

## **Instructional Technology: A Definition for an Ever-Evolving Field**

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## **Instructional Technology: A Definition for an Ever-Evolving Field**

### **Definition of IT**

Instructional Technology is the study and application of research-based instructional methods and performance-improvement strategies, including the analysis, development, and implementation of ethical training solutions through media to facilitate growth in the knowledge, mindsets, and skills of targeted learners in a variety of settings.

### **Analysis of Key Terms and Phrases**

#### **Study and Application**

For instructional design professionals to create and implement effective interventions, they must have a solid understanding of past and current research that will allow them to be reliable and useful in their organization (Ertmer & Newby, 2013). It is not enough for a professional to know (or study) the research, they must also apply what has been found to their current endeavors (Reiser, 2012). Instructional technology professionals must have a strong fundamental understanding of learning theories (such as constructivism, cognitivism, behaviorism, etc.) to know which theories will work most effectively in a given situation (see Ertmer & Newby, 2013). The professional must demonstrate both a willingness to evolve alongside evolving technologies and a dedication to applying these new methods and media based on what is situationally appropriate.

#### **Research-Based**

Credibility and effectiveness are not achieved by using the latest and greatest technology, but by applying research-based methods and strategies to learning and performance deficits (see Clark, 1983). An instructional technology professional should apply methods or strategies based on what has been proven to be effective, not just based on what is convenient or personally preferred.

## **Instructional Methods and Performance-Improvement Strategies**

All training solutions or interventions require solid instructional methods at their core, but whether or not performance-improvement strategies are involved depends on the context and goal of the training solution. In situations where the goal is to convey information (such as in educational settings) a performance-improvement strategy may not be necessary or useful. However, in situations where the end goal is a change in behavior, mindset, or skill (such as in business settings) failing to utilize performance-improvement strategies would be detrimental to the effectiveness of the intervention (Addison & Haag, 2006).

## **Analysis, Development, and Implementation**

Creating an effective solution/intervention requires multiple iterative cycles. These steps may be fluid, depending on the needs of the organization and designer, as well as feedback from stakeholders. It is of note that although the ADDIE and HPT processes are widely used in the field of instructional design and technology, the terms defined below are not intended to align perfectly with ADDIE or HPT stages. The terms used here are flexible and overlap with stages of the ADDIE and HPT processes (Addison & Haag, 2006; Nichols Hess & Greer, 2016).

### ***Analysis***

All solutions or interventions should start after an issue in performance or a gap in learning has been identified and analyzed (Reiser, 2012). Analysis should look at the root causes of the problem, not just the visible symptoms. Accurate analysis is necessary so that final products or interventions, once delivered, are effective and engaging. After completing an in-depth analysis of the targeted issue in conjunction with stakeholders, instructional designers should conduct a thorough analysis of learners and of the environment (and culture, if applicable) so that the designers can develop relevant and engaging solutions (Reiser, 2012).

### ***Development***

After an issue or gap in learning has been identified and analyzed, the next step is to develop a plan of action based on the identified issue (Dirksen, 2016). Instructional technology

professionals start with the end in mind so that potential solutions and interventions are all aligned with identified goals. Goals should apply to the target audience and should aim at solving the identified issue (Moore, 2017). Once the audience and goal are clearly defined, instructional designers should collaborate with subject matter experts and stakeholders to develop a plan (what will be delivered and when or where it will be delivered) and necessary training/educational materials and strategies (how it will be delivered). Before the widespread rollout of the solution, instructional designers should seek feedback from both stakeholders and learners to ensure that solutions are effective and engaging (Moore, 2017).

### ***Implementation***

Once a solution has been developed, revised, and finalized, the process of widespread implementation begins. This is a many-faceted process, depending on many variables. Implementation could include stages such as training the trainers, delivery of the solution, or changes in the learning environment (Ertmer & Newby, 2013). At all stages of implementation, feedback and data must be collected and reviewed. This data should be used to monitor and evaluate the effectiveness of the solution and to revise the solution as needed (Moore, 2017).

### **Ethical**

All training solutions must be ethical (Januszewski & Molenda, 2013). This ethicality can be in regards to tangibles like cost, but also regards intangibles like the respect of learners' experience, histories, and level of expertise (Moore, 2017). Clark, 1983, states that it would be unethical to plan a training solution that needlessly cost the organization money (tangible). Alternatively, it would also be unethical to develop a solution that did not take into account the diversity of the learners (intangible). Furthermore, instructional technology professionals have an ethical responsibility to develop solutions which take into account the learners' expertise and experiences. While it may seem easier or more convenient, providing the learner with a blanket training solution ignores them as individuals (Moore, 2017). We must develop training solutions that demonstrate respect for the learners and their expertise.

## **Training Solutions**

The term training solution refers to any intentional change made in an instructional setting that is executed with the goal of improvement or growth. Not all training solutions necessitate a formal educational setting such as lessons, elearning, or training. Training solutions can also be changes in the environment and culture, like the addition of a training aid or help screen, implementation of a business-wide incentive system, or on-the-job activities such as role-playing or scenario practice (Dirksen, 2016). Choosing a training solution can only happen after careful analysis of the problem, learners, and environment.

## **Through Media**

Instructional technology professionals are a crucial part of the processes involved in instructional technology, driving change and growth with their actions. To do this, professionals must utilize the most efficient training media possible (Kimmons, 2018). This means maintaining a diverse toolkit, and utilizing tools that are best for the situation, not just ones that are comfortable or preferred (Kimmons, 2018).

## **Facilitate**

Growth is a positive change in the learner, whether in their mindset, ability, or knowledge (Ertmer & Newby, 2013). However, no instructional method or instructional designer can guarantee growth in a learner. There are far too many variables to take into account to guarantee learning or growth. Learners are in charge of creating their learning and meaning from an experience (Kumar Shah, 2019). As the aphorism goes, “you can lead a horse to water, but you cannot make him drink.” The role of an instructional designer is to create appeal for the water, so to speak, such that the drinking of the water becomes a priority for the horse in question (our learners). To do so, instructional technology professionals create an environment and develop activities or materials that will motivate and encourage learners to take ownership of the information or skills. While instructional designers will implement changes that should promote positive growth or learning, the final result for each learner will depend greatly on their

experiences, attitudes, beliefs, and mindsets (Kumar Shah, 2019). It is our job as ethical and effective instructional designers to do our best to engage the complete learner, while also recognizing that ultimately the responsibility for learning and change is not something over which we have complete control.

### **Knowledge, Mindsets, and Skills**

Instructional and training solutions will target at least one of the following attributes: knowledge, mindsets, or skills (Ertmer & Newby, 2013). Which individual attribute or combination of attributes needs to be affected will depend on the goals identified by the instructional technology professional and the stakeholders. It is important that all three attributes have some method of measurement and data collection with which to evaluate change. Collecting and analyzing measurable data is a critical step in the cyclic iterations discussed in the section “Analysis, Development, and Implementation” above.

### **Targeted Learners**

Analysis of the target audience/learners is crucial when designing effective training solutions. Without having an identified target audience, solutions will not be successful because they are not tailored to the learners and the environment in which they are implemented (Dirksen, 2016).

### **Variety of Settings**

The field of instructional technology is not constrained to academic or educational settings (Kimmons, 2018; Moore, 2017). An appropriate setting in which to apply instructional technology is any setting in which a positive change in the knowledge, mindsets, or skills of learners is desired.

## References

- Addison, R. M. and Haig, C. (2006), The performance architect's essential guide to the performance technology landscape. *Performance Improvement*, 45(10). 38–47.  
10.1002/pfi.4930451029
- Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research*, 53(4), 445. <https://doi.org/10.3102/00346543053004445>
- Dirksen, J. (2016). *Design for how people learn*. New Riders.
- Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective *Performance Improvement Quarterly*, 26(2), 43-71. 10.1002/piq.21143
- Januszewski, A., & Molenda, M. (Eds.). (2013). *Educational technology: A definition with commentary*. New York: Routledge.
- Kimmons, R. (2018). Technology integration: Effectively integrating technology in educational settings. In A. Ottenbreit-Leftwich & R. Kimmons, *The K-12 Educational Technology Handbook*. EdTech Books. [https://edtechbooks.org/k12handbook/technology\\_integration](https://edtechbooks.org/k12handbook/technology_integration)
- Kumar Shah, R. (2019). Effective constructivist teaching learning in the classroom. *Shanlax International Journal of Education*, 7(4), 1–13.  
<https://doi.org/10.34293/education.v7i4.600>
- Moore, C. (2017). *Map it: The hands-on guide to strategic training design*. Montesa Press.
- Nichols Hess, A. K., & Greer, K. (2016). Designing for Engagement: Using the ADDIE Model to Integrate High-Impact Practices into an Online Information Literacy Course.

*Communications in information literacy*, 10(2), 264–282.

<https://files.eric.ed.gov/fulltext/EJ1125456.pdf>

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). Pearson Education, Inc.