Module 2A
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**Introduction**

We are pleased to welcome you to the shining world of ever-evolving technologies and innovations, where the planet Education keeps discovering and exploring tools suitable for its climate. In today's world of technological advances, teachers feel the urge to discover, explore, experiment, and utilize new technological tools. Undoubtedly, instructional technologies are important to ensuring an engaging, intuitive, and valuable learning experience. However, is it only a matter of using the newest technologies to create a valuable, positive, and seamless learning experience? It does not necessarily mean that the newer the technologies, the better for learners. Therefore, it is crucial that teachers realize that the cornerstone of meaningful technology integration is a thorough understanding of the rationale behind using a particular tool, considering the learning environment and target audience's learning needs. Learners' successful mastery of knowledge and skills largely depends on the quality of teaching. In this context, teachers should always evaluate their performance and the design of their courses with the aim of improving the quality of their teaching.

It is evident that the field of instructional systems technology, instructional technologies, educational technologies, instructional design, and human performance technology are interconnected and interdependent. Our visual below shows the interconnection and interdependence of the above mentioned elements. Each element represents a crucial role in the success of our Education planet's mission. Let's shoot for the stars together!

**Definitions**

*Instructional Systems Technology*: the study and process of improving human learning and performance in a variety of contexts (Cho, et al., 2016)
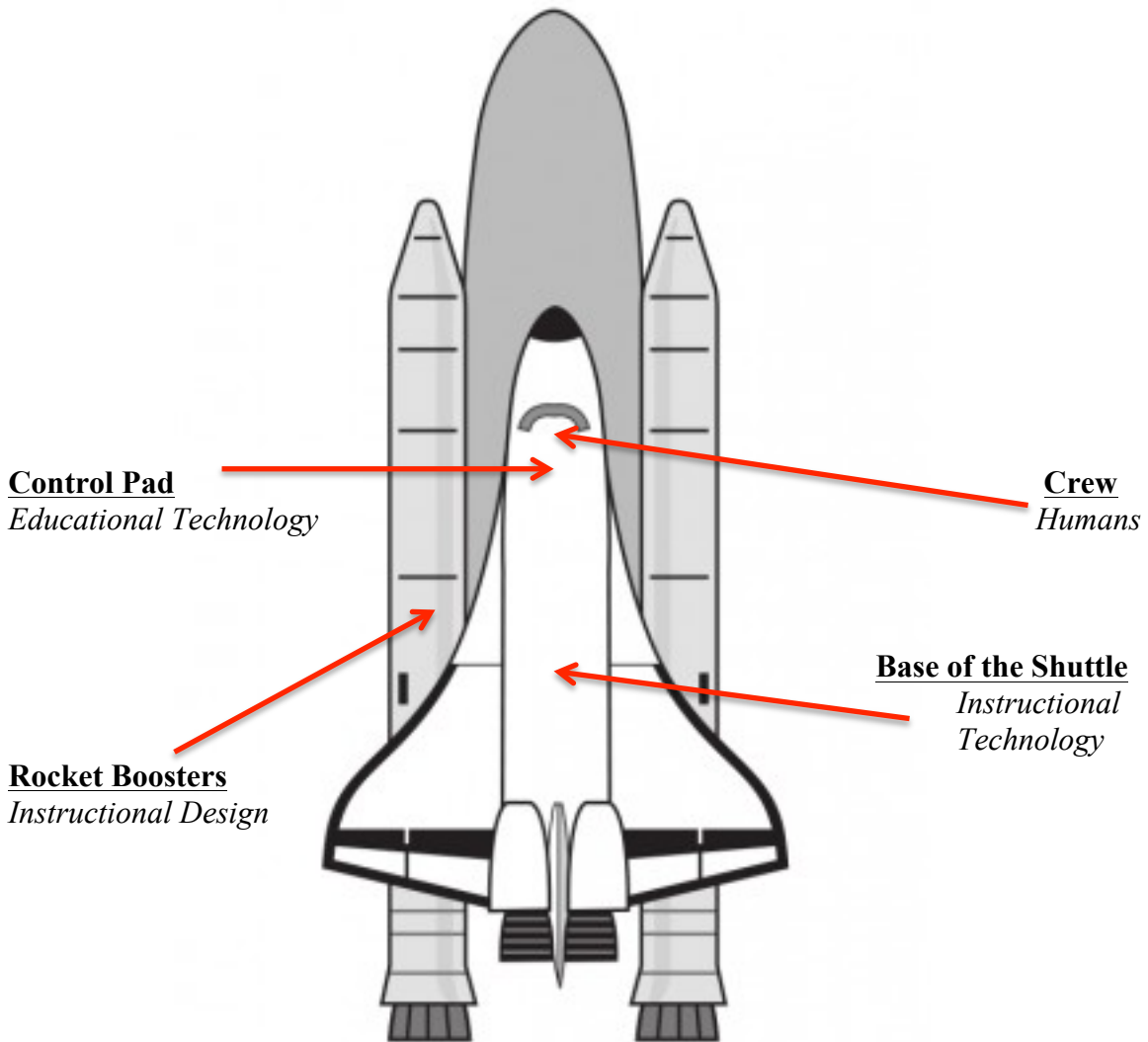
*Instructional Design*: the process of designing and implementing instructional solutions (Branch & Merrill, 2012); very similar to instructional systems design

*Educational Technology*: the study of how best to optimize learning and performance through technology; practitioners look at assisting learners by creating resources or designing technological processes that best achieve these performance goals; over time, the field has added an ethical component to this practice as well (Januszewski & Molenda, 2008)

*Instructional Technology*: the process of analyzing instructional settings and goals and designing, developing, implementing, and evaluating interventions to achieve them (Reiser II, 2012)

*Human Performance Technology*: the study of improving human performance from a holistic, systemic perspective; solutions may be instructional or non-instructional (Stolovitch & Beresford, 2012)

**Graphic Representation**

**Control Pad**
*Educational Technology*

**Crew**
*Humans*

**Base of the Shuttle**
*Instructional Technology*

**Rocket Boosters**
*Instructional Design*

**NASA** - *Instructional Systems Technology*

**Mission Control** – *Human Performance Technology*

**Explanation of Diagram**

Humans are ingrained with a sense of discovery. While the pace of technology has increased and is depended upon in almost every part of our daily lives, we have been able to investigate and research almost anything we want. Therefore, we have developed this desire to have the "best" of everything. Team Success wants to remain cognizant that there is often never a one-size-fits-all approach and that the best solution typically involves multiple perspectives and a sense of teamwork. To reach for the stars, we must rely on all of our resources and appreciate what collaboration can mean for our mission of discovery. Our team has determined that a space shuttle analogy, as shown in the graphic representation above, most aptly represents our understandings of the terms and their connections among each other. It takes many focused and synchronous components to send a space shuttle into space, just as it takes varied use of interrelated learning theories and approaches to discover the utmost potential of human performance.

**Crew | Humans**
Everything involved with the flight of the space shuttle - from the construction of the ship itself to the individuals in Mission Control monitoring the flight to the space organization itself - are all focused on the safety and well-being of the shuttle's flight crew. In like fashion, the focus of each of these terms and fields - human performance technology, instructional design, instructional technology, educational technology, and instructional systems technology - are all, at their heart, focused on human learning.

**Boosters | Instructional Design**
The boosters allow the shuttle to fly. Without them, the shuttle is useless. The boosters are foundational. Similarly, instructional design is the underpinning of the related fields of instructional technology, educational technology, human performance technology, and instructional systems technology. All of these fields focus in some way on the process of designing instruction.

**Space Shuttle Base | Instructional Technology**
Instructional technology focuses on the process of designing and using appropriate technologies in a given context. Similarly, the design of a space shuttle varies based on the mission to be accomplished. Different components, technologies, and equipment will be placed on board depending on where the shuttle is going, whether or not it is a manned mission, etc.

**Control Pad | Educational Technology**
Related to instructional technology, educational technology focuses on facilitating learning and improving performance outcomes through technological processes and resources. The focus is on the learner. Likewise, the control pad is a smaller component of the spaceship, and its function is to assist the ship's crew in teaching themselves how to control the mission. It is equipped to get them safely to their destination, to explore, gather evidence, and share their findings. While the shuttle's design is broader, for space exploration generally, the control pad's focus is singular, much the way that educational technology involves designing for specific learning outcomes.

**Mission Control | Human Performance Technology**
Human performance technology looks at performance problems at a holistic and systemic vantage point, seeking solutions that could be technology-based or could be process or performance-based. In like fashion, Mission Control's sole focus is on the successful performance of the mission. When problems arise, they will look at technology as a possible solution (did something go wrong with the ship?), but they will also look at human error (did the ship's crew do something wrong?). Mission Control is made up of several different teams of professionals, many scientists, some mathematicians, others medical professionals (monitoring the crew's health), and they all have to work cohesively to ensure a successful mission, just as Human Performance Technology looks at the whole organization when assessing performance problems.

**NASA | Instructional Systems Technology**

Instructional Systems Technology could be viewed as the broadest of these fields. While many think of educational technology as focused particularly on academic contexts and human performance technology as focused particularly on business/organizational contexts, instructional systems technology focuses on "human learning and performance in diverse contexts" (IU IST Statement of Purpose). Many students of IST work in education, but as many work in the business world. Likewise, at the broadest level, the National Aeronautics and Space Administration is focused on the success of all parties and technologies it administers. They seek the success of their manned space missions, but those only make up a fraction of the projects that NASA undertakes. They seek the safety and knowledge of their flight crew, but also look to the success of their many other employees, Mission Control and others (HPT), as well as to the advancement of technologies to constantly improve space exploration (ET, IT, ID).

**Conclusion**

Through the shuttle analogy, Team Success demonstrated how the above described fields are interconnected and interdependent. That is, Team success believes that each element is equally important and contributes to the success of the team's mission. Therefore, we can conclude that each element of Instructional Systems Technology: educational technology, instructional technology, instructional design and human performance technology, is indispensable to ensure high-quality teaching and valuable learning experience. Diverse learning contexts call for diverse instructional methods with a view to addressing diverse learning needs and encouraging active learning.

**Resources**

Cho, Y., Boling, E., Kwon, K. (2017). Improving human learning and performance at Indiana University [Special issue]. *Performance Improvement*. doi: 10.1002/pfi.21695 (in press)

Januszewski, A., & Molenda, M. (2008). Definition. In *Educational* technology: A *definition with commentary* (pp. 1-14). New York: Lawrence Erlbaum Associates.

Reiser, R. A. (2012). What field did you say you were in? Defining and naming our field. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed.) (pp. 1-7). Boston, MA: Pearson Education, Inc. [Reiser II]

Reiser, R. A. (2012). A history of instructional design and technology. In R. A. Reiser, & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed.) (pp. 17-34). Upper Saddle River, NJ: Pearson Prentice Hall [Reiser I]

Stolovitch, H. D., & Beresford, B. (2012). Chapter 14: The Development and Evolution of Human Performance Improvement. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed.) (pp. 135-146). Boston, MA: Pearson Education, Inc.

**Images:**

Space shuttle image was retrieved from: http://www.freestockphotos.biz/stockphoto/9490

Original image of space shuttle outline retrieved from: http://clipart-finder.com/space-shuttle-clipart.html.

Yellow planet image was retrieved from: goo.gl/MFHSfm

Sky Background image was retrieved from: goo.gl/FyD3Rh

Mission control image was retrieved from: https://upload.wikimedia.org/wikipedia/commons/9/9c/STS-128_MCC_space_shuttle_flight_control_room.jpg

NASA image was retrieved from: http://assets.sbnation.com/assets/2309203/nasa-300.jpg