

ONLINEHE – UPIT

Axis 1: The field of e-learning, state-of-the-art: e-Learning Theoretical Framework / pedagogies for the design and development of online courses

Learning Outcomes Axes	Knowledge	Skills	Attitudes
Axis 1: The field of e-learning, state-of-the-art: e-Learning Theoretical Framework / pedagogies for the design and development of online courses	K1.1. Define e-Learning, its advantages and disadvantages of e-Learning	S1.1. Explain different elements of e-Learning	A.1.1. Instruct trainees by using e-learning to obtain the best courses
	K1.2. Name types of students and instructors in an online environment	S1.2. Identify different types of learners to decide which is most appropriate for your subject area and	A.1.2 Act independently in finding the type of learners to use and combine them in designing online courses
	K1.3. List theories of learning	S1.3. Describe in broad terms the main theories of learning and discuss their implications for e-Learning	A.1.3. Instruct trainees how to determine the learning theories for clarifying curriculum development and delivery

Topic 1. What is e-Learning? Benefits and Challenges

Due to the development of information and communication technology over the past decades, fundamental changes have occurred in educational practices, leading to the introduction of modern teaching and learning methods. The Internet has completely transformed all areas of social and professional life, including education.

E-Learning has emerged as a response to the need for learning and improvement in a modern, dynamic world where information is continuously updated, and every person, regardless of age and occupation, has to learn and improve.

E-learning is education achieved through electronic networks and through the involvement of new communication and multimedia technologies to access educational curricula outside of traditional classrooms. The prefix *e* refers to the term electronic, online, direct connectivity. E-learning can be understood as an innovative, interactive, education-based approach.

E-learning is the set of practices that uses technology-aided interaction to create, provide and enhance learning¹.

The main set of practices are:

- The development and delivery of learning objects as tutorials, video, web pages, designed to be delivered over a network,
- The development and delivery of synchronous and/or asynchronous classroom learning experience
- The improvement of teaching with technology
- The use of technology to enhance access to a collection or provide transactional instruction.

With the increasing integration of e-learning into university courses, there is strong need for practical guidelines and recommendations to facilitate the development and delivery of pedagogically effective e-learning environments. The Internet provides significantly different and interesting possibilities for computer-mediated communication and learning from other forms of educational technologies.

¹ E-Learning and the Academic Library: Essays on Innovative Initiatives, Scott Rice, Margaret N. Gregor, 2016

The advantages of eLearning are:

- Student centered design,
- Student benefit from the possibility of self-paced learning,
- Real-time access to knowledge from anywhere, anytime,
- No geographical obstacles,
- Retention is much higher than traditional education;
- The student can get fast and continuous feedback.
- The teacher can address a much larger number of students than in traditional education
- Interaction with the teacher is unconstrained
- Student progress monitoring, automated testing.
- learning is a social act and we learn better by working together
- the material is accompanied by various teaching aids and it is customized to the previous knowledge and experience of the learner

Among the disadvantages are:

- Preparing an online course is more expensive than a traditional course.
- Lack of high-performance technology resources and optimal, low-performance network connections.
- There are some issues with face-to-face contact, and the lack of direct communication, which are often essential for socializing.
- Not every course can be delivered via eLearning platforms.
- Students must have computer skills, time management skills
- Students need to be highly motivated to take part in online courses.
- Online teachers tend to focus on theory rather than practice

E-Learning can be effective when the computer is properly equipped, when existing Internet connections are fast.

E-learning courses differ in size, selection, in the groups they target, but they have some constant components (fig.1).

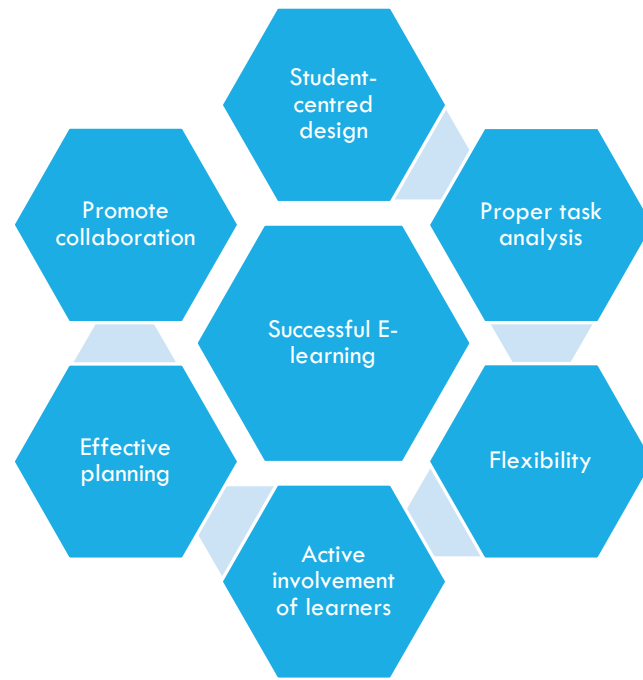
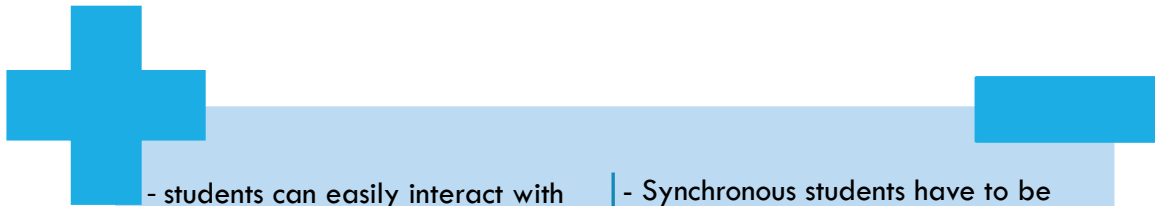


Fig. 1. Successful E-Learning

In online learning, students can use the online learning content they find in various formats (text, video, audio, graphics, etc.) to learn in various ways (synchronous and asynchronous, traditional or blended), using different methods of teaching and technologies, often setting goals, time and learning pace of their own (anytime). Online environments, both synchronous and asynchronous, can promote social development and collaboration skills as well as personal relationships between participants.

E-learning involves asynchronous as well as synchronous modes of communication. Asynchronous and synchronous e-learning are both beneficial for students and teachers.


Synchronous learning is when learning occurs at the same time, but learners don't have to be in person, or in the same location. Teacher controls the lesson entirely, creating, coordinating, adapting and monitoring the educational environment. Examples of synchronous learning are: listening or watching a live broadcast, audio/video conferencing, Live webinars, Instant messaging.

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- students can easily interact with teachers and other learners, making group activities possible.
- Synchronous learning takes place in real time, which means students can get immediate feedback and can share their ideas and opinions.
- If students are having trouble with course content, synchronous learning allows them to ask questions and get answers

- Synchronous students have to be online at a certain time, and therefore they must follow a certain schedule.
- Students can't access content where and when they like.
- Students may feel they are not receiving attention
- Students understanding depends more on the teacher involvement than the students themselves

Asynchronous learning is more student-centered, enabling students to complete courses without the constraints of having to be in a certain place at a certain time, but whenever they choose, and from any location. Examples of asynchronous learning include: Blogs, Email, Pre-recorded video lessons or webinars, Online discussion boards.

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- Asynchronous learning offers flexibility.
- Asynchronous students can learn at their own pace and access their course at any time they choose and from any place.
- With asynchronous learning, students have more time to reflect on the content material they are learning, which means they are likely to understand it more thoroughly

- Contact teacher through asynchronous learning may be limited. Answers to queries cannot be given in real time.
- The lack of interaction with teacher and with other students can create a sense of isolation. This could lead to a lack of motivation and engagement in courses

Topic 2. The role of students and the role of instructors in an online environment

In an E-Learning course, the role of the participant is totally different than in an in-class course. Understand the characteristics and the type of students can help policy makers, educators and

experts to understand what the students expect from the learning management systems. The student has an active role in an online environment compared to a regular classroom.

Online courses often include text, limiting access to some student learning styles. However, teachers can create classes that work with most learning styles and using innovation they can make online classes accessible to all.

Types of learners:

1. The auditive learner

The auditive learners learn best by using their hearing.

In a classroom setting:

- they benefit from listening to lecture and participating in group discussions.
- they benefit from listening to audio recordings.
- to remember something, they often repeat it aloud
- they learn best when interacting with others in a listening/speaking activity.

How to make online classes more accessible to the auditive learner:

- although most information is presented visually (charts, graphs, and images), group participation and collaborative activities are accomplished well online. Establish a study group.
- add weave streaming audio and synchronous web-conferencing into an online course.
- create classroom "lectures" using multimedia framework as QuickTime, capable of handling various format of digital video, picture, sound and upload the lectures to YouTube.

2. The visual learner

The visual learners learn best, when the information is presented visually in a picture/image and in a written.

In a classroom setting:

- they prefer instructors who use visual aids (i.e. black board, PowerPoint presentation) or materials such as film, video, maps and diagrams.
- they relate well information from images and charts to written texts
- they benefit from information obtained from textbooks and class notes.

- they like to study by themselves in quiet environments.

The online environment is appropriate for visual learners because the course is presented in writing, with graphical representations of information (charts, tables, graphs, and images).

How to make online classes more accessible to the visual learner:

- include charts, images, in lessons, announcements, and forums
- use bulleted instructions, listing the weekly assignments. This helps visual learners "see" what is due each week instead of having to read explanations of the weekly requirements
- use bullets also in assignment to give step-by-step instructions
- post a PowerPoint presentation with visual images of each step of the assignment.
- create a forum where students outline a reading and/or assignment and allow them to color-code their outlines to help visual learners organize their thoughts

3. The tactile/ kinesthetic learner

The kinesthetic learners learn by doing things themselves.

In the classroom:

- they prefer to learn new materials in lab setting where they can touch and move materials
- They learn best in physically active learning situations
- They benefit from instructors who use in-class demonstrations

How to make online classes more accessible to the tactile learner:

- simulations with 3-Dimensional graphics can replicate physical demonstrations.
- create online videos that show students how to navigate the classroom, or create a video when you conduct a lab session, then discuss them online
- replace a written assignment with an auditory/video speech
- ask students to create audio or video forum responses

Because learners have different learning styles or a combination of styles, teachers should assess the learning styles of their learners and design online courses using multiple instructional

strategies and activities that address multiple modes of learning in order to improve the probability of successful experiences for each class participant.

The student has the role of the receiver during most of the online classes. Overall, he must acquire the teacher's input and revise it to pass the exam.

Lockdown has led to a rapid transition to online learning formats. Not all teachers and students have been prepared for this transition, which requires the development of measures to adapt. When the shift toward online learning had become a necessity at each level of education, succeeding academically in online learning required a different set of skills on learners' part from the ones they were used to in fac-to-face learning formats². In f2f context, the teacher's presence helps students throughout all phases of learning — planning and preparation; monitoring and supporting the learning process by careful observation and providing timely feedback. The physical presence of the teacher as well as peers has been found to be conducive to transforming learning into emotionally and motivationally process. In e-Learning students are free to decide when to learn, from where and how deep they want to delve into the topic. They have no timetable with appointments and commitments. But there are students who can be overwhelmed by this freedom and who are in need of a stronger direction. Therefore, one of the main reasons why people drop out of E-learning courses is that they have problems getting organized. In this case, teachers can help by tutoring them more closely.

In both on-site and online higher education environments, university students already have a considerable amount of autonomy. They need to plan, monitor, and control their own learning process during self-study and thus engage in self-regulated learning³. Three main categories of learning strategies can be distinguished in self-regulated learning: **cognitive, metacognitive, and resource-management strategies**⁴. Cognitive and metacognitive strategies are used to process information and resource-management strategies refer to managing internal resources, such as effort, time management, attention, and motivation⁵.

Self-learning competence is a key factor in online learning and whether online learning is successful depends on the student itself and on the type of learner behind that student.

² [ICCE2020-Proceedings-Vol2-2.pdf \(apsce.net\)](#)

³ Nelson, T. O., and Narrens, L. (1990). *Metamemory: a theoretical framework and new findings*. *Psychol. Learn. Motiv.* 26, 125–173. doi: 10.1016/s0079-7421(08)60053-5

⁴ Panadero, E. (2017). *A review of self-regulated learning: six models and four directions for research*. *Front. Psychol.* 8:422. doi: 10.3389/fpsyg.2017.00422

⁵ Dresel, M., Schmitz, B., Schober, B., Spiel, C., Ziegler, A., Engelschalk, T., et al. (2015). Competencies for successful self-regulated learning in higher education: structural model and indications drawn from expert interviews. *Stud. High. Educ.* 40, 454–470. doi: 10.1080/03075079.2015.1004236

To make self-regulated learning a success, the student needs a basic set of skills, namely self-organisation, self-motivation and adaptivity to the learning materials.

Self-regulation is not a native characteristic of the individual. It is a learning process that is acquired and must be continuously reinforced. For this reason, many have tried to find teaching methods or models of self-regulation.

Self-regulated learning is defined by Zimmerman and Schunk⁶ as an active and constructive process by which students set their learning goals and exercise monitoring and control over their knowledge, motivations, and behaviors. They are guided in this process by their goals and learning environments. In addition, the self-regulated learner focuses on mastering academic tasks, such as reading grades, preparing for lessons, managing time and meeting deadlines, and improving skills and understanding. He searches for the information he needs and assimilates it.

Strategies and skills to help students master academic tasks and improve their self-regulation

- **Goal Setting.** Setting goals focused on learning allows student to define the range of options and the tools to be used. Therefore, the student can save considerable time starting and completing his learning. In addition, he can judge his progress and whether he has achieved his goal or not because he knows exactly where he wants to go⁷. It is necessary to set achievable goals. These must come from the individual himself and not from another person. Students who set the goal of acquiring knowledge in a subject are more motivated. There are two types of goals, long-term goals (e.g., completing course chapters) and short-term goals (e.g., giving more time to homework).

- **Planning and Time Management.** Students must manage their time and resources and try to prioritize. This planning saves time and energy, but it requires distinguishing between what is important and what is not⁸. The student has to make a plan from his short-term goals to develop a list of steps to be taken. In planning, student must take into consideration potential problems and possibilities to resolve them.

⁶ B. Zimmerman and D. Schunk, *Self-regulated Learning and Academic Achievement: Theoretical Perspectives*, Lawrence Erlbaum Associates, Mahwah, NJ, USA, 2001

⁷ B. J. Zimmerman, "Goal setting: a key proactive source of academic self-regulation," in *Motivation and Self-Regulated Learning: Theory, Research, and Applications*, D. H. Schunk and B. J. Zimmerman, Eds., Lawrence Erlbaum, New York, NY, USA, 2008

⁸ A. Kaplan and E. Lichtinger, "Achievement goal orientations and self-regulation in writing: an integrative perspective," *Journal of Educational Psychology*, vol. 101, no. 1, pp. 51–69, 2009

- **Learning Strategies.** Learning strategies refer to any technical activity or procedure used by students to improve their understanding and performance in a learning task. There are no effective strategies in all situations, but in a given context

- **Automaticity.** It reflects students' commitment to performance. It is necessary to identify a set of practical strategies for a for a specific situation and to use them in similar situations. Self-monitoring is done continuously at each stage of learning.

- **Strategies for Taking Tests.** Good training for a test require good time management, good note-taking, and a regular review of the concepts studied

- **Self-Reflection.** Self-judgment and self-reaction in learning are important to self-regulation. The student should assess the degree of achievement of his preset learning objectives and know how to react to failure.

E-learning allow students to have a source of learning other than the tutor, which encourage them to carry out their research tasks with their strategies to become more autonomous and more self-regulated.

To be effective in helping students to learn in an online environment **teacher has to take on different roles:** pedagogical, social, managerial, and technical role. All of these roles are rarely carried out in totality by the same person.

The major considerations for each role are:

1. **Pedagogical Role** — Helps to support individual and group learning. Such tasks include encouraging students' knowledge-sharing and learning through interactive discussion, designing a variety of educational experiences, providing feedback, and referring to external resources or experts in the field.
2. **Social Role** — Promotes a friendly environment and community feelings to support student cognitive learning processes. It includes developing group cohesiveness, and collective identity.
3. **Managerial Role** — Includes the organizational, procedural, and administrative tasks related to the learning environment. Tasks include coordinating assignments, managing the general structure of courses.
4. **Technical Role** — Helps participants feel comfortable with the system and software used for online courses. Technical duties include sending students to technical support resources, resolving technical problems, diagnosing and clarifying problems, and giving students enough time to learn new programs.

Topic 3. Learning Theories and the Online Environment

Learning theory try to explain and help us understand how students learn; however, the literature is complex and it involves multiple disciplines, including psychology, sociology, neuroscience, and education. We can distinguish three main learning theories – behaviorism, cognitivism, and social constructivism. Learning theories are important in directing, clarifying curriculum development and delivery, as well as instructional design.

1. Behaviorism

As its name implies, behaviorism focuses on how people behave. It evolved from a positivist worldview related to cause and effect. A stimulus (e.g. food, bell) is followed by a reaction. In education, *behaviorism examines how students behave while learning*. More specifically, behaviorism focuses on observing how students respond to certain stimuli that, when repeated, can be evaluated, quantified, and eventually controlled for each individual. The emphasis in behaviorism is on that which is observable and not on the mind or cognitive processes.

The development of behaviorism is frequently associated with Ivan Pavlov, famous for his experiments with dogs, food, and audible stimuli, such as a bell. The best-known experiment is “Pavlov’s dog”. In this experiment the dog was exposed to two different stimuli: a bowl full of food and a ringing bell. The dog learned to associate food or feeding time with the sound of the bell and began to salivate. The effect of the stimuli was measured by checking the dog’s salivation. In the beginning the dog’s salivation doesn’t increase when the bell rings, but in the end it does. The term for this is classical conditioning. During the course of this experiment the dog learns to connect food and bell.

Pavlov conducted his experiments in the early 1900s and they were replicated by many other researchers throughout the 20th century. John B. Watson, among the first Americans to follow Pavlov’s work, saw it as a branch of natural science. He argued that mind and consciousness are unimportant in the learning process and that everything can be studied in terms of stimulus and response. Other major figures associated with behaviorism are B.F. Skinner and Edward Thorndike. Skinner introduced what he referred to as operant conditioning which emphasized the use of both positive and negative reinforcement (reward and punishment) to help individuals learn new behaviors. A result of this attitude of learning is the de-contextualizing of learning content. This was quite different from Pavlov, who relied on

simple reflexive responses to specific stimuli although both Pavlov and Skinner promoted repetitive behavior that leads to habit formation. Based on these types of experiments with animals, behaviorists proposed that learning is influenced by associations between behaviors and consequences. Behavior is conditioned by the instructor through rewards or punishment to obtain the desired learning outcomes. According to behaviorists, the types of reinforcement are a critical component to learning because individual learners respond to different reinforcement based on their personal motivations, such as grades. Poor grades are a negative reinforcement, which provides motivation for the learner to put in more effort in order to receive a better grade. Behaviorists focus on "identifying small, incremental tasks, or sub skills that the learner needed to acquire for successful completion of instruction, designing specific objectives that would lead to the acquisition of those sub skills, and sequencing sub skill acquisition in the order that would most efficiently lead to successful learner outcomes"⁹.

How can you use Behaviorism in online courses?

- apply positive stimuli;
- compliment students individually for all the obstacles they overcome when studying and all the progress they make;
- show the students of your course, that you are glad they take part. Also try to show your own excitement about the subject;
- motivate the students and create a friendly environment in your course.

2. Cognitivism

Cognitivism is a theory from the field of psychology. Cognitivism has a wider perspective on the learning process of humans than Behaviourism. Cognitivism says, that there are not only stimuli to consider but also internal processes (“cognitive processes”).

Cognitivism has been considered a reaction to the “rigid” emphasis by behaviorists on predictive stimulus and response (Harasim, 2012, p. 58). It promoted the concept that the mind has an important role in learning and try to focus on what happens between the environmental stimulus and student response. Motivation and imagination are critical elements of learning that bridge environmental stimuli and student responses. For example, Noam Chomsky (1959)

⁹ Tennyson, R. D., & Elmore, R. L. (1997). Learning theory foundations for instructional design. In R. D. Tennyson, F. Schott, N. M. Seel, & S. Dijkstra (Eds.), *Instructional design: International perspectives, Vol. 1. Theory, research, and models* (pp. 55–78). Lawrence Erlbaum Associates Publishers.

wrote a critical review of Skinner's behaviorist work in which he raised the importance of creative mental processes that are not observable in the physical world.

Cognitivists are using words like short term memory, long term memory and stimuli. Cognitivism is about collecting, adapting, and integrating information.

The focus is on the way students are learning, not only at the outcome of the learning process. Techniques like mind mapping are used to anchor the information.

Cognitive approaches to learning, with a focus on comprehension, abstraction, analysis, synthesis, generalization, evaluation, decision-making, problem-solving and creative thinking, fit better with higher education than behaviourism. A cognitivist approach would mean focusing on teaching learners *how* to learn, on developing deeper and constantly changing understanding of concepts and ideas.

How can you use Cognitivism in online courses?

- perceive and attend to information
- rediscover existing information from long-term memory
- apply information in real life
- support student motivation
- use different learning strategies and ways to adapt to diverse learning styles

3. Constructivism

Constructivism theory emerged in the 1990s and was influenced by John Dewey, Jean Piaget, and Lev Vygotsky. In constructivism learning is more active than in behavioral and cognitivist theories. The main idea of constructivism is that human knowledge is built through exploration, with individuals building new knowledge based on prior learning. The social constructivist underlines that knowledge and new ideas are constructed through social interactions.¹⁰ The theory perceives students as active individuals in knowledge development. Students are encouraged to discover for themselves what they have to do, to correlate new information to existing knowledge to generate new meanings. Social constructivism highlights that learning is influenced by environmental factors such as politics, religious beliefs, values and other sociocultural factors.

¹⁰ *eLearning Tools at the University of Botswana: Relevance and Use Under COVID-19 Crisis*, Poloko N. Ntshwarang, Tumani Malinga, Nonofa Losike-Sedimo, <https://doi.org/10.1177/2347631120986281>

Online learning is derived from a Constructive perspective.

How can you use Constructive in online courses?

- Use of visualization tools, concept map tools, internet resources
- Incorporate multimedia tools, spreadsheets, simulations
- Support social interaction and collaboration through forums, web conferencing

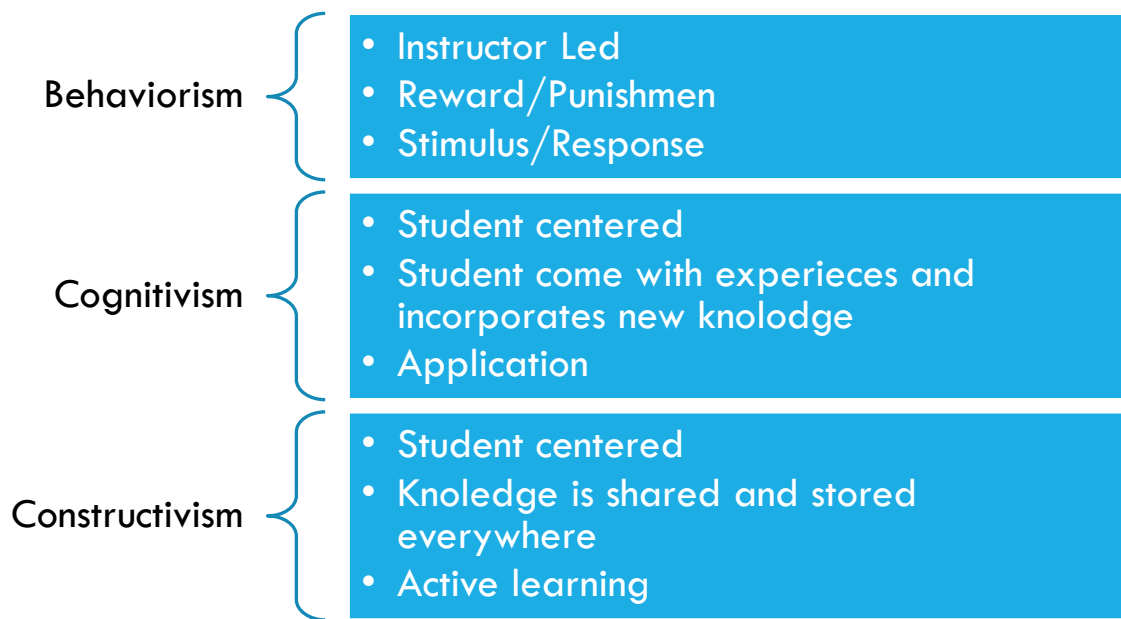


Fig. 2. Learning theories

A number of theories and models have roots in one or more of the above frameworks. Theories have evolved, most of which derive from the major learning theories.

E-learning theory is built on cognitive science **principles** that demonstrate how the use and design of educational technology can enhance effective learning. E-learning theory belongs to the theory of Constructivism because it emphasizes how technologies can be used and designed to create new learning opportunities and to promote effective learning.

Cognitive load theory divides a person's working memory into three activity spaces: intrinsic load, extraneous load, and germane load. Intrinsic load is “the mental work imposed by the complexity of the content in your lessons and is primarily determined by your

instructional goals”¹¹. Germane load is “mental work imposed by instructional activities that benefit the instructional goal”¹¹. Extraneous load is “the mental work that is irrelevant to the learning goal and consequently wastes limited mental resources”¹¹. Together these form the construct “cognitive load.”

E-learning theory is formed by *principles* that can promote effective learning:

1. Multimedia principle: Using two formats of audio
2. Modality principle: Explaining visual content with audio
3. Coherence principle: Avoiding irrelevant videos and audio.
4. Contiguity principle: Aligning relevant information to corresponding pictures concurrently.
5. Segmenting principle: Managing complicated content by breaking a lesson into small parts.
6. Signaling principle: Offering signals for the narration, such as arrows, circles, and highlights.
7. Learner control principle: Allowing the learner to control their learning pace.
8. Personalization principle: Presenting words in a conversational and informal style.
9. Pre-training principle: Providing descriptions or explanations for key concepts in a lesson before the main procedure of that lesson.
10. Redundancy principle: Presenting visuals with audio or on-screen text but not both.
11. Expertise effect: Considering that design principles may have a different effect on learners with various amounts of prior knowledge¹².

¹¹ Clark, R. C., Nguyen, F., & Sweller, J. (2005). *Efficiency in learning: Evidence-based guidelines to manage cognitive load*. Pfeiffer.

¹²

https://www.researchgate.net/publication/301651464_Mayer_M_Kenter_R_2015_The_Prevaling_Elements_of_Public-Sector_Collaboration_in_Morris_and_Miller-Stevens_eds_Advancing_Collaboration_Theory_Models_Typologies_and_Evidence_Routledge_book_chapter

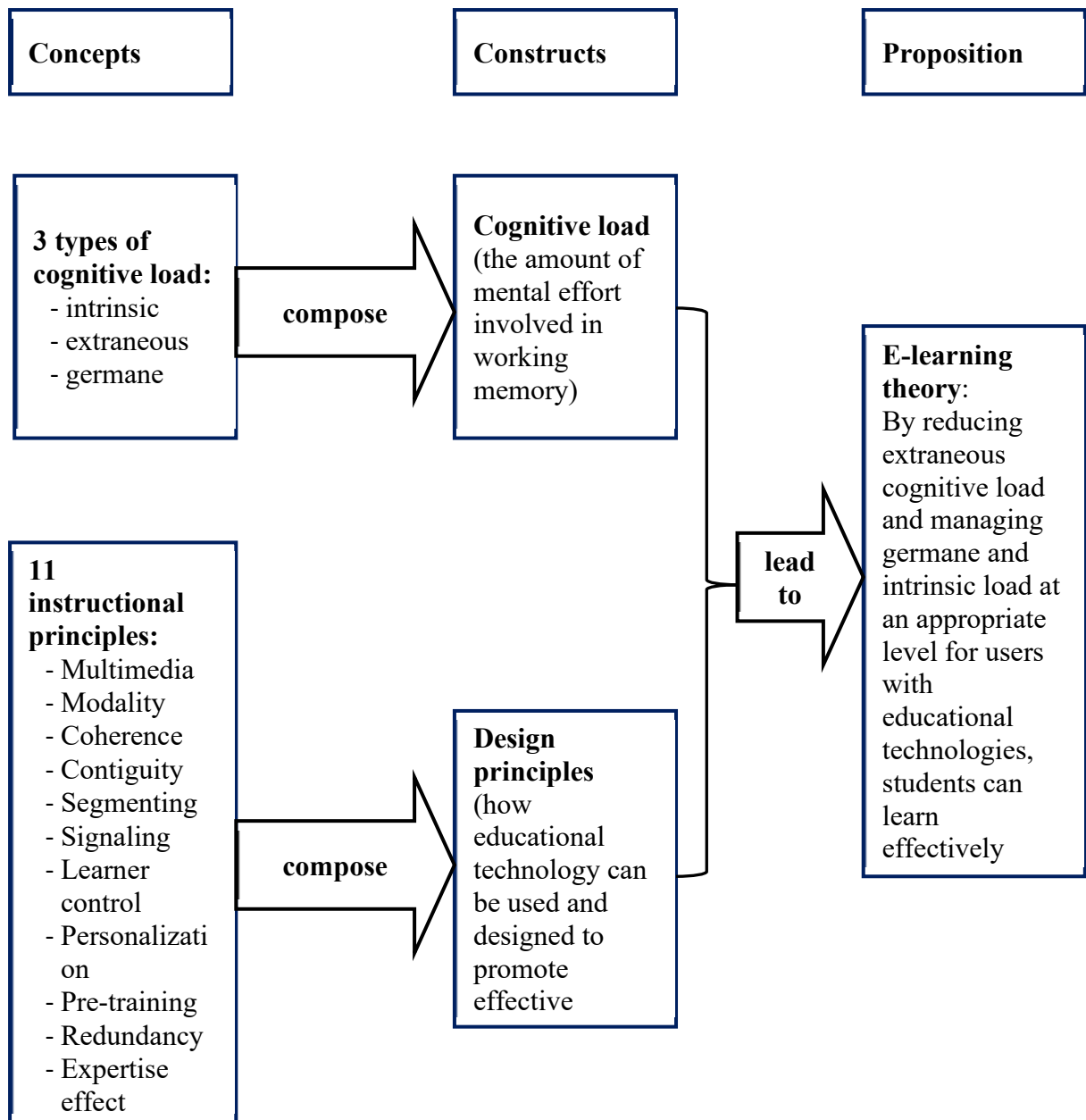
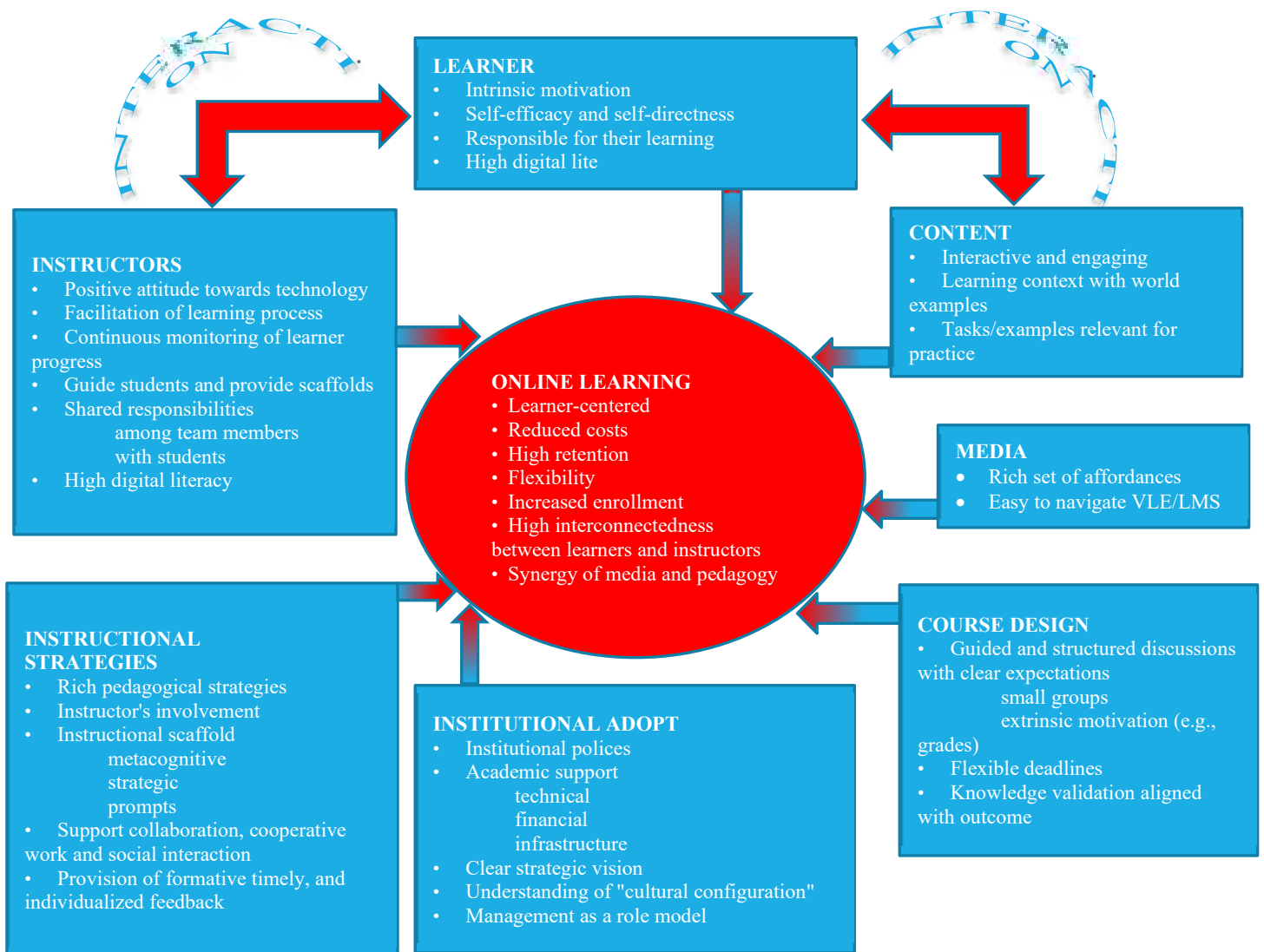


Fig. 3. A model of E-Learning Theory based on Mayer

Based on the review of his research, Joksimović, propose a conceptual model of the most significant factors that frame educational experiences in online learning settings, which includes the learners, instructor, instructional strategies, institutional adoption, course design, media and content¹³

¹³ <https://eddl.tru.ca/wp-content/uploads/2018/12/PreparingDigitalUniversity-George-Siemens.pdf>

Fig. 4. Joksimović et al.'s (2015) conceptual diagram of the most significant factors that frame educational experience in online learning¹⁴



E-Learning has become widely used in university due the development of information communications technology (ICT). E-Learning is a variety of technological communication information tools that are supported by the World Wide Web (WWW). In order to implement

¹⁴ A conceptual diagram of the most significant factors that frame educational experience in online learning settings by Joksimović et al. (2015). The history and state of online learning (pp. 95-131). In G. Siemens, D. Gasevic, & S. Dawson. (Eds.), *Preparing for the Digital University: A Review of the History and Current State of Distance, Online, and Blended Learning*. Retrieved from <http://linkresearchlab.org/PreparingDigitalUniversity.pdf>. Used under a Creative Commons Attribution-ShareAlike 4.0 International License.

and use e-Learning, institutions need to have electronic devices such as computers and laptops, as well as access to the Internet.

E-Learning tools:

- have several online techniques that are online based such as social media platforms, chats, reading blogs and threaded email discussions.
- are also known as virtual learning environments (VLE) because they provide online interaction through video conferencing or teaching.
- enhance the quality of learning,
- allow flexibility in learning,
- support student attendance and retention
- reduce the workload for instructors associated with traditional teaching methods
- offer instructors and learners opportunities to undertake their course lessons in their suitable environment and times, as it has minimized physical interaction of teachers and students.

Because of its advantages there is a high demand and use of e-Learning tools in different universities. Despite the enormous growth of e-learning in education and its perceived benefits, the efficiency of such tools will not be fully utilized if the users inclined to not accept and use the system. Therefore, the successful implementation of e-learning tools depends on whether or not the students are willing to adopt and accept the technology. Thus, it has become imperative for practitioners and policy makers to understand the factors affecting the user acceptance of web-based learning systems in order to enhance the students' learning experience. However, recent studies have shown that e-learning implementation is not simply a technological solution, but also a process of many different factors such as social factors.

Only the combination of all three components (consideration of the learning theories, the development of a course concept and the production of the learning contents/materials) leads to the fact that an online training can be successful.

Conclusions

The urgent need to move to the online educational format, caused multiple problems among teachers and students who did not intend to change the educational environment. The online education system must be in a state of continuous development in order to respond in a timely and quality manner to the challenges it receives from a developing world.

E-Learning is an important strategy to improve course access in universities, with benefits from both the student perspective and the institutional perspective. To maintain or increase enrolments, universities must be responsive to the needs and demands of their students and believe that their students need the flexibility of online learning (Parsad & Lewis, 2008). Given the value of these benefits, e-learning is likely to become an increasingly important feature in higher education. By offering open-access to education, universities need to ensure that students perform as well in online learning courses as they do in face-to-face courses.

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