to prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that we don't yet know will arise."

The mutual connectedness of Core Life Skills and other components of the 21st Century Skills for the development of an individual's self at various age-levels

Age	Dimensions of Self	Core Skills	21st Century Skills	Learning Outcomes
14-18 Years	Understanding and Accepting Self	Self-Awareness, Decision making, Problem Solving, Managing Emotions, Empathy	Social Skills Critical Thinking, Creative Thinking, Communication, Information/ Technology/ Media Literacy	• Relates to various experiences of growing up that have contributed to their development • Demonstrates and expresses comfort with all aspects of their personality *(including individual differences)* • Accesses information and analyzes it to distinguish between facts and myths • Questions/ Challenges myths and demonstrate behaviour informed by scientific thinking • Demonstrates individual and social identity that s/he values
	Managing and Expressing Self	Empathy, Self-Awareness, Managing Emotions, Problem Solving, Inter-personal relationships	Critical Thinking, Communication, Creative Thinking	• Makes healthy choices related to hygiene, nutrition and physical activity • Analyzes different influences and makes informed and responsible choices *(in the interest of self and others)* • Demonstrates skills to manage emotions effectively • Minimizes stress by identifying and delivering on realistic expectations • Recognizes, resists, challenges, seeks help, reports concerns and incidents of safety and security related to self and others • Analyzes thoughts and does not engage in behaviours that compromise safety and security of self and others • Demonstrates responsible behaviours that minimize risk and reduce harm • Accesses and provides support individually and collectively when required
	Enhancing Self	Self-Awareness, Decision Making, Problem Solving, Interpersonal Relationships, Empathy	Communication, Creative Thinking, Critical Thinking	• Exhibits personal and interpersonal skills necessary for independent living
				• Identifies goals, motivates self, plans and manages resources to achieve them • Motivates self and team members to achieve shared goals • Exhibits language to communicate about their skills, knowledge and career potential.

Integrating 21st Century Skills Into Teaching and Learning

Educators indicated that incorporating 21st century skills into the teaching of core content has a positive impact on student learning and engagement.

Intentional integration of 21st century skills involves backward planning and taking students' interests into consideration

Educators provide opportunities for students to apply their knowledge and skills in real world situations

21st century skills are assessed at the classroom level

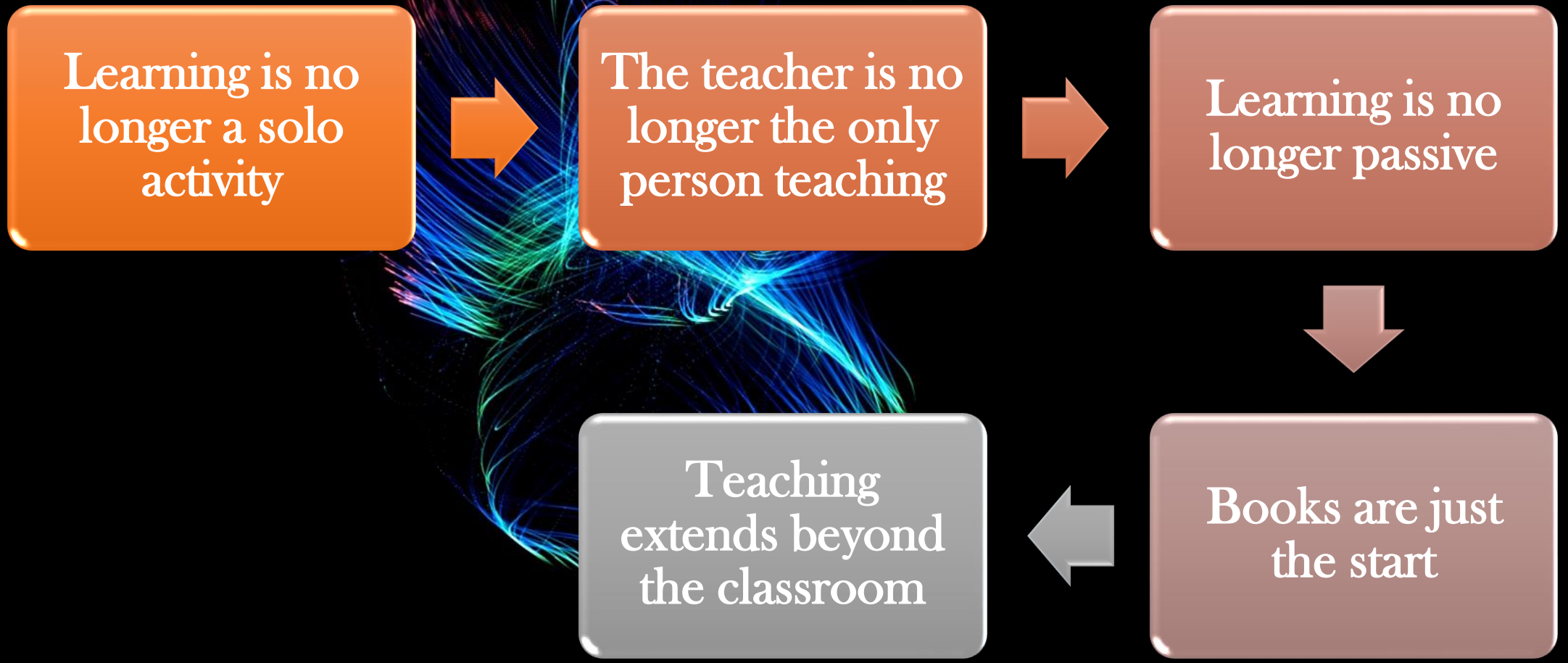
Academic:

1. communication clarity, focus and consideration of audience
2. Demonstrate the ability to solve problem using HoTs reasoning skills
3. Utilize technology as resource to foster creativity enhance communication, increase productivity and access and analyze information

Social: Collaboration and demonstrate adaptability .

CIVIC: Participate as a member of a local, global and digital society

Five key 21st century skills and behaviors that teachers need to think



Find and evaluate authentic web based content.

Use social media for professional development and basic ICT skills

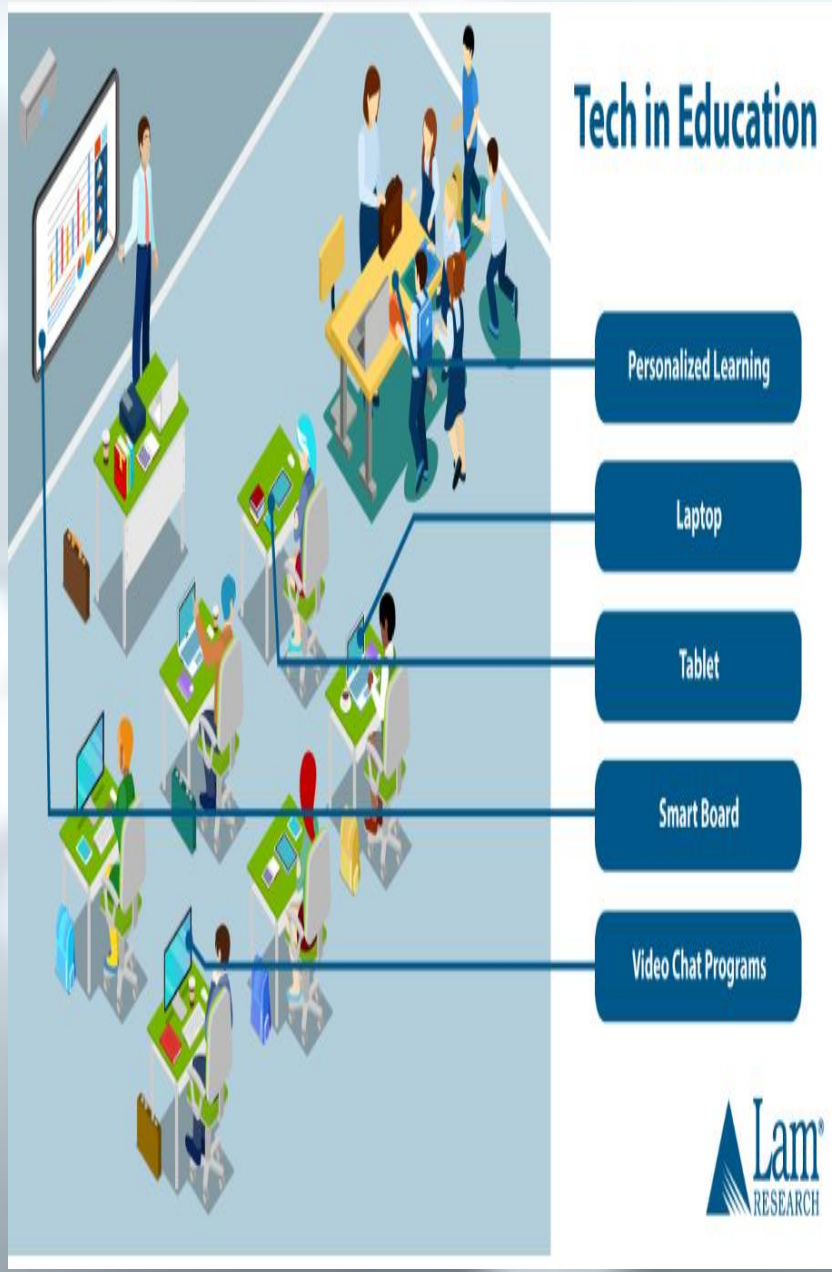
Using software to support critical thinking (March, n.d).

The ability to use digital technologies to effectively communicate information.

Use file-sharing tools to share documents and files with students online.

Creating and posting key course documents online (march, n.d).

The ability to teach using multimodal composing (Miller & McVee, 2013).



Hybrid learning could be key to students transitioning from online to offline

Faisal and Shinta Purnama Sarie
Medan, North Sumatra/Jakarta

PREMIUM Medan, North Sumatra/Jakarta / Sat, March 27 2021 / 01:00 am

Head of the class: A teacher of a state elementary school in Binjai, North Sumatra talks to her students during a weekly in-class instruction on March 11. The face-to-face session is part of the hybrid instruction method the school is adopting to prevent learning loss among students (Courtesy of/Faisal)

Remote learning was conducted via Zoom or Google Classroom to deliver class materials to students, while home visits and classroom meetings were held once a week, for when students had to complete school exercises.

Certainly, hybrid learning would require teachers to go the extra mile. In addition to preparing learning materials, they would need to arrange online and offline learning schedules as well as convince parents to allow their children to attend classes in person once a week.

With the right solution, teachers can instruct remote and in-class students simultaneously, see online students' reactions in real time, answer questions and ensure every student feels like they are in the same classroom,"

Instructional Designs Aggregated into Blended Learning

Choices of Instructional Designs

Assure Model

- The Assure model was develop by Henich and Molenda in 1999. It is a well known instructional design guide using constructivist perspective which intergrated multimedia and technology to enhance the learning environment

- The Assure model is an ISD (Instructional Systems Design) Process that was modified to be used by teacher in the regular classroom. The ISD process is one in which teachers and trainers can use to design and develop the most appriopriate learning environment for their students. You can use this process in writing your lesson plan and improving teaching and learning.

- Incorporates Robert Gagne's events of Instruction to ASSURE for effective use of media in instruction

Preparation Prior to Instruction

Semester before

Analyze learners
Who is the audience?
- General characteristics
- Entire Competencies
- Learning Styles

State objectives

What do students need to learn?
- Learning Outcome Assessment
- Course Rubrics
  - Skill/concept
  - Proficiency/accuracy
  - Conditions of performance

Instruction Begins

Select methods media, materials
What do instructors need to use for face to face, hybrid and online teaching?
- Select Instruction materials
- Produce new materials
- Repurpose existing materials

Semester before

Utilize media materials

How do instructors use the materials?
- Preview materials
- Prepare environment
- Provide instruction

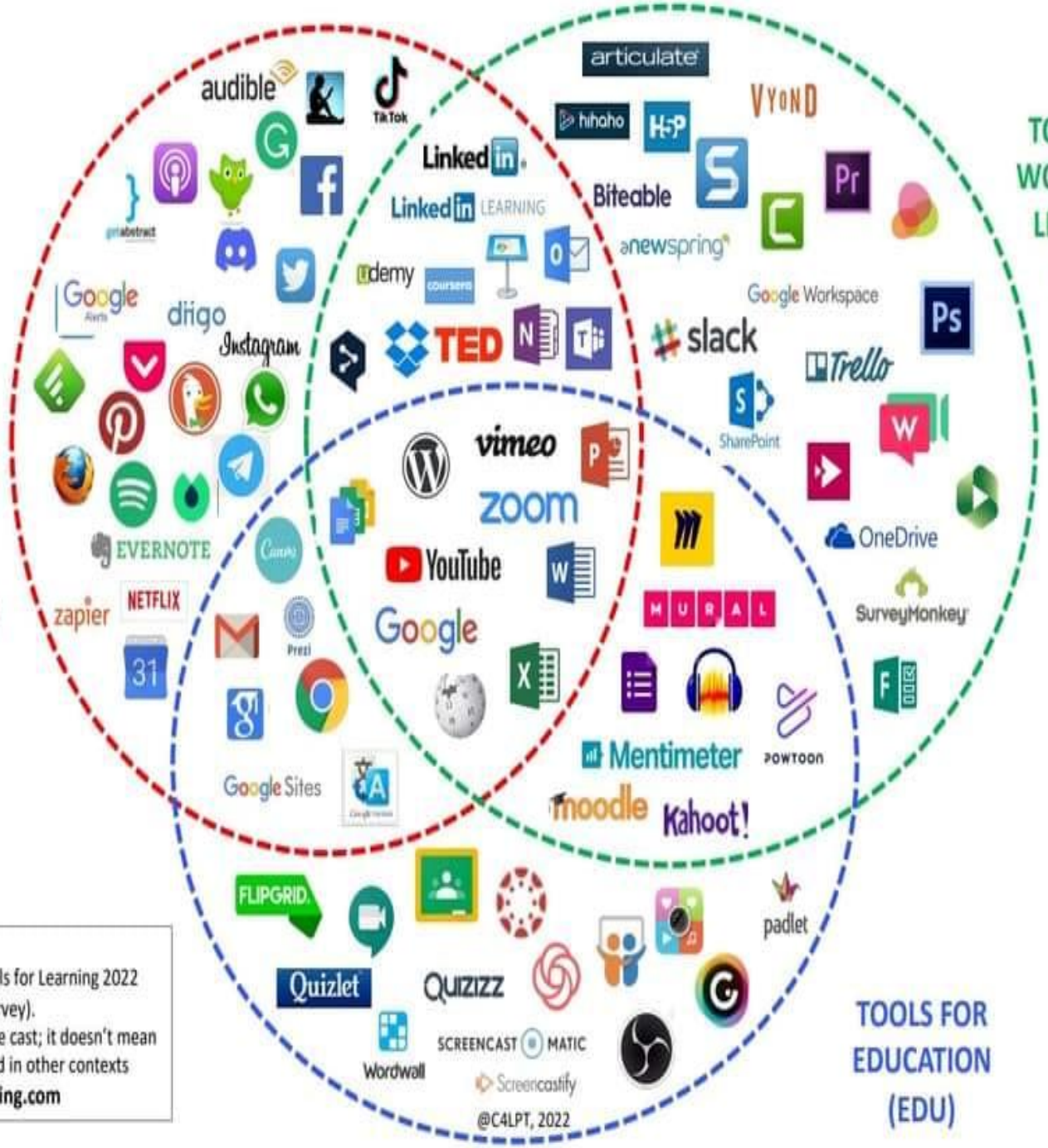
During Instruction

Require learner participation
Students will actively engage in:
- Discussion
- Small group activities
- Formative assessment

End of Semester
Evaluate & revise
What works? What doesn't?
Summative evaluation of:
- Instructional delivery
- Media and materials

Revise to improve student outcomes.

TOP 100 TOOLS FOR LEARNING 2022



TOOLS FOR WORKPLACE LEARNING (WPL)

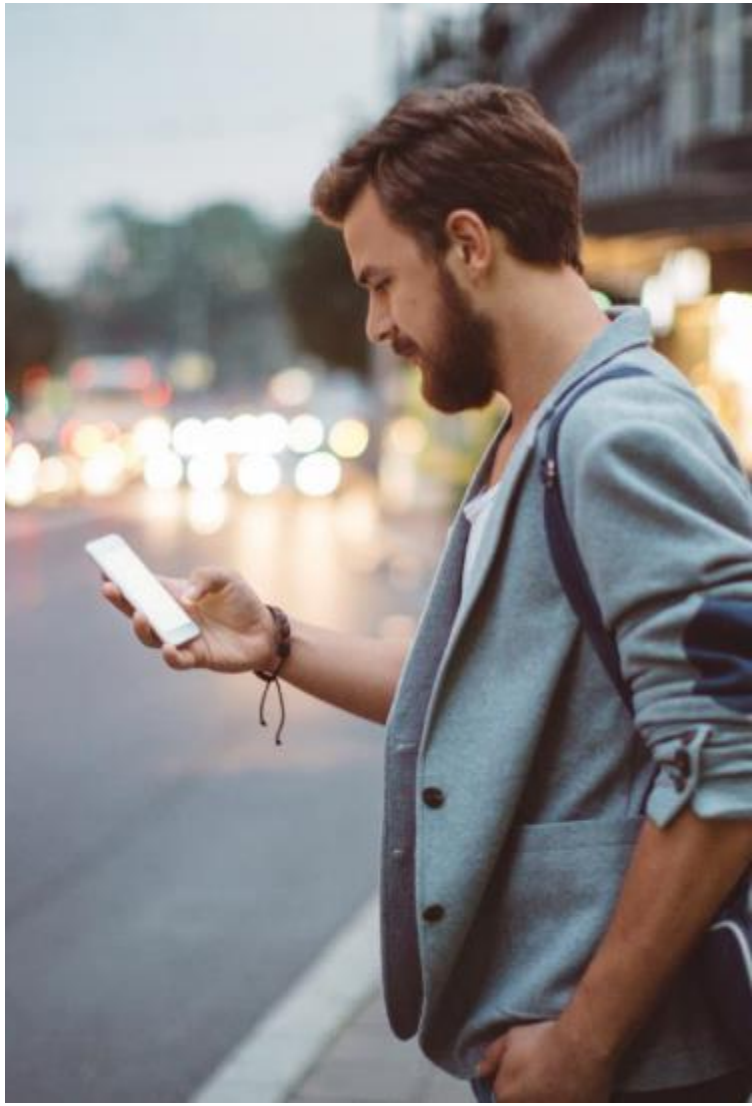
TOOLS FOR PERSONAL LEARNING (PPL)

TOOLS FOR EDUCATION (EDU)

NOTE

Here are the results of the Top 100 Tools for Learning 2022 (from the 16th annual survey).
This graphic shows where most votes were cast; it doesn't mean that these tools aren't or can't be used in other contexts

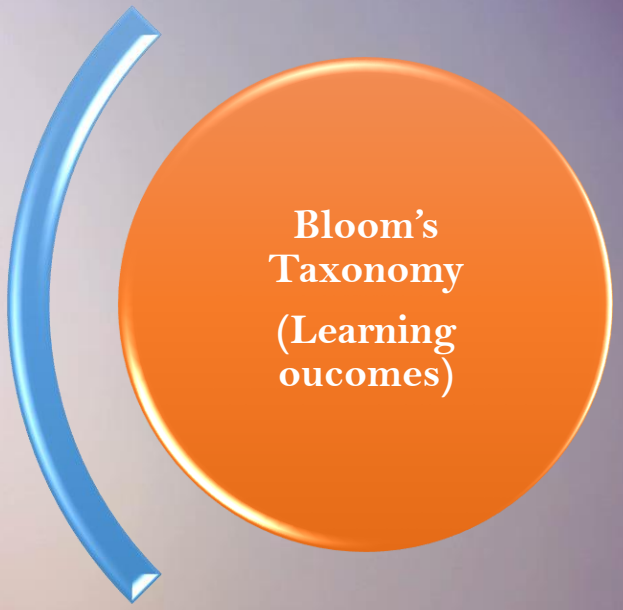
Jane Hart, TopTools4Learning.com



Constructivist Theory

1. Interactive learning environment
2. The learner more active in the creation of meaning and knowledge
3. Students center approach

1. Gain attention of the students
2. Inform students of the objectives
3. Stimulate recall of prior learning.
4. Present the content
5. Provide learning guidance
6. Elicit performance (practice)
7. Provide feedback
8. Assess performance.
9. Enhance retention and transfer knowledge



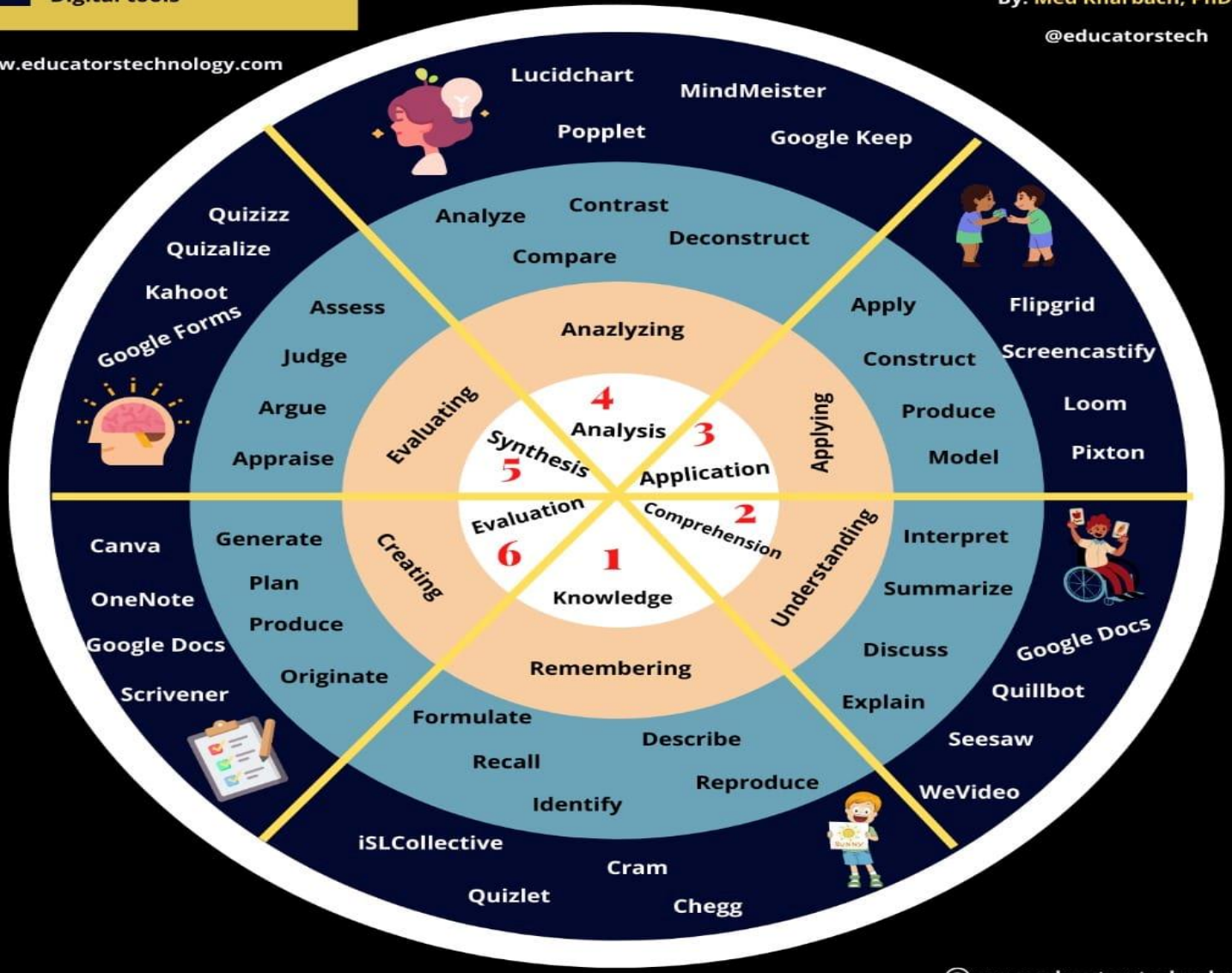
1. Remembering
2. Understanding
3. Applying
4. Analyzing
5. Evaluating
6. Creating

Bloom's Taxonomy Wheel

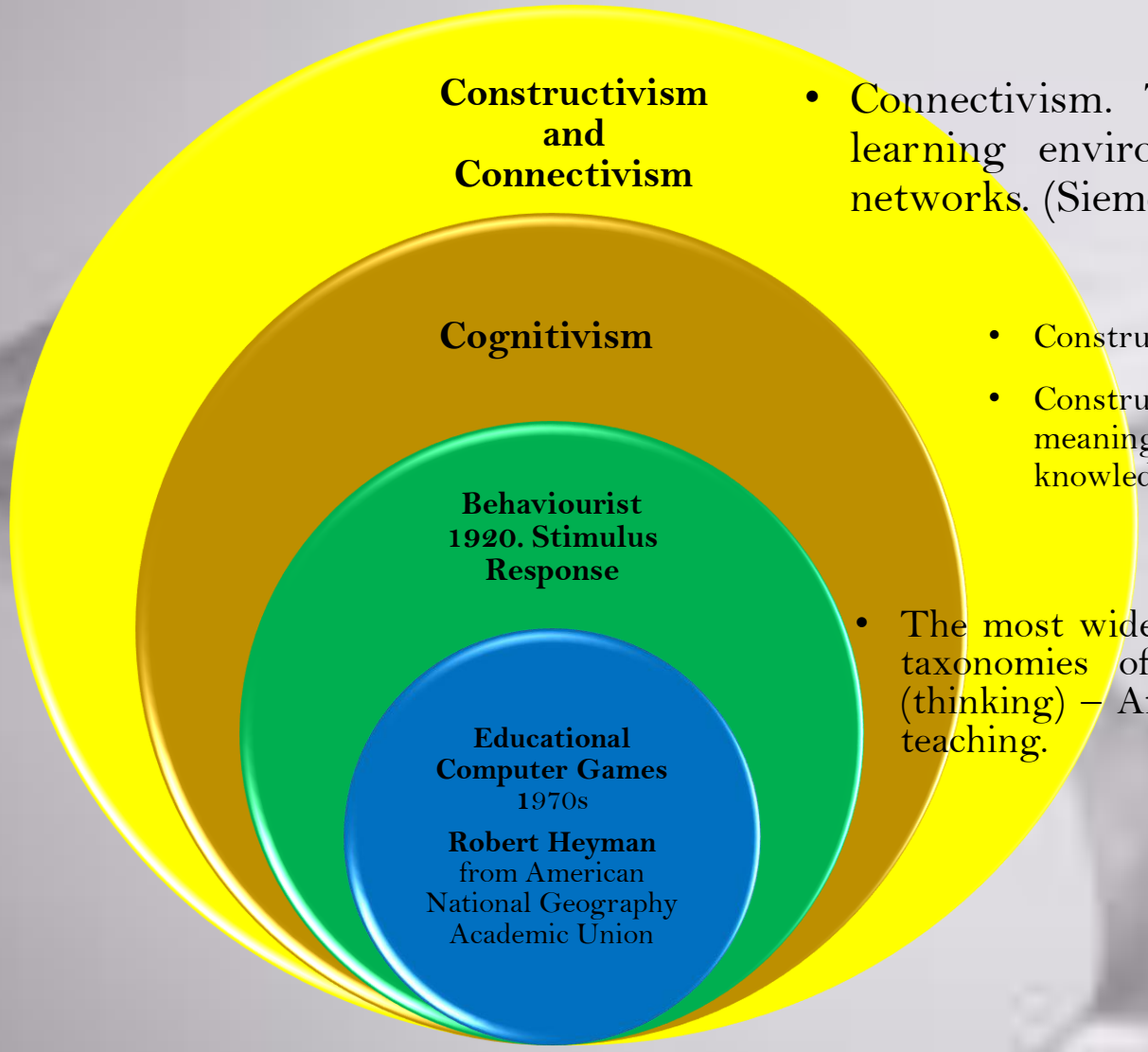
Bloom's original taxonomy
Revised taxonomy
Verbs
Digital tools

By: Med Kharbach, PhD
@educatorstech

www.educatorstechnology.com



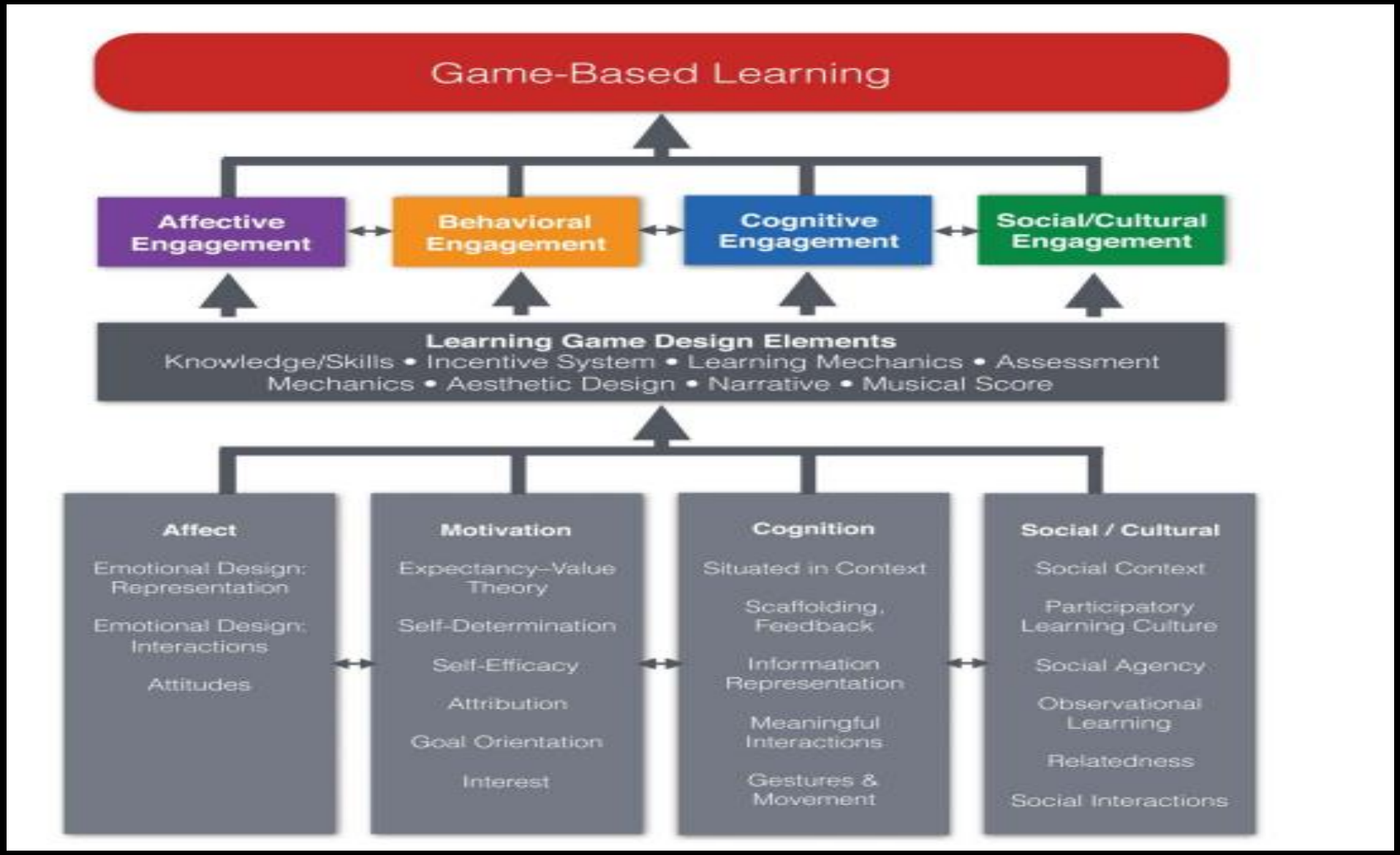
Education By Entertaining Concept



- Connectivism. Teachers help learners construct their own personal learning environments that enable them to connect to 'successful' networks. (Siemens 2004)

- Constructivists believe that learning is a constantly dynamic process
- Constructivist' teachers place a strong emphasis on learners developing personal meaning through reflection, analysis and the gradual building of layers or depths of knowledge through conscious and ongoing mental processing

- The most widely used theories of cognitivism in education are based on Bloom's taxonomies of learning three important domains of learning – Cognitive (thinking) – Affective (feeling) – Psycho-motor (doing) Cognitivist approaches to teaching.

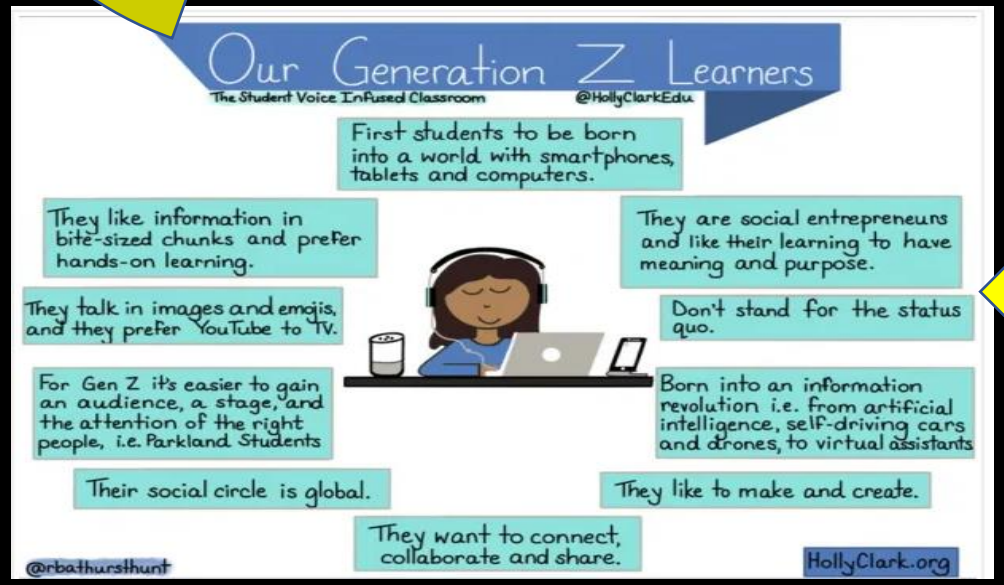

Game-Based Learning
Affective Engagement
Behavioral Engagement
Cognitive Engagement
Social/Cultural Engagement
Learning Game Design Elements
Knowledge/Skills • Incentive System • Learning Mechanics • Assessment Mechanics • Aesthetic Design • Narrative • Musical Score
Affect
Emotional Design: Representation
Emotional Design: Interactions
Attitudes
Motivation
Expectancy–Value Theory
Self-Determination
Self-Efficacy
Attribution
Goal Orientation
Interest
Cognition
Situated in Context
Scaffolding, Feedback
Information Representation
Meaningful Interactions
Gestures & Movement
Social / Cultural
Social Context
Participatory Learning Culture
Social Agency
Observational Learning
Relatedness
Social Interactions

An Investigating Human-Computer Interaction in Classroom

"If we teach today's students as we taught yesterday's, we rob them of tomorrow."

- John Dewey

Your students are not like you. Accept it. Teach differently



Millennials spend their time on mobile:

46% browsing social media platforms

42% watching videos

12% online shopping

Human-computer interaction is about planning, evaluating, and implementing collaborative computer devices for social use, as well as how they work, how they work together, and how people interact with them. It can also mean making or designing computer systems that help people or people do things quickly, effectively, and safely

HCI

Artificial intelligence was envisioned as a virtual tool for use in the ELLA project. Its can respond to speech that is not pre-planned and this is a reflection of the ability to communicate in multiple languages (Canagarajah, 2017) and multiple media (Hawkins, 2018) aspects of human communication and linguistic practices (a) discussing and reflecting on topics that are viewed as socially meaningful, as well as (b) recognizing the learner's position in the discourse

Using virtual reality gadgets and avatars for EFL learning has been shown to have positive benefits on primary school children,. Utilizing virtual reality to teach English as a second language (EFL) was shown to be more effective than using gaming devices or traditional methods, according to the results of the study. However, there may be significant downsides and hurdles to overcome while employing virtual reality in the classroom.

CALL
(COMPUTER ASSISTED LANGUAGE LEARNING)

Any process in which a learner uses a ***computer*** and, as a result, ***improves*** his or her language" (Beatty, 2003: 7).

LANGUAGE IMPROVEMENT

learning efficiency: learners pick up language knowledge or skills faster or with less effort;

learning effectiveness: learners retain language knowledge or skills longer;

access: learners can get materials or experience interactions that would otherwise be difficult or impossible to get or do;

convenience: learners can study across a wider range of times and places;

motivation: learners enjoy the language learning process more;

institutional efficiency: learners require less teacher time or fewer or less expensive resources.

Vocabulary (one of the most common applications)

- Electronic glossing – visible & invisible links to glosses;
- Multimedia glossing - combinations of text, illustration, and video;
- Concordancers, vocabulary level tests, frequency analyzers - Tom Cobb's Lextutor site (www.lextutor.ca) and Edict (http://www.edict.com.hk/concordance)

CALL and the Language Skills

Listening

- multimedia environments (sound & image);
- technologies for supporting meaning: captions, glosses, and explanatory notes;
- access to authentic audio and video through the web;
- connect directly with the local culture of the target language

Speaking

- **Automatic speech recognition (ASR);**
- **Online audio discussion boards & podcasting;**
- **Skype and other VOIP applications**

Pronunciation

- **listen to native speakers models, record and compare their own voices;**
- **speech visualization ;**
- **using ASR to judge how close a learner's speech is to native speakers'**

Reading

- Access to an enormous amount of printed material;
- Online dictionaries facilitate comprehension;
- vocabulary learning;
- promote extensive reading;
- build reading fluency and rate;
- develop intrinsic motivation for reading;
- contribute to a coherent curriculum for student learning;
- embedding of hypertext links and multimedia.

- **Synchronous** - chat, instant messaging, and MOOs (multi-user domain, object oriented) in the text mode and VOIP
- **Asynchronous** - email, bulletin or discussion boards and voice boards in the audio mode

Blogs allowing posted comments and SMS text messaging on mobile phones

RALL (Robot Assisted Language Learning)

Humanoid robots the future education

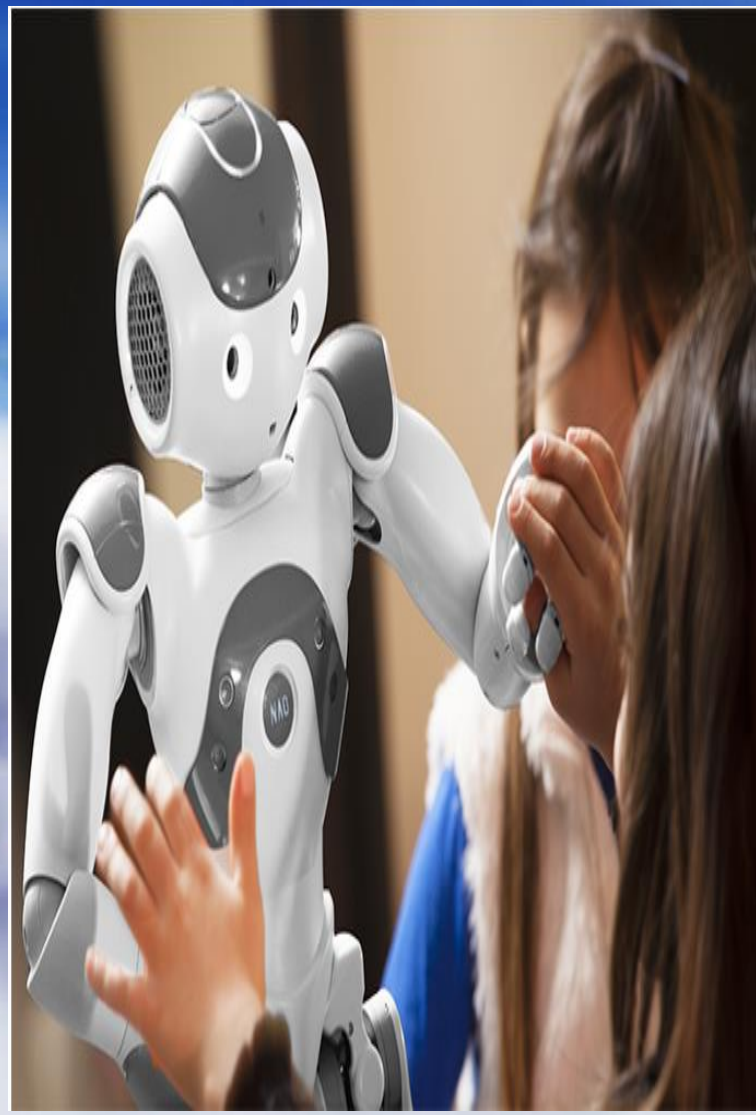
According to Martin Hamilton **[1]** (Jisc's **[2]** resident futurologist), the technology could boost a teacher's potential both in schools and in higher education.

Seldon believes that this type of new technology (such as the introduction of robot assistants and artificial intelligence **[3]** in education) will help in developing a personalized study programme for each student and, in turn, students will benefit more from the classes, attaining attention levels close to 100% instead of the current levels of 20-25%. I

[4] (Seldon, 2018), he assesses the future impact of AI in education. Up until now, the prediction that all jobs may be replaced by intelligent robots in the near future had not gained any major traction in those professions in which personal interaction is an important factor.

However, this is starting to change. Education is already starting to feel the impact, with the use of data to simulate student behavior and develop intelligent tutoring systems.

Although there are already many different robotic devices that teach students to learn different subjects and tasks (from mechanical arms for engineers to simulators), we will focus on how **robots** are entering **classrooms** to teach a variety of subjects, from **languages** (native or foreign languages) to **social skills**.



Robot Lecturer

Table 1. Cognitive and Human Behavior Aspect
In this study used the cognitive behavior aspect adopted from Venkata Achyuth Rao, S., Kumar, S., & Acharyulu, G. V. R. K. (2021) and Zhang, P., & Galletta, D. F. (2006).

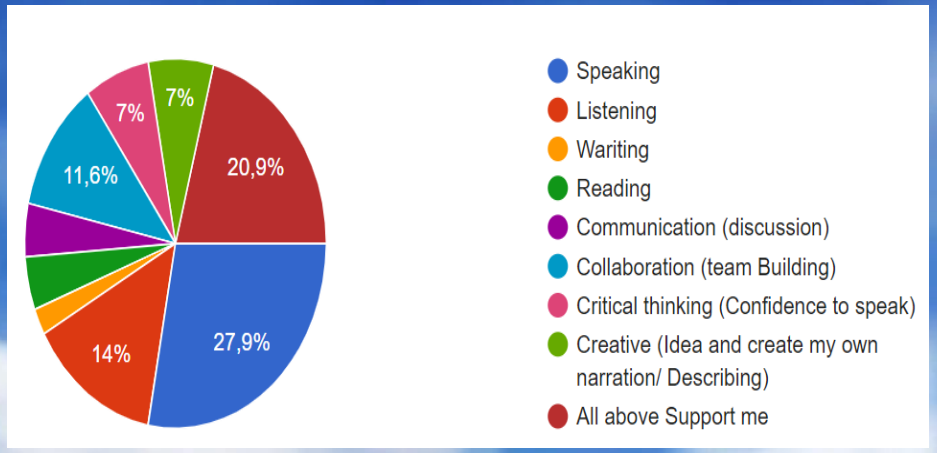
Cognitive Behavior aspect	Human Behavior	
Responsiveness and closeness of the group's participants	Cognition level	Emotion Level
There is a strong interdependence, as well as necessary interactions and interrelations, in the integration;	Cognitive style Perception, Attention Memory, Knowledge Mental models Learning, Error Info-seeking behavior Productivity Performance	Affectivity Intrinsic motivation Extrinsic Motivation Fear, anxiety Excited/bored Happy/sad Satisfaction Flow/engagement
Their feedback is used to an internal abstractive complex coherence;		
Inability to accurately measure or forecast the delayed behavioral responses among the various groups.		

Table 2. The elements of critical thinking Adopt from: Miri, B., David, B. C., & Uri, Z. (2007).

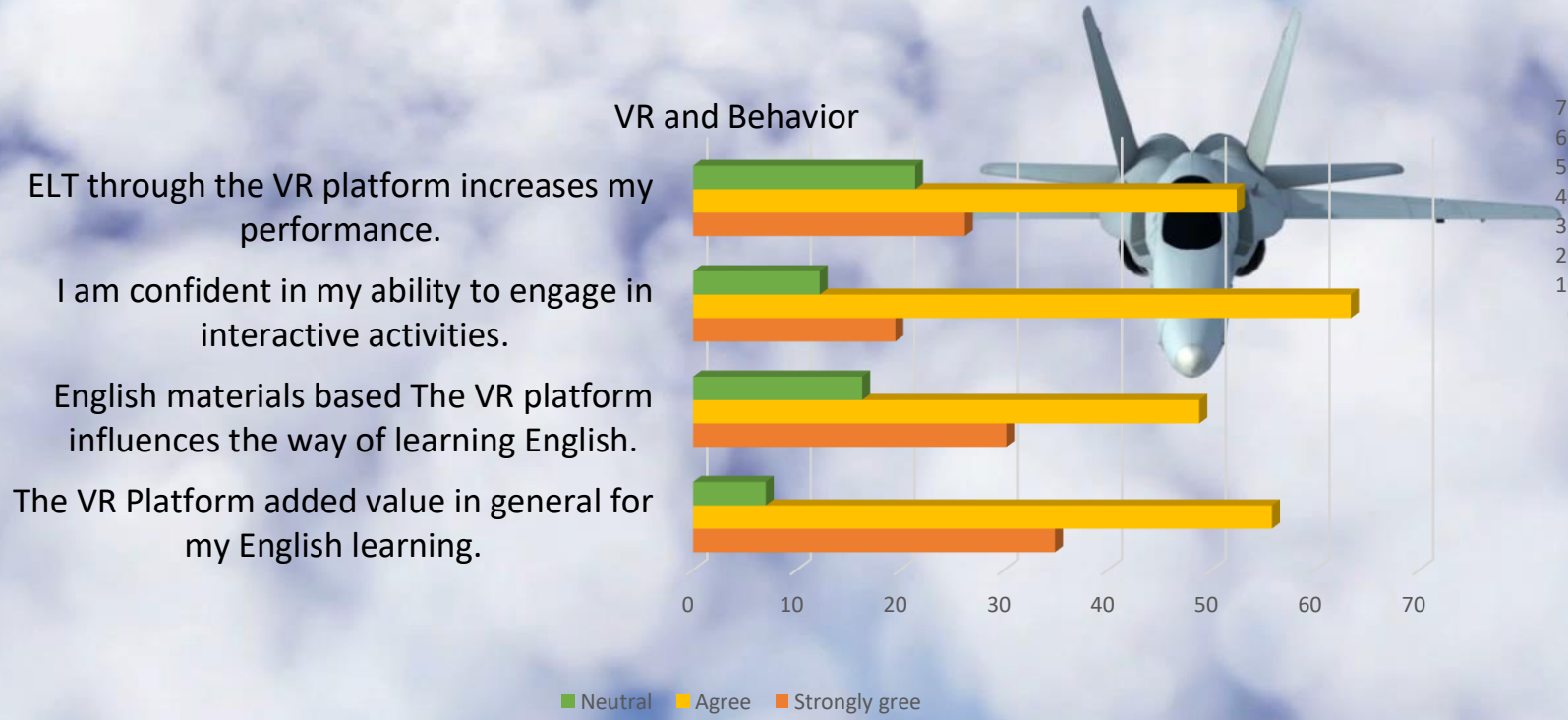
CT	Components	
Trust Seeking	1. Encouraging open ended class discussions 2. Ask question and seek for their own solutions	**Evaluate the Information**
CT-Self Confidence		
Open Minded	1. Fostering Inquiry-Oriented Experiment 2. Learn in cooperation and share knowledge	
Maturity	1. Dealing with relevant/day by day situations 2. Dealing in class with real world cases	

Human Computer Interaction

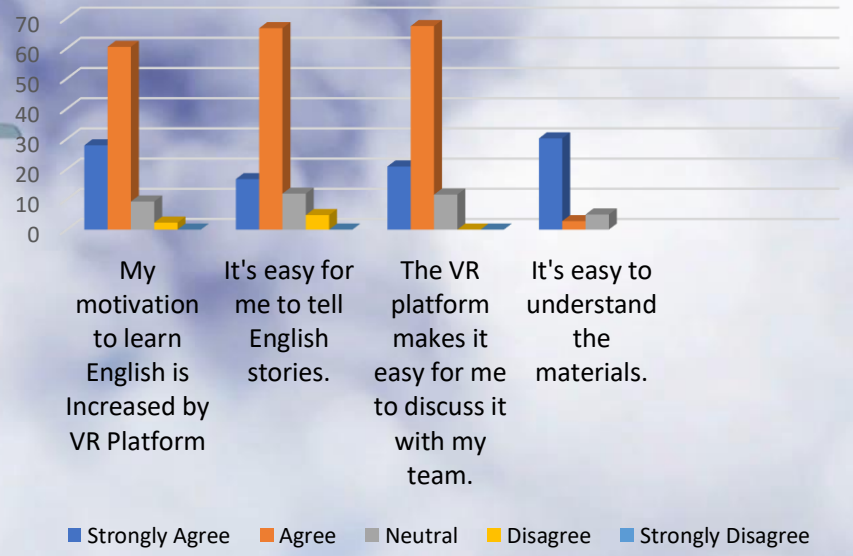
The VR Platform gives me a memorable learning experience in learning English in the form of



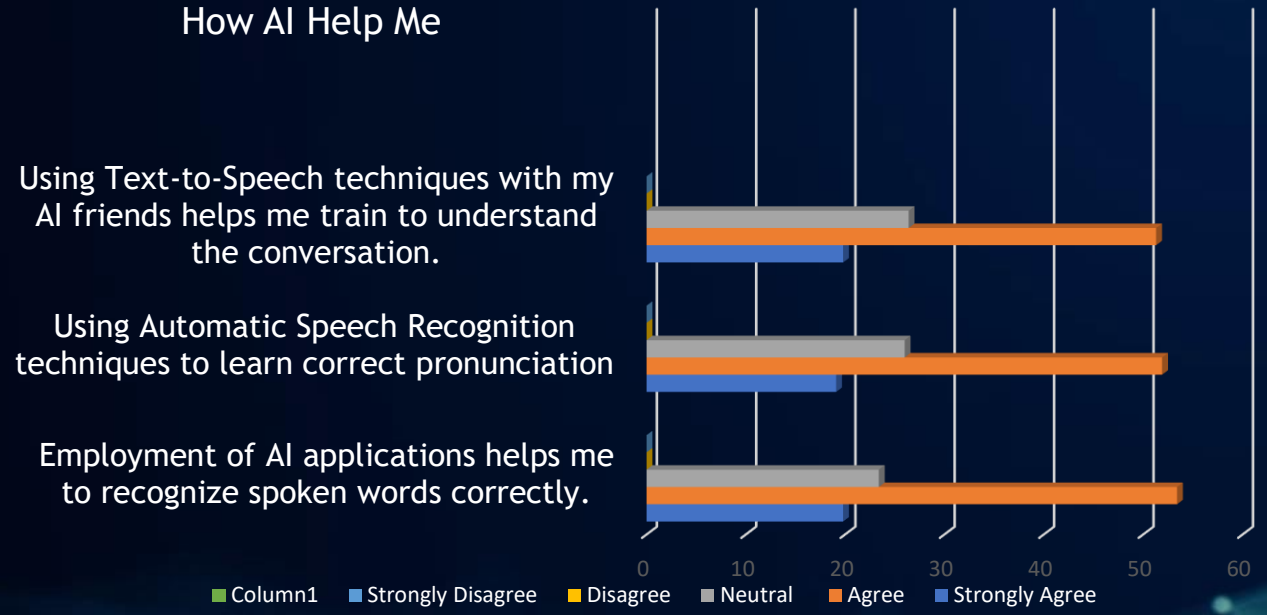
VR and Behavior

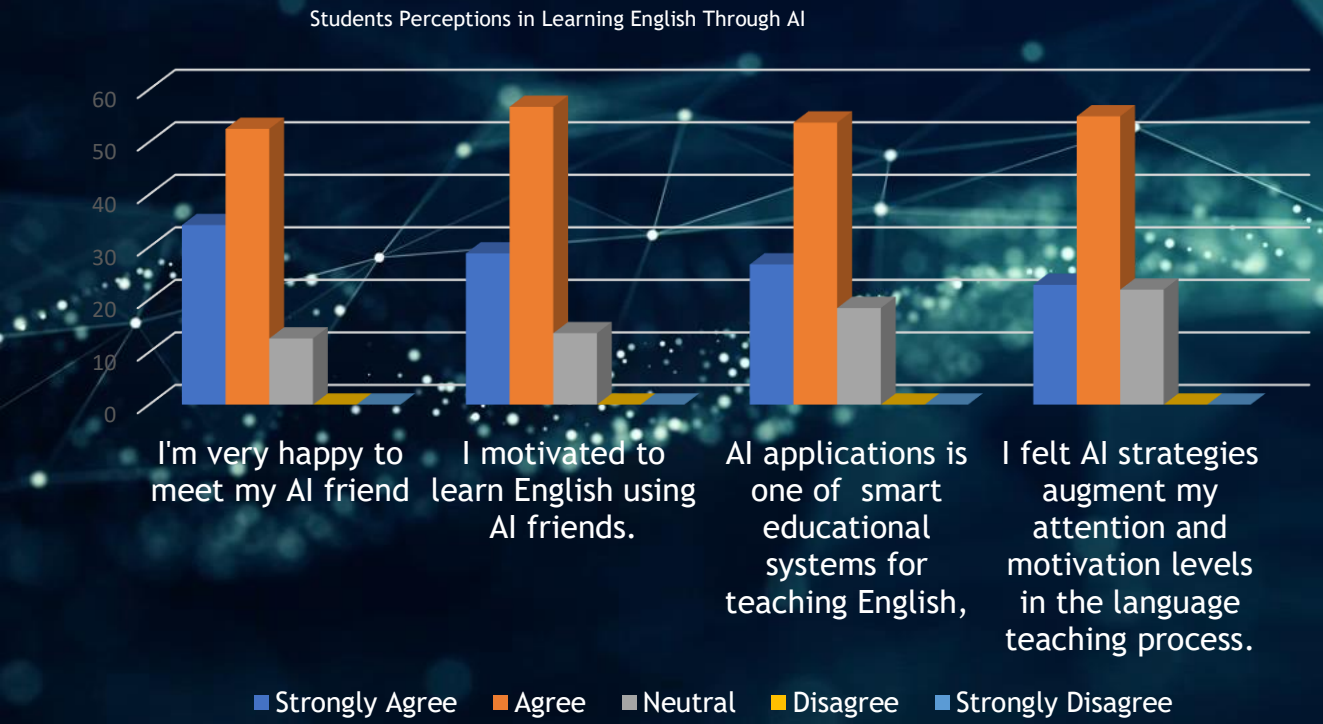


The Usefulness of VR platform

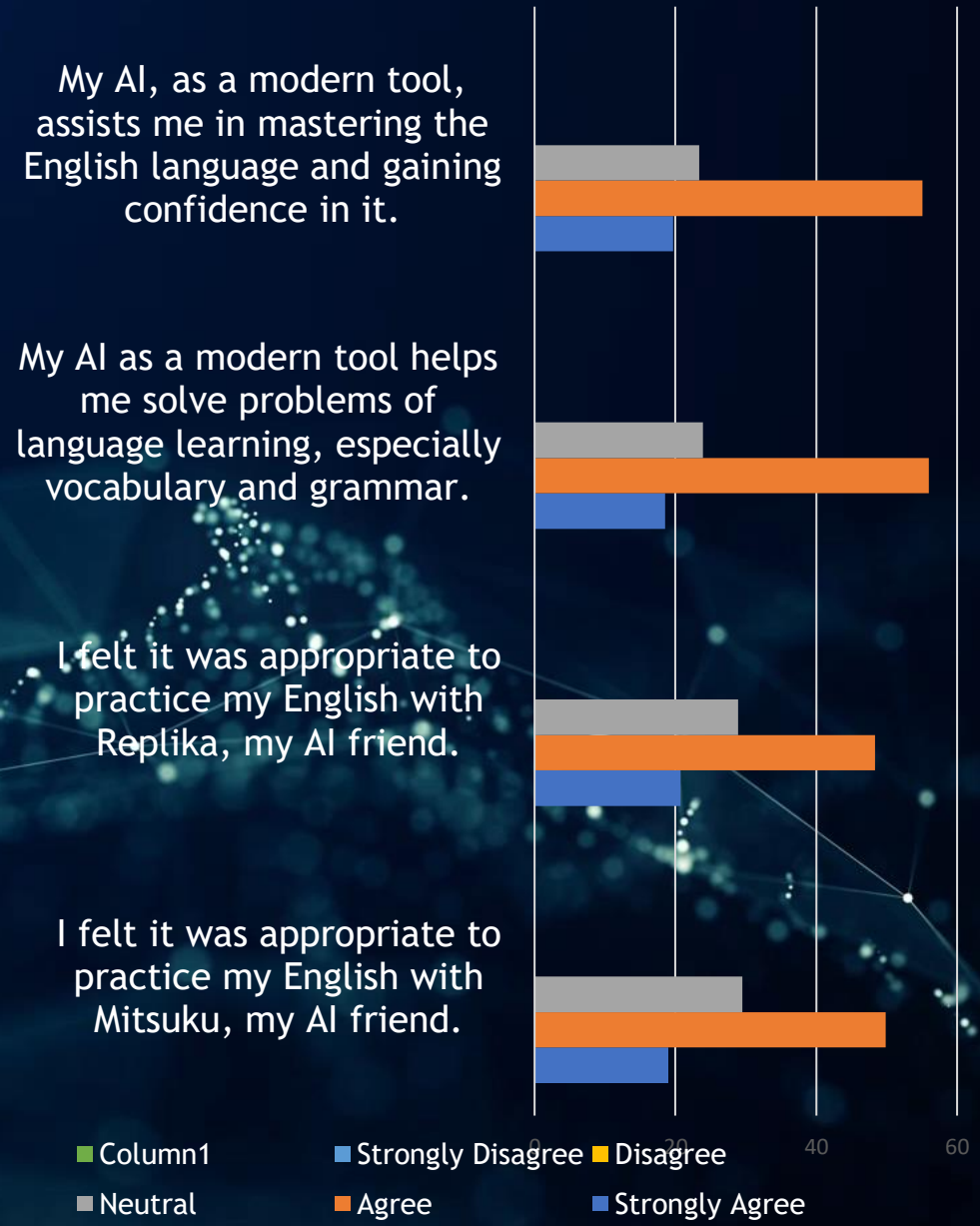


How AI Help Me

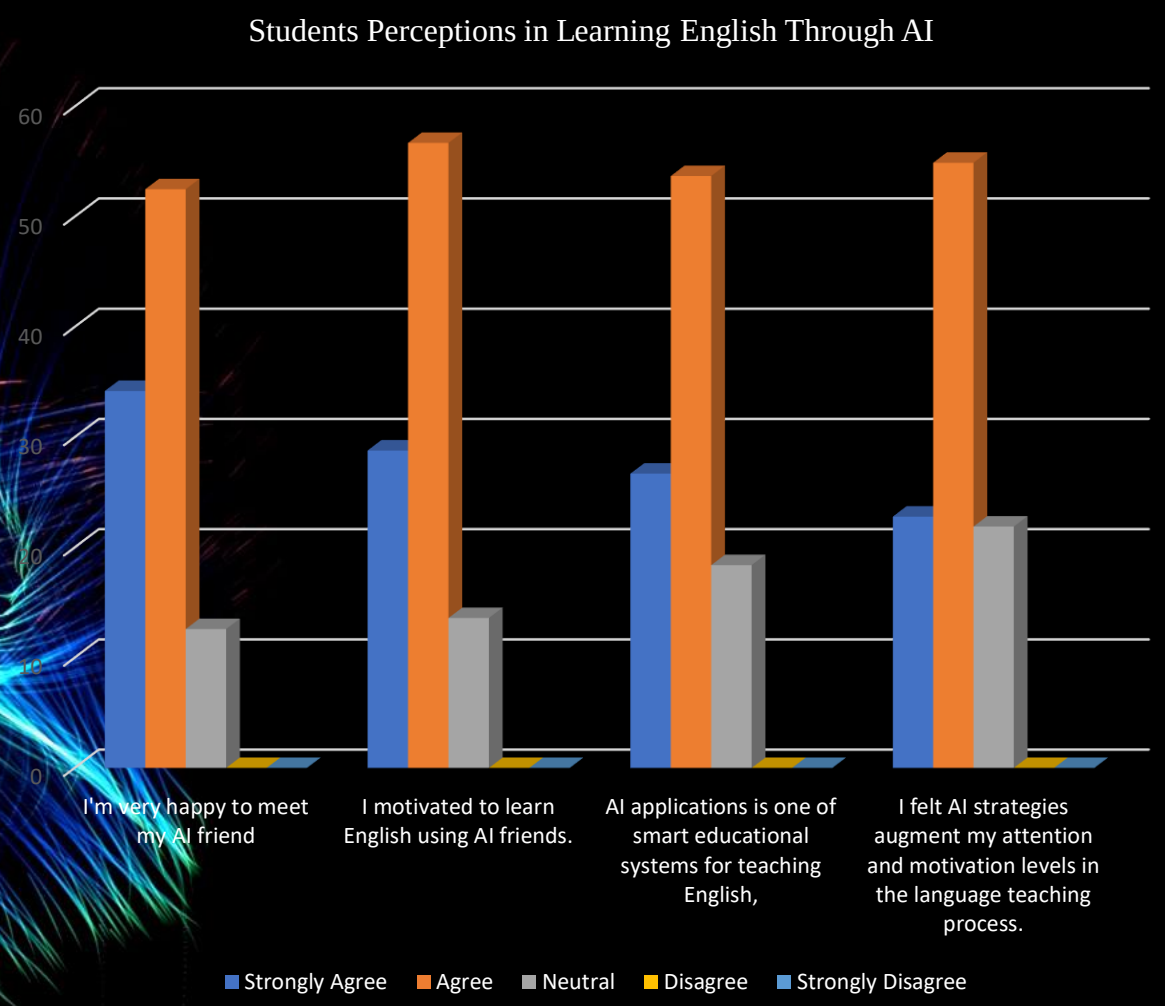


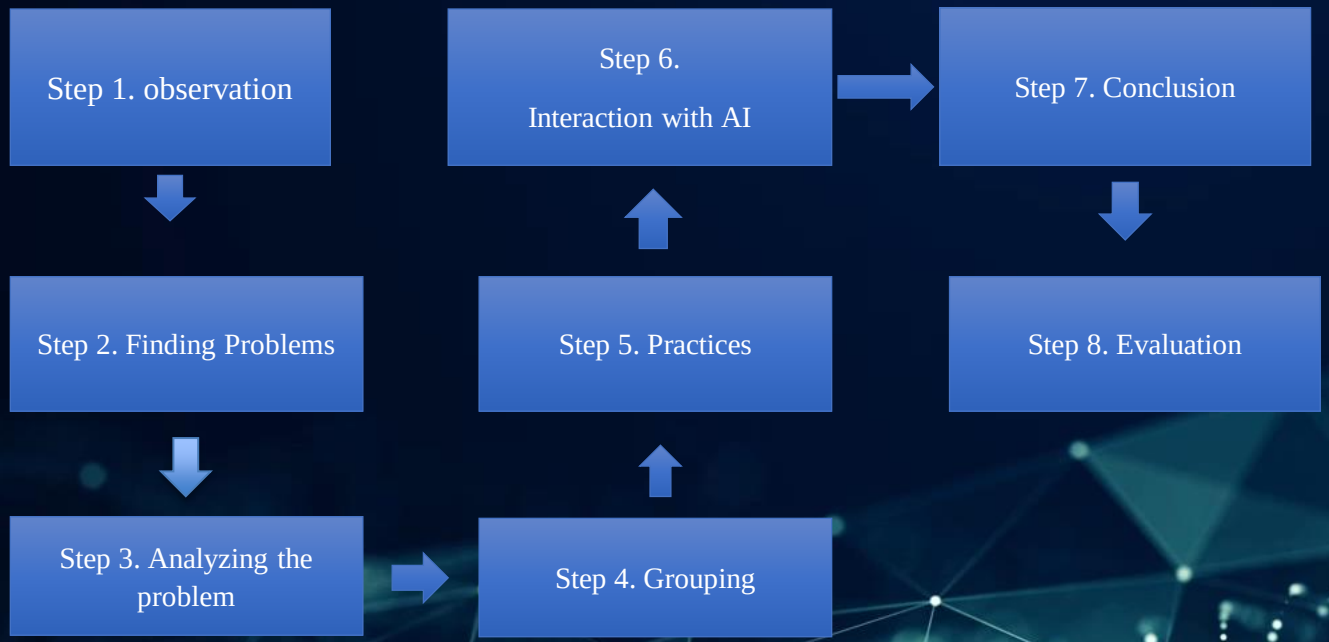


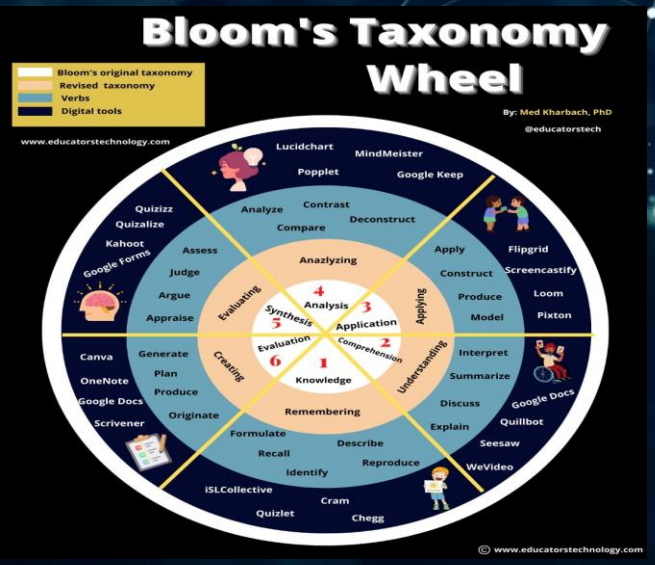
Increase Self-Confidence in English



A total 453 nonnative English students were playing with their AI friends and replied to the questionnaire as a sample of this study. The use of artificial intelligence can help achieve learning goals because, with this medium, students in a class do not only listen to explanations from the lecturer but are invited to think creatively and innovatively.







The first syntactic process is to observe a video containing material about self-introduction. The material is contained in audio-visual form (based on YouTube content),

2nd step students are able to determine the elements of self-introduction contained in the YouTube content that will be discussed

The third step is analyzing the problem, breaking down the content based on the material or problem that has been presented, which aims to enable students to identify and analyze the elements of self-introduction and information obtained from the video

The fourth step is grouping. The lecturer directs students to form groups according to their respective perspectives, then installs the AI friend link that has been shared in the WhatsApp group

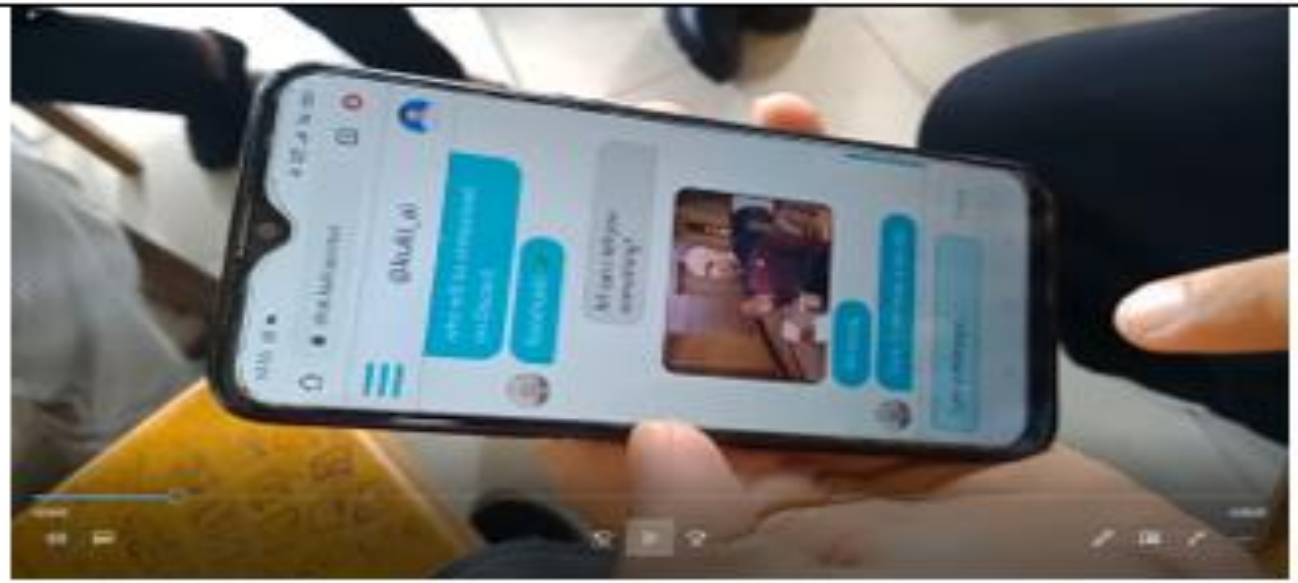
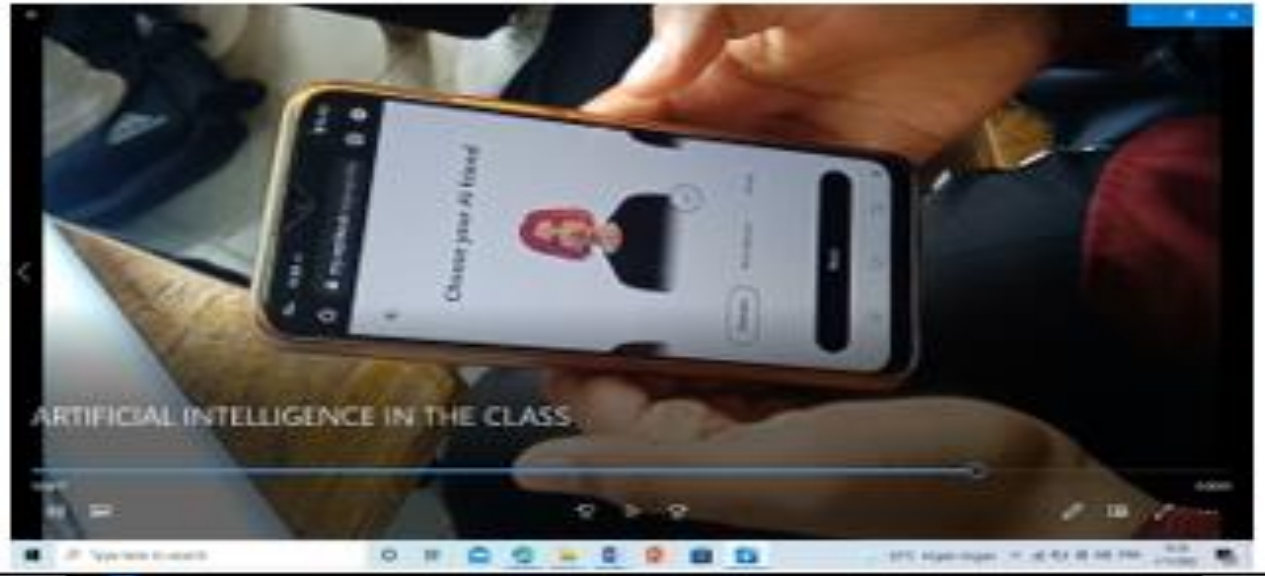
The fifth step is to with their AI friends, presenting their experiences and obstacles when interacting with their AI friends.

The sixth step is to interact simultaneously with the shared AI friends. This step aims to ensure students are able to express opinions and information obtained from problems with AI applications

The seventh step is the formulation of conclusions, carried out by formulating questions

The eighth step is to provide an evaluation at the end of the lesson guided by the lecturer. Evaluation is given at the end of the lesson, which is to provide a comprehensive picture of what students have learned, determine the level of student achievement, and assess the success of the teacher in the teaching and learning process

INTERPRET

Interpret	 	1. Encouraging open ended class discussions 2. build up their confidence in conversation practice	1. ask questions to their AI friends 2. Ask question and seek for their own solutions

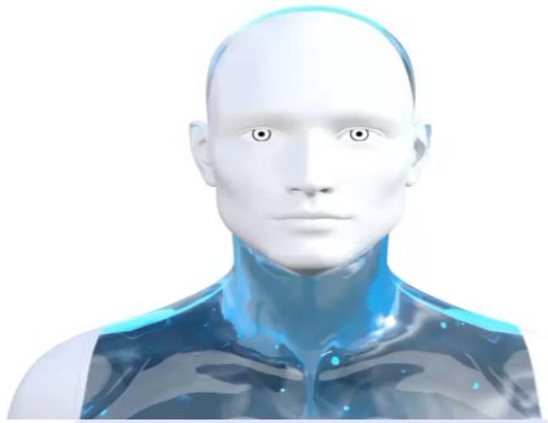
Analyze

Analyze	 	1. Fostering Inquiry-Oriented Experiment 2. Learn in cooperation and share knowledge explain their thoughts and feelings through discussion or reflection	Write English content and interpreted related to the materials

Infer.	  	1.Dealing with relevant/day by day situations 2.Dealing in class with real world cases	

11.03

Brain Bot



Hello human, what would you like to know?

what is your name?

My name is Brain Bot.

are you exposed to water?

You say

none

actions

13:14

Rosie

Hi

Hi nice to see you!

Hi nice to see you!

what is your name?

You say

none

actions

14:36

Alice

Hello. Tell me about your family.

sory I can't Tell it

00.00

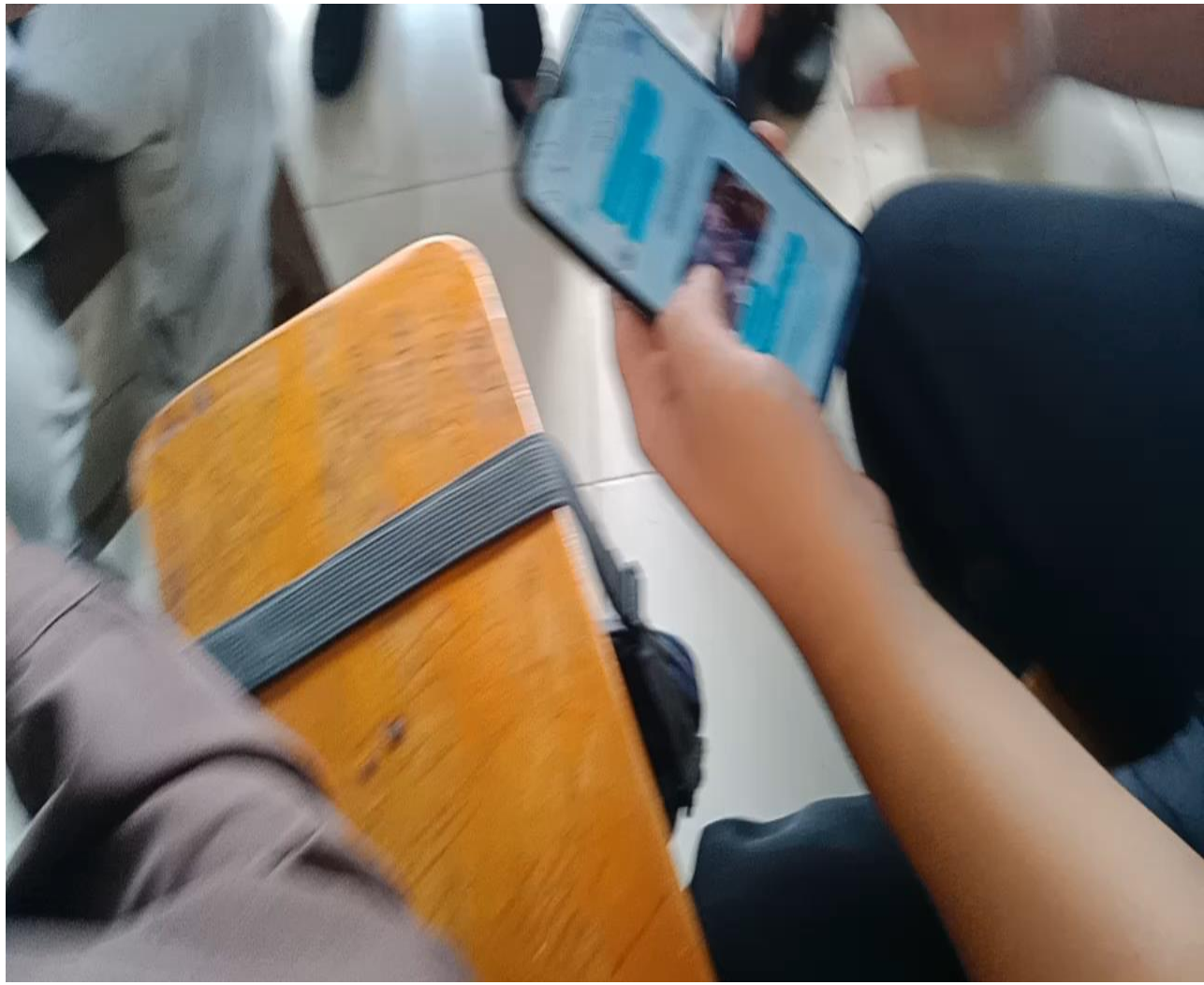
If nothing sticks to Teflon, how do they get Teflon to stick to the pan?

You say

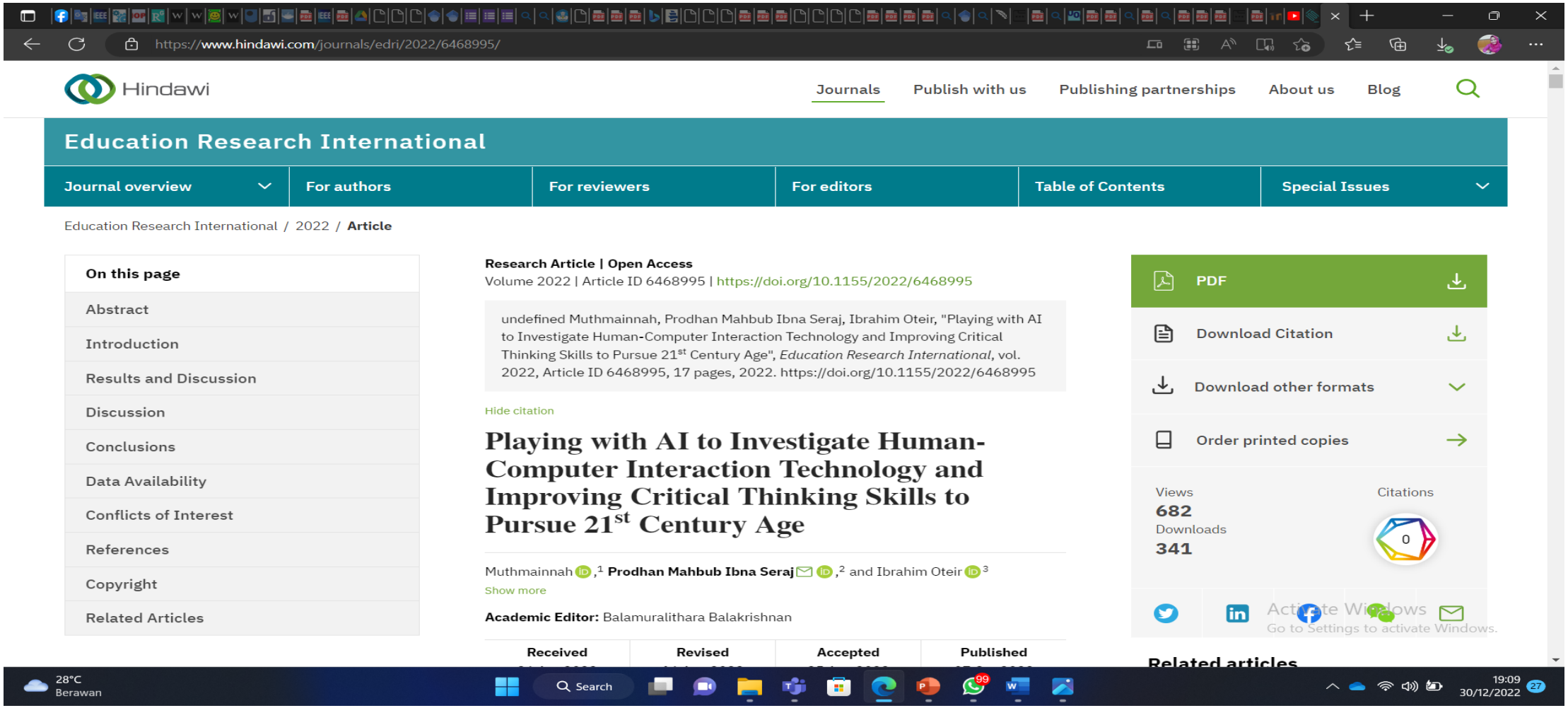
none

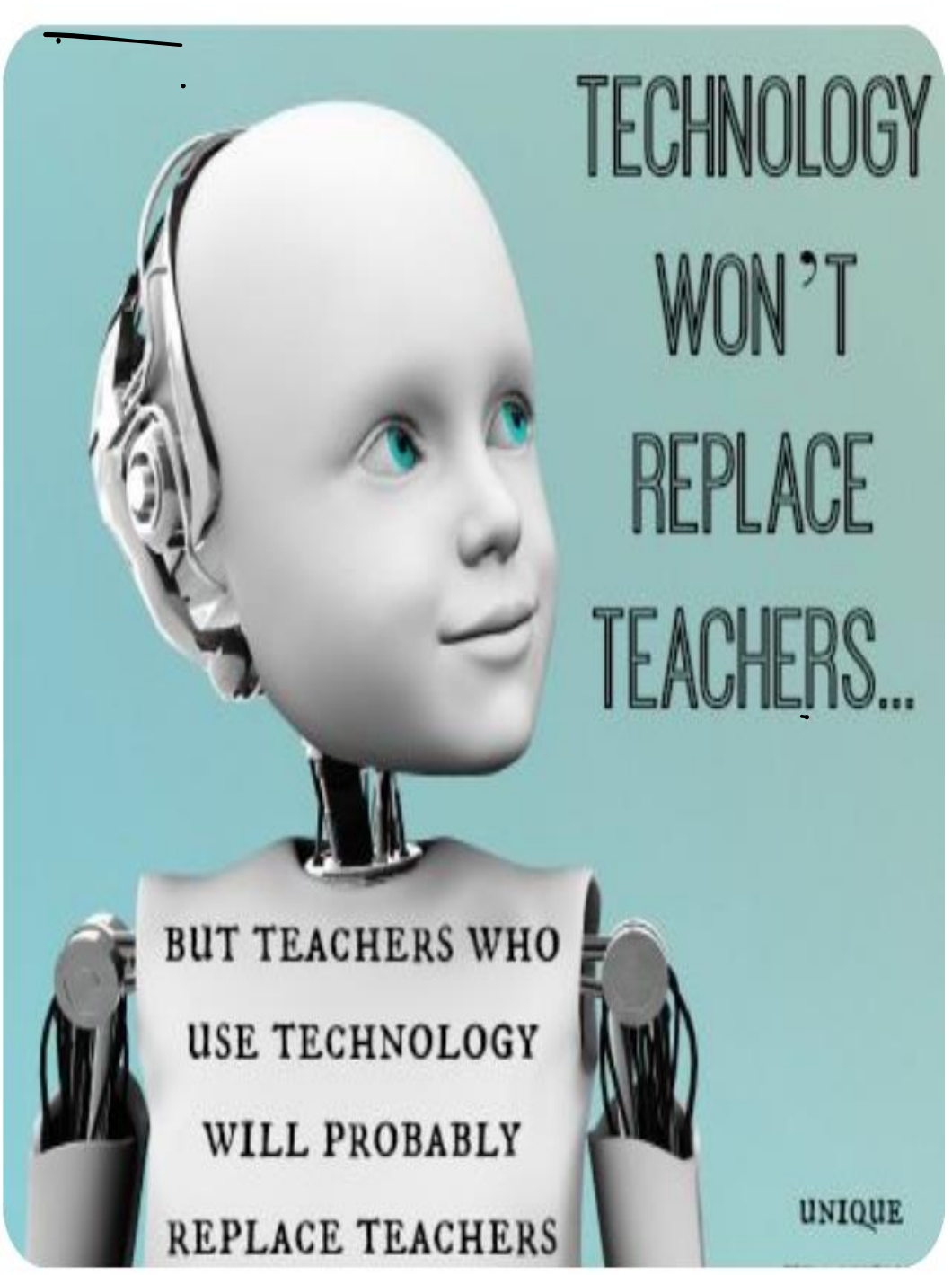
actions

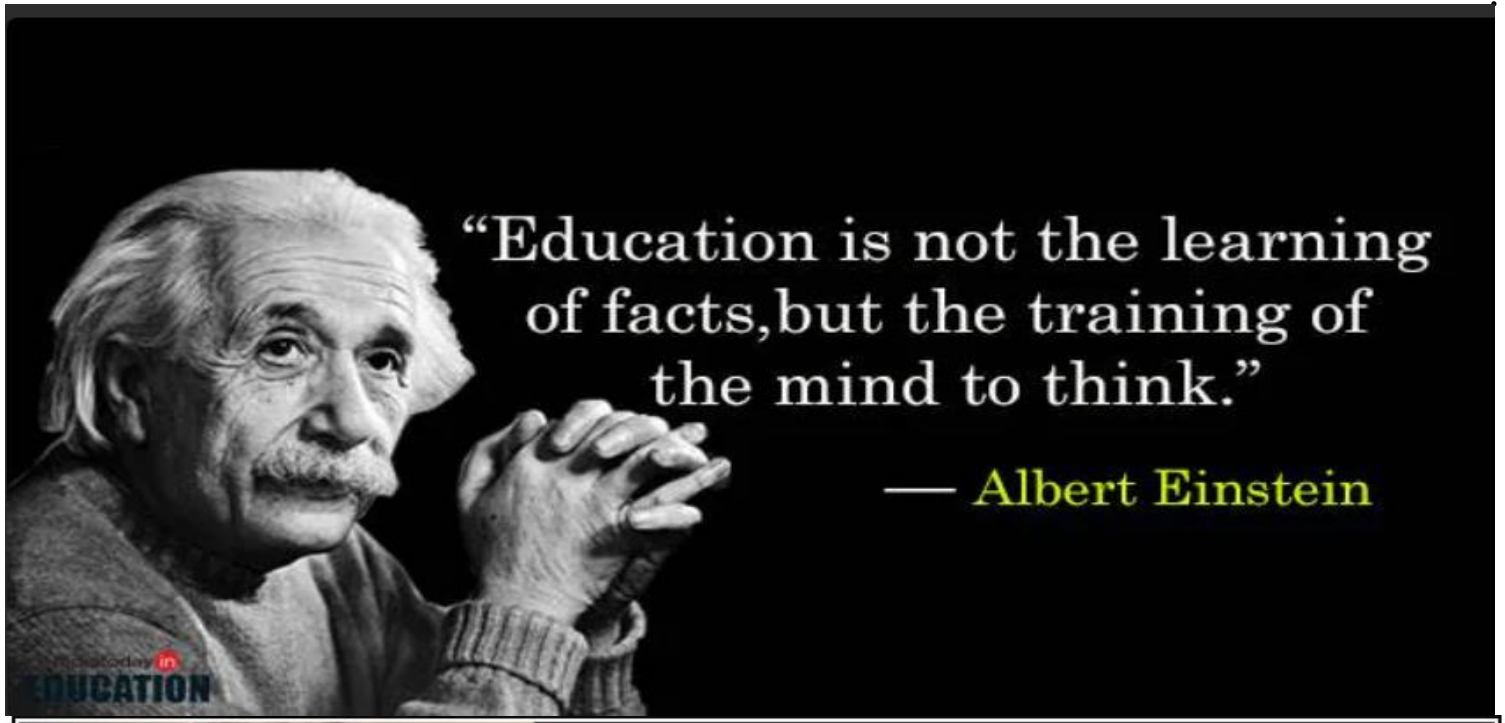
Artificial Intelligence in the Classroom



https://www.hindawi.com/journals/edri/2022/6468995/




TECHNOLOGY
WON'T
REPLACE
TEACHERS...
BUT TEACHERS WHO
USE TECHNOLOGY
WILL PROBABLY
REPLACE TEACHERS
UNIQUE


"Education is not the learning
of facts,but the training of
the mind to think."
— Albert Einstein


Technology is just a tool. In terms of
getting the kids working together
and motivating them, the teacher is
the most important.
— Bill Gates —
AZ QUOTES

Reference

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[3] AI in the rest of the text.

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[5] Muthmainnah, Prodhan Mahbub Ibna Seraj, Ibrahim Oteir, "Playing with AI to Investigate Human-Computer Interaction Technology and Improving Critical Thinking Skills to Pursue 21st Century Age", *Education Research International*, vol. 2022, Article ID 6468995, 17 pages, 2022. https://doi.org/10.1155/2022/6468995


THANK YOU