In Looking at Distance Education as a Process: Activity-Based Opportunities for Efficiency Gains and Cost Savings

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Abstract

Distance education has been around for nearly 100 years. The manner in which we prepare our material and the manner in which we deliver our material are but two of the many process steps in the distance education process as a whole. In looking at distance education as a process, it is apparent there exists multiple seemingly related activities, where each of these many activities has one or more attendant outputs (products). In recognizing distance education as a process, we can readily evaluate each activity and set of products for efficiency and subsequent cost reduction. This ability to dissect distance education into these many process activities is critical to creating a cost effective and competitive solution for any distance education organization; especially if that organization is an independent profit/loss center within higher education.

Distance Education as a Process[10]

In 2015, Bozkurt, Akgun-Ozbec, Yilmazel, et al[1], wrote a comprehensive research paper detailing the current trends in distance education today. Their research reviewed literature from 2009 – 2013. The research reviewed trends in scholarly publications from seven peer reviewed scholarly journals: The American Journal of Distance Education (AJDE), Distance Education (DE), The European Journal of Open, Distance and e-Learning (EURODL), The Journal of Distance Education (JDE), The Journal of Online Learning and Technology (JOLT), Open Learning: The Journal of Open, Distance and e-Learning (OL) and The International Review of Research in Open and Distributed Learning (IRRODL).

From these scholarly journals, a total of 861 peer reviewed scholarly articles were evaluated. The authors reported the results organized into the following categories: research areas, theoretical and conceptual frameworks, variables, methods, models, strategies, data collection and analysis methods, and the participants.

The authors discovered both quantitative and qualitative research on-going in 39 major categories/activities under the distance education discussion. The top categories included, but were not limited to:

- Mobile learning
- Collaborative learning
- Teacher education

- Instructional design
- Pedagogy
- Learning
- Social networks
- Learning Management Systems
- Learning technology
- Professional development
- Asynchronous delivery systems
- Synchronous delivery systems
- Activity theory
- Hybrid learning theory

Process Management

A process is quite simply a series of activities that, when followed, produce a desired result. We have processes for nearly everything we do in life. Even awakening in the morning, there is a process we each follow for bathing, getting dressed and possibly eating.

Is a process similar to a routine? The answer is yes. A routine is defined by a desk copy of the *American Heritage College Dictionary* as "a prescribed detailed course of action to be followed regularly; a standard procedure . . . a set of customary procedures or activities."

A process is an activity or group of activities that takes an input, adds value to it, and provides an output. The key in having a good process resides in:

- The clearness of the definition of the many activities that make up the process
- The degree of adherence to the process activities
- The adequacy of the process activities to satisfy the desired outcome.

By definition, then, the many activities of a process, when executed successfully, produce a consistent end result.

Process management is concerned with making sure the defined process is still efficient and effective, in that it minimizes the activities of the individuals performing the process and that the end result is still what is desired. Process management, then, is simply managing the existing process.

Creating an efficient process involves the elimination of non-value-added activities. In other words, once all of the activities to be performed are identified and the order in which they are to be performed is determined, the activities must then be reviewed to determine:

- Are they redundant and can any be deleted
- Are any activities best performed in another sequence
- Can activities be combined with previous or subsequent activities
- Are activities potentially missing, which could enhance the efficiency of the entire process

In business and industry, process management, as characterized by Choyce[2] and Gioia[3], provides management with:

- A way of thinking systematically about the behavior of people at work in an organizational setting.
- A vocabulary of terms, concepts, theories, and methodologies that allow work experiences to be clearly analyzed, shared, and discussed.
- Techniques for dealing with many of the problems that commonly occur in the work setting.

Process management is not a new concept. Process management originated as part of the production oriented statistical quality control movement in the late 1920s and early 1930s. What is relatively new, however, is the transition of process management methods from a manufacturing environment to a total company orientation.

Process management is a continuous effort that recognizes that the work done in an organization is accomplished through a series of processes and charges the organization's managers with ensuring that these processes are clearly defined, healthy, and competitive. It is a comprehensive approach, the goal of which is to increase the effectiveness, efficiency, control, and adaptability of a given organization.

Business process management represents a break from some of the traditional concepts of organizational authority[4]. It requires a new way of looking at, and thinking about, long-established assumptions concerning hierarchies and organizational structure. For instance, in a conventional organization it would be most unusual for the vice president or director of one group or division to become directly involved in the activities taking place in another group or division. Because process management involves managing processes across divisional and organizational boundaries, as well as within these boundaries, it requires a more flexible management strategy. It also requires close cooperation among managers in diverse functional and operational units to ensure that the process flow is not interrupted by conflicts over lines of authority[5].

Process management relies on process definition, elimination of non-value-added activities, customer/ supplier orientation, and a team approach[6,7]. Process management processes utilize continuous process improvement (CPI), which assumes that a measurement baseline has been

established. Through CPI, the process is measured forever. CPI accounts for error elimination, innovation, and business changes. All activities of a process are questioned; nothing is sacred.

Process management offers organizations a means of applying to nonproduction functional organizations the same quality improvement and defect reduction techniques used in manufacturing processes. Many engineering, service, and business processes offer an organization the greatest untapped potential for cost savings through quality and productivity improvement[8]. Process management, with its emphasis on business process quality, is the most meaningful way to apply the principle of quality throughout an enterprise[9].

The basic steps in creating an efficient process are:

- Determine what end result is desired.
- Identify the activities currently used to accomplish this process.
- Determine how the current activities are ordered (we call this the interrelatedness of the many activities).
- From the new flow chart created, of activities and their ordering, ask which activities do not seem to add value, could be merged, or seem inappropriately placed in time.
- Create a new flow chart depicting the ideal scenario (don't worry about who currently does which activities or how).
- Identify measurement points in the new process that will allow you to determine how well the new process is working. In order to improve a process, measurements points must be established for time-phased progress checking.
- Test the new process. In a business environment, this may mean making people assignments to the activities. It may further mean reassigning individuals or work in a manner not previously assigned.

As stated above, it is only through proper measurement that we can make required changes to an existing process in order to increase either efficiency or effectiveness. Proper measurement requires that we identify sufficient measurement points throughout our process, and, that these measurement points are reflective of how the process is running.

One can also choose too many measurement points. Too many points can lead to excessive measurement so that all that is accomplished is taking measurements.

Defining the Distance Education Process

Distance education as a process, among other activities, includes an experiential understanding and continuing market-based exploration of target-rich environments, distance delivery mediums, adaptive learning, the use of predictive analytics and automated assessment software. Each of these must be bound by the requirements of the stakeholders and common objectives.

Further, efficiency gains and subsequent cost reduction success will stem from capitalizing on a collective focus in STEM fee-based graduate education; this, something most tier 1 research universities are working toward.

Figure 1.0 depicts a macro sub-view of the distance education process. As suggested, the distance education process is made up of multiple activities, where each activity has one or more outputs (products). Throughout, there exists process measurement points; which loop into a continuous feedback and process activity modification sub-process. For example, a single point measure for the effectiveness of our targeted marketing efforts may very well be the number of applicants and subsequent lead yield (enrollments). Clearly marketing efforts are not the only variable contributing to yield; e.g., quality of offered programs, program price and perhaps even program applicability and duration. The message being, activities produce measurement points for continued process improvement. To this end, one should be open to process improvements in each of the many activities of the collective process. Understanding process management and specifically it's applicability to the distance education process, is where the changing nature of distance education can most readily be capitalized on for efficiency and subsequent residual gain.

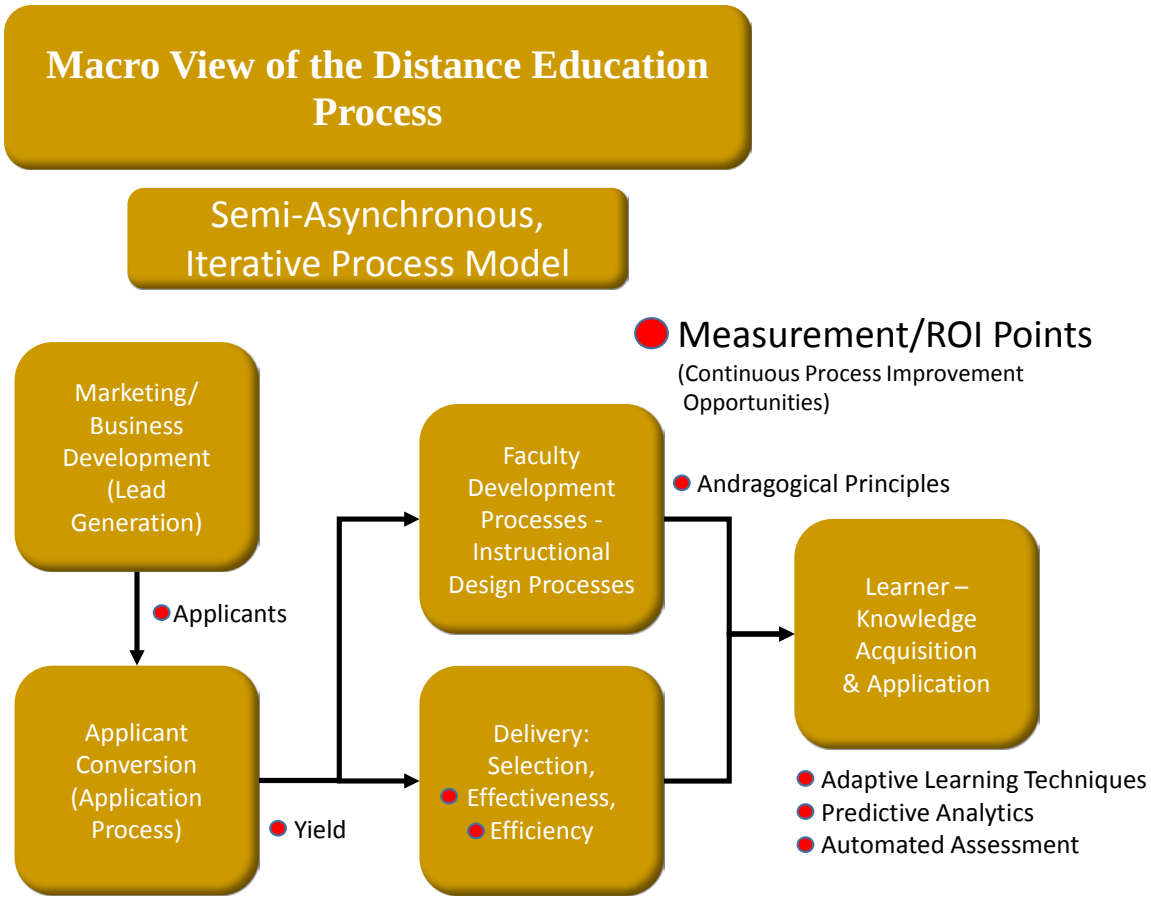

Figure 1.0 – Macro View of Distance Education Process Activities

Given the many activities of the distance education process are known, one can now define an efficient process, removing inefficient steps, and maximizing cost savings. These many activities can be time-phased and resource loaded for total process cost. As well, given process definition cuts across organizational (college) lines, and, cuts across current distance education profit/loss centers within said organizational lines, the opportunity exists to reapply organizational responsibility and human/capital resources in a manner that complements the distance education process as a whole for the benefit of the entire University.

Below depicts a time-phased approach to defining the distance education process, applying organizational (college-wide) human/capital resources and beta testing for performance efficiency.

1.0 Work Breakdown Structure (WBS)					
1.1 Create Cross-University Team					
1.1.1 Tentatively identify key stakeholders	1.3 Identify Key Process Indicators (Metric Points)		1.5 Beta-Test program implementation		
1.1.2 Solicit key stakeholders for participation	1.3.1 Define process pts for each activity		1.5.1 Identify beta program		
1.1.3 Establish team fundamentals	1.3.2 Define process pts for inter-activity		1.5.2 Solicit College support		
	1.3.3 Document pts in ICD				
1.2 Identify the many activities of the DE process		1.4 Assign resource responsibility		1.6 Process feedback	
1.2.1 Engage SME expertise		1.4.1 Determine most applicable Orgs		1.6.1 Identify process efficiencies	
1.2.2 Identify new process flow activities		1.4.2 Solicit support for RAM		1.6.2 Cyclic improvements via measurements	
1.2.3 Define new process flow		1.4.3 Identify human/capital resources			
1.2.4 Examine process flow for maximum efficiency					

Figure 2.0 – Work Breakdown Structure

Activity	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Create Cross-College Team												
Identify the Many Activities of the DE Process												
Create an Efficient Process Flow												
Identify Key Process Indicators (Metric Points)												
Identify and Assign Organizational Responsibility												
Assign Human/Capital Resources												
Implement Beta-Test Program												
Process Feedback												

Figure 3.0 – Master Schedule

From the above, defining, developing and implementing a beta-test of the distance education process is approximately 12 months. Of the 12 months, beta testing and subsequent modification of the process, based on cyclical feedback requires 6 months.

Resources required to complete the above planning process, are yet another budgeted item contributing to total planning cost. Once the process is defined, the intent is to create centers of excellence attendant to each of the many activities; this, coupled with financial pro formas of increased residual gains, act to encourage a university-wide distance education solution, and will bring the many current independent distance education organizations under a centralized

umbrella. In the end, maximum efficiencies and cost savings manifest from a centralized versus decentralized approach to distance education.

On the whole, the 12 months will provide a solid distance education process, composed of multiple activities and measurement points; readied for full-scale implementation and cross-university roll-out.

Conclusion

While the above describes a methodology for defining and scheduling the work, in practice, it is sometimes far from this easy. One of the biggest challenges faced in process management is the act of cutting across organizational/functional boundaries to define the many activities of the process. Gaining support from those organizations/functions to aid in a fully developed process means being open to what work there is to be done, not, who will be doing the work.

The above discussion of process definition provides insight into the basic underlying steps in process creation, these being the blocking and tackling of process creation. The difficulty, however, comes during the process completion step of assigning resources. During this activity, true cross-discipline collaboration must occur. The resultant process flow may very well be a permutation with inefficiencies and additional costs if cultural and emotional considerations materialize.

While the above discussion provides meaningful insight into defining distance education as a process, and provides a methodology to do so, an area for further research would be to survey several comparable universities to determine their peer organizational structures and subsequently validate the methodology proposed above.

References

1 Bozkurt, A., Akgun-Ozbec, E., Yilmazel, S., et al. (2015). Trends in Distance Education Research: A Content Analysis of Journals 2009 – 2013. *Journal of International Review of Research in Open and Distributed Learning*. February 16, Volume 16, Number 1, 330-363.

2 Choyce, R. (1992). Why become a project management professional? *PM Network*, January, 32–33.

3 Gioia, J. (1992). Comprehensive program management. PM Network, November, 5–7.

4 Stinnett, W. (1992). Lone wolf teams: Reconciling the need for collaboration with the need for individual accomplishment. *PM Network*, May, 21–25.

5 King, C. (1992). Multi-discipline teams: A fundamental element of the program management process. PM Network, King, 13–22.
6 Hoban, F. (1992). An overview of training and development strategies for NASA project management. PM Network, August, 44–49.
7 Price, M. (1992). A process approach to project manager training. *PM Network*, October, 17–26.
8 Welsh, A. (1992). The future of project management. *PM Network*, May, 5–6.
9 Zells, L. (1992). Applying Japanese total quality management to software project management. *PM Network*, May, 32–35.
10 Springer, M. (2016). *Project and program management: A competency-based approach*. *3rd ed.* West Lafayette, IN: Purdue University Press.