

OVERVIEW OF SYSTEM THEORY:

Over the last few years as the field of distance education has evolved worldwide, the increase of distance learning institutions, both in number and diversity, has made profound implications on the profession of teaching, the process of learning, and the planning of educational systems. Experts in the field explain:

As an organization focuses on one part of the system they need to picture the total context. Each component process in a distance education institution may be developed and operated independently to some degree, but good quality requires that the development and operation of each component be controlled in such a way that is fully integrated with the development and operation of all other components, making each supportive of the other. (Moore & Kearsley, 1996, p.8)

Without exception, to plan and develop an effective distance education institution all components of the system must be considered and combined in mutually beneficial and supportive ways to provide for the facilitation and support of the interactions between and among all the components (Chute, Thompson, & Hancock, 1999, p. 67). Each component in the system can be broken down into subsystems, but all processes and functions will work together to produce a quality design.

When a DE organizations use the systemic view as a conceptual tool to help understand and analyze distance education programs, the planning and implementation of the distance education enterprise involves a wide range of professional input, expertise, and support through an empathic instructional mission of the institution. (Holmberg, 1995). To create a multi-purpose distance education system will take consistent and coordinated efforts of all constituents involved. The success behind the institution is that each functional unit works under the influence of related forces and serves a common purpose." (Moore & Kearsley, 1996, p. 12).

The process of strategic planning for a distance education institution is essential. When planning a system in distance education an institution must gather and analyze information to rationally move toward the implementation of a plan that holds promise of achieving all expectations. The strategic plan is not linear and the influence on each element is continual throughout the planning process. A clearly defined and articulate mission statement is necessary for development. In order to create its success, an institution must clearly define educational goals and objectives in an organizational and administrative structure, determined by economic, social and political circumstances; that will affect the way in which the institution addresses its various functions. (Perrington, 13)

The components presented in this paper focus the important functions of a DE system: learners, content, delivery, organizational context, and interactive communication technologies. An overview of the system is presented first and then each major components is explained briefly, broken down into supporting subsystems, and identified in an organizational chart. When appropriately balanced, all components work in tandem to assess the needs of learners, develop quality curriculums, and design and develop a successful educational experience. It is the relationship and integration of these components and sub-components that the true identity and power of a distance education system becomes apparent. (Chute, et. al., 1999, p.70).

(Appendix: Table 1)

MULTI-PURPOSE DISTANCE EDUCATION SYSTEM OUTLINE:

I. Learners:

A. Background Characteristics

- i. *Student Archetype*
 - a) age
 - b) labor-force participation
 - c) life roles
 - d) prior learning
 - e) cultural and belief systems
 - f) educational background
 - g) need for credentials
 - h) time and place of study
 - i) access to communications
 - j) educational provider
 - k) financial support
 - l) physical disabilities

(Powell, McGuire, & Craford, 2000, p. 89)

B. Student Administration

- i. *Pre/Enrollment- Admission Procedure*
 - a) Awareness of opportunity
 - b) Guidance through interest
 - c) Recruiting procedures
 - d) Analyze data
 - ii. *Acceptance of Application*
 - a) Assess information
 - b) Provide quality information
 - Refusal
 - Offer
 - c) Record application
- (Freidman, p.133)
- iii. *Registry: Applicant to Student*
 - a) Student record
 - b) Accounting
 - Payment
 - Grants/Scholarships/Financial statements
 - c) Finance
 - Bookstore (supplies/textbooks)
 - Purchasing
 - iv. *Learning Process*
 - a) Student Support Services
 - Career Counseling
 - Academic Guidance
 - Student Advocacy
 - Learning Support
 - Program/Course Information
 - Financial Advice
 - Library Service
 - Tutorial Assistance
 - b) Exit/Research
- (Reid, 1996, p.267)

- Graduation (successful completion reports)
- Drop-out (address retention issues)

II. Curriculum/Material Content

A. Production:

- i. *Instructional Design*
 - a) Identify instructional need
 - b) Analyze learner
 - c) Develop instructional goal
 - d) Organize design team
 - e) Identify system requirement
- ii. *Course development*
 - a) Develop/plan course objective
 - b) Create/write content outline
 - c) Review existing materials and available expertise
 - d) Organize content to meet objectives
 - e) Curriculum editorial
 - f) Select delivery approaches
 - g) Develop materials
 - h) Design documentation/approval
- iii. *Evaluation/Revision*
 - a) Summary of data
 - b) Feedback of data (inside/outside observations)
 - c) Evaluation/Judgement (study and reflection)

(Spitzer, 1991, p.3)

(Willis, 1993, p.73)

III. Delivery

A. Distribution

- i. *Media Support*
- ii. *Resources/Technical Support*
- iii. *Academic Computing*
- iv. *Technology Team*
- v. *Facilitators*

B. Technology Selection

- i. *Hard Method*
- ii. *Moderate Method*
- iii. *Easy Method*

(UMUC/Bell Atlantic Virtual Resource Site, 2001. [Online])

C. Assessment

- i. *Select appropriate data collection measures*
- ii. *Plan and implement evaluations*
- iii. *Formative Evaluation*
- iv. *Summative Evaluation*
- v. *Qualitative/Quantitative Research*

(Tate, 1996, p.103)

IV: Organizational Context

A. Mission/Philosophy

- i. *Governance*
 - a) Organizational objectives
 - b) Pedagogic strategies

- c) Division of labor
- d) Span of control (Daniel & Snowden, 1981, .221)
- e) Institutional budget
- f) Institutional advancement
 - Market research data
 - Educational data
 - Institutional planning
 - Quality assessment
 - Recruitment

(Calder,1996, p.364)

ii. *Departmentation*

- a) Academic Affairs
 - Teaching programs
 - Delivery methods
 - Instructional team
 - Design team
- b) Student Affairs
 - Student support (as identified above)
- c) Business Affairs
 - Finance/accounting
 - Bursars (tuition)
 - Payroll
 - Marketing and publication
 - Purchasing/printing binding
 - Public information
 - Relations and news
 - Provision media
 - Maintenance/security

(Molenda, Lee, & Oh, 2000, p.302)

iii. *Administrative*

- a) Administrative support
 - Library support
 - Student services (as identified above)
- b) Instructional Technology
 - Academic computing
 - Media Production/support
 - Instructional technology infrastructure
 - Operations
 - Finance
 - Planning
 - Materials

iv. *Process*

- a) Human resource services
- b) Records management
- c) Clerical/support services
- d) Evaluation/Research

V. Interactive/Communications Technology

A. Interaction

- i. *Selection of Communication Technologies (cost-effective)*
 - a) Printed media
 - Books, study guides, correspondence study
 - b) Program Media
 - Audio/video cassettes
 - Radio/television broadcasts
 - Computer software
 - Audio graphic/video conferencing
 - c) Networked Media
 - Computer-mediated communications
- ii. *Two way communication participation*
 - a) Learner-instructor interaction
 - Facilitator
 - Tutor
 - Counselor
 - b) Learner-content interaction
 - Administrative staff
 - Institutional resources
 - Technologies
 - c) Learner-learner interaction
 - Group/Collaborative learning (Moore & Kearsley, 1996, p.9)

MAJOR COMPONENTS IN A DISTANCE EDUCATION SYSTEM:

I. Learners:

The characteristics and needs of the distance learner influences the design, structure and operation of the whole distance education system. System processes must meet learners' needs and take into account learners' characteristics: what affects their success, how they perceive distance learning, and what they expect from a distance learning program (Moore & Kearsley, 1996, p.153). The learners' thoughts and actions within the system will have an impact on all other parts. For example, most distance learners are adult students who require more individual support than general support, and demand what is provided relates to their specific and unique concerns and needs (Reid, 1996, p.267). When planning an effective DE organization, there must be a clear understanding of the needs and constraints faced by the targeted audience. The distance learner will interact with the system at many stages throughout their educational process and his/her requirements on the system will vary (Friedman, 1998). Therefore, a multi-purpose distance education organization must provide student support services and student administrative services as an essential and integral component of the teaching/learning process, and one that has the learner as the central focus (Reid, 1996, p. 265).

Table 1: Student Archetype: The Individual in Multiple Context

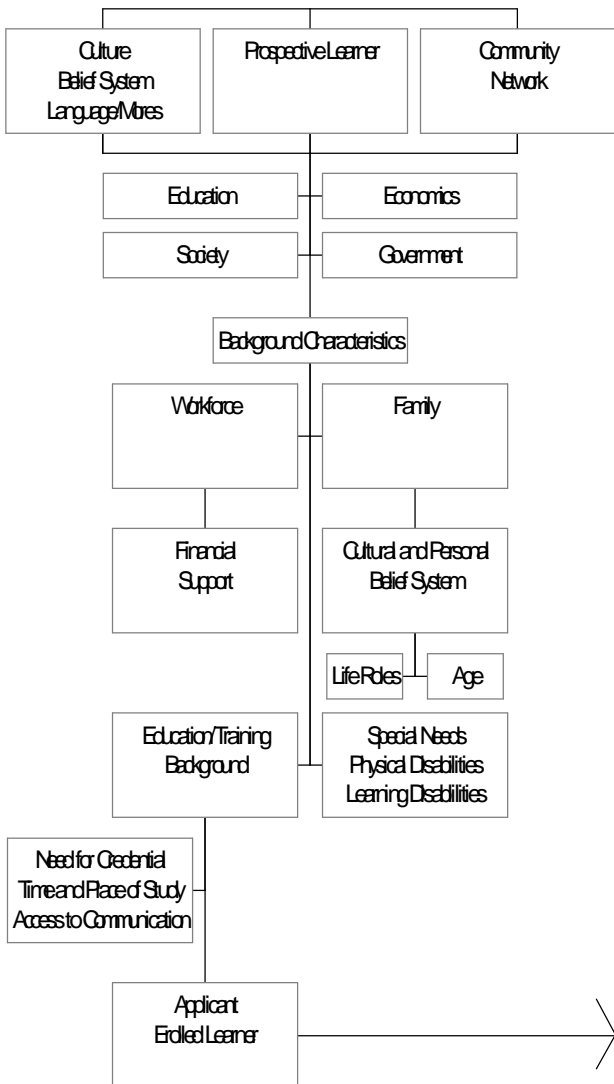
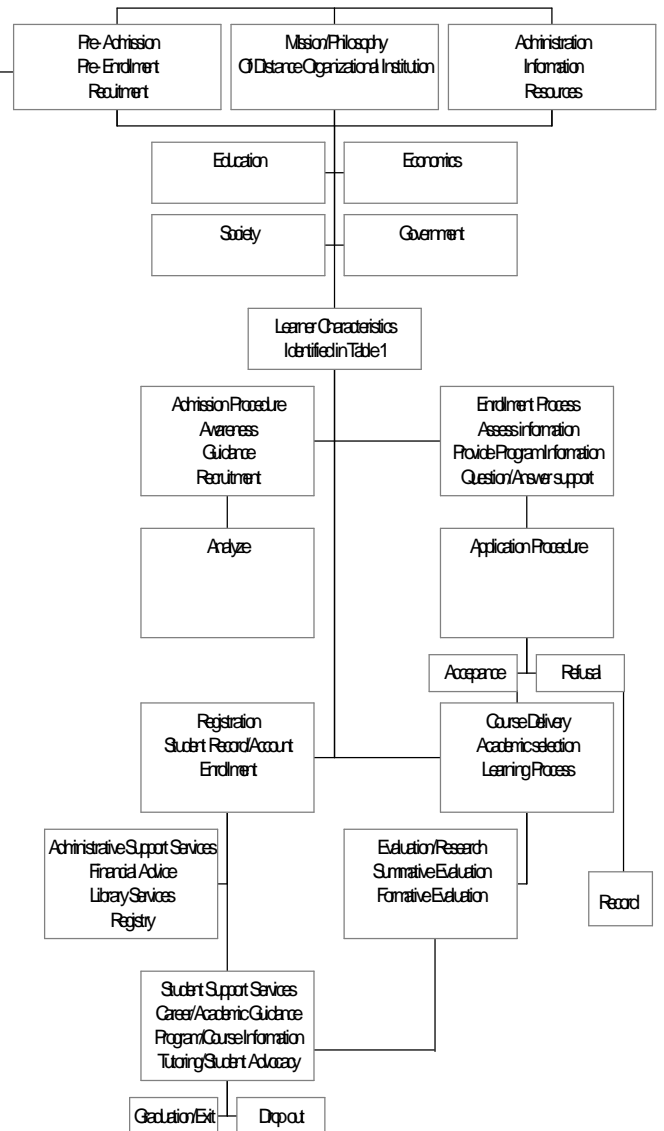
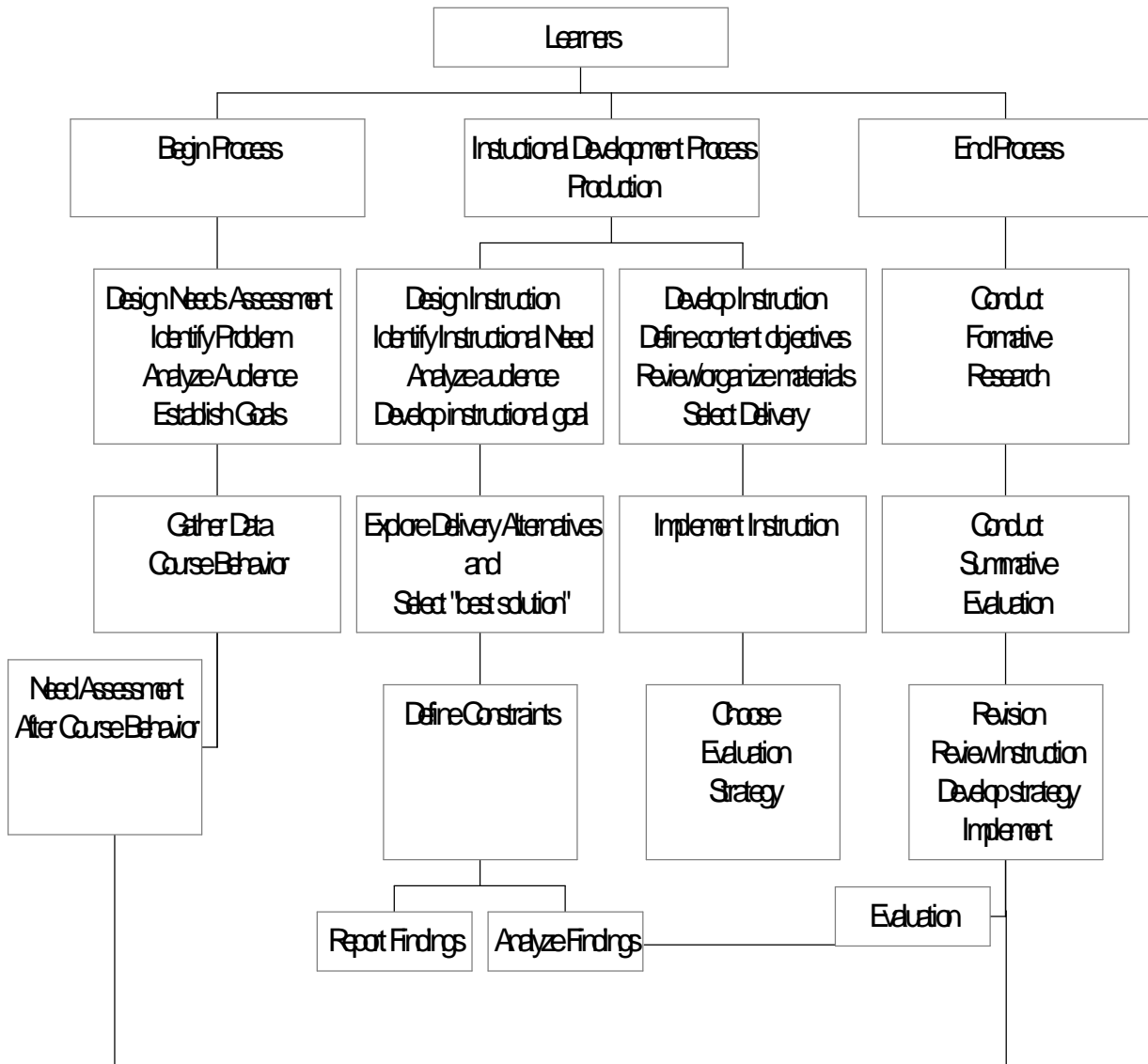


Table 2: Administrative Support for Learner



II. Curriculum/Material Content

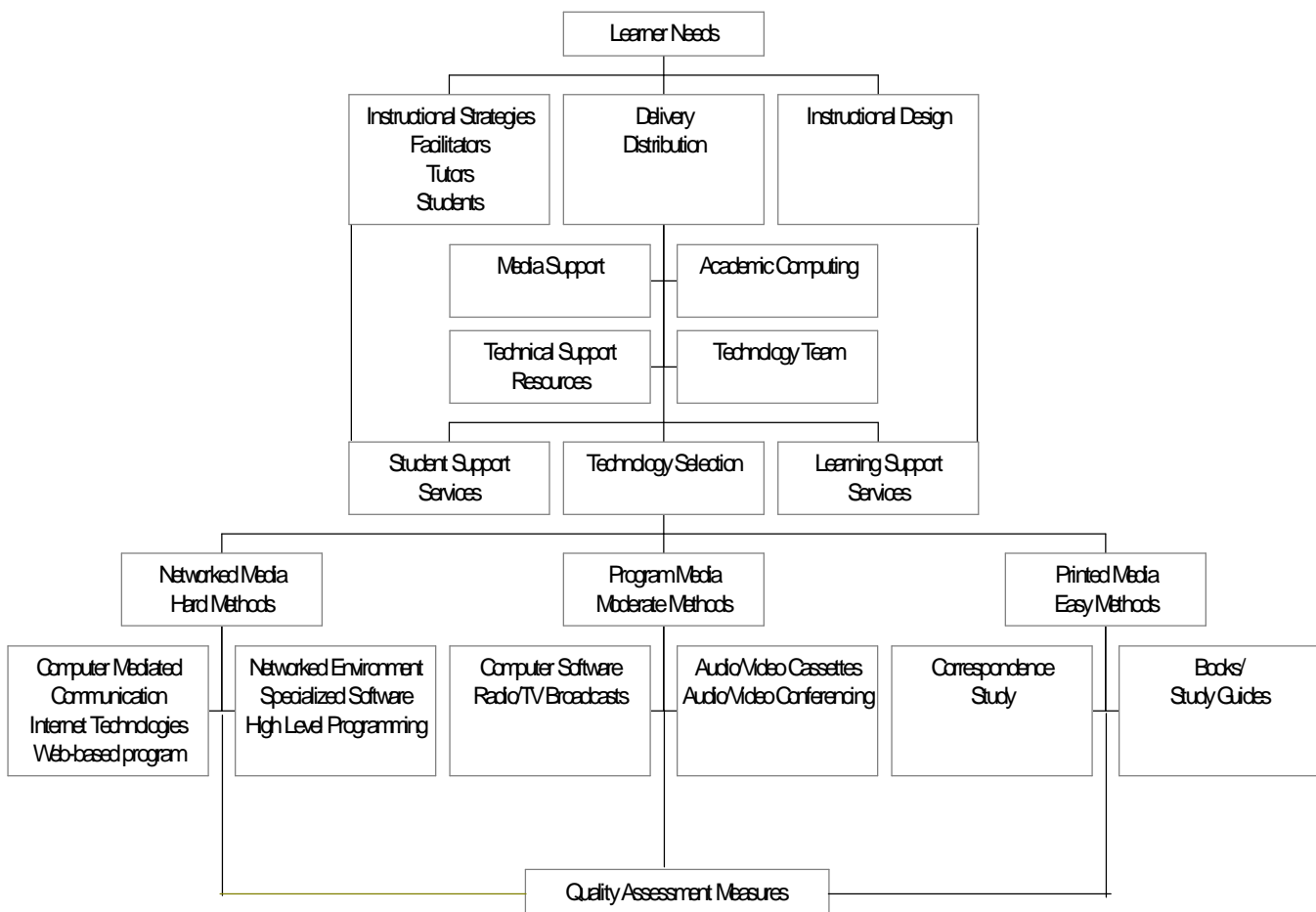
Instructional content and how it is developed into distance learning materials is a complex element in the DE system. Like learners, this general component possesses characteristics and needs that influence the development and operation of the whole system. There are three basic subsystems to this function (development, design, and revision). The process is cyclical and each stage leads to the next, with the final stage as a reanalysis of the instruction. (Willis, 1993, p. 73). Curriculum guidelines are set, initially, to serve as benchmarks for approval, and are continuously reviewed under normal course revision. In the design process instructional development begins with identification and definition of instructional need. Designers must create quality instruction within the confines of available communication and delivery technologies. These decisions need to be made with careful consideration because the quality of the educational activity is likely to suffer, with negative effects on both the learners and the credibility of distance learning. (Chute et. al., 1999, p.67). To provide quality assurance, curriculums should be designed by a team of experts, (such as graphic designers, producers, design experts and media/technology specialists). Once decisions are made and implemented, summary evaluations can be used as tools for valuable information to assess instructional quality and make changes whenever necessary.



III. Delivery

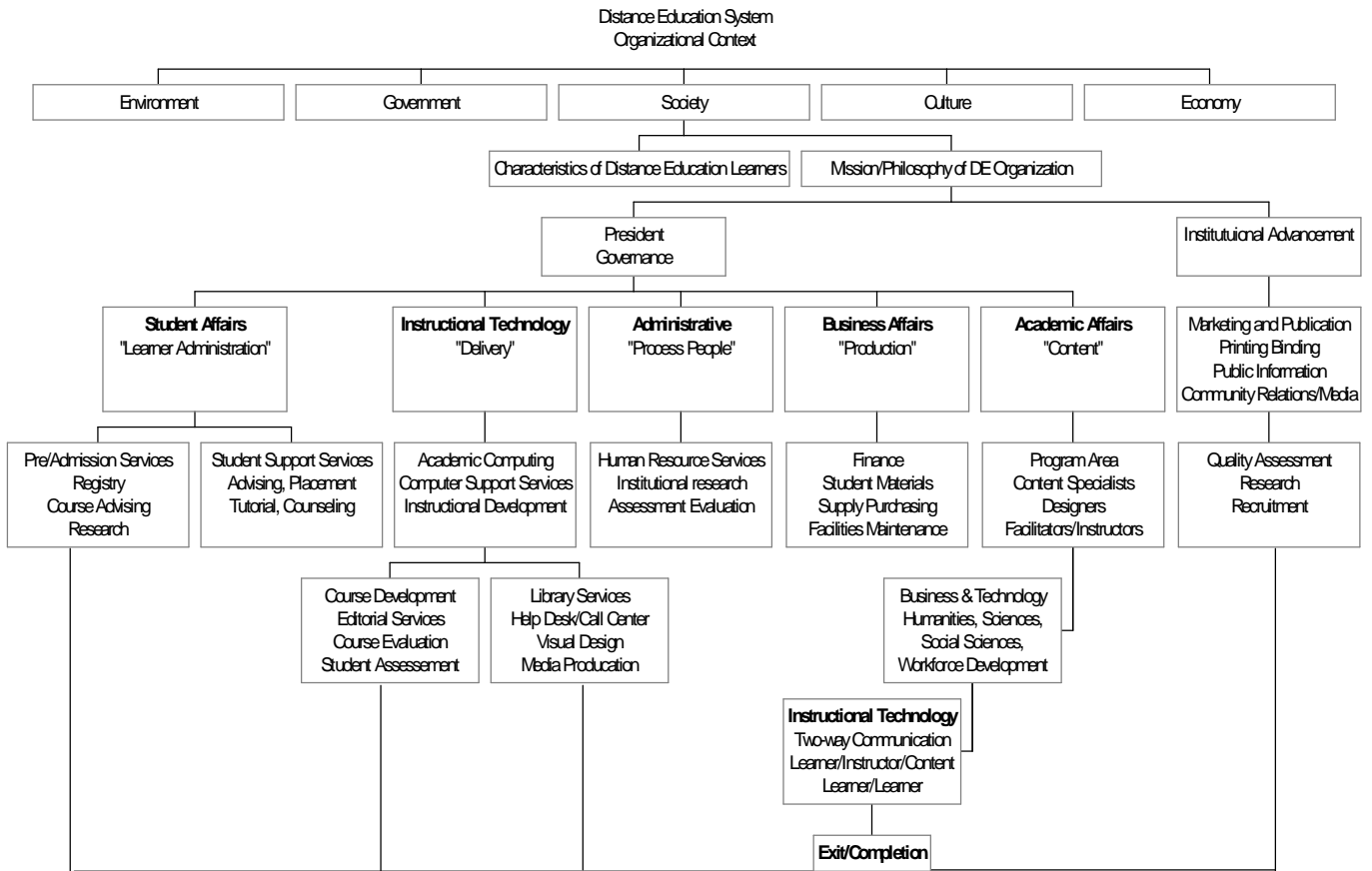
Obviously, delivery technologies are important elements in a distance learning organization and the choices of delivery methods will depend on a number of factors within the total systems design. These are the functions that allow a system to extend instruction beyond the confines of a classroom, shift the design from the traditional paradigm, and connect resources within the reach of learners and instructors at a distance (Moore & Kearsley, 1999). Some media are more appropriate than others to deliver abstract knowledge and mastery of skills. For example, a subject matter may need to incorporate high-resolution visual images to represent the concepts or skills being taught. In this case, the organization has to include a technology that can reliably transmit such images. (Chute, 1999). A course delivered by the most sophisticated of technologies must consider if the targeted learner has access to the technology. Each technology has an important affect on the learner population, content area and organizational setting. In the process of selecting a delivery method, technical systems must be analyzed before the course is developed. Teams must design an effective infrastructure that supports interaction. Typically, the systemic approach will result in a mix of media with each serving a specific purpose. Each can support varying degrees of structure in teaching programs, different degrees of dialog between teachers and learners and among learners, as well as differing degrees of self-directness of the learners (Moore & Kearsley, 1996, p. 11). Using this integrated approach, the institutions delivery task is to carefully select among technological options. The goal is to build a mix, meeting the needs of the learner in a manner that is instructionally effective and financially prudent. (Willis, 1993).

Instructional Delivery Method



IV. Organizational Context

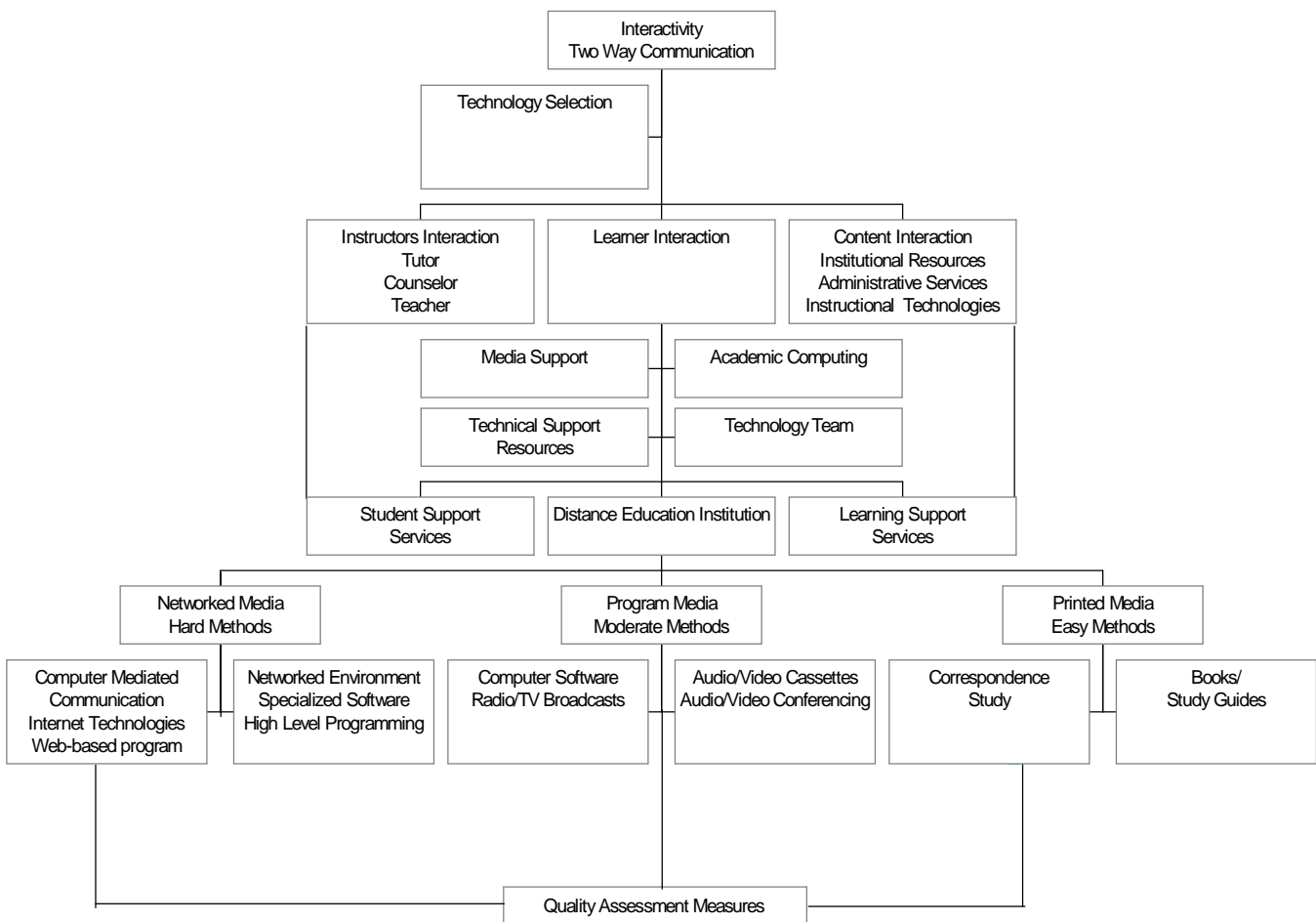
The sponsoring organization has a strong influence on the ultimate shape and identity of the distance education system. The context of the organization determines the purpose for which people are being brought together to learn. The organization is responsible for creating the identity, mission, and legitimacy of the program. It is committed to providing tangible and intangible resources to the distance education program, and the moral support of the leadership will have a tremendous impact on the character and ultimate success of the institution. (Chute et. al., 1999). Leadership decisions within the overall structure of the organization will influence attitudes throughout the whole system. The level of support and commitment to financial resources will determine the types as well as the extent of the distance learning programs implemented (Molenda, et. al. 2000). The hierarchy of a DE organization would include all professionals who design, implement, manage and support the various aspects of the system. These professionals can be divided into two groups- those who are directly involved with the learning interaction, (instructors/tutors) and those involved in the support of the system, (administrators, instructional team, designers, support staff and process staff) (Chute et. al., 1999). In response to a changing environment, the makeup of this component will mature, retrace procedures and take corrective action. The system should allow for evaluations and feedback to ensure goals and objectives are being met, and reflect the mission of the institution.



V. Interactive/Communications Technology

Two-way communication is an essential process in a distance education program. According to Holmberg (1995), a distance education system is not just combining innovative technologies to deliver subject matter, but yielding to students motivations, difficulties, successes and concerns (p. 6). Learners need to communicate and interact with their instructors and the supporting institution at various stages throughout their learning experience. While DE students may be operating relatively independently, they still require guidance and feedback on progress and process. As with content and delivery, communication/interaction requires special consideration that depends upon available technologies. The learning event can be asynchronous or synchronous (time delayed or real time) and many types of media can be considered (including audio/video technology, web-based/Internet technologies, or networked learning). Advances in technology can provide access to information through mediums that support collaborative learning environments and increase learner/instructor and learner/learner interaction. Innovative technologies such as electronic mail, bulletin boards, online chat groups, computer networks and internet access, have helped distance educators deliver instruction that mirror traditional face to face interaction. An effective system should incorporate interactivity, encourage students' self-direction, and create a sense of community among learners.

Interactive Communications Technology



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