

Leading Instructional Technology Implementation

Tanya Demmel

Capella University

Abstract

The purpose of this article is to identify the role of instructional design leadership in the implementation process of instructional technology into learning materials. This role is actually one of leading change to overcome barriers to the implementation of technology. A brief description of instructional technology and the barriers of implementing it are followed by an argument for evaluation and elaboration on the role of a leader during change.

Leading Instructional Technology Implementation

The job of implementing instructional technology is one a leader needs to give considerable thought to and plan accordingly. Implementing instructional technology is a change process that has barriers to overcome and requires evaluation to monitor the technology's effectiveness in the instructional design. Leaders of instructional design therefore need to be well versed on the process of change to help successfully implement new instructional technologies into learning materials.

Defining Instructional Technology

The definition of instructional technology can be interpreted differently by whoever is using it in their curriculum. Instructional technology can include; software, applications, and computer based learning modules (Weston, 2004). Weston further breaks applications down to include modules, curricula, simulations, games, hands on activities, presentation software, and other task specific programming. Boles (2011) lists hardware and the internet in addition to software as necessary instructional technology for the classroom. Mitchell (2011) includes e-learning, remote devices, and personal devices in the definition of instructional technology. Instructional technology for this article will be considered as any digital form of communication or tool used to enhance the learning environment.

Barriers to Instructional Technology Implementation

Identifying the Barriers

When looking to implement technology into the classroom it is important to identify what barriers may be in place that would prevent a smooth implementation. According to Weston (2004) the barriers can include; access, cost, support, organizational politics, technological incompatibility, and instructor resistance. Mitchell (2011) supports Weston by stating that

college professors identify costs and a lack of understanding of how to use instructional technology as barriers to implementing instructional technology as well as a lack of time to learn how to use the instructional technology. Adams and Ivonov (2015) also list caution and economic difficulties as barriers to the implementation of instructional technology despite a demand for consistent improved achievement and remote accessibility. Hall (2010) elaborates that barriers of instruction technology implementation also include the process of successfully implementing it on a wide scale and bridging the gap between learners' personal technology use and expectations of instructional technology. It is the role of the instructional design leader to identify these barriers and work to overcome them or work with them.

Another type of barrier for the implementation of instructional technology is instructional designers do not always have the benefit of knowing how the technology they incorporate into the curricula will work with the instructional environment (Weston 2004). According to Weston extenuating circumstances can lead to the instructional technology being used differently than intended. Extenuating circumstances can include a shortage of the needed devices, a misunderstanding of how to use the technology, or a modification in the use of the technology to fit the needs of the class. Keeping in mind these types of barriers will help instructional design leaders to use flexible technology applications in the curricula.

Overcoming the Barriers

According to Weston (2004) identifying motivational factors such as benefits for instructors and learners as well as creating a culture strong with technology will enable leaders to help overcome the barrier of resistance. Mitchell discussed the importance of carefully planning the use and implementation of instructional technology to avoid barriers that could lead to a failed or ineffective implementation. The planning should include thoughts on how the

technology will be used currently and how it will evolve as well as identifying what is understood as instructional technology and how it should be used by all of the stakeholders of the instructional technology implementation (Mitchell, 2011). Harding (2010) describes how imagination can be used when a leader is faced with the barriers of change. Overcoming the barriers of implementation is only one of many steps in the implementation process.

Implementation

Instructional technology needs to be used for successful implementation of interactive and engaging curricula. In her article Boles highlights the usefulness of instructional technology in the classroom by explaining how different forms of instructional technology can be used when it meets the needs of the learners. Internet allows learners access to more current materials than printed textbook, visual representations of the material, and even interactive lessons and games about the material according to Boles. The internet can be supplemented with podcasts and presentation software by allowing the instructor to pre-record lessons in formats that the learner can use outside of the classroom. These materials can also serve as a supplement to traditional lectures and classroom activities (Boles, 2011). Boles further explains how instructional technology and interactive materials can help to motivate learners into learning about topics that may first seem uninteresting or intimidating. Another advantage of instructional technology is the value it adds to the assessment process by creating an assessment environment that is as interesting and interactive as the materials itself is stated by Boles.

The first consideration for instructional design leaders in the implementation of instructional technology is to identify what technology is necessary to accomplish the goals of the instruction. At the same time instructional design leaders need to avoid incorporating more extravagant or expensive technologies that are not effective or efficient in achieving the goals of

the instruction. Mitchell (2011) outlines the pitfalls of not properly identifying which technology will meet the needs of the instruction to include unnecessary expenditures and ineffective tools for learning. Kuyatt, Holland, and Jones (2015) support Mitchell by explaining that the implantation of technology will not necessarily create an increase in learning outcomes.

Another consideration for instructional design leaders is the implantation process and maintenance of the instructional technology. Emery and Stone (2013) have identified a series of steps that help in the successful implementation of technology. First, it should be tested both on a small scale and on a larger scale to identify any issues that could come up in using the technology. Second, train stakeholders on how to use the technology. Third, complete a soft-launch where users can have an alternative method for learning should the instructional technology not performs the way it was intended. Fourth, review and incorporate the feedback from users in improving further implementation of the instructional technology. Fifth, continue to launch improved versions of the instructional technology that have been upgraded and updated after analyzing the feedback from the previous version of the instructional technology. These steps require a variety of evaluation techniques to insure the implementation process is successful.

Evaluation

Evaluation takes on different forms and provides different types of information that can be used in the implementation of instructional technology. Kuyatt, Holland, and Jones (2015) stress the importance of evaluation of the implementation of instructional technology as a means for leaders to identify the effectiveness the technology has had on improving learning outcomes. Bullock and Ory (2000) noted that evaluation often takes forms including: test scores, surveys, interviews, and observation. Another form of evaluation, field testing is a formative evaluation

that provides valuable feedback on how the instructional technology will function in the classroom (Weston, 2004). Bullock and Ory discuss that there is not a single form of evaluation that is more effective than the others and many evaluations tend to be multifaceted using more than one evaluation form to compile a representative understanding of the whole.

Using a variety of evaluation methods can help instructional design leadership view diverse aspects of the implementation of instructional design. Bullock and Ory (2000) propose that single forms of evaluation leave components of implementation left unaccounted for thus providing a limited understanding of the scope of the impact the implementation of instructional technology has. In his article Weston discusses the importance that the evaluation determines if the technology has been implemented and what it looks like. Context of implementation can then be used as a form of summative evaluation to revise the implementation process as a whole while formative evaluation is used to measure and revise during the implementation process (Weston, 2004). During the evaluation evaluators should look at more than just the implementation of instructional technology and how it helps to achieve learning goals. Evaluators should also look at the functionality of the instructional technology to help fix any programming issues that could prevent the instructional technology from performing at an optimal level according to Weston.

Research in the implementation of instructional technology has led to the application of specific models that can outline the advantages of the technology. Hobart and Dawson (2008) reviewed several e-learning instructional models and discovered that research models can be set in place as a framework that can be used for the execution and management of the implementation of instructional technology.

Leading Change

Leading the implementation of instructional design should be considered leading a change in processes for the instructional institution. Change leadership is a role that has been taken on by instructional designers with the incorporation of instructional technology in learning materials (Ensminger, Surry, Porter, & Wright, 2004). In their article Moran and Brightman state that change management is a process of managing people through change rather than managing the change itself. Managing people through the impacts on their “purpose, identity, and mastery” (Moran & Brightman, 2001, p.1) is the key to successfully guiding people through change. Stanleigh (2013) looks at the resistance to a change as people being resistant to being changed.

Moran and Brightman (2001) elaborate on purpose by explaining that people need to have a purpose and helping them identify their role in the change process will provide them the purpose they need to proceed with the change. To help people identify their purpose in the change process Zimmerman (2004) recommends that the organization’s beliefs and values are well outlined, communicated, and all stakeholders are involved in defining the organizational vision. Zimmerman’s recommendation supports Moran and Brightman’s thoughts of a leader outlining and sharing the organizational goal while supporting the individual in identifying their role in the change process. Stanleigh (2013) states that specific goals and anticipated results of the change will help provide purpose while Edmonds (2011) describes these goals as ground rules that set a clear path for the change.

Change can also cause a person to lose their identity within the organization, therefore, a leader needs to help people maintain and evolve their identities as it relates to the change (Moran & Brightman, 2001). To accomplish the evolution of identity a leader should help set expectations, identify the persons place in the organization, and encourage peer support

(Zimmerman, 2004). Stanleigh (2013) describes peer support as team work where the goals of the change and roles of the stakeholders are clearly defined to prevent any conflict through the change process. Emphasizing the connectivity in the organization will help maintain communication and collaboration, a key component of team work, according to Edmonds (2011).

People confronted with change fear a loss in the mastery of their role in the workplace. A leader needs to help establish and communicate how they are going to be educated, trained, and assisted through the learning process to a mastery level to ensure the sense of security job mastery provides people (Moran & Brightman, 2001). Zimmerman (2004) supports the ideas of Moran and Brightman by explaining that training is an essential component for planning change in addition to having the right tools to implement the change. Training on how to manage people through the change process is also an important part of any change (Stanleigh, 2013).

Fear itself is another opponent to change and fear of the unknown is a common reaction to the thought of change. Stanleigh states that often fears stem from previous change attempts that have failed. Leaders need to demonstrate commitment and positivity toward change to help guide people through their fears of the unknown (Stanleigh, 2013; Edmonds 2011). Zimmerman identifies the use of accountability as a possible contributor to the fear of change therefore leaders need to use accountability processes in a supportive rather than a punitive manner. Moran and Brightman (2001) recommend that leaders create an environment where experimentation and failure are allowable to an extent to help encourage people through the change to prevent a fear of new accountability from overshadowing the benefits of the change. Leaders who remain calm through the more difficult times of change will also help to alleviate the fear that people will develop during the change process (Zimmerman, 2004).

Instructional designers and leaders of instructional design need to have an understanding of the change process to be effective in leading the change of implementing instructional technology into learning materials. Ensminger, Surry, Porter, and Wright (2004) indicate that the change process is a culmination of multiple theories, models, and strategies. Everett Rogers (as cited by Ensminger, et. al, 2004) lists five steps of change; establishing an awareness of the change, establishing an opinion of the change, choosing how to respond to the change, participating in the change, and review the outcomes of the change. Moran and Brightman (2001) describe a change cycle consisting of four steps; possess an understanding of the situation, identify and plan accordingly for the expected outcome, recruit others to assist in the change process, and monitor the outcome. In their work Ensminger, et. al, identify several models that follow the same cyclic pattern of understanding, developing, implementing, and evaluating the change process. It is important for instructional designers and leaders to understand this basic pattern regardless of which model they choose to follow through the change process.

Conclusion

Implementing instructional technology into learning materials can be challenging for some designers and instructional design leaders. There are often a variety of barriers to the process that must be overcome before and during the implementation process. The implantation process is one that requires specific planning and quality evaluation both during and after the implementation to ensure a successful launch of technology. Because the implementation of instructional technology into instructional materials is often a change in the current methods of instruction it is important for instructional designers and leaders of instructional design to be leaders of change. The role of leading instructional technology implementation takes a leader

who understands the current educational process and can see the potential outcome of the change. That leader then needs to communicate and support the stakeholders through the change process of implementing new instructional technology. At every stage of the implementation process the instructional design leader also needs to evaluate the implementation process to determine the effectiveness of the instructional technology on the learning outcome and modify the implementation as needed to ensure the best results.

References

- Adams, R. H., & Ivanov, I. I. (2015). Using socio-technical system methodology to analyze emerging information technology implementation in the higher education settings. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 5(1), 31-39. doi:<http://dx.doi.org/10.17706/ijeeee.2015.5.1.31-39>
- Boles, S. R. (2011). Using technology in the classroom. *Science Scope*, 34(9), 39-43. Retrieved from <http://search.proquest.com.library.capella.edu/docview/872797272?accountid=27965>
- Bullock, C., & Ory, J. (2000). Evaluating instructional technology implementation in a higher education environment. *American Journal of Evaluation*, 21, 315–328.
- Edmonds, J. (2011). Making change happen. *Training Journal*, , 33-36. Retrieved from <http://search.proquest.com.library.capella.edu/docview/862155134?accountid=27965>
- Emery, J., & Stone, G. (2013). *Implementation. Library Technology Reports*, 49(2), 21-25,2. Retrieved from <http://search.proquest.com.library.capella.edu/docview/1345953579?accountid=27965>
- Ensminger, D. C., Surry, D. W., Porter, B. E., & Wright, D. (2004). Factors contributing to the successful implementation of technology innovations. *Journal of Educational Technology & Society*, 7(3) Retrieved from <http://search.proquest.com.library.capella.edu/docview/1287054542?accountid=27965>
- Hall, G. (2010). Technology's achille's heel: Achieving high-quality implementation. *Journal of Research on Technology in Education*, 42(3), 231-253.

- Harding, T. (2010). Fostering creativity for leadership and leading change. *Arts Education Policy Review*, 111(2), 51-53. Retrieved from <http://search.proquest.com.library.capella.edu/docview/746425131?accountid=27965>
- Hogarth, K., & Dawson, D. (2008). Implementing e-learning in organizations: What E-learning research can learn from instructional technology (IT) and organizational studies (OS) innovation studies. *International Journal on ELearning*, 7(1), 87-105. Retrieved from <http://search.proquest.com.library.capella.edu/docview/210332883?accountid=27965>
- Kuyatt, A., Holland, G., & Jones, D. (2015). An analysis of teacher effectiveness related to technology implementation in texas secondary schools. *Contemporary Issues in Education Research* (Online), 8(1), 63. Retrieved from <http://search.proquest.com.library.capella.edu/docview/1655539254?accountid=27965>
- Mitchell, R. G. (2011). Planning for instructional technology in the classroom. *New Directions For Community Colleges*, 2011(154), 45-52. doi:10.1002/cc.445
- Moran, J. W., & Brightman, B. K. (2001). Leading organizational change. *Career Development International*, 6(2), 111-119. Retrieved from <http://search.proquest.com.library.capella.edu/docview/219371861?accountid=27965>
- Stanleigh, M. (2013). Leading change. *The Journal for Quality and Participation*, 36(2), 39-40. Retrieved from <http://search.proquest.com.library.capella.edu/docview/1426765389?accountid=27965>
- Weston, T. (2004). Formative evaluation for implementation: Evaluating educational technology applications and lessons. *American Journal of Evaluation*, 25, 51-64. doi:10.1177/109821400402500104

Zimmerman, J. (2004). Leading organizational change is like climbing a mountain. *The Educational Forum*, 68(3), 234-242. Retrieved from <http://search.proquest.com.library.capella.edu/docview/220687683?accountid=27965>