DOCUMENT RESUME

ED 448 728 IR 020 491

AUTHOR	Millington, Paula Crnkovich
TITLE	No Time To Kill: Entrainment and Accelerating Courseware Development.
PUB DATE	1999-10-00
NOTE	7p.; In: WebNet 99 World Conference on the WWW and Internet Proceedings (Honolulu, Hawaii, October 24-30, 1999); see IR 020 454.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Biology; *Courseware; *Material Development; *Multimedia Materials; Social Psychology; *Time; World Wide Web

ABSTRACT

This paper examines the concept of time in multimedia, World Wide Web-based courseware development. The biological concept of entrainment (the alignment of rhythms within and between systems) to accelerate courseware development is explored. The discussion begins with the foundational concepts of entrainment from biological systems and social psychology. Examples of entrainment in courseware development are then presented, including illustrations of the following four components: (1) rhythm (multiple endogenous temporal or rhythmic processes or patterns); (2) mesh (mutual entrainment or synchronization or rhythms); (3) tempo (temporal patterns expressed in actual behavior resulting from synchronization of rhythms); and (4) pace (external pacer events or entraining cycles affecting rhythm, mesh, and tempo). (Contains 36 references.) (MES)

No Time to Kill: Entrainment and Accelerating Courseware Development

Dr. Paula Crnkovich Millington
Director, KUED Media Solutions, University of Utah, Salt Lake City, Utah, USA
Email: pmillington@media.utah.edu

Abstract: This paper examines the concept of time in multimedia, web-based courseware development. The biological concept of entrainment as extended to social psychology reveals four components of entrainment that could be valuable in accelerating courseware development: rhythm, mesh, tempo, and pace.

1. Introduction

The phrase, "I'll be *right* back," is literally translated into Chinese as, "I'll be back *on a horse*." If necessary as a face-saving gesture, a slow return may politely be attributed to a slow horse. Although "right back" and "back on a horse" are temporally ambiguous, both phrases are extremely meaningful in context. [Hall 83 p. 13] explained "...that there are as many different kinds of time as there are human beings on this earth... ." The western concept of time as even time, chronological time, or clock time has evolved over the ages [Bluedorn & Denhardt 88]. Time-keeping was originally based on events, such as planting or harvesting, but as Marx's writings on the "commodization" of labor resulted in treating labor (and laborers) as commodities, time eventually emerged as an equation, "time is money." [Bluedorn & Denhardt 88] point out that most organizations are likely to experience some natural tension between even time and event time (linear and cyclical); however, the "time is money" equation is a factor in courseware development. Some experts estimate more than 100 hours of development time to develop a single contact hour of multimedia instruction. Certainly courseware developers have been caught bringing their courses to market "on a slow horse" and are looking for ways to speed products to market.

This paper explores the application of entrainment (the alignment of rhythms within and between systems) to accelerate courseware development. Certain parallels are drawn from new product development in industry to courseware development. The discussion begins with the foundational concepts of entrainment, from biological systems and social psychology. Second, examples of entrainment in courseware development are presented and discussed, including illustrations of rhythm, mesh, tempo, and pace. Concluding remarks are then offered.

2. Entrainment

2.1 Biological Entrainment

The concept of entrainment first developed as scientists observed rhythms in physiological systems that seemed to be synchronized in terms of period, amplitude, and phase [Brown 82]. Both physiological and behavioral events, or systems of events, were found to be *entrained*, or synchronized internally to each other, as well as entrained to pacers in the external environment.

A system is not modified when entrained, but its phase and periodicity is captured by a pacer or *zeitgeber* (German: time + giver). The biological cycles exist at multiple levels (molecule, cell, system, and organism) and within various temporal orders, ranging from months and years to milliseconds [Rose 88].

Cardiorespiratory rhythmicity is an example of the complexity of mutual entrainment of the rhythms manifest by both the respiratory and cardiovascular systems to each other and to external pacers [Koepchen 90]. The two systems are coupled to each other peripherally as well as centrally to transport oxygen to cells and carbon dioxide from cells. Since the transport demand can change by a factor of more than twenty to meet metabolic needs, the systems must adapt to actual behavioral activity from moment to moment--even though the system rhythms have different drivers. The circulation driver originates in the periphery, whereas the respiration driver originates in the central nervous system. Adding to the complexity of entrainment is the evidence that the heart's pacemaker is modified by central nervous influences which interfere with the central respiratory rhythm generator. [Koepchen p. 16] concludes that the rhythms present in every function interact with each other in a variable manner without a fixed relation of cause and effect: "One rhythm can lead, entrain, or influence the other in a more or less strong way." Self-organization results in a rhythmic order that "enslaves" the individual elements.

In addition to mutual, internal entrainment, biologists have identified strong external pacers to which systems become entrained. Probably the single most commonly observed entrainment phenomenon is human entrainment of *circadian* (Latin: about + a day) cycles to the light-dark cycle resulting from the earth's solar orbit. For example, humans have an elaborate temperature regulatory system to regulate body temperature regardless of ambient temperature, but it also fluctuates cyclically in a circadian rhythm (low temperatures at night from 3 to 5 a.m.), synchronized with overall activity levels which are also circadian in nature [Wilkinson 82]. *Ultradian* (Latin: within + a day) rhythms also appear in activities such as eating, respiration, metabolism, work-rest cycles, etc. When the external pacer (the 24-hour light-dark cycle) shifts, as may be the case after transmeridian flights, the entrained rhythms become desynchronized to the external zeitgeber as well as losing their mutual entrainment with individual systems. The result is "jet lag" (transmeridian desynchronization) manifested in a variety of psychophysiological maladies, including gastrointestinal distress, loss of appetite, insomnia, headaches, irritability, dizziness, and a general feeling of weakness and fatigue [Graeber 82]. It is hypothesized that circadian rhythms are allowed "free run" during flight and spontaneously deviate from an exacting 24-hour clock. When again exposed to naturally occurring geophysical and social time cues, the circadian rhythms regain their 24-hour periodicity. The discomfort and behavioral impairment from jet lag is a direct result of a series of events: first, the systems become decoupled from the external pacer, resulting in external desynchronization (*i.e.*, lag if going east); second, the systems become decoupled from each other, destroying mutual entrainment and resulting in internal desynchronization; and third, the systems readjust at different rates [Aschoff *et al.* 75].

As can be seen from the foregoing examples, biological and behavioral entrainment is a central concept for human well-being. Both mutual entrainment of individual systems and entrainment to environmental zeitgebers are essential for sustaining life.

2.2 Social Entrainment

Extension of the concept of biological entrainment to social entrainment has taken place over the last twenty five-years. It has been identified at the individual, group, and societal levels [Condon 78] [McGrath & Kelly 86] [Hall 83].

[McGrath & Kelly 86] used entrainment concepts to develop a model explaining the social psychology of time and to explore entrainment of behavior in social and organizational settings. They observed that, similar to the biological model, systems or patterns of behavior can be mutually entrained, as well as entrained to external pacers or entraining cycles (zeitgebers).

[McGrath, *et al.* 84] found human behavior at the social psychological level to be mutually entrained to arbitrary, but powerful, external cycles such as work schedules, the standard cultural definitions of the seasons, social definitions of day and night, etc. Assigning groups different time periods to complete the same problem-solving tasks, McGrath *et al.* found that the work expanded to fit the available time [Parkinson 57], as well as the converse, work contracts to fill the time available. Interestingly, when observing work in temporally altered subsequent time periods, they found that groups continued to work at the initial pace. McGrath *et al.* concluded that the groups entrained to the initial pace (whether fast or slow) and had difficulty changing their pace.

Other patterns involving social entrainment have been observed, but with slightly different group dynamics. Gersick [1988] observed a pattern of punctuated equilibrium in group work: at the approximate mid-point of the time constraint, groups appeared to go through some type of crisis, changed their problem-solving strategy, and paced themselves for the second half of the time period. In entrainment terms, it appears that the group became desynchronized at midpoint after evaluating its progress, after which the group re-entrained to a new pace (only half of the time left).

Although much research is needed in this area, it appears that individuals in groups experienced mutual entrainment, as well as the group being entrained to an initial external pacer. [McGrath & Kelly 86] constructed a model of social entrainment consisting of the following four components.

- RHYTHM: multiple endogenous temporal or rhythmic processes or patterns
- MESH: mutual entrainment or synchronization of rhythms
- TEMPO: temporal patterns expressed in actual behavior resulting from synchronization of rhythms
- PACE: external pacer events or entraining cycles affecting rhythm, mesh, and tempo

Differing slightly from the biological model, which emphasizes the "capture" of rhythms by external pacers, the social model of entrainment seems to allow a little more participant discretion.

3. Entrainment in courseware development

Similar to the rhythms of various functional systems studied by biologists and social interaction patterns studied by social psychologists, different rhythms in courseware development exist, including those manifest by the assorted functional groups engaged in new product development such as engineering, manufacturing, marketing, and executives. The various rhythms or patterns of the groups have the potential to be mutually entrained (meshed). For example, in multi-functional development teams, the team members mesh their individual functional rhythms; or the team meshes its own rhythm and patterns with consumer patterns and cycles. Internal and external pacers also play a role in examples of entrainment observed in courseware development. Internal project phase review cycles and external regulatory agency cycles tend to capture the courseware development cycle, resulting in a distinctive tempo associated with development. With an eye to better understanding the principles that determine the tempo of courseware development, this section discusses manifestations of entrainment in development in terms of rhythm, mesh, and tempo.

3.1 Rhythms in Courseware Development

There are a number of rhythms (multiple, endogenous, temporal, or rhythmic patterns or cycles) observable in new product development in general, both internal and external to the organization. Examples of rhythms within the organization are presented first, followed by examples of rhythms external to the organization, concluding with formal propositions.

The assertion made by [Berger & Luckman 66] that time is a social construction varying between and within societies can be extended to the sub-societies involved in courseware development. For example, [Gurvitch 64] concluded that different classes or groups within cultures move with different rhythms and with different temporal perspectives. Within the organization, different rhythms or patterns (systematic differences in goal orientations, time frames, norms, and shared coding or language schemes) have been associated with organizational differentiation [Lawrence & Lorsch 67] [Thompson 67]. Furthermore, individuals establish unique organizational role identities through socialization into organizations [Katz 88]. The socialization process also includes learning how to deal with one's boss and co-workers, as well as deciphering reward systems and situational norms. Newcomers are taught, "This is how we do it here," whether it be a company such as Microsoft or General Electric, or a functional group such as engineering, manufacturing, or marketing.

Functional groups operate with certain natural or man-made rhythms, patterns, or cycles. For example, in manufacturing, progressive companies are now tracking inventory turns, quality metrics, slashes in set-up time, and throughput time reductions, rather than labor efficiency and machine utilization [Schmenner 88]. Resulting manufacturing cell (group technology) concepts, u-shaped lines, and multi-model lines yield greatly improved productivity, flexibility, space utilization, and quality. This type of rhythm within manufacturing requires cooperation from the natural rhythms of traditional factory departments or kingdoms, such as: equipment, layout, quality, materials handling, production planning, inventory control, and cost accounting.

Certain rhythms or patterns have been observed in R&D work. Examples include the S-curve phenomenon observed in comparing technical performance with research effort over time [Foster 86]; learning and unlearning [Imai *et al.* 85]; patterns of communication [Katz 82]; fluid, transitional, and specific patterns of innovation [Abernathy & Utterback 88]; and the rhythm of product introduction and retirement [Von Braun 90]. Certain patterns have been identified in groups that accelerate new product development that probably apply to courseware development, namely those patterns associated with critical roles played by group members such as product champion, gatekeeper, and technical experts [Smith & Reinertsen 91].

The external environment of the organization manifests certain rhythms or patterns. [Tushman & Romanelli 85] identified patterns of alternating periods of inertia and revolution experienced by organizations. Technological, legal, regulatory, and/or market discontinuities occur to disrupt periods of inertia, requiring adaptation. These external rhythms play out in the web arena in terms of technological discontinuities and uncertain regulation.

Examples of patterns or rhythms internal and external to the organization such as those mentioned above appear to play a role in the speed of courseware development. To understand the implications of their existence, particularly in connection with accelerating new courseware development, it is necessary to examine how these patterns or rhythms mutually entrain or are entrained to other pacers.

3.2 Mesh in Courseware Development

Mesh is the synchronizing or mutual entrainment of different rhythms or patterns involved in courseware development. One of the most frequent techniques for accelerating product development that applies to courseware development is to employ cross-functional teams [Rosenau 92]. Cooperation and coordination of these teams (graphics, audio, video, instructional design, programming, user-interface, etc.) is critical to success. Specific findings in industry studies have led to counsel such as the following: secure early involvement of functional groups [Gupta & Wilemon 90]; use small, self-managing, multi-functional project teams [Takeuchi & Nonaka 86]; allow "sign-up" for teams rather than edict [Gupta & Wilemon 90].

In addition to functional diversity requirements, satisfying other team criteria has also been recommended to accelerate courseware development. Suggestions include limiting teams to ten or fewer members, having members serve on the team from conception to production, making full-time assignments to a team, having members report directly to the team leader, and physically locating the team within conversational distance of each other [Smith & Reinertsen 91].

Although there seems to be agreement on the effectiveness of multi-functional teams in accelerating new product development, some dissension exists. A recent empirical study examining new product development teams concluded that the overall effect of diversity (functional and tenure) on teams actually impeded performance [Ancona & Caldwell 92]. Even though diversity brought more creativity to problem solving and product development, the diverse team was less capable of teamwork than a homogenous team. Functional diversity was found to facilitate increased communication outside the team's boundaries--to the possible detriment of internal communication. Based on field interviews and a mail survey of managers and technologists involved in development, [Gupta & Wilemon 90] identified four ways functional groups delay the product development process: failure to give product development program priority, continually changing requirements, poor intergroup relations, and slow response time. [Stalk & Hout 90] also found that functional support groups could delay or "gate" the key sequence of activities for product development by forcing key activities to wait in queues for execution, delaying other key resources.

From the above, it appears that multi-functional groups can accelerate courseware development, but researchers are beginning to identify some contingencies. [Bower & Hout 88] argue that the concept of accelerating development through multi-functional teamwork must be extended to the entire organization or company, building a strategic "fast-cycle capability." Otherwise, the teams become special task forces or "skunk works," which cannot provide a sustainable, competitive advantage in the long run. Fast-cycle capability requires mutual entrainment of functions. Only when multi-functional team members synchronize their functional rhythms to a new, appropriate "team rhythm" can time be reduced in new product development. From a broader perspective, Jack Welch, the CEO of General Electric, insists that best practices of any of his businesses (going beyond functional groups) be transferred "across all the businesses, with lightning speed" [Tichy & Charan 89:115].

Besides the mutual entrainment or mesh of internal functions and cycles, entraining to external rhythms and patterns, such as students, teachers, development tools, technological advances made in the web environment, is also critical. [Clark & Fujimoto 90] assert that the single most important task for product development is external integration: "matching the philosophy and details of product design to the expectations of target customers (p. 112)." Courseware developers could benefit from strategies employed by companies who have been forced to integrate customers and suppliers into the new product development process. Courseware developers face similar external challenges with a shift to a less stable market, shorter course life cycles, and teacher/student preoccupation with technical performance. Even though structural mechanisms (such as multi-functional teams) speed problem solving and improve the quality of solutions and create fresh, technologically advanced products, they fall short if the product concept fails to anticipate future needs and wants.

Timing is also a key factor when considering meshing mutually entrained functions to technological rhythms. For example, the timing or release of certain development tools or compression techniques certainly influence courseware development.

Another thread in a mesh designed for decreasing product development time is to connect with external sources for product innovations. Courseware developers could license or buy advances achieved by others, buy courses that have achieved the desired advances, and use independent contractors with specific R&D skills needed. Courseware developers must be able to recognize patterns and advances in the environment and determine the fit with new course development.

As discussed above, the types of meshing, or synchronizing of rhythms and patterns manifest in courseware development include mutual entrainment within the institution or company, such as multi-functional groups or roles as well as mutual entrainment with external rhythms such as consumer patterns or external technological advances. Recognizing the existence of mesh, or mutual entrainment, pushes researchers to identify the determinants in which mutual entrainment of courseware development rhythms would decrease development time.

3.3 Tempo in Courseware Development

Mutual entrainment alone may not accelerate courseware development unless the courseware development rhythms are entrained or re-entrained to an appropriate pace or cycle. This section discusses tempo or tempo entrainment, the pacing of meshed rhythms or patterns such as those considered above, and its effects on courseware time. There are a number of internal and external pacers manifested throughout the development process. For better or worse, the pacers tend to capture the process and force it to proceed at a certain tempo. The following discussion first addresses internal pacers and their effects on the tempo of courseware development, then considers external pacers, and finally appraises the issues surrounding the decoupling and re-entraining to appropriate pacers.

Internal pacers or entraining cycles include budget and funding cycles, strategic planning cycles, project or phase review cycles, and projected milestone completion dates. The tempo that these pacers impose may not be the most appropriate for courseware development.

Certain external pacers also have a marked effect on the courseware development tempo. [Stalk & Hout 90] conclude that the pace of innovation varies from industry to industry, depending on the specific development cycles and what specifically drives those cycles. At one extreme is the eight-to-ten year tempo of the pharmaceutical industry, with the pace of government and nature itself capturing the industry's tempo; the pace of the FDA can be viewed as an uncontrollable zeitgeber in this case. At the other extreme, [Stalk & Hout 90] refer to the television news industry, in which product development cycles are measured in hours or minutes. The consumers' desire to know what is news as soon as it is news drives the cycle. Courseware development for the web faces both the fast pace of technological advances and the more stodgy pace of traditional instructional design.

On the other hand, some rhythms naturally resist entrainment to pacers. In the biological examples of entrainment, a rhythm naturally occurring as nearly a 24-hour rhythm was easily entrained to an exact 24-hour cycle. But in terms of courseware development, changing to a new tempo may not be that easy. For example, [Rosenau 92] lists forcing scientists to "invent on schedule" as a classic development delay.

Another possible source of resistance to entrainment springs from the varying difficulties encountered with the type or extent of innovation involved in courseware development. Courseware projects can range from mere production tasks to full-scale research and development of technology and pedagogy. Although different types of innovation project paces might not be as obvious as the circadian cycle, different types of projects seem to require or capture different rhythms or patterns--which in turn are related to speeding the development timeframe.

The linking of courseware development rhythms and patterns to each other and to appropriate pacers or entraining cycles is critical to increasing the tempo of new product development.

4. Conclusion

This paper began with a discussion of the entrainment concept manifest in biological and social systems. Possble applications of rhythm, mesh, tempo, and pace in courseware development were explored, along with possible links to accelerating courseware development. Application of entrainment to courseware development has the potential to provide researchers with an underpinning theory of courseware development acceleration to move research from a better understanding or co-variations to discovering important causal elements. The fulfillment of these aspirations will likely help the delivery of new courses "on a horse" that is quick and sure-footed.

5. References

Abernathy, W. J., & Utterback, J. M. (1978). Patterns of industrial innovation. *Technology Review*, 80, 41-47.

Ancona, D. G., & Caldwell, D. F. (1992). Demography and Design: Predictors of new product team performance. *Organization Science*, *3*(3), 321-341.

Aschoff, J., Hoffman, K., Pohl, H., & Wever, R. (1975). Re-entrainment of circadian rhythms after phase shifts of the Zeitgeber. *Chronobiologia*, 2, 23-78.

Berger, P. L., & Luckman, T. (1966). *The Social Construction of Reality*. New York: Anchor Books.

Bluedorn, A. C., & Denhardt, R. B. (1988). Time and organizations. *Journal of Management*, 14 (2), 299-320.

Bower, J. L., & Hout, T. M. (1988). Fast-cycle capability for competitive power. *Harvard Business Review*, 66 (November-December), 110-118.

Brown, F. M. (1982). Rhythmicity as an emerging variable for psychology. In F. M. Brown, & R. C. Graeber (Ed.), *Rhythmic Aspects of Behavior* (pp. 3-38). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Clark, K. B., & Fujimoto, T. (1990). The power of product integrity. *Harvard Business Review*, 68 (November-December), 107-118.

Condon, W. S. (1978). An analysis of behavioral organization. *Sign Language Studies*, 13,

Foster, R. N. (1986). Timing Technological Transitions. In M. L. Tushman, & W. L. Moore (Ed.), *Readings in the Management of Innovation* (pp. 215-228). Cambridge, MA: Ballinger Publishing.

Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, 31, 9-41.

Graeber, R. C. (1982). Alterations in performance following rapid transmeridian flight. In F. M. Brown, & R. C. Graeber (Ed.), *Rhythmic Aspects of Behavior* (pp. 173-212). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Gupta, A. K., Raj, S. P., & Wilemon, D. (1985). The R&D-Marketing interface in high-technology firms. *Journal of Product Innovation Management*, 2 (March), 12-24.

Gupta, A. K., & Wilemon, D. L. (1990). Accelerating the development of technology-based new products. *California Management Review*, 32 (2), 24-44.

Gurvitch, G. (1964). *The spectrum of social time*. Dordrecht, Holland: D. Reidel Publishing Co.

Hall, E. T. (1983). *The Dance of Life*. Garden City, NY: Anchor Books.

Imai, K.-i., Nonaka, I., & Takeuchi, H. (1985). Managing the new product development process: How Japanese companies learn and unlearn. In K. B. Clark, & R. H. Hayes (Ed.), *The Uneasy Alliance* (Cambridge, MA: HBS Press.

Katz, R. (1982). The effects of group longevity on project communication and performance. *Administrative Science Quarterly*, 27, 81-104.

Katz, R. (1988). Organizational socialization. In R. Katz (Ed.), *Managing professionals in innovative organizations: A collection of readings* (pp. 355-369). Cambridge, MA: Ballinger Publishing Co.

Koepchen, H. P. (1990). Physiology of rhythms and control systems: an integrative approach. In H. Haken, & H. P. Koepchen (Ed.), *Rhythms in Physiological Systems* (vol. 55, pp. 3-20). New York: Springer-Verlag.

Lawrence, P. R., & Lorsch, J. (1967). *Organization and Environment*. Boston: Graduate School of Business Administration, Harvard University.

McGrath, J. E., Kelly, J. R., & Machatka, D. E. (1984). The social psychology of time: Entrainment of behavior in social and organizational settings. In S. Oskamp (Ed.), *Applied Social Psychology Annual* (V5, pp. 21-44). Beverly Hills, CA: Sage.

McGrath, J. E., & Kelly, J. R. (1986). *Time and Human Interaction*. New York: The Guilford Press.

Parkinson, C. N. (1957). *Parkinson's Law*. Cambridge, MA: Riverdale Press.

Rose, K. J. (1988). *The Body in Time*. New York: John Wiley & Sons, Inc.

Rosenau, M. D. (1990). *Faster New Product Development: Getting the Right New Product to Market Quickly*. New York: AMACOM.

Rosenau, M. D. (1992, 2). Faster New Product Development: Accomplishments and Essential Elements. *Visions*, pp. 15-17.

Schmenner, R. W. (1988). The merit of making things fast. *Sloan Management Review*, 30 (1), 11-17.

Smith, P. G., & Reinertsen, D. G. (1991). *Developing Products in Half the Time*. New York: VanNostrand Reinhold.

Stalk, G. J., & Hout, T. M. (1990). *Competing Against Time*. New York: The Free Press.

Takeuchi, H., & Nonaka, I. (1986). The new product development game. *Harvard Business Review*, 64 (January/February), 137-146.

Thompson, J. D. (1967). *Organizations in Action*. New York: Mc Graw-Hill Book Company.

Tichy, N., & Charan, R. (1989). Speed, simplicity, self-confidence: An interview with Jack Welch. *Harvard Business Review*, 67 (September-October), 113-121.

Tushman, M. L., & Romanelli, E. (1985). Organizational evolution: A metamorphosis model of convergence and reorientation. In L. L. Cummings, & B. M. Staw (Ed.), *Research in Organizational Behavior* (vol. 7, pp. 171-222). Greenwich, CT: JAI Press.

Von Braun, C.-F. (1990). The acceleration trap. *Sloan Management Review*, 32 (1), 49-58.

Wilkinson, R. T. (1982). The relationship between body temperature and performance across circadian phase shifts . In F. M. Brown, & R. C. Graeber (Ed.), *Rhythmic Aspects of Behavior* (pp. 213-240). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

NOTICE

REPRODUCTION BASIS

☒ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").