

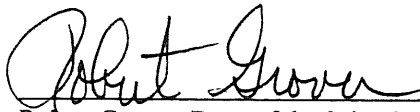
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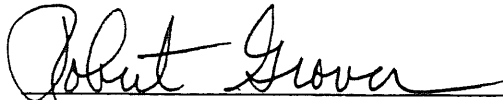
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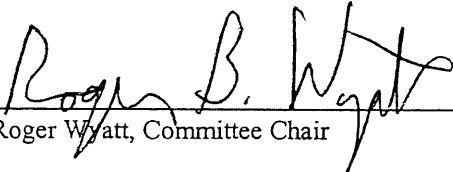
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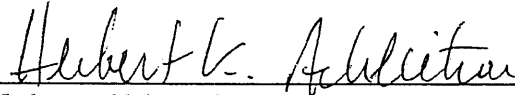
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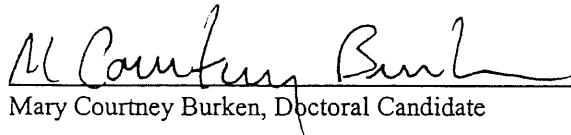
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**AN ABSTRACT OF THE DISSERTATION  
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE  
SCHOOL OF LIBRARY AND INFORMATION MANAGEMENT**

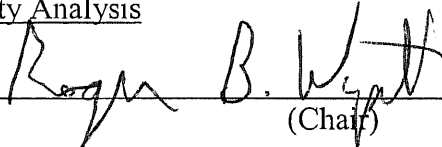
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presented on December 6, 2003

Title: The Information Transfer Process In The NATA-BOD Education Reform

Decision: A Complexity Analysis

Abstract approved: \_\_\_\_\_

  
(Chair)

The information transfer process in the National Athletic Trainers Association (NATA) Board of Directors (BOD) organization Education Reform (ER) decision was evaluated using complexity analysis with grounded theory methodology for organizational decision making and information transfer. Data were triangulated by participant interviews, BOD meeting minutes and supporting board books, published ER articles, and athletic training listserv postings. The data were collected during 2003 for 1990-1998 to ensure adequate ER background and effect evaluation because the ER decision was initiated in 1994 with Education Task Force formation (ETF).

Sixteen of 18 participants on the BOD a minimum of four years during 1990-1998 were interviewed. Data triangulation resulted in the following conclusions. The BOD ER decision process was influenced by the BOD system and individual BOD members and communication networks. The BOD system and the environment adapted to events occurring through the decision process. Primary categories included contextual/environmental, interpersonal relation/communication network, and interpretation influences.

Contextual/environmental influences included education and political categories. Educational issues included professional image, definition, and a perceived need to standardize education. Politics included state credential, third party reimbursement, and educational issues. BOD organization modifications were influenced by individual BOD member, network interactions, and interpretations which supported organizational culture. The BOD organizational culture was influenced by seat assignments and emergent conventions. Emergent conventions included leadership philosophy, BOD ownership, educational language, and task force purpose. Political issues included BOD and ER politics such as educational philosophy changes and communication politics.

The ER decision was based on BOD influences and organizational culture. BOD ER influences occurred through intra and extra-BOD interactions. Intra-BOD and extra-BOD interactions enhanced collective BOD ER opinions. Extra-BOD influences occurred from four groups integrally related to the ER process who strongly supported accreditation as formal athletic training education. There was a lot of overlap between members in the influence categories. The categories included: PEC/JRC members who evaluated athletic training education programs; former BOD members; NATA leadership and committee members; and ETF members. Participant interactions and influences transferred information resulting in increasing support for and belief in the ER decision related to member influences and organizational culture.

**THE INFORMATION TRANSFER PROCESS IN THE NATA-BOD EDUCATION  
REFORM DECISION: A COMPLEXITY ANALYSIS**

by

**M. Courtney Burken**

**Arlington, Texas**

**November, 2003**

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**A Dissertation**

**Presented to**

**EMPORIA STATE UNIVERSITY**

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**In Partial Fulfillment**

**Of the Requirements for the Degree**

**Doctor of Philosophy**

**The School of Library and Information Management**

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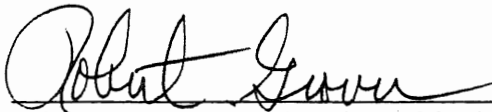
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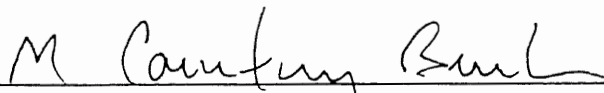
  
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## Chapter 1

### Introduction

This research analyzes organizational decision making and information transfer with a complexity framework. The 1996 National Athletic Trainers Association (NATA) Board of Directors (BOD) decision to implement Education Reform (ER) was studied. The purpose was to explain ER decision influences as the decision process progressed utilizing organizational analysis and information transfer process contexts.

A certified athletic trainer (ATC) is an “allied health professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity.” (Public Relations Presentation, 2002). A student becomes credentialed as a certified athletic trainer by graduating from college and satisfying the requirements for the National Athletic Trainers Association Board of Certification (NATABOC) national certification examination. When the student passes the examination, he or she becomes a nationally certified athletic trainer.

The NATA is the sole national professional organization for athletic trainers. Currently there are over 26,000 NATA members (Ryan, 2003). The BOD, composed of 10 district directors, leads the NATA. There are many titles and abbreviations related to the athletic training profession, the NATA, and athletic training credentialing. A summary of general athletic training and professional terms can be found in Appendix A.

The BOD ER decision resulted in many changes to athletic training education. One of these changed the national certification examination qualifications and standardized athletic trainer student education by eliminating the internship route to

certification. Internship candidates must have completed their education and applied for the national certification exam by December 31, 2003. Since the ER decision results, including national exam qualification, are still occurring the final results of ER on the athletic training profession remain to be seen. The recollection and interpretations of the BOD members who made the ER decision may change after the internship candidacy deadline and with the continued implementation of other ER changes. Therefore, it was important to conduct this investigation prior to December 2003.

A number of issues, including education, were identified in the 1989 BOD and Lawrence-Leitner & Co. Management Consultants Summary Long Range Plan (1989). The BOD formal education reform decision process began in September 1994 with the Education Task Force (ETF) formation (Education Task Force, 1995). The ETF presented preliminary ER recommendations to the BOD in December 1995 (McCullan, 1996). The final 18 recommendations for athletic training education reform (ER) were then presented to the BOD (Appendix B) (NATA BOD Meeting Minutes, November, 1996). The BOD approved the ER recommendations in December 1996. These recommendations created a new body, the Education Council (EC), to serve as a clearinghouse for all educational policies. They also eliminated the internship route to certification as an athletic trainer (Education Task Force, 1997). Appendix A details titles and abbreviations related to the athletic training profession and credentials. There are a number of titles and abbreviations that are similar relating specifically to the ER process. Because of this, a summary of ER related terms may be found in Appendix C.

The BOD made the ER decision in a complex environment. There were many contributing factors to the ER decision. Educational changes were initiated in the 1989 Summary Long Range Plan. The plan identified education programs as a strength. A weakness was a lack of recognition for those programs (although disagreement was noted). The identified solution was to seek outside accreditation for athletic training educational programs with the assumption that the internship route to certification would be phased out (Lawrence-Leitner & Co. Management Consultants, 1989). In 1990 the strategic planning process continued with the Visionary Strategic Plan (Lawrence-Leitner & Co. Management Consultants, 1990). This plan, developed by the BOD with Lawrence-Leitner & Co. Management Consultants included education comments similar to the 1989 Summary Long Range Plan about education and accreditation.

There are two primary influences affecting the BOD ER decision, educational professionalism and politics. The BOD felt that athletic training was not seen as a true profession and athletic trainers were not perceived as true professionals. Also, the profession's image and the work settings of certified athletic trainers were perceived as needing improvement through a visionary plan. Education was the vehicle chosen to solve those issues. Political issues included NATABOC, which was already planning on eliminating the internship route to certification based on a number of problems encountered with applicants for the national certification exam for athletic trainers, and governmental affairs including state legislation and reimbursement difficulties. These factors formed much of the complex ER environment. ER factors, influences,



communication linkages, and information transfer are detailed further in Chapters 3 and 4.

Qualitative research methodologies are appropriate to develop theory and models when little is known about situational specifics. Perspective and context are critical factors in qualitative research. As Lissack and Gunz (1999) state “what we see is always a function of where we stand” (p. 1). This research utilizes a complexity theory base and grounded theory methodology to examine ER information transfer. The research process is detailed following the literature review. In brief, the process answered research questions by analyzing primary data from published accounts and explanations, BOD meeting minutes and supporting data in board books, and athletic training listserv archives (electronic mailing lists). This data was triangulated with data analysis of 1990-1998 BOD member interviews during the spring of 2003.

The result was a qualitatively focused complexity explanation of the BOD ER decision and specific ER influences over time. The basic research question was how and why the education reform decision was made by the BOD. The qualitative approach was the most appropriate method because complexity framework allows issue context and environment changes over time to be studied. Complexity theory has recently begun to be utilized in organizational theory. The decision making process relating to the information transfer process is also important. Information has been identified as a critical component in organizational function, including sense making and decision making processes (Lissack & Gunz, 1999; March, 1999).

Organizational decision making information transfer components related to context and environment within organizational and network adaptations have not been studied to date. Little is known by the athletic training public about complex environment and factors leading to the ER decision. There is also little known about BOD decision making. Information transfer within the NATA ER decision process has not been studied. This research has implications for certified athletic trainers, the NATA, the BOD, and organizational analysis and information transfer fields by providing a beginning merger of these components.

Organizational analysis research stems from a variety of isolated theoretical foundations. Examples include critical theory focus on power, feminism focus on gender issues, and post-modernist focus on language and organizational culture (Alvesson & Deetz, 1996; Calas & Smircich, 1996; Hall, 1985; Pettigrew, 1973). Each of these theoretical foundations focuses on an isolated component and excludes other possible relevant factors and explanations.

Complexity theory eliminates this single focus in social science research. Recent complexity analyses have explained disaster responses (Comfort, 1999), regulatory policy (Pherigo, Lee, Nehman, & Eve, 1999), unemployment rates (Guastello, 1999), program evaluation (Hertz, 1999), and economic transitions (Rosser, 1999). These analyses provided contextually specific systems evaluation to explain what occurred and why it occurred over time and as the system adapts. Nonlinear dynamic analysis has been applied to qualitative analysis techniques because of the specific context based research focus on the assumption that "a description and understanding of a person's social

environment or an organization's political context is essential for overall understanding of what is observed" (Patton, 1990, p. 49). Rogers and Kincaid (1981) used these concepts within network analysis methodology while studying innovation adoption.

Niall Ferguson (1999), a historian and nonlinear dynamic theorist, identified three main components in event explanation: contextual/environmental factors, interpretations, and involved individual and network interpersonal relationships. His influential factor and system change focus relates to complexity analysis with information (especially interpretation and availability) and system/organizations. The information transfer field evaluates how information flows from creation through storage or destruction. The information transfer process, or whether information is transferred, if it is modified, how it is transferred, and if it affects the system and system function, may be a valuable link by explaining events in all three factors.

This research will focus on dissemination and diffusion information transfer process components to enhance ER decision explanation aspects of contextual/environmental, interpretation, and interpersonal relation aspects. Dissemination is the spread or transfer of information/technology (Friedman & Farag, 1991). Diffusion is the understanding/adoption of the information/technology as determined by use of that information or references to it (Rogers, 1995; Roger Wyatt, personal conversation, June 14, 2002). For example, diffusion of information through the mainstream may affect issue context or environment. As information is available within a decision process it is interpreted, modified, and shared within networks and linkages (interpersonal relationships) before being interpreted by others. If communication is

adequate, information may become a construct with shared meaning for individuals in a specific setting at a specific point in time, at least until the information is reinterpreted or modified.

Because system adaptations occur over time, a complete (or as complete as possible) explanation of events occurs using nonlinear dynamic research methodology than a single focus methodology. The merging of organizational analysis and information transfer in context over time has not been previously studied. The addition of this research will add to organizational analysis literature and the information/communication literature through a complexity focus on network analysis.

This research may also benefit the field of athletic training. Athletic training is a young allied health profession, struggling with the growth issues common to all young allied health professions as they grow and change. NATA members have depended on the elected BOD members to determine best practices and procedures without decision accounting. Each BOD member functions within a personal context. This context includes the time constraints of serving on a board of directors of a fairly active national organization while working as an athletic trainer. BOD discussions and leadership data, handouts, and 1990-1993 BOD board book topics emphasize the importance of leadership. This research may aid the BOD in their efforts to continue to adapt the organization for effectiveness and efficiency. It may also aid NATA members to understand the board decision process and ask the questions needed during complex decision processes.

Chapter 1 consists of a literature review of important contexts and resources relevant to this study. It begins with a history of athletic training and the NATA. This is followed by an overview of complexity theory and the information transfer process with organizational analysis literature. Chapter 2 explains and delineates the research methodology. Research questions and issues, a description of the sample, and the data collection and analysis follows. The data analysis is included in Chapters 3 and 4. Chapter 3 analyzes the complex circumstances leading to the ER decision. Chapter 4 analyzes the BOD as a system. This includes the BOD conventions, network/communication link analysis, ER information transfer, and resulting interpretations. Chapter 5 forms the research discussion and conclusions.

## **Literature Review**

### ***History of Athletic Training and the NATA***

***The Profession and the NATA.*** A certified athletic trainer (ATC) is “an allied health care professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity” (Public Relations Presentation, 2002). The profession is composed of the knowledge and skills in cognitive, affective, and psychomotor knowledge and skills in 12 domains (Athletic Training Educational Competencies, 1999). These domains include: (a) risk management and injury prevention; (b) pathology of injury and illness; (c) assessment and evaluation; (d) acute care of injury and illness; (e) pharmacology; (f) therapeutic modalities; (g) therapeutic exercise; (h) general medical conditions; (i) nutritional aspects of injury and illness; (j)

psychosocial intervention and referral; (k) health care administration; and (l) professional development and responsibility (Athletic Training Education Competencies, 1999).

NATA development and change history including major decision, events, purposes, and work is complex. College education and certification have been incorporated, modified, and separated from the NATA. To simplify the complexity described in the following paragraphs a timeline summarizing major NATA events may be found in Appendix D.

During the 1930's, trainers were physicians and/or individuals with some medical training and interest in injuries to college athletes. They were very protective of the knowledge for injury treatment and rehabilitation. The only method of learning the trade was through apprenticeship (John Baxter, personal communication, January 8, 1998). A few early athletic trainers and the Cramer Company in Gardner, Kansas were the only driving forces in advancing professional solidarity by recognizing the need for a national organization prior to the 1930s (O'Shea, 1980). However, as more individuals became trainers sharing information became beneficial. The first NATA was formed in 1938. The organization then disbanded during World War II.

In 1947, college athletic trainers formed the Southern Conference Athletic Training Association and in 1948 the Eastern Conference Athletic Training Association. Organization in other United States regions soon followed. The first national meeting of the current NATA, composed of 10 regional districts, was held in 1950. The districts were formed by the original conferences, i.e., Southern Conference Athletic Training Association, as discussed previously.

It was not until 1950 that athletic trainer education required an internship similar to an apprenticeship. Athletic training students learned under the direction of collegiate athletic trainers and practiced their athletic training skills as students. Eventually they graduated and obtained positions as trainers or athletic trainers by virtue of their experience and interest in the profession (Ebel, 1999). This was not always the case. A former BOD member described his first paid athletic training position gained as a college sophomore with the qualifications of interest in functioning as the athletic trainer at a major college. He described the experience as learning under fire (Ike, personal communication, April 22, 2003). Soon the BOD was planning for appropriate formal education and professional requirements. The BOD appointed a committee in 1956 to increase professional preparation and study certification—two prongs of a BOD plan to transform athletic training “from a trade to a profession” (Ebel, 1999, p. 35).

### *Early education components*

Athletic training education programs (ATEP) existed mostly as collegiate internship programs where students practiced the art of athletic training under athletic trainer’s tutelage without a formal athletic training major. An exception was the athletic training major at Indiana State University begun in 1948. By 1952, there were at least 10 institutions with athletic training majors (Ebel, 1999). The BOD approved a model athletic training major, called a curriculum program, in 1959. Formal curriculum athletic training education did not spread quickly. Only four schools had applied for NATA approved curriculum status by 1970.

Athletic training education was still unknown by the administration at many institutions, even those with curriculum programs. A 1968 survey of college administrators revealed that half did not know an athletic training program, in any form, even existed at their institutions. They also did not know that an NATA approved curriculum program model had been developed. Based on this information, the Board formed the Subcommittee on Curriculum Development to review colleges seeking NATA curriculum status in 1969. This committee evolved into the current Professional Education Committee (PEC). Education programs wishing to obtain curriculum status turned in their materials to the PEC, who then evaluated the program and recommended curriculum or non-curriculum status to the BOD. The BOD approved (or did not approve) the program as an NATA approved curriculum ATEP. By 1973, there were 23 BOD approved Curricula and two graduate ATEP (O'Shea, 1980). This number continued to increase through the 1970s and 1980s.

*National athletic training certification.* The BOD goal of requiring NATA curriculum ATEP in colleges will not be achieved until January 2004 when the ER decision is fully implemented. Implementation will be completed as certification requirements change according to the 1996 BOD ER decision as described later in this dissertation.

National credentialing, or athletic training certification, was identified by the BOD in 1962 as a requirement for public protection to enforce minimum athletic training standards (Ebel, 1999). All active NATA members were assigned certification numbers in 1965. A subcommittee on certification by examination was formed in 1968. In 1969,



the BOD approved the testing process for certification (O'Shea, 1980). The first national certification exam was administered in 1971 by the National Athletic Trainers Association Board of Certification (NATABOC), a subcommittee of the NATA (Ebel, 1999).

Although a number of practicing athletic trainers had been automatically certified in 1965, incoming students were required to satisfy three criteria (see Table 1) before taking the NATABOC certification exam. By 1977, the NATABOC was testing about 300 students each year. In 2002, 5326 internship and accredited/curriculum students sat for at least one portion of the NATABOC certification exam (2002 Exam Report, 2003).

The National Commission of Health Certifying Agencies declared NATABOC the official certifying body for athletic trainers in 1982. This designation required NATABOC to administratively separate from the NATA. The NATABOC completely separated from the BOD in 1990 (Ebel, 1999).

*Education Reform starts to take shape.* The BOD asked the Professional Education Committee (PEC) to look for an outside agency to accredit curriculum ATEP in the late 1970's. This effort soon ended but began again in 1987. The PEC developed the first Competencies in Athletic Training published in the Guidelines for Development and Implementation of NATA Approved Undergraduate ATEP Curriculums. In 1989, the PEC recommended that the BOD seek accreditation of ATEP by the American Medical Association (AMA) Committee on Allied Health Education Accreditation (CAHEA). CAHEA required that athletic training must have AMA allied health profession designation. This was obtained in 1990 (Ebel, 1999).

Table 1

*NATA-BOC National Athletic Trainer Certification Examination Criteria*

Requirements	Internship Requirements	Curriculum Requirements	Physical Therapy Requirements
Courses	Basic Athletic Training Advanced Athletic Training Human Anatomy Human Physiology Health Kinesiology/Biomechanics Exercise Physiology	Prevention of Athletic Injuries Evaluation of athletic Injuries First Aid and Emergency Care Therapeutic Modalities Therapeutic Exercise Personal/Community Health Nutrition Human Anatomy Human Physiology Health	Teaching Degree with a minor in PE or Health
Clinical hours	1500 clinical experience hours under the supervision of an ATC	800 clinical experience hours under the supervision of an ATC	2 years clinical education under the supervision of an ATC
Other	Baccalaureate degree Endorsement by ATC Proof of current CPR/First Aid Certification	Baccalaureate degree Endorsement by ATC Proof of current CPR/First Aid Certification	Completion of Physical Therapy School Valid Teaching Certificate

(Anderson &amp; Hall, 2002; Ebel, 1999)

*CAHEA ATEP accreditation.* The CAHEA accreditation process started with the Joint Review Committee in Athletic Training (JRC). The JRC developed standards, accepted and reviewed materials submitted by institutions applying for CAHEA accreditation, assigned site visitors to the applying institutions, reviewed program and site visitor reports, and provided a final recommendation to CAHEA concerning institutional satisfaction of the standards. CAHEA then designated final accreditation approval.

By gaining AMA allied health designation and following through with the AMA/CAHEA application, the BOD had turned over athletic training education program review and status to AMA/CAHEA. Members of the PEC became the JRC. The first JRC task was to develop a set of standards and guidelines to govern its program review and CAHEA accreditation for programs (Ebel, 1999). The document was the Essentials and Guidelines for Educational Programs in Athletic Training (Essentials and Guidelines, 1991).

#### *CAHEA to CAAHEP*

The AMA disbanded CAHEA in 1994. It was replaced by an independent agency called the Committee on Accreditation of Allied Health Education Programs (CAAHEP). CAAHEP accredited education programs for a variety of allied health professions, including athletic training. The process itself did not change. The JRC evaluated ATEP satisfaction of the Essentials and Guidelines and recommended to CAAHEP. CAAHEP then awarded accredited status.

*Education reform continues.* The process of education reform continued after the PEC satisfied the BOD directive to find an accrediting agency (CAHEA) to replace the NATA curriculum approval process. In September 1994, the BOD developed an ETF. There were "no limitations on this task force's scope of evaluation and/or recommendations" (Ebel, 1999, p. 42) for athletic training education.

The ETF submitted 18 recommendations to the BOD in November 1996 (NATA Education Task Force, 1997). In part, these recommendations included (a) the modification of the prospective athletic trainer educational system so that only students from CAAHEP-accredited programs were qualified to sit for the national certification exam, (b) the creation of entry-level graduate programs, (c) the creation of a new committee, the EC, to replace the PEC, and (d) disbanding of the PEC by 1998. The BOD voted in December 1996 to accept all ETF recommendations. This standardized athletic training through former NATA approved curriculum program guidelines, which were converted to accredited guidelines. The deadline for athletic training education programs to become CAAHEP accredited to qualify students for the national certification exam was set for December 31, 2003.

CAHEA accreditation for ATEP required satisfying the Essentials and Guidelines for Athletic Training Education Programs. These guidelines have continued to be modified during service as the Standards and Guidelines for Accreditation of Athletic Training Education Programs for CAAHEP Accreditation of ATEP (Standards and Guidelines for Accredited Athletic Training Education Programs, 2000). Because of the number of entities and length of time of related events, a summary timeline of the major

NATA organization and athletic training profession events related to ER including credentialing is in Appendix D.

*ER decision contributing factors.* A number of factors contributed to the ER decision process. Many of these factors are relevant within the context of a complex problem. As one interviewee said, "if you'd had any one of those pieces by itself you might not have gone in that direction, but in retrospect, looking at them all together, it was like, no, this is something we've got to look at" (John, personal communication, April 15, 2003). The influence categories contributing to ER context include education/professionalism and politics. Education/professionalism concerned the NATA and BOD perceived lack of image and prestige for athletic trainers, lack of a definition of a true athletic training "professional," and a need to standardize athletic training education. Political issues included state legislation credential issues, reimbursement issues, and educational control issues. These categories and factors are fully developed in the data analysis in Chapter 3.

*Summary.* The Board of Directors (BOD) administers the National Athletic Trainers Association (NATA). Athletic trainers are certified through the National Athletic Trainers Association Board of Certification (NATABOC). Athletic training students currently in internship educational programs are qualified for the NATABOC national certification examination after submitting satisfactory proof of the requirement completion listed in Table 1. NATABOC determines student qualifications to sit for the national certification examination, develops, and administers the exam. Students of the former NATA sanctioned curriculum and current Committee for Accreditation of Allied

Health Education Programs (CAAHEP) accredited ATEP are automatically eligible for certification exam.

In 1996, the BOD voted to change the curriculum model to an AMA-sanctioned CAAHEP accredited education model (called an accredited ATEP). Qualifications or regulations for an accredited ATEP were outlined in the 1991 Committee on Allied Health Education Accreditation (CAHEA) Essentials and Guidelines and converted in 2000 to CAAHEP Standards and Guidelines for Accredited Athletic Training Education Programs. The deadline for students to apply for the NATABOC exam is December 31, 2003 if they have not completed a CAAHEP accredited ATEP. As of August 2002 there were 186 accredited undergraduate athletic training education programs in existence with more in a two year candidacy process (Athletic Training Programs, 2002).

The time frame of the decision; numbers of organization and committees involved, and subcommittee changes (i.e., NATA approval to CAHEA to CAAHEP approval, Professional Education Committee (PEC) to Joint Review Committee-Athletic Training (JRC)); inter-related organizational factors; and changes in the accreditation regulations/guidelines throughout the years lend credence to the usefulness of a qualitative complexity approach to identify the information transfer process and influences to the NATA, BOD, and environment. This research explains the specifics of what occurred and why within the educational reform decision process. The need for a complexity, holistic approach is further developed in the next section during the complexity theory and research literature review.

## Complexity Theory Overview

### *Systems Theory Background*

Complexity theory stems from systems theory. In 1920, researchers in biology, ecology, and psychology found that the typical Cartesian view seeing structures through a closed mechanical model by studying the parts and separating mind and matter did not explain new research findings of irreducible wholes. For example, the atom can be divided into electrons, protons, and neutron. However, individual component study, such as an electron, fails to explain how an atom functions because the smallest functional unit is the atom. Atom function is dependent on the entire system through individual component interactions (proton, neutron, electron). In psychology, Gestalt theorists recognized perception occurring in integrated patterns that were meaningful organized wholes rather than segments. Biological cell theory and community ecology discovered irreducible wholes also (Capra, 1996). Thus, there was a need for another way of thinking in a number of disciplines because the mechanistic model no longer fit new theories. Systems theory was developed to fill that need.

Systems theory focuses on a holistic view of the context and the system. The focus shifts from objective to relative as perceptions and relation networks are critical, and from an objective to an epistemological mode of questioning where no relations are more or less important and all solutions and answers are approximate rather than complete. The basic systems principle stems from the holistic view that the system is composed of integrated components (Waldrop, 1992). Component interactions create new properties through feedback links. The entire system survives by adaptation,

self-organization, self-regulation, and co-evolution between the system and the environment (Capra, 1996). For this reason context and process over time are critical analysis components.

Systems thinking began with contextual and holistic thinking. Major components were Tektology, for systematic description of organizational principles in living systems, and Cybernetics, concerning feedback loops and communication patterns. A brief explanation of Tektology and Cybernetics can be found in Appendix E. In the 1950s and 60s, systems analysis became fairly common within industrial research. System's oriented management became popular in the 1960s and 70s. During the 1980s and early 1990s ecology, physics, economics, psychology, artificial intelligence, and computer researchers began to study system behavior. At that time, system theories were difficult to test and prove with available mathematics (Capra, 1996).

### *Complexity Theory Develops*

Nonlinear complex mathematics, such as those used in fractal geometry, allow for pattern explanation events previously regarded as random (Capra, 1996). Throughout the late 1990s, social science researchers began to utilize complexity theory principles to provide metaphors and models for organizational sense making through emergence and coherence (Elliot & Kiel, 1999; Lissack & Gunz, 1999). Emergence originates from system component and environment interactions by examining patterns, structure, and properties that occur through that interaction. Coherence relates to making sense of the world. Research efforts in math, psychology, modeling, biology, physics, and economics have incorporated complexity science multidisciplinary approaches. Complexity theory



is most appropriate in fields where it seems that there is no direct system link between cause and effect and the system self-organizes and adapts.

Capra (1996) identifies chaos theory as useful in predicting system behavior where a direct causal relationship does not exist. Many authors explain that this occurs when a system functions in a nonlinear environment of reactions to interaction and interrelations. This environment makes system behavior appear random. Examples include ecosystem survival through a variety of life forms, economic trends, organizational learning, and others (Arthur, 1995; Comfort, 1999; Hall, 1991; Hertz, 1999; Rosser, 1999). Researchers utilize complexity theory to explain complex system events in context over time to incorporate a more complete explanation of events than previously available (Elliott & Kiel, 1999).

Elliott and Kiel (1999) explained that in complex system situations, random behavior may not be random, but may require complex mathematics to identify the patterns and interactions. Complexity theory research has included a combination of nonlinear mathematical equations and the qualitative ability to see interactions between links, interconnections, and system changes. Hall (1991) stated that the goal of complexity theory is to understand a particular event, and the multitude of factors leading to that event, based on interactions, context, and complex adaptive system requirements.

Nonlinear dynamics is a subdivision of complexity theory analysis. It uses qualitative interconnection and interaction analysis (also called network analysis) over time in social and organizational settings (Elliott & Kiel, 1999; Knoke & Kuklinski, 1983; Rogers, 1981). Nonlinear dynamics includes social science applications such as

communication system reactions during an earthquake and political races. Complexity analysts focus on the "middle ground" between the extremes of chaos and order within a system (Kiel, 2002). Recently, researchers have utilized complexity theory through a combination of quantitative nonlinear mathematic equations and the qualitative ability to see interactions between links, interconnections, and system changes. Both quantitative and qualitative complexity approaches have also been researched in isolation (Elliott & Kiel, 1999).

The basic principles of complexity theories are outlined in this section. The theoretical explanation is followed by a literature review specifying relevant research. Kelly (1994) and Jervis (1997) identify complexity theory tenants. The whole of a system is greater than, and different from the sum of its parts. The system cannot be explained by reducing it to individual components because emergent interactions between those components, or linkages in the network, result in emergent system properties (Kiel, 1994; Knoke & Kuklinski, 1983).

Complex systems adapt and evolve through interaction between system components and between the system and the environment in an oscillating pattern. Over time this oscillating pattern results in seemingly random behavior (Comfort 1999). Elliott and Kiel (1999) agree that the behavior may not really be random, but may require nonlinear mathematics or qualitative interconnection and interaction analysis over time to identify. The time component is critical, as Ferguson (1999) theorizes that system modifications stemming from environmental/contextual, interpersonal relation and interpretation adaptations may actually become evident through time. The previously

cited authors emphasize that organizational outcomes may be explained by examining dynamics over time. The results are rarely a simple cause and effect process. The number of influences to organization action increases the difficulty of isolating any single factor.

Jervis (1997) and Waldrop (1992) agree that system adaptations continue until the system deviates beyond a certain intensity and dies. This continual change potential pattern has been described by a common metaphor of a butterfly flapping its wings in Asia affecting United States weather over time (Grover, Achleitner, Thomas, Wyatt, & Vowell, 1997). In a complex human system, like an organization, there are many environmental and organizational influences (Comfort, 1999; Ferguson, 1999; Kelly, 1994). Each influence is linked to other factors. Some of these influences affect change and some do not. Reality, or our perception of the organization and events, is as a complicated web of relations connecting various parts of the unified whole (Grover et al., 1997). There are few identifiable single causes and effects within complex systems because system order is developed through the interconnectedness of the parts (Schwartz & Ogilvy, 1979).

Systems or complexity theory focuses on context over time. This focus is appropriate for organizational analysis and information transfer theories because component interaction creates the formation of different, emergent properties. The emergent properties modify the organization and create a network of social relations through which information is transferred. Grover et al. (1997) stated information transfer is important to organizational theory because business economy and knowledge are linked together. In our complex, information rich society, change is fostered and influenced by

new information passing through the information transfer process. The same is true in organizations. Elliott and Kiel (1999) add that the complexity of society and organizations make chaos and complexity theories useful explanatory frameworks by incorporating influential factors into the methodology. The result is increased understanding of seemingly random events over time.

System and environment co-evolution or adaptation is not always an immediate process (Capra, 1996). This lends credence to the importance of complexity theory and time in organizational and information transfer analyses. Ferguson (1999) emphasizes this point as well, specifying that environmental, interpersonal relations and interpretation change results may occur later in time. The outcomes may be explained by examining organizational dynamics through time, but the results are rarely a simple cause and effect process. The number of factors influencing any organizational process creates difficulty in isolating any factor. Complexity theory incorporates all influential factors into a methodology thus giving a better understanding what occurred as well as how and why it occurred (Elliott & Kiel, 1999). In the complexity theory, an organization is viewed as a coherent system composed of networks and agents in decision processes (Kast & Rosenzweig, 1970). Actions, lack of actions, decisions, and other organizational forces are influenced and possibly determined by system factor networks related to each specific issue, organization, and agent.

Elliott and Kiel (1999) and Jervis (1997) argue that complexity theory provides a solution to the problems inherent to single frame research methodologies. There may never be one correct explanation for a situation. The competing factors for an

organizational action or result may never be found and many of these factors have minimal situational effect. The important aspect of complexity theory is to find the critical system and individual component factors and influences so that emergent properties can be determined. The result is a more complete picture of the organization and events to identify what occurred and why within organizational circumstances (Elliott & Kiel, 1999; Hertz, 1999; Jervis, 1997).

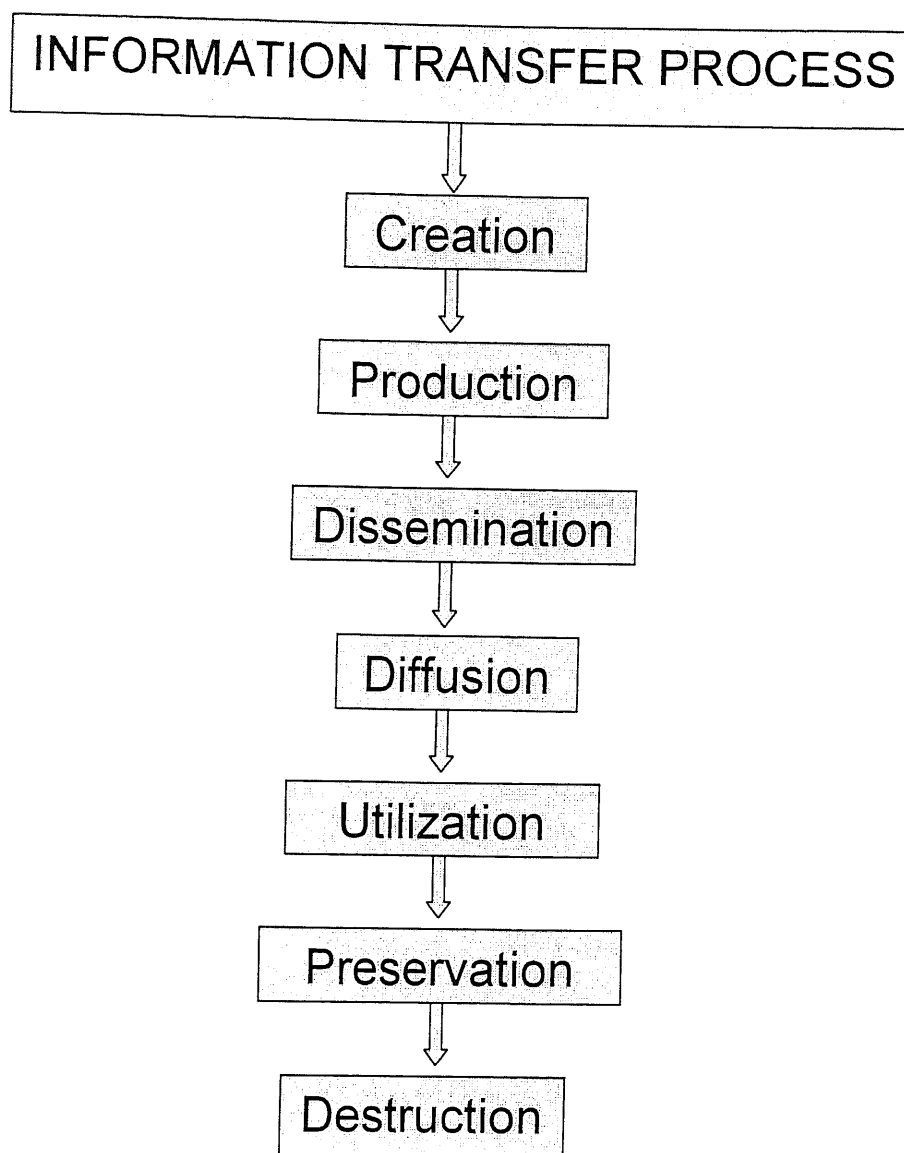
### **Information Transfer Process**

Within a complexity framework, information is a critical component of network and system relations. System and relation components change and adapt and emergent properties develop. The adaptations and modifications are based on linkages, or shared communications, within and between the system and the environment (Elliott & Kiel, 1999). The information transfer process has been described as the way information is shared, or communicated, through an organization or society (Grover et al., 1997).

Organizational theorists have also identified the importance of information in organizational and agent actions as a strategic resource (Achleitner & Grover, 1988; Kast & Rosenzweig, 1970).

Greer's Information Transfer Theory is typically described as a linear continuum including information creation, production, dissemination, organization, diffusion, utilization, preservation, and destruction. A representation is shown in Figure 1 which has been adapted from Grover et al. (1997). Greer also identifies influences to information use by individuals and groups as "external social variables such as environment, culture, economics, and policy" (Achleitner & Grover, 1988, p. 94). Achleitner and Grover

Figure 1. Greer's information transfer theory.



(1988) acknowledge the importance of knowledge through shared social image creations such as culture, beliefs, and history that form a critical component in information transfer,

similar to the symbolic interaction perspective discussed later in the epistemology section of this chapter.

As we look at the information transfer process through a complexity analysis lens to describe a piece of information passing through the process, it seems that the information often passes through a nonlinear continuum (Roger Wyatt, personal communication, June 14, 2002). This occurs because information is modified, reinterpreted, added to, and re-perceived based on the needs, understanding, and bias of the individuals processing that information (Ferguson, 1999). Dissemination (spread) and diffusion (internalization), and the information transfer process itself are vital to decision making dynamics and organizational effects because of information importance in current organizational environments (Lissack & Gunz, 1999; March, 1999). Scullion (2002) refers dissemination effectiveness back to organizational culture and climate regardless of the strategy chosen. The literature base includes many differing definitions of information transfer terms as outlined in the following sections. A summary is described in Appendix F and Figure 2.

Linearly, the information transfer process begins as information is created or produced. The multidisciplinary concepts of complexity theory for interaction, contextual/environmental impact, system co-evolution, and adaptation between the system and the environment are critical throughout the knowledge creation process (Nelson, 1981). For O'Connor (1996), production incorporates organization, identification, abstracting, categorization, and formatting of information. Information

Figure 2. Information transfer process definition overlaps.

Dissemination	Diffusion	Utilization
<p><b>Dissemination:</b> transmission of information to specific groups which results in utilization through impact, reaction, or implementation (Scullion, 2002)</p>		
<p><b>Dissemination:</b> a process of knowing specific consumer populations and systematically providing information to them for problem solving and enhancement (Owens, 2001)</p>		
<p><b>Dissemination:</b> Information spread (transfer to other system locations (Klein &amp; Gwaltney, 1998)</p>		
<p><b>Dissemination Process Components:</b> Spread, Choice, Exchange, Implementation (Klein, 1989)</p>		
	<p><b>Diffusion:</b> Process of communicating information through channels in a social system over time (Rogers, 1995)</p>	
	<p><b>Diffusion:</b> Demonstrated by a restatement of the information (Wyatt, personal communication, June 14, 2002)</p>	
	<p><b>Diffusion:</b> Process by which others receive disseminated information, learn about or gain an understanding of that information, and make decisions about the usefulness and truth of that information (Crandall, 1989; Valente &amp; Rogers, 1995)</p>	
	<p><b>Diffusion-Adoption</b> component of innovation-development process (Rogers, 1986)</p>	
		<p><b>Utilization:</b> the use of information by an individual or organization (Rich, 1979)</p>
		<p><b>Utilization:</b> the reception, and if possible, the full or partial understanding by the recipient (Machlup, 1993)</p>

transfer literature defines dissemination in a number of ways. Friedman and Farag (1991) define dissemination as information spread through available communication channels



for systematic transmission to a targeted group. In this way, their definition includes spread, diffusion, and utilization. Louis (1992) modifies the dissemination definition to include information spread, exchange, choice, and implementation. For Louis, dissemination and use form opposite ends of a spectrum within the information transfer process. The definition deviations and combinations of information transfer components within other terms as described above indicate a lack of standard terminology in information transfer process research.

Although dissemination has no commonly accepted definition, there has been a gap between dissemination and utilization. Currently, that gap is diminishing as Scullion (2002) relates the change in dissemination definition from information distribution to the addition of utilization. His current dissemination definition includes the transmission of information to specific groups which results in a "reaction, some impact, or implementation" (Scullion, 2002, pp. 67-68). This is an echo of Owens (2001) dissemination definition including utilization through systematically providing information to specific populations to allow those populations to solve problems and/or enhance their business.

Even with dissemination definition changes, Louis & Jones (2001) identify a continued need since 1982 for an increased understanding of dissemination function in an innovation process. They also identify a dissemination knowledge use model that includes change incentives, usable knowledge for target populations, shared understanding creation for local practice improvement, new idea diffusion between members and agencies, and combination top-down and bottom-up information

approaches. This relates to organizational decision making through social information processing and assessment. As groups and individuals perform social information processing and assessment functions they customize information for personal use.

Rogers (1995) defines diffusion as information transfer through communication channels and organizational agents over time. In the diffusion process the information is understood, evaluated for usefulness and accuracy, and possibly adopted or modified (Crandall, 1989; Valente & Rogers, 1995). The original information is modified, interpreted, and understood, at least as well as the agents and networks can based on personal experience, previous history, and interpretations in that organization. Without information diffusion, information is transferred without further impact and cannot be utilized (Roger Wyatt, personal communication, June 14, 2002). This link is important because most diffusion studies use utilization to measure diffusion, although diffusion may also result in adoption or modification of the information or innovation (Rogers & Kincaid, 1981; Rogers, 1995; Valente & Rogers, 1995).

Everett Rogers, the predominant scholar in diffusion research, detailed diffusion of innovations in his 1995 text, *The Diffusion of Innovations*. He began with the diffusion of agricultural seed hybrids measured through utilization, the number of Iowa farmers who planted the hybrid seeds. Diffusion research has continually followed this pattern. *Communication of Innovations* (Rogers & Kincaid, 1971) detailed the diffusion of family planning information measured through a holistic, contextually dependent of family planning technique adoption. Rogers (1986) also considered the Diffusion-Adoption

segment of the innovation-development process as the critical decision to measure information diffusion is utilization.

Innovation adoption takes time since it occurs through an S shaped curve. Adoption initially includes relatively few early adopters, who then share the information or innovation until a critical mass is reached. When innovation critical mass is reached further adoption is self-sustaining. For example, the INTERNET was formed from a computer network developed to exchange messages between universities through phone connections called BITNET. Initially, there were two universities leasing phone lines in BITNET. Within a year there were 6 linked universities on the east coast. The next year a west coast university leased a phone line to the nearest BITNET university which opened access to the west coast. This was the critical point. In the next 2 years, 19 more universities had joined the network. During the next 2 years, the number doubled every 6 months. Five years later, BITNET joined with 20,000 other electronic networks to form the INTERNET. Therefore, many academic researchers assumed that other academics could be contacted through BITNET. As the innovation is further diffused and accepted through the organization by the early adopters, the late adopters are forced to utilize the innovation, information, or technology (Rogers, 1995). The late adoption occurs as the information or innovation as it becomes the "standard" for organizational function or use. For example, at the University of Texas at Arlington (UTA), the standard for finding information is what is available from the UTA website. The standard communication method is e-mail (Dr. Louise Fincher, personal communication, August 16, 2002).

Individuals are required to become computer literate to work at UTA. Without some computer proficiency, they cannot perform their duties effectively.

Information is utilized after diffusion. Regardless of the actual dissemination and diffusion definition information may be incorporated into current knowledge and believed and used. Utilization consistently occurs in the literature following information interpretation (Machlup, 1993; Rich, 1979). If an individual cannot interpret the information, they cannot use it to modify previous understanding, knowledge, interpretations, or actions. The interpretation and modification process continues as long as the issue is of interest to organizational agents. Following information utilization, the data is either preserved (stored) or destroyed (eliminated). After destruction the information cannot be used.

### *An Identification Problem*

Information transfer is critical to organizational analysis because social systems act, evolve, and emerge through communication, or information transfer (Mokros & Ruben, 1991). The information transfer process is a linear process with authors overlapping different components through their definitions. Some researchers define dissemination as merely the spread of information, while others incorporate spread, exchange, communication, and parts of classical diffusion in the dissemination process (Elliott & Kiel, 1999; Kast & Rosenzweig, 1970; Knoke & Kuklinski, 1983; Kroll, 1995; Louis, 1992). Some of these definitions are detailed previously in Figure 2.

As shown Figure 2, the overlap in definitions and concepts within information transfer is confusing because the definitions range from local, well-defined terms to

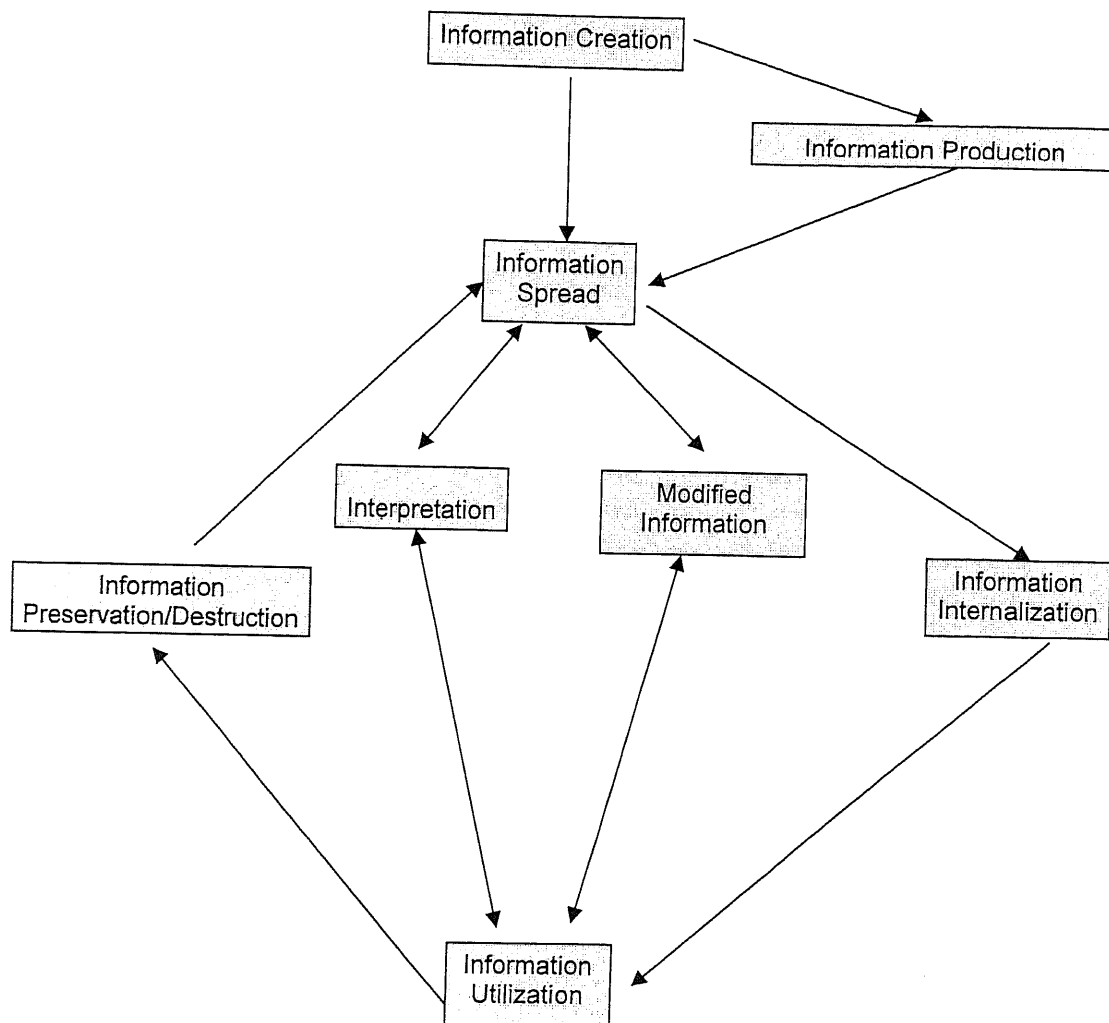
dissemination as a large process incorporating both diffusion and utilization. The difference in definitions is natural in the early life of a discipline as detailed by the history of thought and definition changes in systems theory (Capra, 1996). This is especially true in a multidisciplinary field where there are diffuse and adapting notions of key terms. Through time, further research and theory will solidify the terms (Roger Wyatt, personal communication, October 2, 2002). In an effort to clarify the nonstandard research terminology a summary glossary of terms can be found in Appendix F.

### *A Possible Solution*

Complexity theory provides a possible rationale for the difference in research definitions between dissemination and diffusion of information. It allows us to see that the linear information transfer process may not be linear because information is modified through the process (Choo, 2000; Roger Wyatt, personal communication, June 14, 2002). Information is a valuable resource within an organization. It is spread in greater and lesser amounts depending on information type, need for secrecy and subterfuge, network and individual relations, and other individual interpretations and organizational factors. Information is available in varying degrees to varying networks at the same time (Friedman & Farag, 1991; Kearns, 1989; Kiel, 1994).

In this dissertation I propose two separate, but related, modifications to clarify the information transfer process theoretical base. An overview of the proposed process is detailed in Figure 3. In an attempt to minimize the confusion created by varying dissemination and diffusion definitions a modified set of information transfer process terms will be introduced. Information Spread will replace the term dissemination. Spread

Figure 3. Proposed modifications to Greer's information transfer model.



will refer to the transmission of information. Information Internalization will replace the term diffusion. Internalization will incorporate the processes of interpretation, modification, and understanding required prior to information utilization.

Because information is interpreted and modified by the user prior to utilization the complex information transfer process may not be linear. Acceptance of a nonlinear

process resolves some of the information identification confusion present when attempting to trace a single piece of information through the process in a human society as the information changes, and is in turn interpreted by each individual it reaches. It is my intention to add to this research field to minimize confusion and simplify the language. Terminology overlap definitions used in this research have been provided in Appendix F.

The proposed information transfer model focuses attention on information adaptation as it passes through the process through the information internalization and information modifications. These additions allow qualitative research base incorporation where perspective and interaction are critical to a research issue understanding. Examples include research frameworks in symbolic interactionism, critical theory, postmodernism, feminism, and others (Alvesson & Deetz, 1996; Calas & Smircich, 1996; Hall, 1985). In many qualitative treatises, the participants are interviewed after the fact, and a frequent comment is "if I'd only known xx, I would have responded differently." Post-modern research focuses on research biases and theoretical assumptions related to conclusions. In general, where one stands determines what one sees (Lissack & Gunz, 1999). Interaction between the researcher and others also affects researcher perspective over time. The importance of perspective is clear in organizational analysis through single thread research such as critical theory and postmodernism. This dissertation will further explain these issues in a complexity context.

## **Organizational Analyses Through Complexity Theory and Information Transfer Lenses**

Kast and Rosenzweig (1970) define organizations as coherent systems of networks and individuals making decisions through cooperation and collective efforts. The definition incorporates system definitions of individuals and linkages, as well as the information transfer, or communication process. Organizations are also instruments for specific activities based on organizational goals where the organization itself becomes the “set of procedures by which participants arrive at an interpretation of what they (and others) are doing, and who they are” (Olsen, 1976, p. 84).

The complexity framework clarified by Elliott and Kiel (1994) identifies organizations as complex, changing environments affected through decisions and other processes that are not caused by an isolated factor like structure, function, gender, or power. In this view organizations are individuals or networks acting together (Holland, 1998; Kelly, 1994; Kiel, 1994; Waldrop, 1992). For individuals or networks to act together, communication, or information transfer must occur through the sharing of information, whether or not the information is interpreted similarly or understood. The information is crucial to organizational and decision analyses. Organizational analyses, in combination with the information transfer model do not exist, although communication, decisions, and organizational analysis do (Lissack & Gunz, 1999).

In organizational decision making, individuals and groups make decisions that are attributed to the organization (March & Olsen, 1976a). These groups, or networks, like any social system, emerge, adapt, and evolve through information and shared knowledge



communication (Mokros & Ruben, 1991). The actual decisions and their outcomes are based on a multitude of factors. Some of these factors have been identified as organizational and decision maker personal characteristics (March & Olsen, 1976c); politics (Pettigrew, 1973; Stava, 1976); ambiguity, choices, and available alternatives (Cohen, March, & Olsen, 1976; Radner, 1997; Raiffa, 1970); roles, status, and others perceptions (Cohen & March, 1976; Enderund, 1976; March & Olsen, 1976b; March & Romelaer, 1976; Olsen, 1976); norms (Rommetveit, 1976); previous conditions and consequences (Clegg, 1989; Cyert & March, 1992); information and access to it (Hall, 1995; Kast & Rosenzweig, 1970); power (Clegg, 1989; Deetz, 1992; Salancik & Brindle, 1997); agenda building (Dutton, 1997); and combinations of the previously mentioned and other factors (Alvesson & Willmott, 1992; Clegg, Hardy, & Nord, 1980; Garud & Shapira, 1997; March, 1997; March & Olsen, 1976c; March & Olsen, 1976d; Miller, Hickson, & Wilson, 1996; Shapira, 1997).

Kast and Rosenzweig (1970) identify some of these factors as strategic and tactical plan interpretations, agendas, and organizational goals that affect the decision to implement control and planning. A large number of other influences are identified by a variety of authors *Ambiguity and Choice in Organizations* (March & Olsen, 1976) and *The Pursuit of Organizational Intelligence* (March, 1999). All influences are situation specific. Even with the large number of influences to decision making, Olsen (1976) states that the available decision choices are determined by the decision making behavior of the involved individuals/groups. Elliott and Kiel (1999) agree, stating that organizational decisions, policies, and changes are not endless choices. The actual

decisions available within an organization are in large part constrained and predetermined by pre-existing conditions (Elliott & Kiel, 1999). Decision making has been linked to sense making as decisions are dependant on preferences and interpretation in a changing environment with critical, limited and changing information (March, 1999).

Information and the information transfer process are crucial in organizational action and decision making processes (Jervis, 1997). Organizational action requires information as all actions occur in response to a need, duty, or requirement for certain agents or networks within the organization. The need for action or response or change is not apparent without feedback from other actions. The feedback is the information that allows the information transfer model to be an appropriate model for organizational analysis. Needs, duties, or requirements for organizational action are not known without agent communication. These communications transfer information within the organization or between agents' and create shared constructs and images for further organizational influence (Achleitner & Grover, 1988; Grover et al., 1997).

The complexity and number of factors in decision-making processes makes research difficult. The action of decision making groups within an organization is undeterminable until the decision process is complete as the eventual outcome is the result of many components and factors within a number of groups, some of which are competing and conflicting. Organizational actions and decisions were ultimately related to information flow within the organization (Kast & Rosenzweig, 1970). Louis & Jones (2001) describe the knowledge use in an organizational learning process including social processing and collective agreement on applicability and validity. Specific factors

include shared memory, individual knowledge, and knowledge distribution systems to spread information.

Bellin (1993) defines information as a unique, reusable, changeable resource. Organizationally, information value exists in information transmission or withholding during interaction. Information value is related to its utility to decision makers, interest to the users, and potential for future use. Achleitner and Grover (1988) add that information is transferred within networks in the organization while being influenced by individual roles, organizational structures, individual's access to internal and external information sources, and the culture of the organization as well as the environment, economics, policies, and others within human systems like organizations.

Information is a critical component of organizational analysis and decision making because individual and network interactions create and modify social relations (Jervis, 1997). Grover et al. (1997) agree in principle by stating that the business economy has also been defined as a knowledge economy. To Jervis (1997) influences to agent behavior include the ability to estimate alternative consequences from available information and resources regardless of the accuracy of the information, interpretation, and predictions. Information, or lack of it, is a key influence to agent decisions and actions in an organizational setting (Elliott & Kiel, 1999; Kast & Rosenzweig, 1970). Resources may be informational or material. Resource transfer affects agent behavior and therefore environmental and organizational change. Change in the resources or resource flow between agents as systems change creates more adaptation from the "cumulative transfer, use, and transformation of resources" (Pherigo et al., 1999, p. 86).

Within organizations and organizational decision making each agent modifies information over time with each "telling" or sharing with other agents. Agents modify or reinterpret information based on current knowledge, perception, interpretation, and other factors throughout the decision process (March, 1999). This frequently results in many modifications of the original information throughout the organization and within networks at the same time. Information availability changes other organizational characteristics throughout decision and action processes. Continual changes and modifications occur through the information transfer process as the information available, context, environment, interpersonal relations, and interpretations change (Elliott & Kiel, 1999).

This makes studying the information transfer process over time difficult with a linear information transfer model. A solution is to utilize the complexity model to oversee and understand the system, as well as utilizing the grounded theory research methodology with constant comparative analysis and coding strategies to make certain that an idea is tracked through modifications and time.

While describing the difficulties of organizational analysis, Ferguson (1999) identifies three categories of context/environment, interpersonal relations, and interpretations to influence organizational action and events. The resulting organizational action is specific to that situation with its individuals, networks, and issues. Context is determined by organizational exogenous factors about that issue, and an environment is created and maintained through agent interactions and other organizational mechanisms. Interactions or interpersonal relations between agents and networks create a process that

changes even throughout the process. Agent interpretations also affect behavior and decisions.

Each factor is interrelated between the involved agents and other organizational agents (Jervis, 1997). The interactions form a complex network or web through which information is communicated and transferred. The complexity of organizational factors and agent relations causes consequences to include unintended and unanticipated interaction results. Backer (1998) agrees as he states that information creates, maintains, and modifies agent actions, interactions, and interpretations within the organizational process. Holland (1998) also has a similar philosophy as he writes that the world is an "interaction of individuals with different strategies" (p. 117). Researchers in policy and network analysis have utilized some or all of the complexity theory components to enhance the explanations provided by their research. The following two sections will summarize the relevant portion of that literature.

### *Policy Analysis*

Policy analysis is similar to organizational decision making analysis. Complexity theory is necessary for policy analysis to overcome issues of limited data, limited knowledge, and oversimplification (Jervis, 1997). Kiel and Elliott (1999) agree that the interactive, complex situations within organizations for policy analysis require nonlinear models of behavior for accuracy. They identify the increased speed of information flow and increasing complexness of political, social, and economic organizations, and the implications of those factors for public policy making.

Knowledge of organizational dynamics requires understanding agent attributes and goals, other results available to organizational agents, recognition that crucial effects may be delayed or indirect, agent interactions, outcomes study as potentially unintended by the agents, and recognition of the difficulty of organizational action regulation (Jervis, 1997). Organizational policy making is also affected by system constraints, as well as issue context and organizational environment (Kroll, 1995). These constraints may include many factors such as organizational size, policies, political power, issue importance, other issues, products, previous histories, funding limitations, and many others. Any changes in the organization, agents, or context can eliminate or modify these constraining factors through modification of the circumstances.

Policy analysis of a complex system is more difficult than identifying numbers of factors with organizational dynamics. This problem is compounded by bounded rationality. Agents make the best decisions possible for them under the circumstances given the limited information available to them. Agents never have all the available information, and even if they did, they could not accurately predict how all the others will respond, interpret, and continue throughout the process (Polkinghorne, 1983).

Waldrop (1992) identified a link from the current study of economic policy analysis and political policy analysis. In his view, complexity theory is a tool for policy analysis through identification of nonlinear system dynamics by content and system rule observation over time as adaptation occurs. Policy shifts have been studied by Pherigo et al. (1999). They found that in a complex and multilevel environment, each level

impacts on a variety of agents. Although each agent interacts with others, each is also interdependent. It is for this reason that agent behavior varies depending on the situation.

### *Network Analysis*

There are multiple potential and actual influences within an organizational setting and multiple answers to any particular problem. The process resulting in an action is potentially identifiable by examining the organization through involved factors. As discussed previously, those categories include context, environment, interpersonal relations, and interpretation that affect the networks formed within organizations, a "specific type of relationship linking a defined set of persons, objects, or events" (Knoke & Kuklinski, 1983, p.12).

Network structure includes present and absent links between organizational agents. Within an organization the links and connections available between agents and networks vary. Some serve as reference points during decisions for agents and networks. In this way, organizational dynamics and policy making are affected by network and agent interactions. As a result, agent relations are the key to network analysis. Interpersonal relations construct the informal, or social, organizational structure (Rogers & Kincaid, 1981). These relations are emergent properties and links rather than intrinsic organizational characteristics. The relations are also context specific and influence agent and organizational behavior. The context changes with the situation, environment, individuals, agents, and interactions (Knoke & Kuklinski, 1983; Rogers & Kincaid, 1981).

In networks, interpersonal relationships, information shared and modified, and interpretation of actions and communications are critical to agent action (Kast & Rosenzweig, 1970). Networks may occur within the formal or informal structure of the organization. Membership may change any time for any reason. Since policies are developed through organizational decisions and priorities, they are a measure of organizational action (Kroll, 1995). Many agents and networks actually make decisions regarding policies and implementation of policies within organizations. People then act and react in relation to those policies.

According to Newell and Clark (1990) the goal of professional association organizations is to create a network of professionals for information dissemination. However, within an organization, an agent may be a member in many different networks. Each network may include many different organizational agents. Within each network, the categories of context, environment, interpersonal relations, and interpretation all factor into the ultimate decisions and actions. This is especially true in complex organizations, as weak ties provide the links for influence, information, and resource transfer between organizational agents because of the influences, interrelations, and factors among the categories (Knoke & Kuklinski, 1983).

Network analysis is utilized in chaos and complexity organizational process research for statistical and structural measures (Kearns, 1989; Knoke & Kuklinski, 1983; Waldrop, 1992). Network analysis allows contextual social relations identification within networks for actors, agents, and participation factors. This provides a bridge for the gap between macro- and micro-theoretical organizational action explanations (Rogers &



Kincaid, 1981). The gap is closed through information about agent links for system role or position determination as well as position description. Organizational structure identification through network analysis requires finding the significant positions linking agents together within that system. The social structure itself is a pattern of agent relations. Each position in the network includes is the social roles available to it.

Network analysis methodology supports complexity theory and analysis (Knoke & Kuklinski, 1983). The social components and linkages within network, policy, and organizational analysis lend credence to the importance of information and information transfer (communication) within the organizational analysis field. This area has been addressed by researchers only minimally. The number of possible linkages, information, and changes in information and network members over the time necessary for organizational decision making lend credence to the need for a model to adequately explain events (Knoke & Kuklinski, 1983). The advantages of complexity theory in accomplishing this will be further outlined in the following section.

### ***Organizational Culture***

Within an organization, consistent member interactions create and maintain organizational culture (Becker, 1961). Social rules define social structure and appropriate member behavior (Becker, 1995; Lemert & Branaman, 1997). Organizational culture also influences member interpretations by affecting personal situational perspective (Becker, 1995). Information about participants, organizational context and managerial factors, issue specifics and context, and knowledge allow researchers to understand organizational decision making and behavior (Berwick, 2003).

Choo (2000) discusses organizational knowledge in three categories. Tacit knowledge is participant personal knowledge which includes participant's personal experiences, interpersonal relations, and interpretations. These serve to structure participant's work and sensemaking beliefs. Explicit knowledge allows formal communication and dissemination through symbols, objects, and rules. Cultural knowledge consists of shared organizational assumptions and beliefs about the organization, reality, and the environment. These beliefs allow participants to judge and select alternatives for evaluation (Choo, 2000). In this way, organizational beliefs initiate and maintain information and information seeking norms regardless of some member turnover. The knowledge types affect organizational issues and understanding.

Over time, shared organizational culture and meaning increases similarities in member perception and action within the organization. This occurs strategically through "facework" as individuals align themselves within groups (Goffman, 1967). Informal interaction and communication builds relationships. Increasing trust in a source leads to increasing perceived information value. Information is typically sought from "like thinkers" (Perley, 2001). Strategic interaction also includes member actions, rules, issue importance, information, and resources within individual actions (Lemert & Branaman, 1997). Individual actions influence networks and interactions.

Complex issues require significant amounts of organizational knowledge. Interpersonal relations and interaction, communication about innovations, and new ideas allow information sharing to maintain organizational culture. This occurs through organizational innovation decisions including individual, organizational, environmental,

and innovation factors (Dobbins, Cikiska, Cockerill, Barnsley, and DiCenso, 2002). These factors integrate and intermingle as innovations progress through Roger's information stages: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 1995). The need for change (innovation) becomes evident. Decision makers search for information to increase knowledge and awareness. Then innovation perceptions are developed as decision makers continue integrating information and form a decision to adopt or reject the innovation during persuasion. Persuasion is impacted by issue relevance and importance. Issue relevance and importance are established through organizational norms and shared knowledge. This pattern and system of interactions and modifications forms, maintains, and modifies organizational culture.

#### ***Complexity Theory Importance in Organizational Decision Making Research***

Jervis (1997) identifies the necessity of complexity theory for accurate organizational process explanation because the interrelations and links between agents vary as the environment changes over time. Examples of these include decisions of hiring or firing executives, payroll procedure modification, tenure requirements changes, or course of major development. Current and past linkages and agent relations affect the "fates of the units" or agent and organizational responses (Jervis, 1997, p. 17). The interactions vary depending on the involved agents and organizational issues. The interactions also vary according to the information available as it is perceived by organizational agents. Many information transfer authors describe information as a strategic organizational and individual power resource that is transferred through interactions or communications (Achleitner & Grover, 1988; Backer, 1998; Mokros &

Ruben, 1991). The information and interactions function in the system to shape and define organizational context but they are also shaped by organizational social structure, culture, environment, economics, and policies (Achleitner & Grover, 1988).

Complexity theory allows researchers to see a variety of settings and networks as important to the processes and functions of organizations (Elliott & Kiel, 1999). This is true even though the information available to various agents or networks may be different, modified, and accurate or inaccurate in any setting (Knoke & Kuklinski, 1983). For a variety of reasons, including the youth of the information science field, there is no widely held standard information transfer definition (Choo, 2000; Roger Wyatt, personal communication, October 31, 2003). As discussed briefly previously in this chapter and elaborated upon in Chapter 4, there is also an overlap between what is included in the terms that define the information transfer process (Figure 2). This is especially prevalent with diffusion and dissemination terminology. Once simplified and standardized, the complexity of the information transfer process can be studied as a factor in the environment and interpersonal relation categories as described above based on the value of information, modifications, access, and culture (Achleitner & Grover, 1988).

Complexity theory creates a framework for examination of the differences between the whole of any organizational process and the components. The framework compares the information available and transferred between individuals and networks during various processes as well as information interpretation (Choo, 2000; Elliott & Kiel, 1999; Hertz, 1999; Waldrop, 1992). This theory is critical to understand since the world and organizations like the NATA are increasing in plural, adaptable, indeterminate,

and open systems (Schwartz & Ogilvy, 1979). Information changes the environment, interpersonal relations, and interpretations of various events and actions within the organization. These changes make for a complex, ever-changing system that makes it difficult to analyze information through the information transfer process during organizational decision making.

## Chapter 1

### Introduction

This research analyzes organizational decision making and information transfer with a complexity framework. The 1996 National Athletic Trainers Association (NATA) Board of Directors (BOD) decision to implement Education Reform (ER) was studied. The purpose was to explain ER decision influences as the decision process progressed utilizing organizational analysis and information transfer process contexts.

A certified athletic trainer (ATC) is an “allied health professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity.” (Public Relations Presentation, 2002). A student becomes credentialed as a certified athletic trainer by graduating from college and satisfying the requirements for the National Athletic Trainers Association Board of Certification (NATABOC) national certification examination. When the student passes the examination, he or she becomes a nationally certified athletic trainer.

The NATA is the sole national professional organization for athletic trainers. Currently there are over 26,000 NATA members (Ryan, 2003). The BOD, composed of 10 district directors, leads the NATA. There are many titles and abbreviations related to the athletic training profession, the NATA, and athletic training credentialing. A summary of general athletic training and professional terms can be found in Appendix A.

The BOD ER decision resulted in many changes to athletic training education. One of these changed the national certification examination qualifications and standardized athletic trainer student education by eliminating the internship route to

certification. Internship candidates must have completed their education and applied for the national certification exam by December 31, 2003. Since the ER decision results, including national exam qualification, are still occurring the final results of ER on the athletic training profession remain to be seen. The recollection and interpretations of the BOD members who made the ER decision may change after the internship candidacy deadline and with the continued implementation of other ER changes. Therefore, it was important to conduct this investigation prior to December 2003.

A number of issues, including education, were identified in the 1989 BOD and Lawrence-Leitner & Co. Management Consultants Summary Long Range Plan (1989). The BOD formal education reform decision process began in September 1994 with the Education Task Force (ETF) formation (Education Task Force, 1995). The ETF presented preliminary ER recommendations to the BOD in December 1995 (McCullan, 1996). The final 18 recommendations for athletic training education reform (ER) were then presented to the BOD (Appendix B) (NATA BOD Meeting Minutes, November, 1996). The BOD approved the ER recommendations in December 1996. These recommendations created a new body, the Education Council (EC), to serve as a clearinghouse for all educational policies. They also eliminated the internship route to certification as an athletic trainer (Education Task Force, 1997). Appendix A details titles and abbreviations related to the athletic training profession and credentials. There are a number of titles and abbreviations that are similar relating specifically to the ER process. Because of this, a summary of ER related terms may be found in Appendix C.

The BOD made the ER decision in a complex environment. There were many contributing factors to the ER decision. Educational changes were initiated in the 1989 Summary Long Range Plan. The plan identified education programs as a strength. A weakness was a lack of recognition for those programs (although disagreement was noted). The identified solution was to seek outside accreditation for athletic training educational programs with the assumption that the internship route to certification would be phased out (Lawrence-Leitner & Co. Management Consultants, 1989). In 1990 the strategic planning process continued with the Visionary Strategic Plan (Lawrence-Leitner & Co. Management Consultants, 1990). This plan, developed by the BOD with Lawrence-Leitner & Co. Management Consultants included education comments similar to the 1989 Summary Long Range Plan about education and accreditation.

There are two primary influences affecting the BOD ER decision, educational professionalism and politics. The BOD felt that athletic training was not seen as a true profession and athletic trainers were not perceived as true professionals. Also, the profession's image and the work settings of certified athletic trainers were perceived as needing improvement through a visionary plan. Education was the vehicle chosen to solve those issues. Political issues included NATABOC, which was already planning on eliminating the internship route to certification based on a number of problems encountered with applicants for the national certification exam for athletic trainers, and governmental affairs including state legislation and reimbursement difficulties. These factors formed much of the complex ER environment. ER factors, influences,



communication linkages, and information transfer are detailed further in Chapters 3 and 4.

Qualitative research methodologies are appropriate to develop theory and models when little is known about situational specifics. Perspective and context are critical factors in qualitative research. As Lissack and Gunz (1999) state "what we see is always a function of where we stand" (p. 1). This research utilizes a complexity theory base and grounded theory methodology to examine ER information transfer. The research process is detailed following the literature review. In brief, the process answered research questions by analyzing primary data from published accounts and explanations, BOD meeting minutes and supporting data in board books, and athletic training listserv archives (electronic mailing lists). This data was triangulated with data analysis of 1990-1998 BOD member interviews during the spring of 2003.

The result was a qualitatively focused complexity explanation of the BOD ER decision and specific ER influences over time. The basic research question was how and why the education reform decision was made by the BOD. The qualitative approach was the most appropriate method because complexity framework allows issue context and environment changes over time to be studied. Complexity theory has recently begun to be utilized in organizational theory. The decision making process relating to the information transfer process is also important. Information has been identified as a critical component in organizational function, including sense making and decision making processes (Lissack & Gunz, 1999; March, 1999).

Organizational decision making information transfer components related to context and environment within organizational and network adaptations have not been studied to date. Little is known by the athletic training public about complex environment and factors leading to the ER decision. There is also little known about BOD decision making. Information transfer within the NATA ER decision process has not been studied. This research has implications for certified athletic trainers, the NATA, the BOD, and organizational analysis and information transfer fields by providing a beginning merger of these components.

Organizational analysis research stems from a variety of isolated theoretical foundations. Examples include critical theory focus on power, feminism focus on gender issues, and post-modernist focus on language and organizational culture (Alvesson & Deetz, 1996; Calas & Smircich, 1996; Hall, 1985; Pettigrew, 1973). Each of these theoretical foundations focuses on an isolated component and excludes other possible relevant factors and explanations.

Complexity theory eliminates this single focus in social science research. Recent complexity analyses have explained disaster responses (Comfort, 1999), regulatory policy (Pherigo, Lee, Nehman, & Eve, 1999), unemployment rates (Guastello, 1999), program evaluation (Hertz, 1999), and economic transitions (Rosser, 1999). These analyses provided contextually specific systems evaluation to explain what occurred and why it occurred over time and as the system adapts. Nonlinear dynamic analysis has been applied to qualitative analysis techniques because of the specific context based research focus on the assumption that "a description and understanding of a person's social

environment or an organization's political context is essential for overall understanding of what is observed" (Patton, 1990, p. 49). Rogers and Kincaid (1981) used these concepts within network analysis methodology while studying innovation adoption.

Niall Ferguson (1999), a historian and nonlinear dynamic theorist, identified three main components in event explanation: contextual/environmental factors, interpretations, and involved individual and network interpersonal relationships. His influential factor and system change focus relates to complexity analysis with information (especially interpretation and availability) and system/organizations. The information transfer field evaluates how information flows from creation through storage or destruction. The information transfer process, or whether information is transferred, if it is modified, how it is transferred, and if it affects the system and system function, may be a valuable link by explaining events in all three factors.

This research will focus on dissemination and diffusion information transfer process components to enhance ER decision explanation aspects of contextual/environmental, interpretation, and interpersonal relation aspects. Dissemination is the spread or transfer of information/technology (Friedman & Farag, 1991). Diffusion is the understanding/adoption of the information/technology as determined by use of that information or references to it (Rogers, 1995; Roger Wyatt, personal conversation, June 14, 2002). For example, diffusion of information through the mainstream may affect issue context or environment. As information is available within a decision process it is interpreted, modified, and shared within networks and linkages (interpersonal relationships) before being interpreted by others. If communication is

adequate, information may become a construct with shared meaning for individuals in a specific setting at a specific point in time, at least until the information is reinterpreted or modified.

Because system adaptations occur over time, a complete (or as complete as possible) explanation of events occurs using nonlinear dynamic research methodology than a single focus methodology. The merging of organizational analysis and information transfer in context over time has not been previously studied. The addition of this research will add to organizational analysis literature and the information/communication literature through a complexity focus on network analysis.

This research may also benefit the field of athletic training. Athletic training is a young allied health profession, struggling with the growth issues common to all young allied health professions as they grow and change. NATA members have depended on the elected BOD members to determine best practices and procedures without decision accounting. Each BOD member functions within a personal context. This context includes the time constraints of serving on a board of directors of a fairly active national organization while working as an athletic trainer. BOD discussions and leadership data, handouts, and 1990-1993 BOD board book topics emphasize the importance of leadership. This research may aid the BOD in their efforts to continue to adapt the organization for effectiveness and efficiency. It may also aid NATA members to understand the board decision process and ask the questions needed during complex decision processes.

Chapter 1 consists of a literature review of important contexts and resources relevant to this study. It begins with a history of athletic training and the NATA. This is followed by an overview of complexity theory and the information transfer process with organizational analysis literature. Chapter 2 explains and delineates the research methodology. Research questions and issues, a description of the sample, and the data collection and analysis follows. The data analysis is included in Chapters 3 and 4. Chapter 3 analyzes the complex circumstances leading to the ER decision. Chapter 4 analyzes the BOD as a system. This includes the BOD conventions, network/communication link analysis, ER information transfer, and resulting interpretations. Chapter 5 forms the research discussion and conclusions.

### **Literature Review**

#### ***History of Athletic Training and the NATA***

***The Profession and the NATA.*** A certified athletic trainer (ATC) is “an allied health care professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity” (Public Relations Presentation, 2002). The profession is composed of the knowledge and skills in cognitive, affective, and psychomotor knowledge and skills in 12 domains (Athletic Training Educational Competencies, 1999). These domains include: (a) risk management and injury prevention; (b) pathology of injury and illness; (c) assessment and evaluation; (d) acute care of injury and illness; (e) pharmacology; (f) therapeutic modalities; (g) therapeutic exercise; (h) general medical conditions; (i) nutritional aspects of injury and illness; (j)

psychosocial intervention and referral; (k) health care administration; and (l) professional development and responsibility (Athletic Training Education Competencies, 1999).

NATA development and change history including major decision, events, purposes, and work is complex. College education and certification have been incorporated, modified, and separated from the NATA. To simplify the complexity described in the following paragraphs a timeline summarizing major NATA events may be found in Appendix D.

During the 1930's, trainers were physicians and/or individuals with some medical training and interest in injuries to college athletes. They were very protective of the knowledge for injury treatment and rehabilitation. The only method of learning the trade was through apprenticeship (John Baxter, personal communication, January 8, 1998). A few early athletic trainers and the Cramer Company in Gardner, Kansas were the only driving forces in advancing professional solidarity by recognizing the need for a national organization prior to the 1930s (O'Shea, 1980). However, as more individuals became trainers sharing information became beneficial. The first NATA was formed in 1938. The organization then disbanded during World War II.

In 1947, college athletic trainers formed the Southern Conference Athletic Training Association and in 1948 the Eastern Conference Athletic Training Association. Organization in other United States regions soon followed. The first national meeting of the current NATA, composed of 10 regional districts, was held in 1950. The districts were formed by the original conferences, i.e., Southern Conference Athletic Training Association, as discussed previously.

It was not until 1950 that athletic trainer education required an internship similar to an apprenticeship. Athletic training students learned under the direction of collegiate athletic trainers and practiced their athletic training skills as students. Eventually they graduated and obtained positions as trainers or athletic trainers by virtue of their experience and interest in the profession (Ebel, 1999). This was not always the case. A former BOD member described his first paid athletic training position gained as a college sophomore with the qualifications of interest in functioning as the athletic trainer at a major college. He described the experience as learning under fire (Ike, personal communication, April 22, 2003). Soon the BOD was planning for appropriate formal education and professional requirements. The BOD appointed a committee in 1956 to increase professional preparation and study certification—two prongs of a BOD plan to transform athletic training “from a trade to a profession” (Ebel, 1999, p. 35).

### *Early education components*

Athletic training education programs (ATEP) existed mostly as collegiate internship programs where students practiced the art of athletic training under athletic trainer’s tutelage without a formal athletic training major. An exception was the athletic training major at Indiana State University begun in 1948. By 1952, there were at least 10 institutions with athletic training majors (Ebel, 1999). The BOD approved a model athletic training major, called a curriculum program, in 1959. Formal curriculum athletic training education did not spread quickly. Only four schools had applied for NATA approved curriculum status by 1970.

Athletic training education was still unknown by the administration at many institutions, even those with curriculum programs. A 1968 survey of college administrators revealed that half did not know an athletic training program, in any form, even existed at their institutions. They also did not know that an NATA approved curriculum program model had been developed. Based on this information, the Board formed the Subcommittee on Curriculum Development to review colleges seeking NATA curriculum status in 1969. This committee evolved into the current Professional Education Committee (PEC). Education programs wishing to obtain curriculum status turned in their materials to the PEC, who then evaluated the program and recommended curriculum or non-curriculum status to the BOD. The BOD approved (or did not approve) the program as an NATA approved curriculum ATEP. By 1973, there were 23 BOD approved Curricula and two graduate ATEP (O'Shea, 1980). This number continued to increase through the 1970s and 1980s.

*National athletic training certification.* The BOD goal of requiring NATA curriculum ATEP in colleges will not be achieved until January 2004 when the ER decision is fully implemented. Implementation will be completed as certification requirements change according to the 1996 BOD ER decision as described later in this dissertation.

National credentialing, or athletic training certification, was identified by the BOD in 1962 as a requirement for public protection to enforce minimum athletic training standards (Ebel, 1999). All active NATA members were assigned certification numbers in 1965. A subcommittee on certification by examination was formed in 1968. In 1969,



the BOD approved the testing process for certification (O'Shea, 1980). The first national certification exam was administered in 1971 by the National Athletic Trainers Association Board of Certification (NATABOC), a subcommittee of the NATA (Ebel, 1999).

Although a number of practicing athletic trainers had been automatically certified in 1965, incoming students were required to satisfy three criteria (see Table 1) before taking the NATABOC certification exam. By 1977, the NATABOC was testing about 300 students each year. In 2002, 5326 internship and accredited/curriculum students sat for at least one portion of the NATABOC certification exam (2002 Exam Report, 2003).

The National Commission of Health Certifying Agencies declared NATABOC the official certifying body for athletic trainers in 1982. This designation required NATABOC to administratively separate from the NATA. The NATABOC completely separated from the BOD in 1990 (Ebel, 1999).

*Education Reform starts to take shape.* The BOD asked the Professional Education Committee (PEC) to look for an outside agency to accredit curriculum ATEP in the late 1970's. This effort soon ended but began again in 1987. The PEC developed the first Competencies in Athletic Training published in the Guidelines for Development and Implementation of NATA Approved Undergraduate ATEP Curriculums. In 1989, the PEC recommended that the BOD seek accreditation of ATEP by the American Medical Association (AMA) Committee on Allied Health Education Accreditation (CAHEA). CAHEA required that athletic training must have AMA allied health profession designation. This was obtained in 1990 (Ebel, 1999).

Table 1

*NATA-BOC National Athletic Trainer Certification Examination Criteria*

Requirements	Internship Requirements	Curriculum Requirements	Physical Therapy Requirements
Courses	Basic Athletic Training Advanced Athletic Training Human Anatomy Human Physiology Health Kinesiology/Biomechanics Exercise Physiology	Prevention of Athletic Injuries Evaluation of athletic Injuries First Aid and Emergency Care Therapeutic Modalities Therapeutic Exercise Personal/Community Health Nutrition Human Anatomy Human Physiology Health	Teaching Degree with a minor in PE or Health
Clinical hours	1500 clinical experience hours under the supervision of an ATC	800 clinical experience hours under the supervision of an ATC	2 years clinical education under the supervision of an ATC
Other	Baccalaureate degree Endorsement by ATC Proof of current CPR/First Aid Certification	Baccalaureate degree Endorsement by ATC Proof of current CPR/First Aid Certification	Completion of Physical Therapy School Valid Teaching Certificate

(Anderson &amp; Hall, 2002; Ebel, 1999)

*CAHEA ATEP accreditation.* The CAHEA accreditation process started with the Joint Review Committee in Athletic Training (JRC). The JRC developed standards, accepted and reviewed materials submitted by institutions applying for CAHEA accreditation, assigned site visitors to the applying institutions, reviewed program and site visitor reports, and provided a final recommendation to CAHEA concerning institutional satisfaction of the standards. CAHEA then designated final accreditation approval.

By gaining AMA allied health designation and following through with the AMA/CAHEA application, the BOD had turned over athletic training education program review and status to AMA/CAHEA. Members of the PEC became the JRC. The first JRC task was to develop a set of standards and guidelines to govern its program review and CAHEA accreditation for programs (Ebel, 1999). The document was the Essentials and Guidelines for Educational Programs in Athletic Training (Essentials and Guidelines, 1991).

#### *CAHEA to CAAHEP*

The AMA disbanded CAHEA in 1994. It was replaced by an independent agency called the Committee on Accreditation of Allied Health Education Programs (CAAHEP). CAAHEP accredited education programs for a variety of allied health professions, including athletic training. The process itself did not change. The JRC evaluated ATEP satisfaction of the Essentials and Guidelines and recommended to CAAHEP. CAAHEP then awarded accredited status.

*Education reform continues.* The process of education reform continued after the PEC satisfied the BOD directive to find an accrediting agency (CAHEA) to replace the NATA curriculum approval process. In September 1994, the BOD developed an ETF. There were "no limitations on this task force's scope of evaluation and/or recommendations" (Ebel, 1999, p. 42) for athletic training education.

The ETF submitted 18 recommendations to the BOD in November 1996 (NATA Education Task Force, 1997). In part, these recommendations included (a) the modification of the prospective athletic trainer educational system so that only students from CAAHEP-accredited programs were qualified to sit for the national certification exam, (b) the creation of entry-level graduate programs, (c) the creation of a new committee, the EC, to replace the PEC, and (d) disbanding of the PEC by 1998. The BOD voted in December 1996 to accept all ETF recommendations. This standardized athletic training through former NATA approved curriculum program guidelines, which were converted to accredited guidelines. The deadline for athletic training education programs to become CAAHEP accredited to qualify students for the national certification exam was set for December 31, 2003.

CAHEA accreditation for ATEP required satisfying the Essentials and Guidelines for Athletic Training Education Programs. These guidelines have continued to be modified during service as the Standards and Guidelines for Accreditation of Athletic Training Education Programs for CAAHEP Accreditation of ATEP (Standards and Guidelines for Accredited Athletic Training Education Programs, 2000). Because of the number of entities and length of time of related events, a summary timeline of the major

NATA organization and athletic training profession events related to ER including credentialing is in Appendix D.

*ER decision contributing factors.* A number of factors contributed to the ER decision process. Many of these factors are relevant within the context of a complex problem. As one interviewee said, "if you'd had any one of those pieces by itself you might not have gone in that direction, but in retrospect, looking at them all together, it was like, no, this is something we've got to look at" (John, personal communication, April 15, 2003). The influence categories contributing to ER context include education/professionalism and politics. Education/professionalism concerned the NATA and BOD perceived lack of image and prestige for athletic trainers, lack of a definition of a true athletic training "professional," and a need to standardize athletic training education. Political issues included state legislation credential issues, reimbursement issues, and educational control issues. These categories and factors are fully developed in the data analysis in Chapter 3.

*Summary.* The Board of Directors (BOD) administers the National Athletic Trainers Association (NATA). Athletic trainers are certified through the National Athletic Trainers Association Board of Certification (NATABOC). Athletic training students currently in internship educational programs are qualified for the NATABOC national certification examination after submitting satisfactory proof of the requirement completion listed in Table 1. NATABOC determines student qualifications to sit for the national certification examination, develops, and administers the exam. Students of the former NATA sanctioned curriculum and current Committee for Accreditation of Allied

Health Education Programs (CAAHEP) accredited ATEP are automatically eligible for certification exam.

In 1996, the BOD voted to change the curriculum model to an AMA-sanctioned CAAHEP accredited education model (called an accredited ATEP). Qualifications or regulations for an accredited ATEP were outlined in the 1991 Committee on Allied Health Education Accreditation (CAHEA) Essentials and Guidelines and converted in 2000 to CAAHEP Standards and Guidelines for Accredited Athletic Training Education Programs. The deadline for students to apply for the NATABOC exam is December 31, 2003 if they have not completed a CAAHEP accredited ATEP. As of August 2002 there were 186 accredited undergraduate athletic training education programs in existence with more in a two year candidacy process (Athletic Training Programs, 2002).

The time frame of the decision; numbers of organization and committees involved, and subcommittee changes (i.e., NATA approval to CAHEA to CAAHEP approval, Professional Education Committee (PEC) to Joint Review Committee-Athletic Training (JRC)); inter-related organizational factors; and changes in the accreditation regulations/guidelines throughout the years lend credence to the usefulness of a qualitative complexity approach to identify the information transfer process and influences to the NATA, BOD, and environment. This research explains the specifics of what occurred and why within the educational reform decision process. The need for a complexity, holistic approach is further developed in the next section during the complexity theory and research literature review.

## Complexity Theory Overview

### *Systems Theory Background*

Complexity theory stems from systems theory. In 1920, researchers in biology, ecology, and psychology found that the typical Cartesian view seeing structures through a closed mechanical model by studying the parts and separating mind and matter did not explain new research findings of irreducible wholes. For example, the atom can be divided into electrons, protons, and neutron. However, individual component study, such as an electron, fails to explain how an atom functions because the smallest functional unit is the atom. Atom function is dependent on the entire system through individual component interactions (proton, neutron, electron). In psychology, Gestalt theorists recognized perception occurring in integrated patterns that were meaningful organized wholes rather than segments. Biological cell theory and community ecology discovered irreducible wholes also (Capra, 1996). Thus, there was a need for another way of thinking in a number of disciplines because the mechanistic model no longer fit new theories. Systems theory was developed to fill that need.

Systems theory focuses on a holistic view of the context and the system. The focus shifts from objective to relative as perceptions and relation networks are critical, and from an objective to an epistemological mode of questioning where no relations are more or less important and all solutions and answers are approximate rather than complete. The basic systems principle stems from the holistic view that the system is composed of integrated components (Waldrop, 1992). Component interactions create new properties through feedback links. The entire system survives by adaptation,

self-organization, self-regulation, and co-evolution between the system and the environment (Capra, 1996). For this reason context and process over time are critical analysis components.

Systems thinking began with contextual and holistic thinking. Major components were Tektology, for systematic description of organizational principles in living systems, and Cybernetics, concerning feedback loops and communication patterns. A brief explanation of Tektology and Cybernetics can be found in Appendix E. In the 1950s and 60s, systems analysis became fairly common within industrial research. System's oriented management became popular in the 1960s and 70s. During the 1980s and early 1990s ecology, physics, economics, psychology, artificial intelligence, and computer researchers began to study system behavior. At that time, system theories were difficult to test and prove with available mathematics (Capra, 1996).

### *Complexity Theory Develops*

Nonlinear complex mathematics, such as those used in fractal geometry, allow for pattern explanation events previously regarded as random (Capra, 1996). Throughout the late 1990s, social science researchers began to utilize complexity theory principles to provide metaphors and models for organizational sense making through emergence and coherence (Elliot & Kiel, 1999; Lissack & Gunz, 1999). Emergence originates from system component and environment interactions by examining patterns, structure, and properties that occur through that interaction. Coherence relates to making sense of the world. Research efforts in math, psychology, modeling, biology, physics, and economics have incorporated complexity science multidisciplinary approaches. Complexity theory



is most appropriate in fields where it seems that there is no direct system link between cause and effect and the system self-organizes and adapts.

Capra (1996) identifies chaos theory as useful in predicting system behavior where a direct causal relationship does not exist. Many authors explain that this occurs when a system functions in a nonlinear environment of reactions to interaction and interrelations. This environment makes system behavior appear random. Examples include ecosystem survival through a variety of life forms, economic trends, organizational learning, and others (Arthur, 1995; Comfort, 1999; Hall, 1991; Hertz, 1999; Rosser, 1999). Researchers utilize complexity theory to explain complex system events in context over time to incorporate a more complete explanation of events than previously available (Elliott & Kiel, 1999).

Elliott and Kiel (1999) explained that in complex system situations, random behavior may not be random, but may require complex mathematics to identify the patterns and interactions. Complexity theory research has included a combination of nonlinear mathematical equations and the qualitative ability to see interactions between links, interconnections, and system changes. Hall (1991) stated that the goal of complexity theory is to understand a particular event, and the multitude of factors leading to that event, based on interactions, context, and complex adaptive system requirements.

Nonlinear dynamics is a subdivision of complexity theory analysis. It uses qualitative interconnection and interaction analysis (also called network analysis) over time in social and organizational settings (Elliott & Kiel, 1999; Knoke & Kuklinski, 1983; Rogers, 1981). Nonlinear dynamics includes social science applications such as

communication system reactions during an earthquake and political races. Complexity analysts focus on the "middle ground" between the extremes of chaos and order within a system (Kiel, 2002). Recently, researchers have utilized complexity theory through a combination of quantitative nonlinear mathematic equations and the qualitative ability to see interactions between links, interconnections, and system changes. Both quantitative and qualitative complexity approaches have also been researched in isolation (Elliott & Kiel, 1999).

The basic principles of complexity theories are outlined in this section. The theoretical explanation is followed by a literature review specifying relevant research. Kelly (1994) and Jervis (1997) identify complexity theory tenants. The whole of a system is greater than, and different from the sum of its parts. The system cannot be explained by reducing it to individual components because emergent interactions between those components, or linkages in the network, result in emergent system properties (Kiel, 1994; Knoke & Kuklinski, 1983).

Complex systems adapt and evolve through interaction between system components and between the system and the environment in an oscillating pattern. Over time this oscillating pattern results in seemingly random behavior (Comfort 1999). Elliott and Kiel (1999) agree that the behavior may not really be random, but may require nonlinear mathematics or qualitative interconnection and interaction analysis over time to identify. The time component is critical, as Ferguson (1999) theorizes that system modifications stemming from environmental/contextual, interpersonal relation and interpretation adaptations may actually become evident through time. The previously

cited authors emphasize that organizational outcomes may be explained by examining dynamics over time. The results are rarely a simple cause and effect process. The number of influences to organization action increases the difficulty of isolating any single factor.

Jervis (1997) and Waldrop (1992) agree that system adaptations continue until the system deviates beyond a certain intensity and dies. This continual change potential pattern has been described by a common metaphor of a butterfly flapping its wings in Asia affecting United States weather over time (Grover, Achleitner, Thomas, Wyatt, & Vowell, 1997). In a complex human system, like an organization, there are many environmental and organizational influences (Comfort, 1999; Ferguson, 1999; Kelly, 1994). Each influence is linked to other factors. Some of these influences affect change and some do not. Reality, or our perception of the organization and events, is as a complicated web of relations connecting various parts of the unified whole (Grover et al., 1997). There are few identifiable single causes and effects within complex systems because system order is developed through the interconnectedness of the parts (Schwartz & Ogilvy, 1979).

Systems or complexity theory focuses on context over time. This focus is appropriate for organizational analysis and information transfer theories because component interaction creates the formation of different, emergent properties. The emergent properties modify the organization and create a network of social relations through which information is transferred. Grover et al. (1997) stated information transfer is important to organizational theory because business economy and knowledge are linked together. In our complex, information rich society, change is fostered and influenced by

new information passing through the information transfer process. The same is true in organizations. Elliott and Kiel (1999) add that the complexity of society and organizations make chaos and complexity theories useful explanatory frameworks by incorporating influential factors into the methodology. The result is increased understanding of seemingly random events over time.

System and environment co-evolution or adaptation is not always an immediate process (Capra, 1996). This lends credence to the importance of complexity theory and time in organizational and information transfer analyses. Ferguson (1999) emphasizes this point as well, specifying that environmental, interpersonal relations and interpretation change results may occur later in time. The outcomes may be explained by examining organizational dynamics through time, but the results are rarely a simple cause and effect process. The number of factors influencing any organizational process creates difficulty in isolating any factor. Complexity theory incorporates all influential factors into a methodology thus giving a better understanding what occurred as well as how and why it occurred (Elliott & Kiel, 1999). In the complexity theory, an organization is viewed as a coherent system composed of networks and agents in decision processes (Kast & Rosenzweig, 1970). Actions, lack of actions, decisions, and other organizational forces are influenced and possibly determined by system factor networks related to each specific issue, organization, and agent.

Elliott and Kiel (1999) and Jervis (1997) argue that complexity theory provides a solution to the problems inherent to single frame research methodologies. There may never be one correct explanation for a situation. The competing factors for an

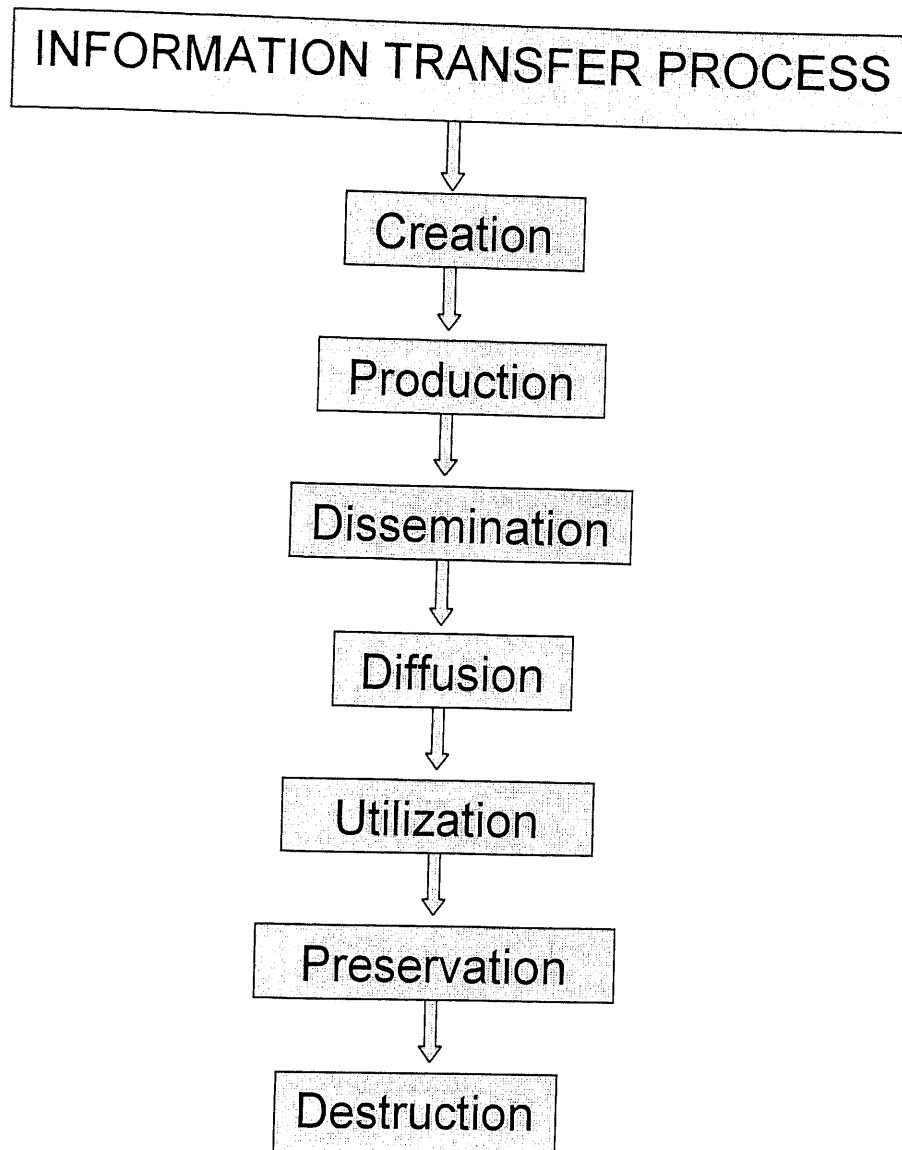
organizational action or result may never be found and many of these factors have minimal situational effect. The important aspect of complexity theory is to find the critical system and individual component factors and influences so that emergent properties can be determined. The result is a more complete picture of the organization and events to identify what occurred and why within organizational circumstances (Elliott & Kiel, 1999; Hertz, 1999; Jervis, 1997).

### **Information Transfer Process**

Within a complexity framework, information is a critical component of network and system relations. System and relation components change and adapt and emergent properties develop. The adaptations and modifications are based on linkages, or shared communications, within and between the system and the environment (Elliott & Kiel, 1999). The information transfer process has been described as the way information is shared, or communicated, through an organization or society (Grover et al., 1997). Organizational theorists have also identified the importance of information in organizational and agent actions as a strategic resource (Achleitner & Grover, 1988; Kast & Rosenzweig, 1970).

Greer's Information Transfer Theory is typically described as a linear continuum including information creation, production, dissemination, organization, diffusion, utilization, preservation, and destruction. A representation is shown in Figure 1 which has been adapted from Grover et al. (1997). Greer also identifies influences to information use by individuals and groups as "external social variables such as environment, culture, economics, and policy" (Achleitner & Grover, 1988, p. 94). Achleitner and Grover

Figure 1. Greer's information transfer theory.



(1988) acknowledge the importance of knowledge through shared social image creations such as culture, beliefs, and history that form a critical component in information transfer,

similar to the symbolic interaction perspective discussed later in the epistemology section of this chapter.

As we look at the information transfer process through a complexity analysis lens to describe a piece of information passing through the process, it seems that the information often passes through a nonlinear continuum (Roger Wyatt, personal communication, June 14, 2002). This occurs because information is modified, reinterpreted, added to, and re-perceived based on the needs, understanding, and bias of the individuals processing that information (Ferguson, 1999). Dissemination (spread) and diffusion (internalization), and the information transfer process itself are vital to decision making dynamics and organizational effects because of information importance in current organizational environments (Lissack & Gunz, 1999; March, 1999). Scullion (2002) refers dissemination effectiveness back to organizational culture and climate regardless of the strategy chosen. The literature base includes many differing definitions of information transfer terms as outlined in the following sections. A summary is described in Appendix F and Figure 2.

Linearly, the information transfer process begins as information is created or produced. The multidisciplinary concepts of complexity theory for interaction, contextual/environmental impact, system co-evolution, and adaptation between the system and the environment are critical throughout the knowledge creation process (Nelson, 1981). For O'Connor (1996), production incorporates organization, identification, abstracting, categorization, and formatting of information. Information

Figure 2. Information transfer process definition overlaps.

Dissemination	Diffusion	Utilization
<p><b>Dissemination:</b> transmission of information to specific groups which results in utilization through impact, reaction, or implementation (Scullion, 2002)</p>		
<p><b>Dissemination:</b> a process of knowing specific consumer populations and systematically providing information to them for problem solving and enhancement (Owens, 2001)</p>		
<p><b>Dissemination:</b> Information spread (transfer to other system locations (Klein &amp; Gwaltney, 1998)</p>		
<p><b>Dissemination Process Components:</b> Spread, Choice, Exchange, Implementation (Klein, 1989)</p>		
	<p><b>Diffusion:</b> Process of communicating information through channels in a social system over time (Rogers, 1995)</p>	
	<p><b>Diffusion:</b> Demonstrated by a restatement of the information (Wyatt, personal communication, June 14, 2002)</p>	
	<p><b>Diffusion:</b> Process by which others receive disseminated information, learn about or gain an understanding of that information, and make decisions about the usefulness and truth of that information (Crandall, 1989; Valente &amp; Rogers, 1995)</p>	
	<p><b>Diffusion-Adoption</b> component of innovation-development process (Rogers, 1986)</p>	
		<p><b>Utilization:</b> the use of information by an individual or organization (Rich, 1979)</p>
		<p><b>Utilization:</b> the reception, and if possible, the full or partial understanding by the recipient (Machlup, 1993)</p>

transfer literature defines dissemination in a number of ways. Friedman and Farag (1991) define dissemination as information spread through available communication channels



for systematic transmission to a targeted group. In this way, their definition includes spread, diffusion, and utilization. Louis (1992) modifies the dissemination definition to include information spread, exchange, choice, and implementation. For Louis, dissemination and use form opposite ends of a spectrum within the information transfer process. The definition deviations and combinations of information transfer components within other terms as described above indicate a lack of standard terminology in information transfer process research.

Although dissemination has no commonly accepted definition, there has been a gap between dissemination and utilization. Currently, that gap is diminishing as Scullion (2002) relates the change in dissemination definition from information distribution to the addition of utilization. His current dissemination definition includes the transmission of information to specific groups which results in a "reaction, some impact, or implementation" (Scullion, 2002, pp. 67-68). This is an echo of Owens (2001) dissemination definition including utilization through systematically providing information to specific populations to allow those populations to solve problems and/or enhance their business.

Even with dissemination definition changes, Louis & Jones (2001) identify a continued need since 1982 for an increased understanding of dissemination function in an innovation process. They also identify a dissemination knowledge use model that includes change incentives, usable knowledge for target populations, shared understanding creation for local practice improvement, new idea diffusion between members and agencies, and combination top-down and bottom-up information

approaches. This relates to organizational decision making through social information processing and assessment. As groups and individuals perform social information processing and assessment functions they customize information for personal use.

Rogers (1995) defines diffusion as information transfer through communication channels and organizational agents over time. In the diffusion process the information is understood, evaluated for usefulness and accuracy, and possibly adopted or modified (Crandall, 1989; Valente & Rogers, 1995). The original information is modified, interpreted, and understood, at least as well as the agents and networks can based on personal experience, previous history, and interpretations in that organization. Without information diffusion, information is transferred without further impact and cannot be utilized (Roger Wyatt, personal communication, June 14, 2002). This link is important because most diffusion studies use utilization to measure diffusion, although diffusion may also result in adoption or modification of the information or innovation (Rogers & Kincaid, 1981; Rogers, 1995; Valente & Rogers, 1995).

Everett Rogers, the predominant scholar in diffusion research, detailed diffusion of innovations in his 1995 text, *The Diffusion of Innovations*. He began with the diffusion of agricultural seed hybrids measured through utilization, the number of Iowa farmers who planted the hybrid seeds. Diffusion research has continually followed this pattern. *Communication of Innovations* (Rogers & Kincaid, 1971) detailed the diffusion of family planning information measured through a holistic, contextually dependent of family planning technique adoption. Rogers (1986) also considered the Diffusion-Adoption

segment of the innovation-development process as the critical decision to measure information diffusion is utilization.

Innovation adoption takes time since it occurs through an S shaped curve. Adoption initially includes relatively few early adopters, who then share the information or innovation until a critical mass is reached. When innovation critical mass is reached further adoption is self-sustaining. For example, the INTERNET was formed from a computer network developed to exchange messages between universities through phone connections called BITNET. Initially, there were two universities leasing phone lines in BITNET. Within a year there were 6 linked universities on the east coast. The next year a west coast university leased a phone line to the nearest BITNET university which opened access to the west coast. This was the critical point. In the next 2 years, 19 more universities had joined the network. During the next 2 years, the number doubled every 6 months. Five years later, BITNET joined with 20,000 other electronic networks to form the INTERNET. Therefore, many academic researchers assumed that other academics could be contacted through BITNET. As the innovation is further diffused and accepted through the organization by the early adopters, the late adopters are forced to utilize the innovation, information, or technology (Rogers, 1995). The late adoption occurs as the information or innovation as it becomes the "standard" for organizational function or use. For example, at the University of Texas at Arlington (UTA), the standard for finding information is what is available from the UTA website. The standard communication method is e-mail (Dr. Louise Fincher, personal communication, August 16, 2002).

Individuals are required to become computer literate to work at UTA. Without some computer proficiency, they cannot perform their duties effectively.

Information is utilized after diffusion. Regardless of the actual dissemination and diffusion definition information may be incorporated into current knowledge and believed and used. Utilization consistently occurs in the literature following information interpretation (Machlup, 1993; Rich, 1979). If an individual cannot interpret the information, they cannot use it to modify previous understanding, knowledge, interpretations, or actions. The interpretation and modification process continues as long as the issue is of interest to organizational agents. Following information utilization, the data is either preserved (stored) or destroyed (eliminated). After destruction the information cannot be used.

### *An Identification Problem*

Information transfer is critical to organizational analysis because social systems act, evolve, and emerge through communication, or information transfer (Mokros & Ruben, 1991). The information transfer process is a linear process with authors overlapping different components through their definitions. Some researchers define dissemination as merely the spread of information, while others incorporate spread, exchange, communication, and parts of classical diffusion in the dissemination process (Elliott & Kiel, 1999; Kast & Rosenzweig, 1970; Knoke & Kuklinski, 1983; Kroll, 1995; Louis, 1992). Some of these definitions are detailed previously in Figure 2.

As shown Figure 2, the overlap in definitions and concepts within information transfer is confusing because the definitions range from local, well-defined terms to

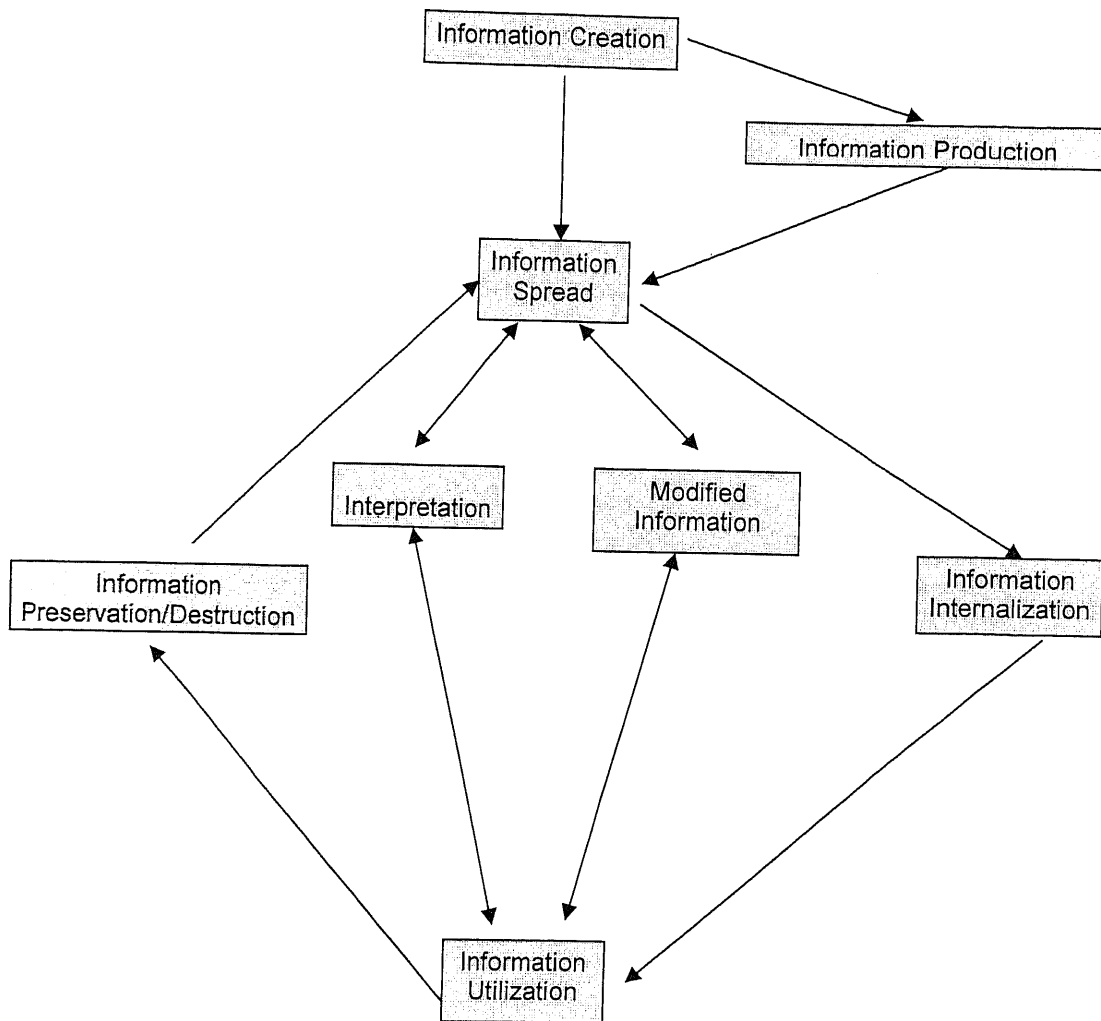
dissemination as a large process incorporating both diffusion and utilization. The difference in definitions is natural in the early life of a discipline as detailed by the history of thought and definition changes in systems theory (Capra, 1996). This is especially true in a multidisciplinary field where there are diffuse and adapting notions of key terms. Through time, further research and theory will solidify the terms (Roger Wyatt, personal communication, October 2, 2002). In an effort to clarify the nonstandard research terminology a summary glossary of terms can be found in Appendix F.

### *A Possible Solution*

Complexity theory provides a possible rationale for the difference in research definitions between dissemination and diffusion of information. It allows us to see that the linear information transfer process may not be linear because information is modified through the process (Choo, 2000; Roger Wyatt, personal communication, June 14, 2002). Information is a valuable resource within an organization. It is spread in greater and lesser amounts depending on information type, need for secrecy and subterfuge, network and individual relations, and other individual interpretations and organizational factors. Information is available in varying degrees to varying networks at the same time (Friedman & Farag, 1991; Kearns, 1989; Kiel, 1994).

In this dissertation I propose two separate, but related, modifications to clarify the information transfer process theoretical base. An overview of the proposed process is detailed in Figure 3. In an attempt to minimize the confusion created by varying dissemination and diffusion definitions a modified set of information transfer process terms will be introduced. Information Spread will replace the term dissemination. Spread

Figure 3. Proposed modifications to Greer's information transfer model.



will refer to the transmission of information. Information Internalization will replace the term diffusion. Internalization will incorporate the processes of interpretation, modification, and understanding required prior to information utilization.

Because information is interpreted and modified by the user prior to utilization the complex information transfer process may not be linear. Acceptance of a nonlinear

process resolves some of the information identification confusion present when attempting to trace a single piece of information through the process in a human society as the information changes, and is in turn interpreted by each individual it reaches. It is my intention to add to this research field to minimize confusion and simplify the language. Terminology overlap definitions used in this research have been provided in Appendix F.

The proposed information transfer model focuses attention on information adaptation as it passes through the process through the information internalization and information modifications. These additions allow qualitative research base incorporation where perspective and interaction are critical to a research issue understanding. Examples include research frameworks in symbolic interactionism, critical theory, postmodernism, feminism, and others (Alvesson & Deetz, 1996; Calas & Smircich, 1996; Hall, 1985). In many qualitative treatises, the participants are interviewed after the fact, and a frequent comment is "if I'd only known xx, I would have responded differently." Post-modern research focuses on research biases and theoretical assumptions related to conclusions. In general, where one stands determines what one sees (Lissack & Gunz, 1999). Interaction between the researcher and others also affects researcher perspective over time. The importance of perspective is clear in organizational analysis through single thread research such as critical theory and postmodernism. This dissertation will further explain these issues in a complexity context.

## **Organizational Analyses Through Complexity Theory and Information Transfer Lenses**

Kast and Rosenzweig (1970) define organizations as coherent systems of networks and individuals making decisions through cooperation and collective efforts. The definition incorporates system definitions of individuals and linkages, as well as the information transfer, or communication process. Organizations are also instruments for specific activities based on organizational goals where the organization itself becomes the "set of procedures by which participants arrive at an interpretation of what they (and others) are doing, and who they are" (Olsen, 1976, p. 84).

The complexity framework clarified by Elliott and Kiel (1994) identifies organizations as complex, changing environments affected through decisions and other processes that are not caused by an isolated factor like structure, function, gender, or power. In this view organizations are individuals or networks acting together (Holland, 1998; Kelly, 1994; Kiel, 1994; Waldrop, 1992). For individuals or networks to act together, communication, or information transfer must occur through the sharing of information, whether or not the information is interpreted similarly or understood. The information is crucial to organizational and decision analyses. Organizational analyses, in combination with the information transfer model do not exist, although communication, decisions, and organizational analysis do (Lissack & Gunz, 1999).

In organizational decision making, individuals and groups make decisions that are attributed to the organization (March & Olsen, 1976a). These groups, or networks, like any social system, emerge, adapt, and evolve through information and shared knowledge



communication (Mokros & Ruben, 1991). The actual decisions and their outcomes are based on a multitude of factors. Some of these factors have been identified as organizational and decision maker personal characteristics (March & Olsen, 1976c); politics (Pettigrew, 1973; Stava, 1976); ambiguity, choices, and available alternatives (Cohen, March, & Olsen, 1976; Radner, 1997; Raiffa, 1970); roles, status, and others perceptions (Cohen & March, 1976; Enderund, 1976; March & Olsen, 1976b; March & Romelaer, 1976; Olsen, 1976); norms (Rommetveit, 1976); previous conditions and consequences (Clegg, 1989; Cyert & March, 1992); information and access to it (Hall, 1995; Kast & Rosenzweig, 1970); power (Clegg, 1989; Deetz, 1992; Salancik & Brindle, 1997); agenda building (Dutton, 1997); and combinations of the previously mentioned and other factors (Alvesson & Willmott, 1992; Clegg, Hardy, & Nord, 1980; Garud & Shapira, 1997; March, 1997; March & Olsen, 1976c; March & Olsen, 1976d; Miller, Hickson, & Wilson, 1996; Shapira, 1997).

Kast and Rosenzweig (1970) identify some of these factors as strategic and tactical plan interpretations, agendas, and organizational goals that affect the decision to implement control and planning. A large number of other influences are identified by a variety of authors *Ambiguity and Choice in Organizations* (March & Olsen, 1976) and *The Pursuit of Organizational Intelligence* (March, 1999). All influences are situation specific. Even with the large number of influences to decision making, Olsen (1976) states that the available decision choices are determined by the decision making behavior of the involved individuals/groups. Elliott and Kiel (1999) agree, stating that organizational decisions, policies, and changes are not endless choices. The actual

decisions available within an organization are in large part constrained and predetermined by pre-existing conditions (Elliott & Kiel, 1999). Decision making has been linked to sense making as decisions are dependant on preferences and interpretation in a changing environment with critical, limited and changing information (March, 1999).

Information and the information transfer process are crucial in organizational action and decision making processes (Jervis, 1997). Organizational action requires information as all actions occur in response to a need, duty, or requirement for certain agents or networks within the organization. The need for action or response or change is not apparent without feedback from other actions. The feedback is the information that allows the information transfer model to be an appropriate model for organizational analysis. Needs, duties, or requirements for organizational action are not known without agent communication. These communications transfer information within the organization or between agents' and create shared constructs and images for further organizational influence (Achleitner & Grover, 1988; Grover et al., 1997).

The complexity and number of factors in decision-making processes makes research difficult. The action of decision making groups within an organization is undeterminable until the decision process is complete as the eventual outcome is the result of many components and factors within a number of groups, some of which are competing and conflicting. Organizational actions and decisions were ultimately related to information flow within the organization (Kast & Rosenzweig, 1970). Louis & Jones (2001) describe the knowledge use in an organizational learning process including social processing and collective agreement on applicability and validity. Specific factors

include shared memory, individual knowledge, and knowledge distribution systems to spread information.

Bellin (1993) defines information as a unique, reusable, changeable resource. Organizationally, information value exists in information transmission or withholding during interaction. Information value is related to its utility to decision makers, interest to the users, and potential for future use. Achleitner and Grover (1988) add that information is transferred within networks in the organization while being influenced by individual roles, organizational structures, individual's access to internal and external information sources, and the culture of the organization as well as the environment, economics, policies, and others within human systems like organizations.

Information is a critical component of organizational analysis and decision making because individual and network interactions create and modify social relations (Jervis, 1997). Grover et al. (1997) agree in principle by stating that the business economy has also been defined as a knowledge economy. To Jervis (1997) influences to agent behavior include the ability to estimate alternative consequences from available information and resources regardless of the accuracy of the information, interpretation, and predictions. Information, or lack of it, is a key influence to agent decisions and actions in an organizational setting (Elliott & Kiel, 1999; Kast & Rosenzweig, 1970). Resources may be informational or material. Resource transfer affects agent behavior and therefore environmental and organizational change. Change in the resources or resource flow between agents as systems change creates more adaptation from the "cumulative transfer, use, and transformation of resources" (Pherigo et al., 1999, p. 86).

Within organizations and organizational decision making each agent modifies information over time with each "telling" or sharing with other agents. Agents modify or reinterpret information based on current knowledge, perception, interpretation, and other factors throughout the decision process (March, 1999). This frequently results in many modifications of the original information throughout the organization and within networks at the same time. Information availability changes other organizational characteristics throughout decision and action processes. Continual changes and modifications occur through the information transfer process as the information available, context, environment, interpersonal relations, and interpretations change (Elliott & Kiel, 1999).

This makes studying the information transfer process over time difficult with a linear information transfer model. A solution is to utilize the complexity model to oversee and understand the system, as well as utilizing the grounded theory research methodology with constant comparative analysis and coding strategies to make certain that an idea is tracked through modifications and time.

While describing the difficulties of organizational analysis, Ferguson (1999) identifies three categories of context/environment, interpersonal relations, and interpretations to influence organizational action and events. The resulting organizational action is specific to that situation with its individuals, networks, and issues. Context is determined by organizational exogenous factors about that issue, and an environment is created and maintained through agent interactions and other organizational mechanisms. Interactions or interpersonal relations between agents and networks create a process that

changes even throughout the process. Agent interpretations also affect behavior and decisions.

Each factor is interrelated between the involved agents and other organizational agents (Jervis, 1997). The interactions form a complex network or web through which information is communicated and transferred. The complexity of organizational factors and agent relations causes consequences to include unintended and unanticipated interaction results. Backer (1998) agrees as he states that information creates, maintains, and modifies agent actions, interactions, and interpretations within the organizational process. Holland (1998) also has a similar philosophy as he writes that the world is an "interaction of individuals with different strategies" (p. 117). Researchers in policy and network analysis have utilized some or all of the complexity theory components to enhance the explanations provided by their research. The following two sections will summarize the relevant portion of that literature.

### *Policy Analysis*

Policy analysis is similar to organizational decision making analysis. Complexity theory is necessary for policy analysis to overcome issues of limited data, limited knowledge, and oversimplification (Jervis, 1997). Kiel and Elliott (1999) agree that the interactive, complex situations within organizations for policy analysis require nonlinear models of behavior for accuracy. They identify the increased speed of information flow and increasing complexness of political, social, and economic organizations, and the implications of those factors for public policy making.

Knowledge of organizational dynamics requires understanding agent attributes and goals, other results available to organizational agents, recognition that crucial effects may be delayed or indirect, agent interactions, outcomes study as potentially unintended by the agents, and recognition of the difficulty of organizational action regulation (Jervis, 1997). Organizational policy making is also affected by system constraints, as well as issue context and organizational environment (Kroll, 1995). These constraints may include many factors such as organizational size, policies, political power, issue importance, other issues, products, previous histories, funding limitations, and many others. Any changes in the organization, agents, or context can eliminate or modify these constraining factors through modification of the circumstances.

Policy analysis of a complex system is more difficult than identifying numbers of factors with organizational dynamics. This problem is compounded by bounded rationality. Agents make the best decisions possible for them under the circumstances given the limited information available to them. Agents never have all the available information, and even if they did, they could not accurately predict how all the others will respond, interpret, and continue throughout the process (Polkinghorne, 1983).

Waldrop (1992) identified a link from the current study of economic policy analysis and political policy analysis. In his view, complexity theory is a tool for policy analysis through identification of nonlinear system dynamics by content and system rule observation over time as adaptation occurs. Policy shifts have been studied by Pherigo et al. (1999). They found that in a complex and multilevel environment, each level

impacts on a variety of agents. Although each agent interacts with others, each is also interdependent. It is for this reason that agent behavior varies depending on the situation.

### *Network Analysis*

There are multiple potential and actual influences within an organizational setting and multiple answers to any particular problem. The process resulting in an action is potentially identifiable by examining the organization through involved factors. As discussed previously, those categories include context, environment, interpersonal relations, and interpretation that affect the networks formed within organizations, a "specific type of relationship linking a defined set of persons, objects, or events" (Knoke & Kuklinski, 1983, p.12).

Network structure includes present and absent links between organizational agents. Within an organization the links and connections available between agents and networks vary. Some serve as reference points during decisions for agents and networks. In this way, organizational dynamics and policy making are affected by network and agent interactions. As a result, agent relations are the key to network analysis. Interpersonal relations construct the informal, or social, organizational structure (Rogers & Kincaid, 1981). These relations are emergent properties and links rather than intrinsic organizational characteristics. The relations are also context specific and influence agent and organizational behavior. The context changes with the situation, environment, individuals, agents, and interactions (Knoke & Kuklinski, 1983; Rogers & Kincaid, 1981).

In networks, interpersonal relationships, information shared and modified, and interpretation of actions and communications are critical to agent action (Kast & Rosenzweig, 1970). Networks may occur within the formal or informal structure of the organization. Membership may change any time for any reason. Since policies are developed through organizational decisions and priorities, they are a measure of organizational action (Kroll, 1995). Many agents and networks actually make decisions regarding policies and implementation of policies within organizations. People then act and react in relation to those policies.

According to Newell and Clark (1990) the goal of professional association organizations is to create a network of professionals for information dissemination. However, within an organization, an agent may be a member in many different networks. Each network may include many different organizational agents. Within each network, the categories of context, environment, interpersonal relations, and interpretation all factor into the ultimate decisions and actions. This is especially true in complex organizations, as weak ties provide the links for influence, information, and resource transfer between organizational agents because of the influences, interrelations, and factors among the categories (Knoke & Kuklinski, 1983).

Network analysis is utilized in chaos and complexity organizational process research for statistical and structural measures (Kearns, 1989; Knoke & Kuklinski, 1983; Waldrop, 1992). Network analysis allows contextual social relations identification within networks for actors, agents, and participation factors. This provides a bridge for the gap between macro- and micro-theoretical organizational action explanations (Rogers &



Kincaid, 1981). The gap is closed through information about agent links for system role or position determination as well as position description. Organizational structure identification through network analysis requires finding the significant positions linking agents together within that system. The social structure itself is a pattern of agent relations. Each position in the network includes is the social roles available to it.

Network analysis methodology supports complexity theory and analysis (Knoke & Kuklinski, 1983). The social components and linkages within network, policy, and organizational analysis lend credence to the importance of information and information transfer (communication) within the organizational analysis field. This area has been addressed by researchers only minimally. The number of possible linkages, information, and changes in information and network members over the time necessary for organizational decision making lend credence to the need for a model to adequately explain events (Knoke & Kuklinski, 1983). The advantages of complexity theory in accomplishing this will be further outlined in the following section.

### ***Organizational Culture***

Within an organization, consistent member interactions create and maintain organizational culture (Becker, 1961). Social rules define social structure and appropriate member behavior (Becker, 1995; Lemert & Branaman, 1997). Organizational culture also influences member interpretations by affecting personal situational perspective (Becker, 1995). Information about participants, organizational context and managerial factors, issue specifics and context, and knowledge allow researchers to understand organizational decision making and behavior (Berwick, 2003).

Choo (2000) discusses organizational knowledge in three categories. Tacit knowledge is participant personal knowledge which includes participant's personal experiences, interpersonal relations, and interpretations. These serve to structure participant's work and sensemaking beliefs. Explicit knowledge allows formal communication and dissemination through symbols, objects, and rules. Cultural knowledge consists of shared organizational assumptions and beliefs about the organization, reality, and the environment. These beliefs allow participants to judge and select alternatives for evaluation (Choo, 2000). In this way, organizational beliefs initiate and maintain information and information seeking norms regardless of some member turnover. The knowledge types affect organizational issues and understanding.

Over time, shared organizational culture and meaning increases similarities in member perception and action within the organization. This occurs strategically through "facework" as individuals align themselves within groups (Goffman, 1967). Informal interaction and communication builds relationships. Increasing trust in a source leads to increasing perceived information value. Information is typically sought from "like thinkers" (Perley, 2001). Strategic interaction also includes member actions, rules, issue importance, information, and resources within individual actions (Lemert & Branaman, 1997). Individual actions influence networks and interactions.

Complex issues require significant amounts of organizational knowledge. Interpersonal relations and interaction, communication about innovations, and new ideas allow information sharing to maintain organizational culture. This occurs through organizational innovation decisions including individual, organizational, environmental,

and innovation factors (Dobbins, Cikiska, Cockerill, Barnsley, and DiCenso, 2002).

These factors integrate and intermingle as innovations progress through Roger's information stages: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 1995). The need for change (innovation) becomes evident. Decision makers search for information to increase knowledge and awareness. Then innovation perceptions are developed as decision makers continue integrating information and form a decision to adopt or reject the innovation during persuasion. Persuasion is impacted by issue relevance and importance. Issue relevance and importance are established through organizational norms and shared knowledge. This pattern and system of interactions and modifications forms, maintains, and modifies organizational culture.

### *Complexity Theory Importance in Organizational Decision Making Research*

Jervis (1997) identifies the necessity of complexity theory for accurate organizational process explanation because the interrelations and links between agents vary as the environment changes over time. Examples of these include decisions of hiring or firing executives, payroll procedure modification, tenure requirements changes, or course of major development. Current and past linkages and agent relations affect the "fates of the units" or agent and organizational responses (Jervis, 1997, p. 17). The interactions vary depending on the involved agents and organizational issues. The interactions also vary according to the information available as it is perceived by organizational agents. Many information transfer authors describe information as a strategic organizational and individual power resource that is transferred through interactions or communications (Achleitner & Grover, 1988; Backer, 1998; Mokros &

Ruben, 1991). The information and interactions function in the system to shape and define organizational context but they are also shaped by organizational social structure, culture, environment, economics, and policies (Achleitner & Grover, 1988).

Complexity theory allows researchers to see a variety of settings and networks as important to the processes and functions of organizations (Elliott & Kiel, 1999). This is true even though the information available to various agents or networks may be different, modified, and accurate or inaccurate in any setting (Knoke & Kuklinski, 1983). For a variety of reasons, including the youth of the information science field, there is no widely held standard information transfer definition (Choo, 2000; Roger Wyatt, personal communication, October 31, 2003). As discussed briefly previously in this chapter and elaborated upon in Chapter 4, there is also an overlap between what is included in the terms that define the information transfer process (Figure 2). This is especially prevalent with diffusion and dissemination terminology. Once simplified and standardized, the complexity of the information transfer process can be studied as a factor in the environment and interpersonal relation categories as described above based on the value of information, modifications, access, and culture (Achleitner & Grover, 1988).

Complexity theory creates a framework for examination of the differences between the whole of any organizational process and the components. The framework compares the information available and transferred between individuals and networks during various processes as well as information interpretation (Choo, 2000; Elliott & Kiel, 1999; Hertz, 1999; Waldrop, 1992). This theory is critical to understand since the world and organizations like the NATA are increasing in plural, adaptable, indeterminate,

and open systems (Schwartz & Ogilvy, 1979). Information changes the environment, interpersonal relations, and interpretations of various events and actions within the organization. These changes make for a complex, ever-changing system that makes it difficult to analyze information through the information transfer process during organizational decision making.

## Chapter 2

### Methodology

The following research is designed to study the complexity of an organizational decision and information transfer process. The specific organization researched was the National Athletic Trainers Association (NATA) Board of Directors (BOD). The specific decision is the education reform (ER) decision process. The critical event for this analysis was the September 1994 BOD decision to form an Education Task Force (ETF).

Partially in response to the tenant of complexity theory to study an organization over time, the researcher selected 1990 –1998 as the most appropriate time frame with which to study the context/environment, interpretations, and interpersonal relations, the categories determined by Ferguson (1999) to be critical for analysis.

The purpose of this research is to construct a model incorporating information transfer and complexity theories with a grounded theory methodology to provide a contextually specific explanation of what occurred and why in the BOD ER decision process. The appropriateness and specifics of the grounded theory methodology to this research will be examined later in this chapter. The resulting research analysis explains a complex set of influences to the ER decision process leading to how and why the education reform decision occurred. This will add to the literature in organizational analysis, complexity, information transfer, and the understanding that athletic trainers have about their national organization and leadership.

Organizational analysis research stems from a variety of single theoretical foundations. Examples include critical theory focusing on power, feminism focusing on

gender issues, and post-modernists focusing on language and organizational culture (Alvesson & Deetz, 1996; Calas & Smircich, 1996; Hall, 1985; Pettigrew, 1973). Each of these theoretical foundations focuses on a single component. All factors unrelated to the focus component are excluded even if they could have influenced the events.

Complexity theory eliminates a single component research focus. It has been recently utilized in social science research to provide systems evaluation in a contextually specific situation to provide an explanation of what occurred and why it occurred as the system adapts through time and events. Recent complexity/nonlinear dynamics analyses have attempted to explain disaster responses (Comfort, 1999), regulatory policy (Pherigo et al., 1999), unemployment rates (Guastello, 1999), program evaluation (Hertz, 1999), and economic transitions (Rosser, 1999). Nonlinear dynamic analysis fits into qualitative analysis techniques because of the context based research focus and the assumption that "a description and understanding of a person's social environment or an organization's political context is essential for overall understanding of what is observed" (Patton, 1990, p. 49). Rogers and Kincaid (1981) use these concepts within network analysis methodology while studying innovation adoption.

Niall Ferguson (1999), a historian and nonlinear dynamic theorist, has proposed three main components in event explanation: contextual/environmental factors, interpretations, and interpersonal relationships of the individuals and networks. This supports a complexity analysis of organizations through a focus on influences and system changes that relates to information, especially interpretation and availability. Information transfer is a field that evaluates how information flows from creation to storage or

destruction. The information transfer process, or whether information is transferred, if it is modified, how it is transferred, and if it affects the system and system function, is shown by this research to be a valuable link to explaining what occurred and why through all three factors.

This research focuses on dissemination, the spread or transfer of information/technology, and diffusion, the understanding/adoption of the information/technology as determined by use of that information or references to it. For example, information diffusion through the mainstream may affect the context or environment of the decision issue. Stem cell research and cloning issues are currently hot topics within the legal and congressional systems. However, the decisions being made would likely be different if a famous actor was not recently rendered paraplegic and serving as a vocal advocate of stem cell research for his condition. He publicly speaks to Congress and the media influencing both congressional actions and the general public.

As information is available within a decision process it is interpreted, modified, and shared within networks and linkages (interpersonal relationships). The information is also interpreted by others. If communication is adequate, the information may become a construct with shared meaning within a specific setting at a specific point in time, at least until the information is reinterpreted or modified by more information. As a result of the system adaptations that occur over time, a complete (or as complete as possible) explanation of events is more available with a nonlinear dynamic research methodology than a methodology focusing on power or language. The information transfer within organizational analysis using a complexity framework has not been studied to date. This



addition should increase the completeness of this research in organizational analysis over time.

### **Epistemology**

Research is derived and driven by the assumptions of the researcher about the way the world works and philosophy of knowledge. The epistemology underpinning this research project stems from the basic phenomenology of Edmund Husserl and Alfred Schutz concerning the importance of the researchers' efforts to "inductively and holistically understand human experience in context specific settings (Patton, 1990, p. 37). As people create perceived reality through a combination of experience and experience interpretation, they create meaning (Gubrium and Holstein, 2000). The "essence" of experience is "core meanings mutually understood through a phenomenon commonly experienced" (Patton, 1990, p. 70) through social interaction and language (Gubrium & Holstein, 2000).

Symbolic interaction is a critical subcomponent as the world is seen as subjective, constructed by the meanings and interpretations of the people involved in social interaction for any particular event (Hall, 1985). These meanings and interpretations form the "truth" of the matter for the involved individuals and are unique to each individual. However, a group of individuals can develop a shared set of meanings or conventions. As meanings and conventions are modified through experience, they continue to be shared among the group members through communication. Therefore, even though the meanings of a term, action, or event are modifiable, they are still shared, and become common definitions for the members of that group, whether that is the BOD or a particular culture.

Symbolic interaction also includes interpretive interactionism connecting the meaning created through social interaction (symbolic interaction) and the process of communication (Schwandt, 1994).

Similarly to interpretivism and symbolic interaction, constructivist grounded theory “assumes the relativism of multiple social realities, recognizes the mutual creation of knowledge by the viewer and the viewed, and aims toward interpretive understanding of subjects’ meanings” (Charmaz, 2000, p. 510). People confer meaning on realities and act within that developed meaning. Human action is relative to, and dependent on the construction or interpretation of social reality by the involved participants (Lincoln & Guba, 2000). The emphases, as appropriate to grounded theory methodology, are on action and process.

People within a group may form an organization or a formal structure to accomplish a goal. The organization is composed of individuals who share many of the same goals and interests. The organization often takes on an identity and acts in a different manner than the individuals would have individually. Organizational action stems from decisions that are made by individuals within a group and then attributed to the organization. For example, the BOD ER decision is often attributed to the NATA, when the decision was actually made by the ten member BOD.

Events or actions are the result of decisions. Events/actions are dependent on context and self-generating as they influence context (Gubrium & Holstein, 2000). The decisions are based on context/environmental factors related to a particular issue, the interpretations of individuals about that issue, and the interpersonal relations of those

individuals. This holds true for group decisions as well. But, the analysis is more complex because all three factors (environmental/contextual factors, interpretations, and interpersonal relations) are considered for each individual in the group.

It is for this reason that the networks, interpersonal relation linkages formed by each decision group member, are important considerations when determining how and why a decision occurred as it did. There is more to the formula than an analysis of the networks formed within a group, because an organization is analogous to a system such as a biological ecosystem or an artificial life simulation game in that all things (links, networks, individuals, and system components) are interrelated. "Everything is interconnected, but some things are more interconnected than others" (Jervis, 1997, p. 260).

The key to organizational analysis is to study the organization as a whole, rather than the individual components, the individuals within the organization, because an organization, or a group of individuals, is more complex and different than the sum of the individuals. This is critical because as linkages (relationships) are formed, the individuals and the organization change as well. For example, I am part of the decision making group in my family, and my stance on appropriate discipline techniques changes. If I change my attitude, then my actions change as well and the direct links to me (husband, daughter) within our organization (family) may also change although each may change differently. In relation to symbolic interaction meaning, shared definitions, and conventions, the meaning of discipline may become different than it was originally, or even yesterday, within our family and for each family member.

The organization or system is modified through the life of the organization as components adapt and others change in response to the adaptations. Individual adaptations may or may not have far reaching effects. The original metaphor for chaos theory was that the wings of a butterfly flapping in the Far East might, if all conditions are adequate, create unpredictable weather influences and conditions in the eastern United States (Grover et al., 1997). This has been problematic for research because of the continual organizational system and individual strategy and behavior, or component, changes, as well as the environment, time period, and indirectness between cause and effect (Jervis, 1997).

The system is always changing. Modifications in individual components create further modifications in linked components and possibly in the entire system. Studying an organizational issue over time in a nonlinear dynamic format is important to determine accurately what occurred, and why it occurred that particular way at that particular time. Each situation is complex and contextually specific. Complexity theory allows us to explain more completely what occurred and why since all of the factors involved are evaluated for influence over time and system modifications even as the system changes.

This research evaluates an organizational decision making process over time through a number of complex components and linkages. The research utilizes a complexity framework and grounded theory methodology as described in the following sections. The research methodology appropriate for this project is primarily qualitative in nature although the chosen methodology can be used in qualitative and quantitative research (Strauss & Corbin, 1994). Qualitative analysis methods, including grounded

theory, explain the creation of social reality and related issues, as well as “what is being accomplished, under what conditions, and out of what resources” (Gubrium & Holstein, 2000, p. 488).

### **Research Questions**

The research process is guided by a series of research questions to form the critical starting point for inductive theory development. As previously stated, this research was designed to construct a model incorporating information transfer and complexity theories with a grounded theory methodology to provide a contextually specific explanation of why and how the BOD ER decision occurred. To do this, a variety of issues were determined prior to data collection and analysis. These central issues guide the research. The central issues or sensitizing concepts for the research include:

1. identification of critical information to the BOD education reform process and decision;
2. identification of potential system effects of the information transferred on the BOD during the decision process;
3. identification of potential system effects resulting from the decision to implement educational reform on the BOD; and
4. identification of the educational reform decision process and decision information diffusion/dissemination to the NATA members.

These issues have been formulated into a series of proposed research questions that guided the research process in theory construction. The research questions included the following questions.

1. How did the BOD make the decision to implement educational reform?  
What factors and system linkages influenced the decision to implement educational reform?
2. Was information transferred during the decision process?
  - a. How was the information transferred?
  - b. What information was transferred?
  - c. Was the information diffused, disseminated, and utilized by the BOD members and their networks?
  - d. If information was transferred, what was the effect on the decision process?
3. What were the effects of the BOD decision on the BOD?
  - a. What were the effects on the system, the BOD?
  - b. What were the effects on the BOD links and networks?
  - c. Did emergent properties develop in relation to the educational reform decision process?
4. Was the educational reform decision information transferred to the individual members of the NATA?

### **Definitions and Limitations**

A certified athletic trainer (ATC) is an “allied health professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity” (Public Relations Presentation, 2002). The only national professional organization for all certified athletic trainers is the NATA. The NATA is led by a group of ten elected

officials called the BOD. The ER decision process began informally prior to 1989 when the BOD discussed the many issues troubling to the profession. The formal ER decision process was initiated in 1994 with the formation of an ETF. In 1995, the ETF proposed a preliminary set of recommendations. The final set of recommendations was proposed in November 1996 and approved as a package by the BOD in December 1996 (Appendix B). A reference list of abbreviations and definitions for the profession of athletic training can be found in Appendix A and for the education reform decision process in Appendix C.

The data analyzed covers an exhaustive range. This is appropriate because the objective of this research is to utilize different theoretical stances and methods to further the fields of organizational analysis and decision making. Limitations to this research include the primary data issues, circumstance complexity, and timeframe. Each of these issues will be discussed in the following paragraphs.

The primary data sources include the *Journal of Athletic Training*, the *NATA News*, and occasional other journals such as *Training and Conditioning* and the *NCAA News*. There is very limited published data available, and almost all of it summarized the ETF proposed and final recommendations or answered questions about how to gain accreditation. Only one article was written by a BOD member. Other primary data sources included the archives of the athletic training listserv (electronic mailing list). There was one posting by a BOD member and a few by the ETF Co-Chairs as well as a few by other ETF members. There was minimal communication and discussion in the

postings from individual BOD members so the primary data sources could only be utilized to substantiate the background for BOD actions and votes.

The ER decision process was a collective effort of people comprising the ETF who reported back to the BOD. The BOD then disseminated information to the membership. The BOD created the ETF in response to a need to evaluate the educational process because of a large number of complex issues. Some of the issues identified during BOD member interviews included supply and demand, how to extricate educational program evaluation status from the BOD, governmental affairs, workload, low salaries, national certification testing difficulties, and a lack of respect or perceived respect from other medical and allied health professions. All of these issues were identified as professional problems. The BOD eventually determined that addressing education was a method of solving, or potentially solving, most of those issues. The complexity of the circumstances leading to the BOD decision to study education and the seeming lack of relation of some of those issues to education make this study difficult.

There was a time period of thought about education leading to the BOD decision to study ER. This began formally in 1989 as documents in 1991 board books evaluate education and education needs. The ER decision occurred in 1996. Implementation was immediately initiated. The final implementation step will not occur until December 31, 2003 when the last internship candidates can qualify for the national certification exam. Because of this, there were a number of educational issues occurring at the same time.

Also, the final results of the ER decision have not been fully determined yet, as implementation is not complete. There has already been a fairly long time period between



the initial process of the ER decision, and two of the former BOD members have retired since then. Even during the ER decision, people were confusing duties and responsibilities of the entities and governing bodies. This has not improved over time. The final implementation of the education council and the complete elimination of the internship program candidates are likely to confuse this issue further for a short period of time. The perceptions and interpretations of the former BOD members involved in the ER decision and decision process are critical to this research. Interpretations change over time and knowledge. Those interpretations may change after the results of the final stage of implementation. The results of this study are designed to be results at this point in the implementation process rather than final results of ER.

### **Research Design**

To study the educational reform process, I gathered data from 1990 to 1998 concerning the ER decision process. The first critical factor in the ER decision process was the September 1994 BOD decision to form an ETF. The range 1990-1998 was selected to make sure that the data obtained was complete and that the participants had significant personal knowledge about the ER decision process. Data sources included:

- (a) BOD meeting minutes and the supporting Board Books (binders the BOD members received prior to their meetings with supporting and background information);
- (b) published articles about the ER process; (c) interviews of the former BOD members who were within the selected sample; and (d) archived data from posts to the Athletic Training Listserv from 1993 when it began through 1998. Sample selection and characteristics is discussed later in the chapter. The NATA Chief Executive Officer has

provided access to copies of the BOD meeting minutes, Board Books, and Education Task Force materials for 1990-1998. One of the former BOD members also provided access to his Board Books for his tenure on the board.

### *Grounded Theory Methodology*

The data were collected and studied through a grounded theory methodology using the constant comparative method by which a mid-range substantive theory was developed through initial data analysis. This occurred during ongoing data collection allowing for continual categorization of the rich data into emergent concepts, or coded categories (see Table 2; Charmaz, 2000; Denzin & Lincoln, 1994; Lincoln & Denzin, 2000; Ryan & Bernard, 2000). The interviews were conducted first. As soon as possible after each interview researcher notes and voice files records were transcribed. These data were then coded. Following this, BOD meeting minutes and board books were analyzed and coded. The published data was then analyzed and coded as well. At each point, a theory was constructed of what occurred and why. The mid-range theory was constantly being compared to the new data and negative cases and refined. The result was a comprehensive explanation of the data. As the relationships between emergent concepts and theory were studied and compared to incoming data in a constant comparative method. The theory was tested and refined as necessary for optimal fit with the data (Denzin, 1994; Huberman & Miles, 1994; Ryan & Bernard, 2000; Strauss & Corbin, 1994). The result is a theory grounded in systematically gathered and analyzed data (Denzin & Lincoln, 2000).

Table 2

*Sample Categorization Through Interview Data Coding*

Coding Categorizations	Sample Interview Quotes
1. Expectations for Educational Reform	1. "We expected to generate support for NATA approved curriculum programs through time, although it took the colleges over 20 years to jump on the bandwagon quickly."
2. Expectations for Educational Reform	2. "Something needed to be done about the quality differences between educational programs."

(Pete Carlon, personal communication, September 17, 2002)

Validation and conceptual density is important to grounded theory research (Strauss & Corbin, 2000). Validation is the way that the researcher made certain that the developed theory was accurate, stemmed from the data, and that the data fit appropriately into the theory. This occurs throughout the research process by careful analysis as the theory was grounded in the data through development and rechecked with the incoming data, modified, and checked again for fit of data to theory (Patton, 1990). The conceptual density component concerned the large amount of rich data collected and categorized into concepts and relationships and require researcher's familiarity with the data as the theory is grounded, checked for fit, and rechecked for fit against pertinent specifics from the data (Charmaz, 2000; Strauss & Corbin, 1994).

The criteria for grounded theory research evaluation are fit, work, modifiability, and process. Glaser and Strauss described the importance of fit and work in developing substantive theory

By 'fit' we mean that the categories must be readily (not forcibly) applicable to and indicated by the data under study; by 'work' we mean that they must be meaningfully relevant to and be able to explain the behavior under study. (Glaser & Strauss, 1967, p. 3 in Patton, 1990 p. 60).

The specific research goals of this project are appropriate for a study through a grounded theory methodology. The results explain the BOD organization (or system), events, and influences to the educational reform decision. Process questions that result in explanations are appropriate for a grounded theory analysis because rich, explorative data are gathered and intensive rigorous methods are utilized to ensure the completeness and appropriateness of the research for explanation of events (Morse, 1994; Patton, 1990).

### *System Characteristics*

The methods used in the research analysis include analysis of the organization as a whole system as well as the individual components. As described in Chapter 1, Ferguson (1999) defines three system components, context/environment, interpretations, and interpersonal relations as critical in the ability to explain events in complex environments. All available information from the education reform decision process time will be analyzed to obtain the results of this research as described in this chapter.

The NATA is the sole national professional organization for athletic trainers with over 26,000 members (Ryan, 2003). The governance system of the NATA includes the ten member BOD, the NATA Executive Director, the NATA President, and legal council. The decisions made by the BOD govern the NATA and are typically attributed to the NATA. The context/environment includes general and specific health care and professional issues including federal and state regulations and laws, the relations of athletic training to other allied health and medical professions, the goals of the NATA,

hiring practices, economy, and many other issues that form the web of issues that affect the practice of athletic training. Context/environment factors are identified through published data and interviews. These will be explained in Chapter 3. Identified system components include the NATA, the NATA Board of Directors (BOD), the NATA Professional Education Committee which became the Joint Review Committee for Athletic Training (JRC), and the American Medical Association (AMA) accreditation committees, the Committee on Allied Health Education Accreditation (CAHEA) which became the Committee for Accreditation of Allied Health Education Programs (CAAHEP). More system components and the interactions and relations between them will be described in Chapter 4. Important ER decision process system components and linkages between BOD members were determined through the research process.

Within the governance system, individual components and linkages include each of the ten BOD members and the people that they assess as important and influential to their individual thoughts, or interpersonal relations. Interpersonal relations/linkages are identified in this study through self-reporting of contacts and important discussions and people. The third category is interpretations. This category is difficult to describe because it is individual per person and relates to personal experience with context/environment and interpersonal relations/linkages. It is also modifiable at any time according to any other factor including new or changing information. Interpretations were identified through direct questioning of the participants in interviews and through participant publications.

The BOD serves as elected NATA officials. The BOD is composed of ten district directors, once from each U.S. district. NATA members from each district elect the district director from that district. BOD members typically serve a three year term, with a limit of three terms per district director. The NATA constitution establishes a continuous nine year maximum for a BOD member. Elections are held within each district for district directors according to individual district regulations (Pete Carlon, personal communication, June 13, 2003). Two to four district director spots were open for election or re-election each year from 1990 to 1998. A summary of individual BOD member transitions over those years can be found in Appendix G.

The education reform decision process occurred over a long time period where the BOD began considering the need for ER. In 1989, a strategic planning conference determined that [NATA approved curriculum] education programs were a strength but that lack of national accreditation of those programs was a weakness. The goal was to obtain American Medical Association CAHEA accreditation for the NATA Approved Curriculum Programs. The process of obtaining American Medical Association CAHEA accreditation was begun by the PEC immediately as the PEC chair began negotiations for the profession of Athletic Training to receive American Medical Association "Allied Health Profession" designation. This designation was tied to CAHEA accreditation of the educational programs of athletic training. Another identified goal was to eliminate the internship route to certification as an athletic trainer.

An education task force was formed by the BOD in 1994. The charge of the ETF was to

Evaluate the education and professional preparation of the NATA certified/state licensed athletic trainer. . . . It is the NATA-Board of Directors' wish that this task force discuss direct, evaluate, project, and recommend possible action for the Board of Directors to consider. This work is to evaluate education of the undergraduate, both internship and curriculum, graduate education, continuing education, and future education mandates or requirements that may affect the profession and NATA members. There should be no limitations in this task force's scope of evaluation and/or recommendations. (A report from the education task force, 1996)

The ETF presented a preliminary proposal of 18 recommendations for education reform in December 1995. In November 1996, a final recommendation proposal was submitted.

The BOD voted to accept all 18 recommendations as a package in December 1996.

### ***Sample***

The years of 1990-1998 were chosen as the necessary years for appropriate and complete data analysis because of the long time frame of the ER decision process. As previously stated, the data includes primary sources from: (a) BOD meeting minutes and board books; (b) published articles; (c) interviews with BOD members; and (d) archived data from athletic training listserv postings. The primary data was obtained for available dates between 1990 and 1998 as described in the following paragraphs. The interview sample selection is more complicated and so will be described first.

### ***BOD Member Interview Sample***

As a result of the time period of the ER decision process and BOD member turnover, there were 32 BOD members between 1990 and 1998. A minimum of four years served on the BOD during 1990-1998 was judged to be the most likely to allow participants to be able to provide contextually specific information and perceptions from personal experience rather than as told to them from others. There are 18 former BOD

members who served on the BOD for a minimum of 4 years from 1990-1998 (Appendix G).

The sample of 18 participants included four individuals who were present only during the formative thinking ER period. There were 12 individuals who served between one and four years prior to ETF formation and between three and four years during the ER decision process timeframe. One of these individuals served on the board for three years prior to the formation of the ETF, had a gap of a year and a half, and then returned for another three year period during the ER decision process. This individual is currently serving as the NATA President. There are two others who served on the BOD and also served as NATA president during the research timeframe.

All 18 former BOD members were contacted by phone or e-mail. All 18 former BOD agreed to be interviewed. The researcher was able to set appointments with 16 of the 18 former BOD members who agreed to be interviewed. The other two former BOD members were unavailable after the initial agreement to be interviewed. After numerous attempts to contact those two individuals over a five month time span, the researcher utilized 16 for the sample.

The 16 participants served as BOD members for between four and seven years per participant during 1990-1998. The participants averaged 5.4 years served as BOD members during 1990-1998. Two participants were also NATA Presidents during the education reform decision process, and one is currently the NATA President. Presence on BOD when the ETF was formed and the ER decision was made can be found in Table 3.



Table 3

*Participants on BOD During ER Decisions*

<b>BOD Member Pseudonym</b>	<b>Present on BOD When ETF Formed</b>	<b>Present on NATA- BOD When ER Approved</b>
Adam	No	No
Barry	No	Yes
Chris	Yes	No
Devon	Yes	No
Ethan	Yes	No
Frank	Yes	Yes
Gerald	No	Yes
Harry	Yes	Yes
Ike	Yes	Yes
John	Yes	Yes
Karl	Yes	Yes
Larry	Yes	Yes
Marshall	Yes	Yes
Nick	Yes	Yes
Owen	No	Yes
Paul	No	Yes

Notes: \* Partial years counted as full years for this research

The remaining primary data comes from BOD meeting minutes, board books, published articles in trade journals, and postings from the athletic training listserv. I was able to obtain access to all of the meeting minutes from June 1990 through 1998. The meeting minutes from January 1989 to May 1990 are missing from the NATA offices. I

was also able to gain access to all of the available board books, from 1991 to 1998. Some of the board books from 1991 and 1992 also included background information such as the long range strategic plan. The data is as complete as possible as a few of the minutes and books are missing from the NATA office.

### ***Written Data Sample***

There are few trade journals specifically for athletic trainers. One is the *NATA News*, a publication to the NATA membership to communicate interests and news. The *NATA News* comprises approximately 98% of the published information about education reform in athletic training. The scholarly journal for athletic trainers is the *Journal of Athletic Training*. A relatively recent journal is *Athletic Therapy Today*. There has been one article in each of these journals about ER. There have also been a few articles written about the results of ER on intercollegiate athletic programs in journals such as the *National Collegiate Athletic Association News*. Published data accessible to athletic trainers during 1990-1998 was collected and analyzed. The list was compared to a list published by the Education Council website regarding published data about the education reform decision.

Athletic trainers also converse on the athletic training listserv which began in 1993. All of the archived posts from 1993 to 1998 were retrieved and examined exhaustively for education reform postings. All of the primary sources were exhaustively analyzed for information relating to the education reform decision process and demographic information about the interviewees.

## Data Collection

The events of the BOD ER decision process were established through written documents and interviews as described previously. The content and network analysis of that data allowed for theory construction to explain the BOD decision to implement ER. The data included: (a) interviews with former BOD members; (b) BOD meeting minutes and board books; (c) published articles on the education reform process; and (c) archival data from the athletic training listserv. The interviews were performed in the spring of 2003. All other data was collected for the time period of 1990-1998 as described in the research design.

### *Interviews*

Sample selection for the interviews is described later in this chapter. There are 18 former BOD members who met the sample criteria. Each participant was contacted through phone, e-mail, or both. The research purpose and sample interview questions were explained (Appendix H). The participant was then asked permission to audiotape the interview. All 18 participants agreed to a taped interview. The interviews occurred by phone, as the participants were spread throughout the country. An interview time was scheduled at the convenience of the participant.

Per University of Arlington Internal Review Board approval, no signed consent forms were necessary. This was determined because the participants verbally agreed to the process, set the interview times at their convenience, and were free to discontinue the conversation, hang up, or not answer the phone at any time. This actually occurred with

two participants, who agreed to an interview, but were unable to be reached in numerous attempts to schedule the interview over the next five months.

The researcher called the former BOD member at the scheduled interview day and time. Each interview was taped with a digital voice recorder. This was reiterated to the participants as the interview began. If the interview was not completed in a single session because of time constraints, another appointment was set to continue the interview.

The interviews were conducted in a general interview guide approach as defined by Patton (1990). In this method, a prospective set of issues for discussion resulted in an interpretive, constructionist understanding of the BOD member's orientation and beliefs to learn his/her categories for making sense of the world or a specific situation (like the many factors related to ER) without predetermining those beliefs. This was accomplished through interview questions designed for open-ended responses to provide a format where the participants elaborated on and exhausted their viewpoint.

The interview format followed a general guide set by the interview questions (Appendix H). However, question wording and order were not predetermined but were formulated based on the BOD member's responses during the interview. The general interview guide was chosen because understanding a participant's beliefs requires a variety of question types including experience/behavior questions, opinion/value questions, feeling questions, knowledge questions, and background/demographic questions (Patton, 1990).

The interviews provide rich data concerning increased processual, network, and decision links and events that allowed the researcher to continue refining the preliminary

theory. Following the principles of grounded theory, access was left open to further questions and information seeking as needed during the research process to develop fully saturated data. Confidentiality was guaranteed to the participants by the agreement not to use the participant's names. This was necessary as during the first few interviews it became apparent that some of the former BOD members were somewhat uncomfortable. The guarantee of confidentiality seemed to diminish that discomfort for most of the former BOD members. At the conclusion of the interview, permission was asked for a later interview if necessary. All 16 participants agreed to provide another interview if needed.

#### ***NATA BOD Meeting Minutes and Board Books***

The BOD meeting minutes and board books, or the support material provided to each BOD member prior to each meeting, were examined for each meeting and conference call from 1990-1998. These were obtained through the NATA office and one of the former BOD members who provided access to his saved material to the researcher. The content and network analyses of those documents allowed for initial theory construction to explain BOD decision to implement educational reform. The constant comparison of new data to mid-range theory created constant revisions of the theoretical explanation (Janesick, 1994; Lincoln & Denzin, 2000).

#### ***Educational Reform Publications***

Primary data from publications was collected through a literature search and through copies of articles found in the NATA files and the board books. The collected articles were compared to the *NATA Education Council Entry Level Education Change*

### *Information In Print Press and the NATA Education Council "Education Reform"*

*Information In Print Press* retrieved from the education council web site in 2002. The vast majority of publications occurred in the *NATA News*. A few other publications were found in the *Journal of Athletic Training*, the *NCAA News, Training and Conditioning*, and *Athletic Therapy Today*. These articles were compiled and analyzed to determine the information that was disseminated and diffused to the membership in print and to compare that data to the recollections of the BOD members.

### *Athletic Training Listserv Archival Data*

The Athletic Training Listserv was initiated in 1993 for athletic trainers to contact and communicate with others about issues in the profession. The archives of the listserv can be requested by partial months through e-mail and automatically delivered. The archives of all postings from 1993-1998 were obtained. All material irrelevant to ER issues was eliminated, although circumstantial categories identified as a part of the environment in the interviews were noted. The information pertinent to ER is coded and studied in a similar fashion as the published data. This data is analyzed for information transfer between BOD members, BOD linkages, and other athletic trainers. It is also used to compare to interview data and increase the depth of the information about complexity of factors relating to the education reform decision and member input.

### **Data Analysis**

In keeping with grounded theory methodology, data analysis and data collection occurred simultaneously. The research history from published books about the history of the NATA provided a basic time line of events. The timeline and a basic model of what

occurred and why was further clarified and adapted through transcriptions and coding of interview data from the BOD. The transcribed interview data documents were placed into the Atlas.Ti (Sage pub) data analysis computer program. Atlas.Ti allowed for computerized coding, memo creation, supercode formation, and quotation retrieval. Coding allowed the researcher to separate assumptions from the data and discern potential sensitizing concepts, or emergent themes to guide the research process. Data analysis occurred line by line to identify actions or events that were categorized by themes, or coded as in the example in Table 2 (Strauss & Corbin, 1994). Line by line coding also allowed the researcher to refine the concepts and categories developed and make comparisons (Denzin, 1994).

The BOD meeting minutes and supporting board books, published data, and Listserv posts were coded and integrated into the theory after the interviews were completed. This was necessary to eliminate my personal beliefs and to maximize the ability to get appropriate interview data about the events and circumstances in the eyes of the participants. The non-electronic interview data was placed in electronic format through re-typing and scanning for ease of analysis. It was analyzed through colored marking of the data for code selection from codes and supercodes from the interview data analysis and others that developed through the remainder of the data analysis. Important information was highlighted in the text as it is coded. For example, blue was utilized for BOD actions and decisions. The coded sheets were then combined and studied for comparison to the developing theory.

Memos of the data relations were composed as coded categories were able to be combined and collapsed into solid data. These memo concepts were compared with the data again in a constant comparative method. The constant comparative method is utilized by various researchers to compare different people, compare the same people at a variety of times, compare events, compare data with a category, and compare categories (Charmaz, 2000). The information developed in the research process includes information about the sample, core categories, critical incidents, the preliminary theories, and negative cases for comparison and contrasting of the developing theory (Denzin, 1994).

The data collection was complete when the data field was saturated. This occurred when no new coding categories or theory adaptations could be developed and all of the data fit into the constructed theory. The constructed event theory provided a contextually specific, data grounded explanation of the events that occurred in the educational reform decision and why the decision occurred in the way that it did as well as the effects of that decision within the information transfer model.

Data analysis began with transcriptions of meeting minutes, data from the NATA Board Books, published articles, interview data, and listserv archival data from postings. Linkages or networks, demographic information, and association with other identified factors or entities are identified first. A timeline was created of events and decisions. The interviews were coded and categorized first to allow for description of events and factors through the eyes of the BOD to minimize prior researcher bias. The timeline, identified



events, contextual/environmental circumstances, interpretations, and interpersonal relations were then compared between data sources.

Triangulation occurred because of the exhaustive nature of the analysis and the completeness of the data from each source. Theory modifications occurred until the data and the explanation reached saturation. At that point, data collection and analysis was complete. This process within a grounded theory methodology was especially appropriate because raw data from at least two sources can be linked together or triangulated within the explanation. The grounded theory procedures allowed for the macro to micro-events, influences, and environments to be incorporated into the theory. This research also satisfies all three requirements for ideal-typical qualitative methods strategy: (a) qualitative data types; (b) holistic-inductive study design; and (c) research choices including content or case analysis for exceptional research (Patton, 1990).

The final analysis includes linkages of BOD members (both inter-organizational and extra-organizational), system events, and how the networks and events fit together to form the development of the decision for educational reform as it occurred. The research result is an explanation of the circumstances to and major influences surrounding the organizational decision making process of the BOD in the ER decision stemming from the information transfer model lens. This is an important addition to the research base as it combines the information transfer process and organizational decision making while applying the complexity model incorporating a contextually specific explanation of the events that has not previously been attempted.

## Chapter 3

### Circumstances of Athletic Training ER

#### *Introduction*

As previously discussed, the NATABOD undertook an ER decision process in the 1990s. The current research effort explains the BOD ER decision process using system, complexity, and information transfer theories. This chapter provides an overview of the participants, demographics, and contextual/environmental influences to the ER decision. These are important because an organization/system's context/environment influences that system as the system adapts over time. The context/environment may also be influenced by system adaptations over time. Participant experiences and credentials (educational and professional background) form a part of the contextual/environmental backdrop for that participant, affect participant actions within the system, and influence the system itself. Participant experiences/credentials and influential contextual/environmental factors are discussed in this chapter. Experiences/credentials also influence participant interpretations and possibly interpersonal relations of each system participant. Interpretations and interpersonal relations will be discussed in Chapter 4.

The BOD ER decision process was defined by the September 1994 decision to form an ETF. The ETF charge was to study all of athletic training education and recommend appropriate changes to the process. The current research studied data from four years prior (1990-1994) and four years after (1994-1998) the ETF formation. Why and what occurred was studied from the BOD viewpoint utilizing complexity and

information transfer theories. The time frame of 1990-1998 was selected to incorporate the context/environment over time of the decision process in accordance with complexity principles.

Upon data review, the researcher divided the ER Time Frame into three major stages (Table 4). Stage 1 (ER Background) includes the background leading to the formation of the ETF. Stage 2 (ETF Work) includes the period where the ETF worked to make and provide support for recommendation about ER. Stage 3 (ER Approval) includes BOD ER approval and implementation.

Table 4

*ER Timeline with Decision/Action Segments*

<b>Stages of the Education</b>		
<b>Reform Process</b>	<b>Date</b>	<b>Event</b>
Stage 1: ER Background	June 1990	BOD received information
	August 1994	Emphasizing need to review education
Stage 2: ETF Work	September 1994	BOD formed ETF
Stage 2	October 1994-November 1995	ETF worked to satisfy charge
Stage 2	December 1995	ETF initial recommendations presented to BOD
Stage 2	January 1996-November 1996	ETF preliminary recommendations
		Disseminated to membership, Town Hall meetings at each district meeting, comment period
Stage 2	November 1996	ETF final recommendations presented to BOD (Appendix B)
Stage 3: ER Approval	December 1996	BOD voted to approve ETF final recommendations
Stage 3	January 1997-December 1998	ER implementation begins, Education Council formed

The current research results explain the ER decision process circumstances through time. The overriding issues that contributed to the ER progression are developed utilizing Ferguson's (1999) three basic categories of context/environment, interpretations, and interpersonal relations. This chapter describes participant demographics to detail relevant personal experience in the profession of athletic training and in athletic training education. The next section incorporates the contextual/environmental factors involved in the ER decision process. Participant interpretation and interpersonal relations/linkages are discussed in Chapter 4. The information transfer process is also discussed in Chapter 4. Chapter 5 provides a summary of the events and circumstances and interrelations through the BOD ER process and discussion.

### ***BOD Participant Demographics***

From 1990-1998, the BOD included 30 individuals. Of those 30 individuals, 18 were potential participants based on the current research methodology (Appendix G). All 18 potential participants agreed to be interviewed. In the ensuing six months after repeated efforts, two participants were unable to be contacted again to schedule the interview. There were 16 participants, 14 men, and 2 women. Interviews occurred during the spring of 2003. Confidentiality was requested by some of the participants and granted by the researcher to secure adequate information in the interviews. Because of this all participants have been provided with pseudonyms.

Participants served an average of 5.4 years on the BOD with a range of 4 to 7 years. Eleven participants served on the BOD during the ETF formation decision and 12 during the ER decision (see Chapter 2, Table 3, p. 66). Participants had a wide range

of credentials, educational and practice settings, and other committee involvement in the participants (Table 5). Eleven participants were employed in the college setting, two in college settings who moved to clinic settings during their time on the BOD, one in the high school setting, and two in professional football. Of the participants in a college setting, six worked in NATA approved curriculum athletic training education programs during the ER decision process. Seven participants worked with internship athletic training programs.

Table 5

*1990-1998 Participant Credentials and Experiences*

<b>BOD Member Pseudonym</b>	<b>Professional Credentials</b>	<b>Practice Setting</b>	<b>ATEP Type</b>	<b>Other Committees or Organizations</b>
Adam	ATC	College	Curriculum	JRC, PEC
Barry	ATC	College	Curriculum	ETF, NATA President
Chris	ATC/PT	College	Curriculum	
Devon	ATC/PT	College	Internship	
Ethan	ATC	College	Curriculum	
Frank	ATC	College	Internship	
Gerald	ATC	College	Curriculum	ETF, NATA President
Harry	ATC/PT	College	Internship	
Ike	ATC/PT	Professional Football	None	ETF, NATA President
John	ATC	College	Internship	ETF
Karl	ATC	High School	None	NATABOC
Larry	ATC	College	Internship	
Marshall	ATC	College	Curriculum	ETF, PEC
Nick	ATC	Professional Football	None	
Owen	ATC	College	Internship	
Paul	ATC	College, Clinic	Internship	

Four participants were dual credentialed in athletic training and physical therapy. Twelve participants were BOD members as the ETF was formed. Twelve participants were BOD members during ER Approval. Three participants had served on the Professional Education Committee related to NATA approved curriculum education programs. One participant had served as a NATA Board of Certification (NATABOC) committee member for athletic training credentials. Two participants served concurrently on the ETF and the BOD. Another participant served as the ex-officio member of the ETF and then continued as an ETF member as his term as NATA President ended. A fourth participant became an ex-officio ETF member.

Participant experience in athletic training program educations (internship, curriculum, and accredited program) varied by participant reports (Table 6). Nine participants had experience in internship education programs, five in curriculum athletic training education programs, and ten in accredited athletic training education program settings. Of the ten participants in accredited settings, nine had experience in at least two types of education programs, but only one mentioned experience in both curriculum and internship programs. Two participants had no experience in athletic training education because they obtained their athletic training qualifications through an older mechanism of physical therapy school. These two participants have spent their athletic training careers in non-college athletic training practice settings.

### Contextual/Environmental Components

Complexity analyses incorporate contextual/environmental influences because the system/organization adapts relative to interaction between the system and the environment. This chapter will continue with a contextual/environmental analysis over

Table 6

#### *Participant Experience in Athletic Training Education Program Types*

BOD Pseudonym	Internship Program	Curriculum Program	Accredited Program	Other
Adam		X	X	
Barry			X	
Chris	X		X	X
Devon	X			
Ethan	X	X	X	
Frank	X		X	
Gerald		X	X	
Harry	X		X	X
Ike				X
John	X		X	
Karl	X			
Larry	X			
Marshall		X	X	
Nick				X
Owen	X		X	
Paul	X			

time according to the stages identified in Table 4. First, Stage 1 (ER Background) will be analyzed. The data include published data in journals and books, NATA BOD Meeting Minutes and Board Books, interview data, and athletic training listserv postings. Then the environmental/contextual factors during Stage Two (ETF Work) and the perceived importance of educational reform will be analyzed.

### ***ER Background (Stage 1) Context/Environmental Components***

The BOD initiated formal Education reform (ER) in 1994 by forming the Education Task Force (ETF). The ETF Charge was to study athletic training education and provide recommendations for educational improvement and a single educational process (Gerald, personal communication, April 17, 2003; Chris, personal communication, April 17, 2003). Published ETF documents identify the charge as to “evaluate the educational and professional preparation of the NATA certified athletic trainer” (Education Task Force Report, 1995). ER Background (Stage 1) is composed of the circumstances and events from 1990-1994 leading to the formation of the ETF. Some data from 1987 and 1989 are considered because they were included in the 1990-1998 BOD Board Books.

### ***Written Data***

The BOD impetus for educational change, standardization, and internship education program elimination was discussed for some time prior to the ETF formation (Adam, personal communication, April 20, 2003). The PEC was looking for a replacement for the NATA curriculum approval as early as the 1970’s (Ebel, 1999). The BOD and PEC decided to wait for complete establishment of educational



[NATA-approved curriculum] programs prior to American Medical Association (AMA) Committee on Allied Health Education Accreditation (CAHEA) initiation for athletic training education program accreditation. In 1987 Dr. Behnke, as PEC chair, revived the effort of CAHEA approval of NATA curriculum education programs (AMA, 1990). In 1989 the BOD developed a Long Range Plan. Chris (personal communication, April 17, 2003) stated that the Summary Long Range Plan (1989) was “the driving force in establishing the ETF.” The Summary Long Range Plan was included in 1991 board books and identified strengths, weaknesses, actions, action plans, assumptions, and objectives.

The Summary Long Range Plan (1989) identified the primary goal of athletic trainers becoming the recognized leaders in caring for the physically active to promote the NATA and the athletic training profession. In the education related portion of the plan, education [NATA approved curriculum] programs are a strength. A corresponding weakness is lack of program recognition. The recommended action was to seek accreditation from an unidentified entity. The Summary Long Range Plan (1989) noted some BOD disagreement with the weakness and action. The identified assumption included phasing out the internship route to athletic training certification. The objective was official recognition of athletic trainers as allied health care professionals and recognition of [NATA approved curriculum] educational programs by a national accrediting body and by the AMA (Summary Long Range Plan, 1989).

The NATA PEC scheduled timeline included application to AMA CAHEA for accreditation of educational programs February 1990. Upon BOD approval the PEC was

to proceed with the accreditation process (Summary Long Range Plan, 1989). The PEC applied to the AMA for CAHEA to take over approval of NATA curriculum status educational programs. A prerequisite for CAHEA program approval was AMA professional designation of athletic training. To satisfy this requirement, after the PEC completed the application process, the AMA recognized athletic training as an allied health profession in June 1990. Dr. Behnke predicted that the biggest impact of AMA recognition would occur to professional preparation (AMA, 1990). By November the BOD was discussing whether they had approved the final step of CAHEA taking over accreditation of NATA curriculum programs. This was resolved as meeting minutes state that the board had “previously agreed to pursue this concept and that NATA would continue to do so” (NATA BOD Meeting Minutes, November, 1990).

In the meantime, a 1990 Visionary Strategic Plan was formulated. The plan was designed to take two years to “consider the future course of the field of athletic training, and consequent impacts and implications on the association” (Lawrence-Leitner & Co. Management Consultants, 1990). This plan was conducted, and in May 1992 the BOD president announced a strategic task force to coordinate long range plan implementation (National Director’s Report, 1990). Education was not mentioned in BOD minutes until 1993 after NATABOC began meetings designed to identify issues related to curriculum and internship candidate performance on the national certification exam.

### ***Interview Data***

The BOD initiated change in [curriculum program] athletic training education in 1987 and proposed educational changes in 1989. In the ensuing five years athletic trainers

regularly discussed the perceived lack of true professional recognition. State credential issues also existed. During state credential processes other professions argued against athletic trainers because of the difficulty people had in understanding the validity of two different routes to national certification. Many NATABOC problems were specific to internship candidate national examination applications. Data comparing candidate test performance showed that candidates from curriculum programs passed the exam more regularly than internship candidates, and the gap was widening yearly. Many more candidates applied for the national examination than there were jobs available.

ER was identified as a common solution. As John (personal communication, April 22, 2003) stated, “I don’t think anybody doubted the fact that we needed a task force to look at things.” Ethan (personal communication, April 16, 2003) agreed, “I think it was pretty consistent across the board, everybody was very much in tune and in line with the fact that we needed to do something with, for education, for our profession.” Larry (personal communication, April 26, 2003) noted that ER “was high priority. I didn’t get the feeling that there were many that felt that it was a high priority. If somebody didn’t feel it was a high priority, they didn’t express it too loud.” Gerald (personal communication, April 17, 2003) put it even more strongly, “we appointed [ETF] because the board bought into the concept that that ER was foremost in our future. Without it, our profession was doomed to fail within the next 50 years.”

### ***ER Decision Process (Stage 2) Context/Environment Components***

During Stage 2 of the ER decision process, from 1994 to 1996, the ETF worked to identify the single, best route to athletic training education. Contextual/environmental

factors were coded for all interviews, NATA BOD Meeting Minutes, Board Books, publications, and listserv archives. The interview codes were then compared to the other data codes for data triangulation. Contextual and environmental factors relating to the BOD need to study ER to strengthen the athletic training profession in two primary categories: (a) education; and (b) political concerns. Education issues included professional status concerns, lack of a true definition of a professional athletic trainer, and the need to standardize athletic training education requirements. Political concerns included credentialing, reimbursement, and education issues. The categories and subcategories are outlined in Table 7. They will be examined in further detail in the following sections.

Table 7

*BOD Education Reform Contextual/Environmental Categories*

<b>Need to Strengthen Athletic Training Profession</b>		
<b>Primary Categories</b>	<b>Secondary Categories</b>	<b>Tertiary Categories</b>
1. Education	A. Professional image concerns	
	B. Lack of true definition of "professional"	
	C. Need to standardize the educational process	C1. CAHEA C2. Long Range Plan (1989)
2. Politics	A. State credential issue	
	B. Third party reimbursement	
	C. Education issues	C1. Control athletic training education C2. Supply and demand C3. NATABOC issues

Educational issues related to the need to strengthen the profession because of professional image concerns, lack of professional definition for athletic training, and the

standards for athletic training education. These categories included a number of influential factors (Table 8).

Table 8

*Need to Strengthen Profession Because of Professional Image Concerns*

Participants	Professional Image Concerns	Lack of Professional Definition		Standardize AT Education		
		Increasing Legitimacy	Student Labor	Central Education Focus	Increase Similarity to Other Professions	Single Route to Certification
Adam			X			X
Barry	X					
Chris	X		X		X	X
Devon	X			X		X
Ethan	X	X		X	X	
Frank	X			X	X	
Gerald	X		X			X
Harry	X	X		X		
Ike	X		X			
John	X	X		X		
Karl						
Larry						
Marshall						
Nick	X	X		X		
Owen	X					
Paul						X

*Professional Image Concerns*

The BOD believed that the athletic training profession image and status needed improving. Members reported difficulty garnering respect from other allied health and medical professionals as well as the general public. Other medical and allied health

professionals, such as physical therapists and nurses, did not see athletic trainers as true professionals with professional education (Gerald, personal communication, April 17, 2003). This became an issue both in working relationships and in the political arena, which will be discussed in the next section. Devon (personal communication, April 27, 2003) stated “there didn’t seem to be the general overall acceptance of our young professionals.”

Lack of athletic trainer professional legitimacy was common in many settings (Nick, personal communication, April 20, 2003). Often athletic administrations at the high school and college levels hired athletic trainers with multiple duties and/or low salaries (e.g., athletic trainer/coach/equipment manager) (Ethan, personal communication, April 16, 2003). The BOD felt that this showed a lack of financial and professional respect from employers (Gerald, personal communication, April 17, 2003).

The athletic training profession was not on par with other allied health professionals (Ethan, personal communication, April 16, 2003; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003). Some physical therapists declined to hire athletic trainers. Others hired athletic trainers in physical therapy aide positions that do not require formal education and are lower paid than other patient care positions. Some clinical athletic trainers reported difficulty hiring internship educated athletic trainers because of limitations in expertise and knowledge (Gerald, personal communication, April 17, 2003). At the college level the workload and schedule of caring for several athletic teams often led to difficulty in meeting faculty academic demands such as committee meetings, research for gaining tenure, securing an

appropriate academic rank, and educational acceptance within the college/university setting (Devon, personal communication, April 27, 2003; Nick, personal communication, April 20, 2003). Healthcare reform was becoming an issue on the national level. Third party billing (athletic trainers billing insurance companies directly for services) was beginning to come about (Larry, personal communication, April 26, 2003). Many athletic training jobs were low paying, and there was great turnover in many positions. In general, it seemed like athletic training was seen as support profession unworthy of respect in salary or position.

Many participants chose to address the discrepancy between what athletic trainers and the rest of the community thought about their profession's education, skills, and abilities by using education to "put meat into the profession" (Harry, personal communication, April 25, 2003). Some participants were surprised by this need as NATABOC had "for so many years been teaching, training, testing individuals to do what athletic training says that it does [through the role delineation studies] and yet there was still not the recognition" (Devon, personal communication, April 27, 2003). The lack of professional recognition was critical because as Barry (personal communication, April 16, 2003) stated, "if we were going to hold a competitive position within the healthcare professions than we really needed to revisit our educational standards." Owen (personal communication, April 21, 2003) supported this recurring theme noting that "it was important to strengthen our academic programs or our curriculum and make us a stronger health care professional." Ike (personal communication, April 22, 2003) noted "we

definitely had to improve our educational methods and knowledge base to advance and hold our own in the health care field.”

### ***Lack of Athletic Training “Professional” Definition***

To advance the position of athletic training in the health care market, participating BOD members reported an overriding need to be visionary and create a definition of a professional trainer. This would define the profession, garner respect, and increase legitimacy of athletic trainers as the most appropriate people to care for the physically active in all practice settings. One of the most bothersome issues to participants was the continual issues related to student labor versus student education. Numerous students who applied for the certification exam through the internship route did not meet the qualifications (Karl, personal communication, April 18, 2003). As Chris (personal communication, April 17, 2003) noted, those statistics showed that there were a number of institutions who were more interested in coverage than they were in education. This resulted in the need to

find a pathway for research and a pathway for our legitimacies as a profession. . . . we discussed where we felt our profession was going, and what we needed to do to legitimize as far as our work. . . . in all sectors where we had people working. (Nick, personal communication, April 20, 2003)

The revised educational requirement results visualized by participants catalyzed changes and improved image as Gerald (personal communication, April 17, 2003) stated, “How do you improve your professional status of your professional job? You do that by improving the education of the person.” The goal was to standardize professional preparation (education) to be more like that of physical therapy and other medical and allied health care professions. The BOD linked similar education preparation to preparing



better professionals, as Frank (personal communication, May 3, 2003) noted they had an interest in “developing educational programs similar to other allied health care professions and also preparing better qualified individuals.”

### ***Need for Athletic Training Education Standardization***

American Medical Association (AMA) CAHEA recognition created a new format to continue the former NATA curriculum program standards. The new committee charged with evaluating educational programs according to CAHEA standards was the Joint Review Committee-Athletic Training (JRC). The JRC was entirely composed of people who were also PEC members (NATA BOD Meeting Minutes, February, 1991; NATA BOD Meeting Minutes, June, 1992; NATA BOD Meeting Minutes, December, 1992; NATA BOD Meeting Minutes, June, 1993). A 1990 letter from Devon to Dr. Behnke, the PEC Chair who obtained AMA recognition, noted this “milestone will hopefully provide the credibility. . . . we have sought for a number of years.” In 1991, the PEC/JRC Chair (Dr. Behnke) predicted that CAHEA accreditation of former NATA-approved curriculum programs would occur by 1993, a year prior to the ETF formation (Behnke, 1991).

Both previously mentioned Long Range Plans had at least partially addressed education standardization and a single route to certification with long range plans and vision statements. Elimination of the internship route to certification was an assumed factor (Lawrence-Leitner Management Consultants, 1989). If internship students were not allowed to qualify for the national certification examination than all certified athletic trainers would graduate from curriculum/accredited athletic training education programs.

These curriculum/accredited athletic training education programs would have required standards and strategies ensuring that the institutions were teaching required material for a centralized educational focus. Quality was ensured through curriculum/accredited program reports, self-studies, and host on-site visits prior to gaining accreditation and becoming re-approved as accredited athletic training education programs. Educational standardization was also seen as a solution to many of the political issues discussed in the next section.

### *Political Issues*

The BOD saw an increase in political issues relating to athletic trainers as society and health care became more complex and costly. Some issues became entwined and inter-related within the allied health field environment for respect, reimbursement, credential issues, educational issues, patient care, and other factors. Some issues were specific to athletic trainers such as the number of practicing athletic trainers compared to the available positions and salary scales. Participant political issues are specified in Table 9.

### *National Context*

In the national context, part of President Clinton's campaign included the Health Care Reform platform (Larry, personal communication, April 26, 2003). If athletic training was to be recognized as the suitable professional for the physically active, then it needed common professional status recognition. This would also require that athletic trainers be on par the business and financial components of other medical and allied

health professions, such as physical therapists. This would be difficult as physical therapists had been billing insurance companies for service for decades.

Athletic trainers, although they could legally bill insurance companies for services, generally did not. There were a few athletic trainers that did bill under their own or the physician's license, but they did not discuss it often (Steve Barrett, personal

Table 9

*Need to Strengthen Profession Because of Political Issue Concerns*

Participants	State Credential Issues	Third Party Reimbursement	Education Concerns		
			Control of AT Education	Supply and Demand	NATABOC
Adam			X		
Barry			X		
Chris			X		X
Devon			X	X	
Ethan			X		
Frank			X		X
Gerald	X		X	X	X
Harry	X		X		
Ike	X		X		X
John	X	X			
Karl					
Larry	X	X			
Marshall	X				
Nick	X		X	X	
Owen			X		
Paul					

communication, January 20, 2002). Third party reimbursement was seen as a potential option for athletic trainers, as there was no law against it. However, many insurance companies did not regularly accept and pay billing statements from athletic trainers. Political stature and professional standing is diminished without the ability to be paid by third party payers. This negatively affects performance and state legislation influence (Gerald, personal communication, April 17, 2003).

### *State Credentialing Legislation*

Although national athletic training certification existed in many allied health and medical professions, state credentialing was becoming an issue. Credentialing protects the public through regulation of qualifications/requirements for a profession (Jim Henderson, personal communication, July 19, 2003). It also aids in professional duty and title protection, depending on the type of credential, such as certification, licensure, or registration. State credentials are an important component of status and protection from other groups and professions. This was important as other allied health and medical professionals used state practice acts to limit other profession's, such as athletic trainer's, practice (Draper, 1996).

Often other allied health professionals claimed false restrictions were true by state law (John Baxter, personal communication, September 20, 2000). The researcher has personally experienced false physical therapist claims about the legal skills athletic trainers may perform in Kansas. Massachusetts had also approved a tiered athletic training practice act which restricted skills based on curriculum or internship education regardless of national certification status (Ike, personal communication, April 22, 2003).

The effectiveness of the national credential was also questioned by state legislators. This stemmed from a “turf war” between physical therapists and certified athletic trainers. As Harry, a PT/ATC stated (personal communication, April 25, 2003), “Education reform was needed because of the same old physical therapist versus certified athletic trainer business.” The conflict increased with professional status enhancement such as reimbursement and state credentialing. For example, in Kansas, athletic trainer’s effort to obtain a registration credential was heavily lobbied against by physical therapists. Physical therapists and their lobbyists argued a lack of credibility in athletic training education because there were two routes to national certification (internship and curriculum) with different requirements. This was a common argument in many state credential efforts, as Gerald (personal communication, April 17, 2003) explained

in several states, as we developed licensure across the country, when state licensure boards would look at your preparation and qualification to be eligible to take the exam . . . you have the internship route and the curricular route, but they scored differently. Why the states should approve this lesser group, score wise? Explain how this is producing an equally qualified graduate. You can’t prove it, and they were starting to question this dual route to certification.

The difference in requirements between the two certification routes allowed physical therapists to argue that a lack of educational preparation existed to perform professional tasks, like independent decision making. It was also confusing to legislators.

This was acknowledged by the BOD, as Ike (personal communication, April 22, 2003) stated, “two routes to certification decreased our credibility significantly.” Larry (personal communication, April 26, 2003) echoed similar thoughts, “States were having a hard time with the legislative process. We were getting attacked because our education process was, according to them [adversaries to state credentials for athletic trainers] had

holes in it.” Gerald (personal communication, April 17, 2003) described how athletic trainers were asked to “explain how this [two routes to certification] is producing an equally qualified candidate. You can’t prove it.” This was argued regardless of NATABOC certification exam psychometrics. The NATABOC certification exam, based on recurring Role Delineation Studies, is designed to protect the public by determining minimum competency standards for athletic trainers (Larry, personal communication, April 26, 2003).

John Baxter (personal communication, September 12, 2000), one of the primary athletic trainers pursuing the Kansas athletic training registration practice act, described the physical therapist lobby against athletic trainers designed to protect themselves from financial competitors. In that case, physical therapists lobbied against an athletic training bill that emphasized the already permissible athletic training professional independence stemming from their ability to work under the license of a physician. Physical therapists proposed a modification stating that athletic trainers would only work under the direction of a physician or a physical therapist. This would have eliminated the practical ability of athletic trainers to bill insurance companies as athletic trainers. All clinic billing would then have been performed under the physical therapists state registration. The conflict continued as the athletic training registration bill was stopped in the legislative process. Athletic trainers then gained the support of the largest Kansas health care lobby, the chiropractors. The result was 1996 Kansas registration of athletic trainers as professional practitioners working only under a Kansas licensed practitioner such as a physician or chiropractor.

During the ER background time frame, Massachusetts developed a law defining two levels of certified athletic trainer practice. Certified athletic trainers who graduated from an internship program were granted permission to perform a lower level of legally permissible skills, and certified athletic trainers who graduated from curriculum programs were allowed to perform more skills (Harry, personal communication, April 25, 2003).

State credentialing and legislative efforts were designed to protect the public. They also can protect professional duties or titles. Physical therapists were concerned about who athletic trainers could treat and how. The issue revolved around the definition of athlete: competitive or non-competitive; active or non-active; in-season or out-of-season; club sport participants or intercollegiate athletes, etc; versus the defined physical therapy population: patients. These circumstances influenced the 1989 Summary Long Range Plan goal defining athletic training as the profession of choice to care for the broad population of physically active individuals (Chris, personal communication, April 17, 2003). State credentialing also initiated a larger athletic training effort to bill insurance companies for provided services, or third party reimbursement.

### ***Third Party Reimbursement***

A persistent theme emerging from participant interviews was a link in the participants' minds between state credentialing and third party reimbursement in the term "governmental affairs" (John, personal communication, April 15, 2003). Third party reimbursement is payment by insurance companies for the services a health care provider performs for the patient. Currently, almost all allied health and medical practitioners except purely alternative therapy practitioners bill for services from clinics and offices. In

1994, athletic trainers were primarily billing for services in clinics, under the license of the physical therapists in those clinics. There were a few athletic trainers billing for services from the athletic training rooms and as isolated providers in clinics at the time, but this was not widely publicized (Steve Barrett, personal communication, January 20, 2000).

Third party reimbursement in the medical and allied health professions is an emotional issue defined by misunderstandings, misinterpretations, and ethical considerations. There is a misconception that the laws create billing rights. This is untrue. Medical claims are accepted or rejected from allied health and medical practitioners by the insurance companies. A practitioner can bill an insurance company for a claim any time. However, a stronger case for payment is made by a state credentialed health care provider.

Federal Current Procedural and Terminology (CPT) codes are used to code for services which are billed through insurance companies (third party payers) (Ray, 1994). Some of the CPT codes are restricted to use by certain populations, such as physical therapists. A non-physical therapist commits fraud by billing using a physical therapist specific code. Many CPT codes are general. Athletic trainers, physical therapists, and other practitioners are legally able to bill with those codes. If the insurance company refuses the claim, then the billing effort is wasted. The NATA, through the Reimbursement Advisory Group (RAG), has focused nationally on gaining specific athletic training CPT codes while athletic trainers in each state approach insurance companies to gain payment rights. The capacity for bringing dollars into the work



settings through insurance claim payments enhances the value of the profession and the professional image of athletic training. It is also a threat to other practitioners.

During 1990-1998, athletic trainers were beginning a national effort regarding laws, value, and professional status for third party reimbursement. The BOD established a governmental affairs task force. Following this, the NATA hired a governmental affairs person to aid states in credentialing and third party reimbursement issues. Third party reimbursement became a larger reality for many athletic trainers in the early 2000s when the federal government granted specific CPT codes for athletic training services. Prior to that, some athletic trainers had been billing under their own certification or state credential in their respective states and some had not.

Although licensure and reimbursement are separate issues, participants often linked them. Reimbursement was used as a springboard to discuss the problems that various states were having with state credentialing efforts (Gerald, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003).

### ***Educational Considerations***

There were a number of educational considerations involved in the BOD ER decision process context/environment. These form three categories: (a) control of athletic training education; (b) supply and demand issues; and (c) NATABOC related issues.

***Control of athletic training education.*** The BOD had been concerned about academic institution's perceived lack of recognition of athletic training education programs. An early 1970's study of the effect of curriculum programs on institutions

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indicated that over half of the college administrators surveyed did not recognize that their institution had an athletic training education program (either internship or curriculum) (Ebel, 1999). Because many of the athletic training education programs were not recognized by the administrations of those institutions the athletic trainer had limited institutional power.

The BOD felt that the athletic departments were utilizing the internship route to certification to obtain free student labor because certification exam qualifications required students to obtain 1500 hours of experience under the direction of a certified athletic trainer (Chris, personal communication, April 17, 2003). Students who were not directly supervised were being used as a replacement for professional certified athletic trainers under the guise of being educated (Adam, personal communication, April 20, 2003).

The BOD felt that in academics, PhD faculty with primary duties to research, instruction, and program direction and a major in athletic training were required to improve the status of the athletic training education programs at many institutions. As Nick (personal communication, April 20, 2003) stated, “[PhD’s] are the ones who legitimize what you do educationally.” Devon (personal communication, April 27, 2003) echoed the lack of educational recognition as he stated, “the board was in a real dilemma . . . about whether we were recognized as a real or valid route to professional preparation of our members.”

Historically, most athletic training educational programs resided in physical education academic programs. In the past coaches and athletic trainers were the majority

of the physical education department faculty as athletic departments and physical education departments were co-administrated. This changed as athletic departments separated from the physical education departments, Title IX went into effect increasing participation opportunities for women, and coaches stopped teaching (John Baxter, personal communication, November 20, 2001). In the early 1990s physical education programs were losing state and federal funding and faculty positions. Athletic training education programs were also jeopardized by loss of funding as well as a lack of research specific to athletic training and a lack of athletic training tenured faculty in institutional leadership positions (Devon, personal communication, April 27, 2003).

*Supply and demand.* The number of available athletic training jobs was not plentiful in the 1990s. At the same time the number of students graduating from either of the two routes to certification and becoming ATC was increasing. As Gerald (personal communication, April 17, 2003) explained, “we were out producing numbers versus numbers of jobs available.” The BOD felt that this imbalance did not enhance the desire for increased professional image and status. There was always an inexperienced athletic trainer willing to accept low salary to gain experience and a job. However, this issue was not discussed in formal board meetings as Gerald (personal communication, April 17, 2003) also made clear, “the discussion of numbers was an antitrust issue and we shied away from it.”

*NATABOC.* The NATABOC controls the national credential of ATC through national certification exam administration. NATABOC ensures exam quality and psychometrics, determines the qualifications to sit for the national exam, awards the

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athletic training credential, and re-certification through continuing education requirements. The NATABOC began as a NATA committee. In 1982 it was administratively separated by the BOD. In 1990 NATABOC was formally separated from the BOD to satisfy accreditation requirements and the BOD no longer controlled the credential. However, a close relationship remained between the two groups. NATABOC and the BOD communicated and discussed issues (Ebel, 1999). Linkages remained as one of the BOD members had served as NATABOC members.

NATABOC had amassed internship student exam administration issues by 1990.

A major NATABOC problem and BOD philosophical issue was the

number of internship students who applied for the exam and who couldn't even meet the qualifications to take the exam . . . which indicated that folks out there were a little more interested in having a workforce than they were educating their students. (Chris, personal communication, April 17, 2003)

There were also questions about the credibility of some internship student's exam applications. Each internship athletic trainer could supervise any number of students, but the student's 1500 clinical hours must have been directly supervised. When a large number of students were graduating per year with the same supervising athletic trainer the credibility of the student's supervision exam applications was questioned. This was acknowledged by a number of participants as Gerald (personal communication, April 17, 2003) explained, "there were some things going on in some schools that couldn't be publicized to our members, so this was a legitimate way to put our educational preparation in line with other allied [health] and medical professions."

Another NATABOC issue was the discrepancy in exam scores between internship and curriculum candidates. As Karl (personal communication, April 18, 2003) noted, the

“BOC had been collecting data for a long period of time and was pretty intense about the elimination of the internship route to certification.” The gap between internship and curriculum candidate scores was reported to increase each year. In June 1992 the BOD became aware that the NATABOC had set up a task force to review the certification examination and internship and curriculum routes to certification. The PEC had two members on the NATABOC task force (NATA BOD Meeting Minutes, February, 1992).

In February 1994, the BOD discussed the NATABOC controlled internship route to certification. Because curriculum candidates performed better on the national certification exam, NATABOC had previously discussed methods to improve the internship candidates and asked for BOD input. The BOD agreed to the requested meeting with NATABOC to “facilitate upfront communication between the two boards. NATA can not advance in the health care arena until it addresses its own programs that are below par (even though these programs are under the NATABOC)” (NATA BOD Meeting Minutes, February, 1994). The BOD agreed to aid NATABOC by offering input, facing the issues together, and urging the formation of a task force by June. In June the BOD created the Education Task Force and explained that NATABOC wanted to aid the BOD to “raise levels of all aspects of the educational preparation of the athletic trainer” (NATA BOD Meeting Minutes, June, 1994).

These issues led NATABOC to be “obviously in the process of changing the requirements of the process of certification and the NATA board was following that” (Karl, personal communication, April 18, 2003). When asked if he could have predicted NATABOC’s reaction if the BOD had not appointed a task force to identify a single

educational route, he replied “It would have been politically ugly. . . . It was obvious that the direction was like a snowball rolling down a hill; it was going to happen anyway. The NATA and the president felt that this was the best route to go” (Karl, personal communication, April 18, 2003). Larry (personal communication, April 26, 2003) also commented on the ETF importance “the Board of Certification had the power to do this [change exam qualifications to a single program type] without us . . . it put the decision and ownership back with the NATA.”

#### **Summary: Image and Political Contextual/Environmental Circumstances**

As discussed in the previous pages, contextual/environmental influences to the BOD ER initiation involved professional status and political concerns. Athletic trainers lacked professional respect from other health care practitioners. A true definition of athletic training did not exist. Standardizing athletic training education was a partial solution for these issues. Political issues included state credentialing efforts for the athletic training profession, third party reimbursement, and educational issues. Standardizing education solved the political issues as well. These factors formed critical linkages between the context/environment and the BOD system. Consistently, the BOD determined that education change would influence, or partially solve, those issues. The context/environment continued to influence the ER decision process during Stage 2- the ETF/ER Working Process.

#### ***Environmental/Contextual Factors During ETF Working Process 1994-1996***

During Stage 2, when the ETF was working, the issues of professional status and political concerns continued to be common discussions by the BOD, the membership, and

the ETF. The ETF identified a list of concerns over the athletic training profession future at its initial meeting in February 1995. Several documents were sent to ETF members in December 1994 prior to the first meeting. These documents were also provided to the BOD in 1995 (NATA BOD Meeting Minutes, March, 1995). They included the NATA Summary Long Range Plan (1989), Performance on the Athletic Training Certification Exam Based on the Candidates Route to Eligibility, and a number of papers that the ETF had developed for it's work, including Questions the ETF Should Consider, What Many in Athletic Training Suppose but for Which There is at Present Little Proof, and What We Know With a High Degree of Certainty. A summary of athletic training employment trends was also included. The BOD was provided with copies of this packet (NATA BOD Board Books, June, 1995).

The first ETF meeting generated a list of 120 ideas about "what the task force would do if it had to scrap every educational rule the profession had" (McCullan, 1996, p. 17). The ideas were then consolidated into 14 major categories, which were similar to the issues identified by the participants in the research interviews. The overlap between the two bodies was considerable. BOD identified circumstances relating to the need for ER included education and political issues (Table 7). Educational issues included professional image concerns, lack of a true definition for a "professional" certified athletic trainer, and the need to standardize the educational process. Political issues included state credentials, third party reimbursement, and political educational issues related to control of athletic training education, job market, and NATABOC. The overlap between BOD and ETF identified issues included standardization of the education

process and athletic training education control as factors in 13 each of the 14 ETF identified issues concerning ER. When these issues were compared to each other, 11 of the 13 ETF issues were factors in both the BOD education issue: need to standardize athletic training education programs, and political issue: control of athletic training education as previously described in Table 7. These 11 issues are clarified in Table 10.

Table 10

*ETF Educational Needs Assessment Similarities to Explain BOD Context/Environment  
ER Influences*

<b>BOD Context/Environment Influences to ER Need</b>	<b>Related ETF Educational Needs Assessment Results</b>
1. Control AT Education	A. Address NATABOC exam score divergence
2. Standardize AT Education	B. Prepare AT in an information revolution context C. Ensure institutional support of entry level AT educational preparation D. Increase consistency and quality of AT education E. Provide quality AT education across the lifespan F. Increase educational preparation consistency G. Assure continuing competence of the AT practitioner H. Recognize special competence I. Prepare AT post-entry level competencies required in specialized settings J. Advocate education across the lifespan K. Streamline NATA educational functions



The overlap between the BOD and the ETF concerning educational reform related issues was extensive. Out of the 14 ETF identified ER issues, 79% overlapped in content with BOD context/environment concerns. This percentage speaks to the cohesiveness/similarities in educational reform opinions between the two groups.

The ETF presented 17 specific preliminary recommendations to the BOD in December 1995. These proposed recommendations were published for the members in February 1996 (McCullan, 1996). The recommendations focused on a consistent definition for athletic training, the need to eliminate the internship route to certification, increased professional credibility, and protecting certified athletic trainer credential credibility. It outlined the ETF background and detailed preliminary recommendations and rationales for each. Education was defined as the “backbone of any allied health care profession” (McCullan, 1996, p. 17). Explanations provided for educational changes included image improvement and confusion by legislators and employers about the two routes to certification. The proposed results include aid in gaining state licensure and third party reimbursement. The NATA president explained

some things that have been coming up consistently loud and clear were problems with employment, problems with the quality of the education of the entry level athletic trainer, problems with the clinical education of the entry-level athletic trainer, problems with licensure. From the people in the field, the committee chairs, the members, a single request kept coming back: We’ve really got to look at where we’re at, where we need to be- and it all comes back to education. (McCullan, 1996, p. 17)

The final 18 ETF recommendations for ER were given to the BOD in November 1996 and were approved in December 1996. In February 1997 they were published for the members (NATA Education Task Force, 1997).

### *Perceived Importance of Education Reform*

The perceived importance of athletic training educational reform was documented as early as 1990 with AMA allied health profession approval by printing that the “NATA’s current guidelines for athletic training education programs will be re-written” (AMA, 1990). Predicted benefits included increased effectiveness of state legislation because of the formal definition of athletic training, increased recognition, increased research funding possibilities, and possibilities for increased practice settings. In 1991 the NATA President Mark Smaha classified two of the biggest professional challenges to athletic training as state regulation and CAHEA accreditation (Smaha and Max on the future of the NATA, 1991). In the October edition of the *NATA News* one of the presidential candidates stated that his goal was to

improve the product we’re producing [by strengthening the athletic training education programs]. . . . We have embarked in a direction of promoting this profession the right way by emphasizing education. The next stepping stone for us is to improve education. We cannot stand still and rest on our laurels. We must produce better and better certified athletic trainers. Many other problems will then be solved. (NATA presidential election slated, 1991, p. 2)

When the new president was elected, one of his agenda items included continued educational emphasis, “to grow as a profession, we have to continue the education process and continue to move forward as professionals. We cannot stand still” (Miller elected, 1992, p. 6).

New and re-elected BOD members continued to emphasize education and perceptions over the next few years. In 1993, a BOD member stated “education is vital” (Carl Krein, 1993). Another BOD member identified governance, third party billing, and the perception of athletic trainers by the medical community as critical (David “DC”

Colt, 1993). In 1994, two other BOD members suggested that the lack of jobs was caused by improved educational programs combined with intensified interest in athletic training, and that health care reform was a critical issue facing the organization (New members, 1994).

Athletic training education continued to be identified as critical by BOD members. In 1995 an incoming BOD member declared that the most important professional and organizational issue was educational program status (Cynthia "Sam" Booth Takes Over as District 4 Director, 1995). Another incoming BOD member commented that education and health care reform were the two major organization issues (Foster-Welch, 1996).

After the *ETF Recommendations for Education Reform* was approved by the BOD, articles described recommendation requirements that had been affected in the years of the ETF work. President Kent Falb commented that some of the recommendations were already implemented. Examples he provided included state licensure laws, promoting research, and BOD and member focus on being called athletic trainers or ATC rather than just trainers (Kent Falb's Speech on Education, 1997). These issues were critical, especially as work was on-going on them even as the ETF was working on the ER recommendations.

#### ***Athletic Training Listserv Posting Review***

The previous issues demonstrate what BOD members felt was critical to either their election or the profession. The researcher studied ER related information and information transfer to the general membership through archived athletic training list-

serve postings from 1993 (the initial list-serve date) to 1998. In 1993 and 1994, there two issues were identified. The first issue included deadline notices for NATA-approved curriculum programs reports. The second concerned the need to strengthen and enhance the profession of athletic training. Possible suggested solutions for this included eliminating internship programs, increasing the difficulty of the NATABOC exam, and encouraging schools to hire certified athletic trainers (1993 Athletic Training Listserv Posting Archive; 1994 Athletic Training Listserv Posting Archive). At that time only early innovation adopters were posting opinions.

Athletic training listserv postings in 1995 included supply and demand (low salaries, low job availability); the future of the profession (need for educational changes, comments about anti-trust issues, debates on curriculum education versus internship education values and results, the need to increase the difficulty of the NATABOC exam); state of the profession union commentaries, licensure, third party reimbursement, and the need for a name change from athletic training to a more descriptive title that is less confused with coaches, fitness trainers, and other non-credentialed and/or non-allied health professionals (1995 Athletic Training Listserv Posting Archive). The number of postings was the greatest after the ETF proposed recommendations were published.

In 1996, listserv postings included the future of the profession, supply and demand, a call for "the big vote" for elimination of internship programs and require students sitting for the NATABOC exam to have graduated from an approved curriculum program, and changing NATABOC requirements for course proof from internship

students, and issues about correct student supervision (1996 Athletic Training Listserv Posting Archive).

Most of the listserv postings were questions, commentaries, and refutations to the commentaries brought up by members not directly involved with the ER process. The BOD and the ETF did not disseminate much information in public forums so most of the posts discussed rumors such as "I heard" and opinions about issues and proposed solutions. This was similar in personal professional discussions because the ER topic was a hot issue which would affect all in the college setting (at that time the primary job setting for athletic trainers) during this time as well (John Baxter, personal communication, September 1, 2000).

Very few of the listserv postings came from ETF and BOD members. The ETF Co-Chairs responded four times to issues brought up on the list-serve. One response commented that internship elimination was an issue and no decision had been made yet as the ETF was in the process of developing recommendations (Elimination of Internships Rumor, 1995). An ETF Co-Chair disseminated the ETF Initial Meeting activities (NATA Education Task Force, 1995). This document was the same as the published NATA account (Education Task Force Report, 1995). An ETF member occasionally posted philosophies about the need for changes in professional direction and the role of the NATABOC exam (Looking for Answers in All the Wrong Places, 1995). An ETF Co-Chair invited NATA members to the ETF presentation at the national convention Town Hall Meeting in June 1995 (Town Hall Meeting on Education, 1995). The only post from a BOD member from 1990 through 1998 brought up the issue of

correct student supervision and the need to follow the requirements (ANSI Generic Word Processing Format for Windows, 1996). PEC chairs were the primary leaders disseminating information starting in 1993. This continued as both chairs during the 1990-1998 time period responded at length to rumors of changes coming in education (1993-1998 Athletic Training Listserv Posting Archives).

### **Education Reform (ER) Circumstances Summary**

BOD functions and actions influence, or co-create, environment and system context. Contextual/environmental factors include culture, legal and political state and federal issues, the job market, health movement, and a myriad of other interrelated factors. Any of these factors may influence the environment and context of the BOD at any point in time. Identified important factors by the current research effort include interpretation and interpersonal relations/linkages. These factors are discussed in Chapter 4. During ER deliberating BOD members recognized that something needed to be done and education was seen as a legitimate vehicle to resolve many of the concerns.

Environmental/contextual issues within the athletic training profession included concerns about athletic trainer education issues, including image, definition of an athletic training professional, and the need to standardize education with CAHEA and the Long Range Plan, to political issues. Political educational concerns included who controlled athletic training education, the job market or supply and demand issues, and the NATABOC role in education. All participants in the current research accepted the validity of ER to influence those issues and factors.

The result was high support for education reform. As Nick (personal communication, April 20, 2003) stated “no one spoke against ER.” Larry (personal communication, April 26, 2003) echoed that if anyone did not feel that ER was a high priority “they did not speak too loudly.” Some participants spoke to this point, as Ethan (personal communication, April 16, 2003) stated, “you’re looking at other allied health professions and you see that they don’t have an internship route and that’s maybe our Achilles heel and . . . you’re seeing that there’s got to be something changed to help our profession better ourselves.” The format that ER should take was often mentioned as open to question and not predetermined (Ethan, personal communication, April 16, 2003; John, personal communication, April 22, 2003; Marshall, personal communication, April 24, 2003). However, the leadership acknowledged that although the task force was open ended, to be meaningful and credible it would have to end in the CAAHEP/CAHEA accreditation process (Ike, personal communication, April 22, 2003). The interrelations and links between the ETF and BOD issues were detailed in Table 10.

The literature in this research revealed that the history of the BOD education decisions from 1989 stemmed from a goal to enhance education by gaining AMA accreditation of educational programs predicated upon the internship program being eliminated. The organizational culture of the BOD set the stage for a pattern of events which led to a logical conclusion given the decision that had previously been made, the culture of the BOD, organizations involved, and the influences to the BOD and the other organizations (Figure 4). The interpersonal relations and interpretations which related to the function of the BOD as a system are discussed in the next chapter.

## Chapter 4

### BOD as a System

#### *Introduction*

Chapter 4 integrates the National Athletic Trainers Association Board of Directors (BOD) system and organizational culture with other complexity components within the education reform decision. The components include interpersonal relations/communication networks and decision process interpretations. These, with the contextual/environmental analysis from Chapter 3, form a complete complexity analysis as discussed by Ferguson (1999). Complexity analysis is important because over time, component interactions and adaptations result in organizational and decision changes of the system and linkages.

The BOD system includes ten elected district directors, associated NATA system members such as the NATA Executive Director and legal counsel, and the social and contextual environments surrounding the BOD. The BOD social environment includes BOD interpersonal relations and interpretations. In an organizational system, interpersonal relations occur through communication network linkages.

A communication network includes a BOD member and the individuals who interact with and influence that person. Participant interpretations influence actions by forming the participant's belief system in any given situation. Interpretations are influenced by many factors such as personal experience, knowledge, perspective, contextual/environmental influences, and interpersonal relations. Organizational culture and leadership are pervading influences to BOD actions. This influence occurs as the



culture defines what is and is not organizationally important. Two themes emerged from the BOD system/organizational culture study. These themes are cultural and political issues (Table 11).

Table 11

*BOD Organizational Culture Influences*

Major Themes	Sub-themes	Theme Related Issues
Cultural issues	BOD meeting seating	
	Conventions	Leadership philosophy
		BOD ownership
		Athletic trainer educational Language
		Task force purposes
Political issues	BOD politics	
	Education Reform politics	Educational philosophy change over time
		BOD communication politics

Organizational culture and attitude similarities are enhanced by network member social interaction and communication comparisons (Knoke, 1990). Individual BOD members create and maintain organizational culture as they make organizational decisions and interact with other BOD members. Chapter 4 discusses emergent themes for BOD organizational culture, political issues affecting the BOD, interpersonal relations/communications, and information transfer.

## Organizational Culture

An organization is maintained by regular member interactions (Becker, Greer, Hughes, & Strauss, 1961). Social rules organize behavior by defining the culture. Members adjust to social conditions and requirements according to cultural definitions (Becker, Greer, & Hughes, 1995; Lemert & Branaman, 1997). Organizational culture influences a member's situational perspective. In this way, rules aid in creating and maintaining organizational social structure (Becker et al., 1995). Understanding behavior and decision making processes requires integration of participant, organizational managerial factors, issue specifics, context, and knowledge (Berwick, 2003).

Choo (2000) discusses three categories of organizational knowledge: tacit, explicit, and cultural knowledge. Tacit knowledge is participant personal knowledge. This includes the personal experiences, interpersonal relations, and interpretations that structure participant's work and sense making beliefs. Explicit knowledge is formal. Communication and dissemination occur through formal symbols, objects, and rules. Cultural knowledge consists of shared organizational assumptions and beliefs about the organization, reality, and the environment. It stems from experience, observation, and reflection of organizational members. These beliefs form the basis for alternative selection and proposal evaluation (Choo, 2000). In this way, the beliefs allow an organization to initiate and maintain norms that influence information seeking even as membership changes.

All three types of knowledge are a factor in understanding organizational issues. Participant knowledge and perspective about issues at any point in time determines

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organizational importance. Over time, organizational culture and understandings allow members to become more homogeneous in perception and actions. Individuals act through “facework” to align themselves and increase homogeneity within a group (Goffman, 1967). Relationships are built and maintained through informal interaction and communication as increasing trust in a source leads to increased information value perception. Studies of physicians document that information is sought from “like thinkers” rather than other sources (Perley, 2001). Within groups in dissemination research, the source of information is more important to dissemination than the actual information characteristics (Scullion, 2002). Information sources are especially critical because interactions are not static (Becker et al., 1961). Strategic factors of interaction and influence include member actions, rules, issue importance, information, and resources (Lemert & Branaman, 1997).

Complex issues require significant amounts of organizational knowledge. This knowledge is shared and maintained through organizational culture, interpersonal relations and interaction, and/or innovation (idea) communication. Organizational innovation decision making is influenced by individual, organizational, environmental, and innovation factors (Dobbins, Cikiska, Cockerill, Barnsley, and DiCenso, 2002). The factors interrelate as innovations progress through Roger’s (1995) five stages: knowledge, persuasion, decision, implementation, and confirmation. The innovation, or need for change, becomes evident in the knowledge stage. Decision makers search for information to increase knowledge and awareness. During persuasion, innovation perceptions are developed as decision makers continue integrating information and form

a decision to adopt or reject the innovation. The persuasion stage is impacted by issue relevance and importance as established through organizational norms and shared knowledge, forming organizational culture.

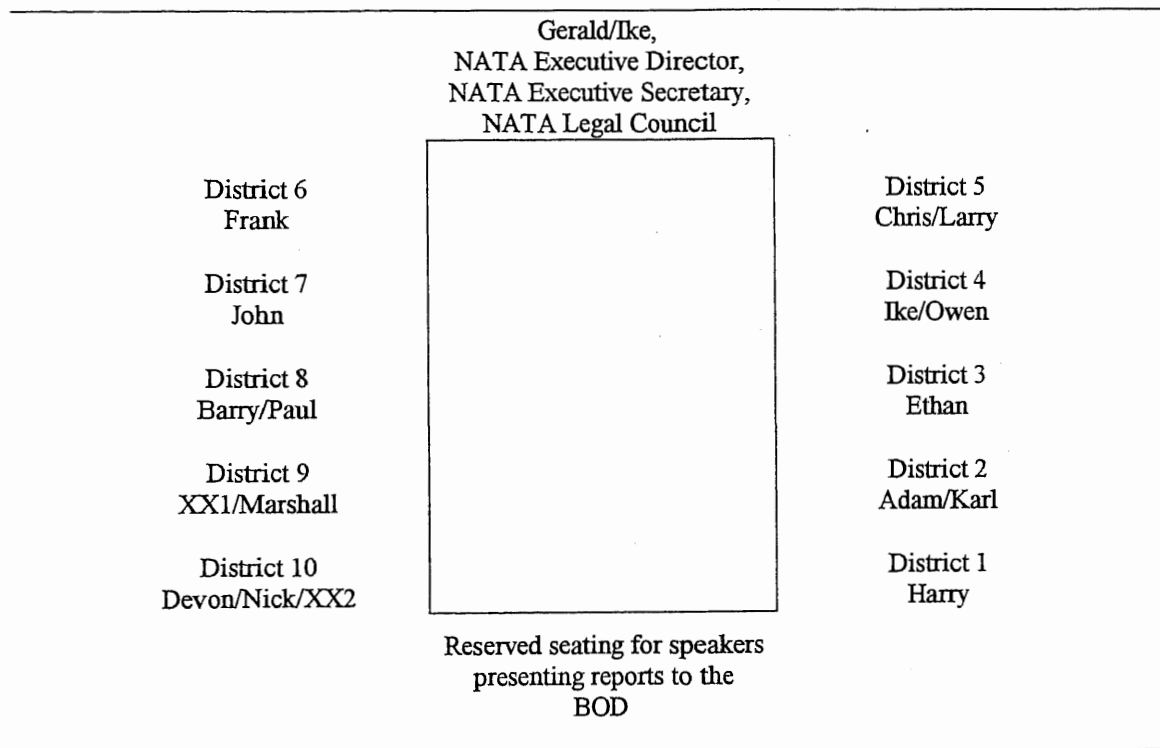
When the BOD organizational culture is examined these theoretical perspectives emerge. The BOD organizational culture is influenced by consistency, contact, and leadership. For example, the BOD met about once a month, very frequently for a national organization. Full board meetings occurred in December, February/March, and June. They typically lasted three to five days each. Conference calls were held each of the remaining nine months. The few exceptions that occurred were August in 1992, 1995, 1996, and 1997 when no conference calls were made. In addition, BOD members participated in both a conference call and a face to face meeting in March 1991 and June 1992. The contact and work done during the regularly scheduled meetings and conference calls allowed organizational culture and leadership goal development and maintenance.

BOD and NATA Presidential philosophies were upheld and organizational culture was maintained by board members' participation in meetings and conference calls. Members were assigned seating according to their district for all meetings (Figure 4). Seating arrangements became a part of the communication structure as participants talked with the BOD members seated closest (Ethan, personal communication, April 16, 2003). Emergent conventions to enhance and communicate organizational culture included leadership philosophy, personal ownership of the BOD, athletic training education language, task force purpose, and voting issues. These conventions were not stated

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purposes but emerged as important BOD functions that were developed and refined through interaction. Conventions are a BOD work property not visible through study of either individual BOD members or the environment. They emerged from the comparison of the participants, participant interactions, and the organization and environment. They will be discussed in the following section.

*Figure 4.* Participant seating chart for BOD meetings.



XX1/XX2 Non-participants

### *Cultural Conventions*

Organizational culture is determined and maintained through behavioral norms and rules. Culture is maintained by conventions and member interactions (Becker et al.,

1961; Becker et al., 1995; Lemert & Branaman, 1997). A convention is a core meaning shared and mutually understood within a social group. Social interaction through communication supports shared meaning development among group members (Becker, 1982). Conventions, or cultural knowledge and shared meanings, provide parameters for the organization through rule and behavior definition (Becker, 1982; Choo, 2000).

In the current research these observations are applied to the BOD. The NATA is the only comprehensive practice setting athletic training professional organization and therefore leads the athletic training profession. As previously discussed, the NATA is composed of 10 districts, each of which is composed of member states. The NATA sponsored state organizations provide the only state vehicle for athletic training in most states. In a few states, such as Texas, there is more than one state organization for athletic training. Even in these states, the NATA sponsored state organizations currently hold the primary resource influence for members and others.

Emergent BOD conventions influence the BOD and the NATA through development of shared meaning. In this way they impact the profession as a whole. Emergent BOD cultural conventions during this analysis were board ownership, leadership, educational language, task force purpose, and issue voting. A related theme to organizational culture was political circumstance. BOD ER decision events, emergent conventions, and themes were analyzed. Looking back, we see that Chapter 3 sets the stage by describing the environmental/contextual circumstances surrounding the BOD ER decision process. Looking forward, Chapter 4 applies the theoretical constructs of complexity analysis and information transfer to the BOD ER decision process itself over

time. The resulting analysis evaluates the BOD, the ER decision process, influential factors, and resultant issues.

*BOD leadership philosophy.* BOD Presidents from 1990-1998 established a basic leadership philosophy from which they organized meetings, presentations, and determined issue worth. The BOD evaluated issues and solved problems for the athletic training profession (Larry, personal communication, April 26, 2003). By 1993 many issues were addressed through task force work. Task forces evaluated complex and controversial issues diplomatically and thoroughly (Nick, personal communication, April 8, 2003). The BOD kept in contact with working task forces through two mechanisms. First, task forces frequently reported and presented to the BOD. Secondly, each task force and committee was assigned a BOD liaison. The BOD members communicated with the task force chair(s) or committee liaison. Any issues that developed within the task force were addressed during task force reports, through board discussion, or with the BOD task force liaison during the task force working time. After the task force presented its final recommendations, the BOD discussed the issue and voted. BOD voting often followed the task force recommendations (Larry, personal communication, April 26, 2003). For example, the ETF process followed that pattern. ETF specifics will be further developed later in this chapter.

BOD presidents encouraged a “what you say here stays here” philosophy (Nick, personal communication, April 20, 2003). Participants recalled that the board acted as a single entity rather than as a collection of individuals. During the time that the BOD was working through an issue, or getting reports from a Task Force, the board was “protective

and didn't want people talking out of school" (Nick, personal communication, April 20, 2003). The BOD President's leadership focused on creating and maintaining full BOD consensus, especially for critical and controversial issues such as the education reform decision (Frank, personal communication, May 3, 2003). As Ike (personal communication, April 22, 2003) described about a discussion:

we had a four hour discussion and I think the consensus was go with it. However, one person kept asking questions and when we got down to the vote he said "no, let's discuss it. It is too monumental." But it was approved with majority. We talked to this one individual and told him we knew he was opposed to certain aspects of it and consequently it was approved unanimously.

After a vote, the entire board supported the vote results. As Paul (personal communication, April 19, 2003) explained, "regardless of views when you left the room you were one body . . . we voted, then embraced whatever the result of the vote was."

*Personal ownership of the BOD.* Participants saw themselves as NATA stewards with personal board ownership. They referred to the BOD that they served on as "My Board" (Harry, personal communication, April 25, 2003; Larry, personal communication, April 26, 2003; Marshall, personal communication, April 24, 2003). In this way, they personalized the organization and emphasized professional importance. Participants often described BOD work as visionary (Barry, personal communication, April 16, 2003; Devon, personal communication, April 27, 2003; Ethan, personal communication, April 16, 2003; Frank, personal communication, May 7, 2003; Gerald, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003). As visionaries, the BOD members saw themselves considering member and profession interests (Frank, personal communication, May 3, 2003). Individual perspective was

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suspended during board considerations. As Larry (personal communication, March 31, 2003) explained, “each individual board member had an opinion, but the board as a whole didn’t. . . . That’s the purpose of evaluation—to come up with some justification and documentation and not just we think it should be this way or that way.”

Board members realized that they had different information and perspective than the average NATA member. As Ethan (personal communication, April 16, 2003) noted, “being on the board I have a different perspective of what’s taking place in the profession than the average member.” In the 1990s the BOD created task forces to increase input and expertise for controversial and complex issues. Task forces acted as fact finding bodies in those circumstances.

*Athletic training education language.* Each year, there were between zero and four new BOD members based on each district’s election schedules. Member changes created changes in the BOD itself, as each member brought different experiences and strengths. Shared meaning and cultural knowledge context also changed over time as the athletic training profession developed (Adam, personal communication, April 20, 2003; Owen, personal communication, April 21, 2003). When the participants who served prior to 1994 were interviewed, it became clear that the educational language used was a BOD convention.

For many participants the term athletic training “education” was synonymous with NATA-approved curriculum athletic training education programs. In 1990 the NATA curriculum program approval process became the American Medical Association (AMA) sponsored Committee on Allied Health Education Accreditation (CAHEA)

process which was then replaced by the Committee for Accreditation of Allied Health Education Programs (CAAHEP) accreditation process. Participants discussed “academics” or “education” meaning curriculum programs according to perceived program quality. Each participant who spoke to “academics” or “education” then clarified that the researcher should not misunderstand, the participant did not mean to imply that internship trainers athletic trainers weren’t quality athletic trainers or that they were not trained well (Ethan, personal communication, April 26, 2003; Harry, personal communication, April 25, 2003).

Athletic training education language, as spoken by BOD members, formed a convention. The unspoken understanding was that the term athletic training education referred only to formal, NATA approved curriculum or CAHEA/CAAHEP accredited education programs. Internship education was considered a separate entity, not a component of “academics” or “education”. Academic changes to educational requirements through CAHEA accreditation existed four years prior to the Education Task Force (ETF) as appropriate “education” changes. During the ETF working process, the educational definition convention was shared by curriculum and accredited athletic training education NATA members (Lou Fincher, personal communication, September 20, 2002). Athletic trainers and educators who were not a part of the curriculum or accredited program director or leadership networks did not understand this convention during the decision process.

BOD members who served during the study period of 1990-1994 were present during the academic change from NATA curriculum approval to the AMA

CAHEA/CAAHEP accreditation processes. These participants were labeled Background Information participants, or members of Group 1. This stage, equivalent to the previously labeled Stage 1, Background Information stage, formed the ER decision information seeking process of Roger's (1995) knowledge stages. During and prior to 1994 the BOD received information that led them to believe that a number of professional issues could be solved through athletic training education reform.

Beginning in 1987, the Professional Education Committee (PEC) upon BOD request reattempted to replace NATA approval of formal curriculum education programs with another accreditation process outside the NATA. This was accomplished with American Medical Association (AMA) CAHEA/CAAHEP accreditation of athletic training education programs in 1990. The educational and professional issues continued to be problematic for the BOD. Even so, Group 1 members BOD terms had ended by the time that the environment and context had developed enough so the Education Task Force was formed to study those issues. However, Group 1 members maintained influence over the BOD ER direction during the ETF and ER decision stages. They accomplished this through indirect contact and direct interactions.

Three of the four Background Information participants were involved in curriculum programs and the PEC. The most influential social network member to other BOD members, Adam, was both a curriculum program director and PEC member. The second most influential network member was Barry, another curriculum program participant who served in later years as an NATA President. The general membership discussed internship programs versus curriculum programs and the need or non-need for

CAHEA/CAAHEP accreditation on the listserv from 1993 to 1996. These discussions occurred without the general membership understanding that to the BOD, “education” meant curriculum education (John Baxter, personal communication, September 20, 2000).

The BOD was engaged and quite active. For example, in 1987 the NATA Professional Education Committee (PEC) began pursuing CAHEA accreditation to replace NATA approved curriculum status. In 1990 AMA/CAHEA designated athletic training as an allied health profession. This designation was required for athletic training education program CAHEA accreditation. The BOD goal for CAHEA accreditation included athletic training education enhancement by increasing similarities between athletic training education and other allied health professions, increased professional image, and improved athletic training status (Gerald, personal communication, April 17, 2003). The first CAHEA accredited athletic training education programs were expected in 1993. The accreditation process included an on-site visit process and Joint Review Committee- Athletic Training (JRC) recommendation to CAHEA.

*Task force purpose.* Participants understood that their information access provided increased knowledge compared to the general membership. The knowledge differential required visionary BOD decision making to benefit the profession (Adam, personal communication, April 15, 2003; Harry, personal communication, April 25, 2003; Ike, personal communication, April 22, 2003). After 1990, there were NATA and BOD political issues that were unrelated to ER. In response the BOD sought increased committee representation. Representation from different geographical regions, practice

settings, genders, and other criteria was needed to accommodate organizational growth and changes (Gerald, personal communication, April 17, 2003).

Prior to 1990 task forces were occasionally used to solve a dual need for increased information and participation. In the 1990s task forces became regularly used. A task force was designed to find facts, study an issue, and make a recommendation to the BOD. The recommendation included rationale, strategies, and implementation for challenging, controversial, and political issues. They were similar to committees and were charged with specific tasks such as the governance task force to study the best organizational representation practice. This task force, of which current study participants were members, determined that the BOD was the most appropriate NATA governance form (Chris, personal communication, April 17, 2003).

Another controversial task force with large scale professional impact was also in place by the time the Education Task Force provided their initial education reform recommendations. This task force, the Appropriate Medical Care Task Force, resulted in a formula to determine how many athletic trainers were required to appropriately care for college/university athletic departments according to number and type of sports, injury risks, practice regulations, and other factors. Most athletic departments did not have nearly enough certified athletic trainers according to the task force calculations. For example, at the time, the Emporia State University athletic department had two half time athletic trainers (50% academics, 50% athletics) and a graduate assistant on staff for medical care. The appropriate medical care formula revealed that Emporia State

University would have to have had over 6 full time athletic trainers to adequately provide coverage for the sports.

Task forces were also advantageous to the BOD because they were automatically dissolved after the charge was completed (Frank, personal communication, May 3, 2003; John, personal communication, March 15, 2003; Nick, personal communication, April 20, 2003). This solved potential issues about what to do with a committee that was no longer needed. This had become an issue with the PEC after the CAHEA/CAAHEP accreditation process was implemented. Many PEC duties were transferred to the JRC. PEC members felt that there was little remaining purpose to the committee which caused some difficulties related to the PEC historical significance (NATA BOD Meeting Minutes, February, 1993; NATA BOD Meeting Minutes, December, 1993). In May, 1994, the PEC was disbanded (NATA BOD Meeting Minutes, February, 1994).

In 1994, The Education Task Force (ETF) was formed and co-chairs were chosen by the BOD (NATA BOD Meeting Minutes, August, 1994). The Co-Chairs and BOD members proposed a list of task force members, who were contacted. The people who agreed to become task force participants were then assigned task force status. Expert status was attributed to task force member selection, time spent evaluating issues and weighing solutions, and member knowledge. The BOD selected task force members according to issue stakeholders, or those who would be affected the most (Education task force report, 1995). Furthermore, the BOD strove for task force membership that spanned geography, practice settings, and gender (Education task force report, 1995; Larry, personal communication, April 26, 2003). The ETF was composed of 10 individuals

associated with curriculum programs who also included NATABOC members, 4 internship educators, 3 former BOD members, 4 PEC/JRC members, and 4 others. ETF members, practice settings, and related organizational affiliations are documented in Table 12.

BOD behavior with task forces was determined by member attitudes specific to each board. Some boards actively pursued task force issue solutions. Active pursuit consisted of suggestions, conversations, and constant communication between BOD members and task forces. Previous boards had served more passively, as in the governance task force discussed previously. Passive approach board members felt that the task force had been given a charge, was working on a solution, and was progressing. Therefore, there was no need for constant communication. Passive boards had less frequent communication between task force members and BOD (Ethan, personal communication, April 16, 2003; Larry, personal communication, April 26, 2003).

During ETF function, BOD and ETF interaction started passively. However, there were ETF reports every meeting, more frequently than other task forces, because of the enormity of the ER issue and the scale of impact (Harry, personal communication, April 25, 2003; Marshall, personal communication, April 24, 2003). As Marshall (personal communication, April 24, 2003) described the philosophy initially during the ETF working process the BOD “gave people jobs to do . . . and didn’t interfere with them.” The BOD asked questions when the ETF presented reports. If the BOD had consensus for a task force direction, information, or thought process, then the board communicated that potential problem or direction correction to the task force (Ethan,

Table 12

*ETF Member Practice Setting and Affiliations*

<b>ETF Member</b>	<b>Allied Health Profession</b>	<b>Allied Health Practice Setting</b>	<b>Other Organizational Affiliations</b>
1. Co-Chair	ATC	College/Internship	
2. Co-Chair	ATC	College/Curriculum	Ex-BOD, PEC
3.	ATC	College/Curriculum	PEC/JRC Chair
4.	ATC	Clinic	
5. Marshall	ATC	College/Curriculum	
6.	ATC	College/Curriculum	
7. John	ATC	College/Internship	
8.	MD	College	
9.	ATC	College/Internship	Ex-BOD
10.	ATC	College/Curriculum	PEC/JRC
11.	ATC	Private	
12.	ATC	College/Curriculum	NATABOC
13.	ATC	College/Curriculum	PEC/JR
14.	ATC	High School	
15.	ATC	College/Internship	Ex-BOD
<b>Ex-Officio Members</b>			
A	ATC	College/Curriculum	BOD
B	NA	NA	Executive Director NATA
C	ATC	NA	NATABOC
D	ATC	NA	NATABOC



personal communication, April 16, 2003). In this way the BOD again acted as an entity rather than as individuals. However, some BOD members, especially those entering the BOD in 1996, were more active in their interaction with the ETF. These participants reported daily or weekly interaction (Owen, personal communication, April 21, 2003; Paul, personal communication, April 19, 2003).

Task force expertise and organizational politics were factors in BOD approval of ETF recommendations. The task force made recommendations and provided supporting data and rationale. The BOD made all policy decisions and primarily voted in accordance with task force recommendations. Ethan (personal communication, April 16, 2003) explained,

if we assign a committee a certain function and then they do all this work with all their members and then they come back to the BOD with a recommendation or implementation guidelines for this change or that change; if we then knock it down, then why did we have the committee?

Larry (personal communication, April 26, 2003) concurred, explaining further that

if someone brought a recommendation to us that contained good justification, we would have went [sic] with it. It wasn't very often, and I can't tell you any time that it happened, that any committee would bring recommendations to the board that wasn't [sic] well justified that we denied. I don't remember turning anything down like that.

*Voting issues.* As discussed earlier, organizational politics influenced task force formation and use for important NATA decisions. Politics between the BOD and NATA members also led to a voting convention related to the leaders' goals. The BOD Presidents perceived a need to create and maintain consensus without any dissent. As Frank (personal communication, May 6, 2003) explained there was pressure to vote with the group so the BOD could present a unanimous front about important issues. Maverick

votes were not appreciated. Ike (personal communication, April 22, 2003) provided another example as he described discussions with a participant who was perceived as holding up the ER vote which had a consensus without him. After these discussions, the vote occurred in favor of the recommendations with the member abstaining (NATA BOD Meeting Minutes, December 1996). In this way, the majority vote was accepted, even though a BOD member who was also an ETF member had reservations about the completeness of the recommendations at the time. An abstaining vote was not considered by the BOD. As Ike (personal communication, April 22, 2003) explained, “after our discussions, ER was approved unanimously”. A unanimous vote was seen to lend credence to show issue criticality and BOD support, especially with controversial issues.

Leadership, for the BOD, required unanimous votes as a portion of the organizational culture. This had been an issue for years, as demonstrated by a Board Leadership article by John Carver in the 1992 Board Books. This article stated

If your board is to make authoritative decisions- if it is to lead- then on a given issue it must have a single voice... The strength of this single voice arises from the diversity of viewpoints that you and other board members bring to the board, as well as from the way the board focuses this multiplicity into unity. (Carver, 1992)

### *Political Issues Affecting the BOD Culture*

All participants acknowledged that the ER decision was an issue with large scale professional implications. As Barry (personal communication, April 16, 2003) noted, “it’s probably the hottest topic in the history [of the NATA].” Politics influence all organizations, especially for controversial issues. Chapter 3 described the political athletic training ER contextual/environmental influences. Another ER decision process influence was participants’ general political philosophy. Also, since BOD members were

elected by their district members, many **participants** spoke of allegiance to those district members and a need to consult them on **major** issues.

The ER decision primarily **affected** athletic training in the college setting. Some NATA members made presumptions on **athletic** trainer ability based on educational quality assumptions. Some **athletic trainers** posted athletic training listserv messages commenting that internship programs **were** non-academic. These listserv postings offended people from internship programs who held a different educational philosophy and felt that they were educating **professionals** utilizing high standards. There were numerous postings pitting proponents of **both** educational types against each other (Athletic training listserv archives, 1993 – 1998). These issues will be discussed in the following sections of this chapter.

**BOD politics.** The BOD is **composed** of ten elected district directors. District director elections are governed by **district** policies. Most districts have three consecutive term maximum limit (Frank, personal **communication**, April 10, 2003). Organizational politics required that many BOD **members** discuss issues with their district members. Interaction occurred regardless of **discussion** impact, participant influence, or discussion importance to participants. **Participants** **satisfied** constituent needs by listening during district and state meetings (Ethan, personal **communication**, April 16, 2003; Larry, personal **communication**, April 26, 2003).

Few participants named **influential** district members to their education reform opinion. Participants primarily **reported** **choosing** influences/links based on issue expertise and BOD status. Actual **participant** communication networks, linkages, and

influences will be discussed later in this **chapter**. Many participants considered present and former BOD members and PEC **members** more influential than their constituents. Four participants mentioned listening to **district** members rather than being influenced by them. Seven participants did not mention **district** members or leadership as ER opinion influences. Six participants mentioned **district** leadership influence. Of those six participants, two were district directors **for** districts with a large number of curriculum programs already. Only two of those six **participants** listed specific district members as influences. Two participants took a **district** vote for support of the recommendations.

Many participants felt that the **BOD** served to advance the profession and was accountable to the district members who **elected** them. However, they also acknowledged that BOD members knew more about **issues** than other members (Ethan, personal communication, April 16, 2003; Karl, **personal** communication, April 18, 2003; Paul, personal communication, April 19, 2003). **Because** of this, few participants ER opinions were influenced by district members. **Participants** described most of the ER talk between themselves and district members as **explaining** or listening to opinions rather than being influenced by them. Most of the **participant** ER opinion influence came from a variety of education related sources in board reports **and** personal conversations BOD members and former BOD members. **Primarily**, ER reports came from experts such as the PEC/JRC chair and NATABOC. Both contextual/**environmental** influences and interpersonal relations between BOD members **affected** participant interpretations. These factors led to situations where participants were rarely **influenced** by their constituents.

Another political issue during the ER decision process included BOD perceived NATA and professional interests. Participants described a need to be a visionary and look out for the best interests of a growing profession rather than maintain the current status quo. Professionally, there was a large body of NATA members who were “of the old school . . . [and wanted] protection of the internship [route to certification] (Devon, personal communication, April 27, 2003). Some professional interests conflicted with district and state member interests. States with strong licensing credentials did not require NATABOC ATC status. For example, Texas licensure for athletic trainers existed prior to NATABOC certification. Texas still does not require national certification to practice athletic training. One participant noted lack of national certification support as he discussed the need to be careful discussing issues because he did not want to lose NATA members (Frank, personal communication, May 3, 2003).

### ***Education Reform Decision Politics***

The ER decision developed over a number of years and many influences. Contextual/environmental political influences were discussed in Chapter 3. A number of political issues were involved during the ETF formation (Larry, personal communication, April 26, 2003). These influences, as previously discussed, included serving the constituents and available BOD member knowledge compared to the NATA membership. Other political BOD and organizational culture factors formed education philosophy changes. In the 1950s the PEC precursors developed an athletic training major. The major became required for NATA approved curriculum status, and existed in concert with internship program requirements for many years. Through the 1980s the

board protected internship program status. By the late 1980s the PEC sought AMA accreditation status for athletic training education programs to replace NATA curriculum program approval. By 1990, a single accredited route to athletic training certification became important. This assumed internship certification route elimination (Lawrence-Leitner & Co. Management Consultants, 1989).

BOD member communication to the NATA membership primarily occurred through NATA News articles about decision implementation with little member input. Prior to the education reform decision process the BOD recognized that members needed more information to evaluate and support BOD decisions. The BOD chose to institute task forces as the chosen method of gathering information while involving increased issue stakeholder numbers.

Participants identified task force formation as an appropriate solution to politically challenging and controversial issues (Frank, personal communication, May 3, 2003). Education reform concerned NATA members. The concern was displayed in athletic training listserv postings about the future of the profession and professional needs by people supporting both the internship and curriculum/accredited athletic training education programs, in personal conversations between professionals, and in the importance placed on reported education reform rumors (Athletic training listserv archives, 1993-1998; John Baxter, personal communication, September 20, 2000; John, personal communication, April 15, 2003).

BOD participants differed about the specific ETF purpose. Some felt that the charge was to “eliminate the internship route of education” (Gerald, personal

communication, April 17, 2003). Some felt that the ETF purpose was to “study the education of the athletic training student” (Chris, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003). A few participants were very clear that to them, the task force charge was strictly to consider athletic training education at the time. Ethan (personal communication, April 16, 2003) stated, “it was never we’re going to change it [the internship process] and here’s what we’re going to do because we really didn’t know what to do.”

Devon (personal communication, April 27, 2003) and John (personal communication, April 22, 2003) reported a lack of BOD support for internship route certification elimination prior to 1990. However, Chris (personal communication, April 17, 2003) linked internship program elimination to an assumption of the Summary Long Range Plan (Lawrence-Leitner & Co. Management Consultants, 1989).

Participants identified other BOD members as primary education reform opinion influences. Influential discussions were formal and informal. Formal discussions occurred in board meetings. Verbatim meeting minute recording was eliminated prior to 1990 but occasionally meeting minutes noted that Director X commented and specified the purpose of the comment (Adam, personal communication, April 15, 2003). For example, October 10, 1991 BOD Meeting Minutes indicate that “Julie Max commented on the self-study and Joe Godek concluded that this new accreditation process will enhance the credibility of the NATA and of the athletic training educational system.” Board books supplied background information, issue development, votes, and dates of board meetings. The researcher relied on participant reported influences and board books

with documents and letters about education reform. Participants described informal influences through a number of methods such as board seating proximity, workout schedule, travel arrangements to various events, and informal board gatherings (Harry, personal communication, April 25, 2003; Larry, personal communication, April 26, 2003).

### *BOD Education Philosophy Changes*

BOD philosophies were slightly modified each year with added incoming BOD member personal experiences, strengths, interpretations, and beliefs combined with the loss of historical perspective and details from the outgoing members (Devon, personal communication, April 27, 2003; Owen, personal communication, April 21, 2003). Change also occurred with NATA presidential changes and ETF work. Data analysis showed two distinct groups based on time of participation in the education reform process (Table 13).

The two BOD groups are the Background Information Group (Group 1) and the ETF/ER Group (Group 2). Group 1 included participants who served on the BOD during the time immediately prior to formation of the ETF but did not vote on the ETF formation. These participants approved the Summary Long Range Plan (Lawrence-Leitner, 1989) and the Strategic Visionary Plan (Lawrence-Leitner, 1990). These plans identified goals of internship program elimination and replacement of NATA approval of curriculum educational programs with AMA CAHEA/CAAHEP accreditation. Three



Table 13

*Participant Groupings for BOD ER Events*

Participant Groups	SubGroup and Members	BOD Time During Research Timeframe	BOD Events and Decisions	Perceived ER Importance
Group 1 (n = 4) Background Information	Adam	1990-1993	Summary Long Range Plan 1989	ER critical to future of athletic training
	Barry*	1990-1992	Approval to Pursue AMA accreditation of ATEP, 1989	
	Chris	1990-1993		
	Devon	1988-1994	Strategic Visionary Plan 1990	
Group 2 (n = 13) Education Reform Decision Participants	2A			ER critical
	Harry	1994-1997	ETF decision, working time, ER	
	Karl	1993-1998	ETF decision, working time, ER	
	Nick	1992-1998	ETF decision, working time, ER	ER strongly needed
	2B			
	Ethan	1991-1997	ETF decision, working time, ER	
	Frank	1991-1997	ETF decision, working time, ER	
	Gerald	1992-1997	ETF decision, working time, ER	
	John	1992-1998	ETF decision, working time, ER	
	Paul	1996+	ETF working time, ER decision	Initially neutral progressed over time to critical
	2C			
	Barry*	1994-1996	ETF decision, working time, ER	
	Ike	1992-1995, 96-98	ETF decision, working time, ER	
Larry	1993-1998	ETF decision, working time, ER		
Marshall	1993-1997	ETF decision, working time, ER		
Owen	1996+	ETF working time, ER decision		

\*Member of Group 1, re-elected during Group 2 period, re-elected as NATA president later

participants served on the BOD during the research dates of 1990 to 1993/1994. There was also one participant, Barry, who served from 1990-1992 as a part of Group 1 and was re-elected in 1994 as a part of Group 2.

Group 2 includes all voting participants during the ETF and/or ER decisions. Group 2 also includes Barry, who was a part of Group 1, was replaced in the board in 1992, and was re-elected in 1994. Of the 13 participants in Group 2, 11 were present during both the ETF and ER votes. Two participants were present only during the ER vote. These two participants could not be classified separately in any other analysis category and were therefore included in Group 2.

Table 14 (p. 146) details the overlap between ER decision process events, BOD participant interaction, and ER importance perception. BOD participant interaction and ER importance belief structures and maintains organizational culture. Interactions also allowed BOD members to develop more homogeneous beliefs about ER.

Education reform importance includes perceived ER criticality and opinion change over time. Group 1 required little interaction. Group 1 ER opinion was created through personal experience, personal opinions, and BOD presentations from formal issue leaders, such as the PEC/JRC chair. Group 1 considered ER a critical organizational and professional need. When interaction amount, type, and influence and perceived ER importance were considered, Group 2 was subdivided into three categories. Interaction influenced participant's basic attitudes about ER during the ER process. Perceived ER importance and interaction need varied as well within Group 2. Therefore, Group 2 was

Table 14

*ER Importance and Interaction Influence to Participant Groups*

Participant Groups	Subcategory	Perceived ER Importance	Amount	Interaction Type (*)	Effect on ER Opinion
Group 1 (n = 4) Background Information*		ER Critical to Future of Athletic Training Profession	Little Interaction	Presentations to BOD by PEC, NATABOC Personal opinions	Created ER Opinion
Group 2 (n = 13) Education Reform Decision Participants**	2A (n = 3)	ER Critical	Little Interaction	Intra-BOD (3) Extra-BOD (1)	Reinforced ER Opinion
	2B (n = 5)	ER Strongly Needed	Medium-Frequent Interaction	Intra-BOD (5) Extra-BOD (5)	Created ER Opinion as Doing Correct Thing (5) Reinforced ER Opinion (3) Created ER Concerns+ (2)
	2C (n = 4)	Initially Neutral Progressed Over Time to ER Critical	Varied	Intra-BOD (4) Extra-BOD (2)	Created ER Opinion (4)

\* BOD members prior to ETF (before 1994)

\*\* BOD members during ETF work and/or ER decision 1994-1998

subdivided into A, B, and C Groups. Group 2A felt similar to Group 1 that ER was critical. Group 2B felt that ER was strongly needed. Group 2C initially felt neutral about ER, but over time and interaction was convinced that ER was a critical professional need.

Interaction was an important component of developing participant homogeneity for Group 2 members. This may have been related to the difference in background information that Group 1 members had, that was no longer present during the middle to late 1990's. For example, participants who entered the BOD later than 1991 entered a BOD after the AMA Allied Health Profession designation was provided. They did not necessarily realize or remember the purpose of that designation, CAHEA athletic training education program accreditation (Larry, personal communication, April 26, 2003).

Because of this lack of background information, some participants used interaction to seek information and increase their comfort level that they were doing the right thing by supporting ER (Owen, personal communication, April 21, 2003). Further interaction specifics will be discussed in a following section. This will be followed by social network analysis results. In general, Group 1 was primarily influenced by extra-BOD factors. Group 2 was influenced by Group 1 members, other Group 2 members, and other extra-BOD factors. Table 15 clarifies intra-BOD and extra-BOD influence to participant opinion.

Group 2 utilized extra-BOD influences to support their ER beliefs. This occurred based on influential individuals and overlaps among extra-BOD influence categories, such as the former BOD member who was also a former PEC chair and one of the ETF co-chairs (Table 16). Participants also reported extra-BOD organizational influence and

Table 15

*Participant Interaction Characteristics*

Participant Groups	Amount	Interaction Characteristics		Effect on participants ER Opinion
		Influence Type (*)	Influence Specifics	
Group 1 Background Information	Little interaction	Committee presentations Previous BOD decisions Participant's personal opinions	PEC/JRC AMA accreditation process Need for ER	Created ER opinion
Group 2A ETF/ER	Little interaction	Intra-BOD (3)	Harry, Nick, Karl	Reinforced ER opinion (3)
Group 2B	Medium-frequent interaction	Intra-BOD (5) Extra-BOD (2)	Barry, Frank, Marshall, Owen, Adam Delforge Nesbett	Created ER opinion as doing correct thing (5) Reinforced ER opinion (3) Created ER concerns+ (2)
Group 2C	Varied	Intra-BOD (3) Extra-BOD (4)	Ike, Frank, Karl, Fandel, Ray, Schraeder, S. Miller	Created ER opinion (4)

contextual/environmental circumstance influence as described in Chapter 3.

Primary extra-BOD participant influences included PEC/JRC members, former BOD members, NATABOC, and the CAHEA/CAAHEP accreditation process. These were all organizations related to the NATA and ER. The PEC had served to evaluate former NATA-approved curriculum program requirements and recommend BOD program approval or rejection prior to CAHEA accreditation. The JRC replaced those duties for the AMA CAHEA/CAAHEP accreditation process. Former BOD members included those on the BOD when they had discussed eliminating internship

Table 16

*Participant Extra-BOD Influence Categories*

<b>Influence Categories</b>									
Total BOD identified influences	PEC/JRC members	Former BOD members+	Other NATA committee members++	ETF members	NATABOC members	Future/ Current BOD members*	NATA staff	Participant district members	Others**
59 ◇	14	11	9	5	5	5	2	3	3
<b>Identified Influence Overlapping Categories</b>									
	PEC/JRC members	Former BOD members+	Other NATA committee members++	ETF members	NATABOC members	Future/ Current BOD members*			
Membership in other categories	CAAHEP ETF Former BOD members NATABOC	ETF PEC/JRC		PEC/JRC	ETF	NATABOC			

Table 16 continues

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**Influences Who Were Identified Twice or More by Participants**


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	PEC/JRC members	Former BOD members <sup>+</sup>	Other NATA committee members <sup>++</sup>	ETF members	NATABOC members	Future/ Current BOD members <sup>*</sup>
#Identified/ Category Total	6/15	2/11		3/5	3/5	2/5

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+ BOD members prior to 1994 who did not qualify for participation in this research

++ NATA members who served on a variety of NATA committees and did not also fit into other categories

\* BOD members after 1994 who did not qualify for participation or chose not to participate in this research

\*\* Persons that influenced the ER opinions of participants who did not fit into any other category listed above

◇ Total more than 59, some individuals were members of more than one identified category

programs (John, personal communication, April 22, 2003). Both of these groups strongly supported ER and educational standardization. NATABOC administers and protects the athletic trainer credential. A further influence to participants was the 1990 BOD implemented CAHEA/CAAHEP accreditation process. This process, which had been converted from the original NATA-approved curriculum program status beginning in 1993, applied preliminary regulations for education programs. As previously discussed, “education” was considered by many of those individuals to include only the former curriculum, now accredited programs.

Formal leadership influence primarily came from current and former PEC and BOD members. PEC support primarily focused on CAHEA/CAAHEP accreditation as the process progressed. Also, the NATABOC comparison of pass/fail rates between internship and curriculum candidates and desire to eliminate the internship route to certification influenced participant’s education reform decisions. The BOD educational philosophy change was documented by BOD meeting minutes and published items which mention little about ER except a shift from NATA approval of curriculum program status to CAHEA accreditation from 1990 to 1993 (Appendix D; Appendix I).

Prior to 1990, BOD reservations about accreditation revolved around the potential loss of the internship program to some participants and many constituents (Adam, personal communication, April 15, 2003; John, personal communication, April 22, 2003). These reservations only involved the manner the process was moving. Participants who discussed the concerns noted “let’s do it right” (Adam, personal communication, April 15, 2003).



In 1990 the AMA recognized athletic training as an allied health care profession. This caused confusion (NATA BOD Meeting Minutes, 1990). The BOD debated whether they authorized a change from NATA-curriculum approval to CAHEA/CAAHEP accreditation or just the preliminary steps. Some BOD members believed that the final decision to accept accreditation standards for athletic training education programs was to have been determined at a later date (Adam, personal communication, April 15, 2003; John, personal communication, April 15, 2003).

The Executive Director told the BOD that they had already made the decision and it was not reversible (Adam, personal communication, April 18, 2003; NATA BOD Meeting Minutes, November, 1990). PEC chair communications and CAHEA data from 1990 BOD Meeting Minutes indicated that allied health care profession designation was only provided for education program accreditation. The BOD considered its apparent original decision to seek accreditation binding. Support for the accreditation process influenced participants' education reform (ER) opinion. Participant extra-BOD organizational influences including the PEC, NATABOC, and CAHEA/CAAHEP all supported accreditation as the appropriate athletic training educational program method.

The binding nature of decisions and importance of supporting past decisions was displayed again in 1991 as the PEC, who had been responsible for evaluating athletic training education program satisfaction of educational standards for NATA curriculum approval, divided (NATA BOD Meeting Minutes, June, 1991). The PEC questioned whether accreditation was the optimal route to replace former NATA approval of education programs (Adam, personal communication, April 15, 2003; John, personal

communication, April 22, 2003). The BOD reiterated that they had voted for accreditation upon PEC recommendations. The PEC then co-existed with the JRC as the BOD approved the JRC/PEC chair nominations for JRC membership. The JRC served to perform program evaluations and provide recommendations to CAHEA/CAAHEP about individual athletic training education program accreditation.

By 1990, PEC duties were diminishing and the JRC eventually replaced it completely (NATA BOD Meeting Minutes, February, 1992). By April 1991, the PEC and the JRC shared the same office and Committee Chair (NATA BOD Meeting Minutes, April, 1991). All original JRC members were also PEC members (NATA BOD Meeting Minutes, February, 1991). Current and former PEC members influenced participant educational reform opinions. Participant and PEC interactions will be discussed as extra-BOD interactions.

Education was still considered problematic requiring serious study. BOD 1992 meeting minutes identify the need for a long range planning education task force (NATA BOD Meeting Minutes, January, 1992). Two and a half years after the Long Range Planning Task Force was established the BOD identified an educational focus. The ETF was finally initiated in 1994 (NATA BOD Meeting Minutes, June, 1994). A summary combining NATA events, NATABOC events, and BOD discussions and actions related to ER can be found in Appendix D. Details of published data about the ER process can be found in Appendix I.

In 1992, a NATABOC task force was developed to review the certification exam and internship and curriculum routes to certification (NATA BOD Meeting Minutes,

June, 1992). In 1993 NATABOC statistically documented a significant difference in pass/fail rate data between two populations (Education Task Force Report, 1995). This data evidenced the NATABOC concept of the need to eliminate internship candidate qualifications to protect the quality of the athletic training credential (Adam, personal communication, April 15, 2003; John, personal communication, April 15, 2003; Karl, personal communication, April 18, 2003; Larry, personal communication, April 26, 2003).

In July 1992 the BOD appointed a Strategic Long Range Planning Committee. The initial Strategic Long Range Planning Committee report discussed only continuing education (NATA BOD Meeting Minutes, October, 1992). December 1992 BOD Meeting Minutes document that NATABOC might have had internship route to certification discussion on their December agenda. This was a new development as the BOD had understood that "nothing further would be done on this issue until the task force has a chance to do its work" (NATA BOD Meeting Minutes, December, 1992).

The BOD approved initiation of meetings between the BOD and NATABOC to discuss the internship route to certification timing. In the following February 1994 BOD meeting minutes the BOD recognized that the internship route to certification was NATABOC controlled and that internship candidates failed the national certification exam with greater frequency than curriculum/accredited program graduates. NATABOC acknowledged discussing educational ways to improve the internship route to certification and requested BOD input.

The BOD requested representation at the May NATABOC board meeting as the "NATA can not [sic] advance in the health care arena until it addresses it's [sic] own programs that are below par (even though [sic] these programs are under the NATABOC)" (NATA BOD Meeting Minutes, February, 1994). BOD minutes also note that the BOD could assist NATABOC through input, facing the issues together and urging the formation of a task force by June. After communication with NATABOC, the BOD decided to form a task force to study the current status of athletic training education.

In brief summary, the following events led to ETF formation. A slightly longer summary can be found in Appendices D and H. The PEC, who had served to evaluate athletic training education programs applying for NATA-curriculum approval, recommended that NATA curriculum approval be replaced by American Medical Association accreditation through CAHEA. In 1990 the major hurdle blocking accreditation steps was eliminated as the American Medical Association recognized athletic training as an allied health profession. After CAHEA accreditation was secured, the PEC was replaced by the JRC. All JRC members had been previous PEC members.

In 1992 the BOD identified the need for a long range planning education task force and appointed a Task Force Chair (NATA BOD Meeting Minutes, July, 1992). This concept was approved with initiation of a task force, but the only educational component named was continuing education. Also in 1992 NATABOC, while administering the athletic training credential, started reviewing internship and

curriculum/accredited programs candidate performance on the national certification exam.

In late 1992 NATABOC began discussing the potential elimination of the internship route to certification status based on differences in curriculum/accredited and internship exam results. The BOD had thought that the education task force would be allowed to work prior to any NATABOC decisions of that nature (NATA BOD Meeting Minutes, December, 1992). BOD and NATABOC leaders met and representation was given to each group at the others meetings to discuss the internship route to certification and timing. The result was a June 1994 comment that NATABOC “wants to help the BOD raise levels of all aspects of the educational preparation of the athletic trainer” and a BOD vote to form a task force for the educational preparation of athletic trainers (NATA BOD Meeting Minutes, June, 1994). This was followed by actual ETF committee member assignments by September 1994 (NATA BOD Meeting Minutes, September, 1994).

As previously discussed, the charge given to the ETF was to

discuss, direct, evaluate, project, and recommend possible action for the Board of Directors to consider. This work is to evaluate education of the undergraduate, both internship and curriculum, graduate education, continuing education, and future education mandates or requirements that may affect the profession and NATA members. There should be no limitations in this task force’s scope of evaluations and/or recommendations. (A report from the education task force, 1996)

Participants who were also ETF members described ETF purpose similarly (John, personal communication, April 20, 2003; Marshall, personal communication, April 24, 2003). As previously discussed, other participants described the ETF purpose to

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standardize athletic training education by eliminating internship programs (Adam, personal communication, April 15, 2003; Chris, personal communication, April 17, 2003; Gerald, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003). A few participants did not recall the ETF purpose (Barry, personal communication, April 16, 2003; Marshall, personal communication, April 24, 2003).

The ETF Co-Chairs and members were chosen by the BOD based on a variety of educational program settings, geographical regions, and practice settings (Education task force report, 1995). The ETF Co-Chairs were chosen by Gerald because of the talent and knowledge they had. The Co-Chairs, as well as ETF members, were BOD approved (Gerald, personal communication, April 17, 2003; Larry, personal communication, April 26, 2003). A list of ETF members, practice settings, and related organization affiliations can be found in Table 16 (p. 149). ETF members included personnel from internship and curriculum program, a variety of practice settings, and NATABOC. Some participants felt that the ETF was overloaded with curriculum/accredited individuals (Frank, personal communication, May 3, 2003; John, personal communication, April 17, 2003). ETF membership also included former BOD members. NATABOC members and the NATA President served as ex-officio members. The NATABOC member who co-authored the first paper comparing internship to curriculum student national exam performance was also an ETF member. He was instructed by NATABOC in using statistics in ETF meetings to separate curriculum student exam performance from

internship candidate exam performance (NATA BOD Meeting Minutes, December, 1994).

By 1994 only one of the Group 1 Background participants was still on the board. The remaining participants' knowledge about CAHEA/CAAHEP accreditation process initiation and BOD and NATABOC was different than previously. Owen (personal communication, April 21, 2003) recalled, "I was just trying to figure out what was appropriate and the historical perspective was no longer present" during 1995 and 1996.

As previously noted, the BOD members who had protected the internship route to national certification were no longer present either. Some participants noted this as Adam (personal communication, April 15, 2003) stated

my gut feeling was the true initiation of [education reform] was to do away with the internship route to certification. This had been kicked around during my latter days on the board. In the earlier days, this would not have been supported.

The BOD philosophy from 1994 to 1996 focused on ER. One education reform component was standardization of a single route to qualification for national certification. Leaders identified critical components as a need to increase educational requirement difficulty and eliminate the internship route to certification (Gerald, personal communication, April 17, 2003). The proposed effect was to "advance and hold our [athletic training profession] own in the health care field" (Ike, personal communication, April 22, 2003).

The changes in BOD personnel, perspective, historical background, and circumstances underscore the complex nature of the education reform decision process over time. The contextual/environmental changes as well as the BOD member changes

and interactions created system changes in perspective and identified need for the format of education reform. Information stemmed from educational reform and participant influence and interpretation factors. These system and environmental modifications created adaptation reinforcement allowed the organizational culture to maintain the adaptations through BOD discussions and information reports. Intra-BOD and extra-BOD communication and interaction influences had an important role in system adaptations and culture as well. These interactions/influences are discussed in the following section.

### ***BOD Communication Politics***

BOD members communicated with each other formally and informally. Participants reported interactions and discussions as critical in forming, modifying, or supporting personal beliefs about the need for educational reform and the form it should take (Gerald, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003). Intra-BOD interaction influence was critical for new BOD members. Formal and informal interactions resulted in communication networks between BOD members, although some links were stronger than others. The result of BOD communications was a strong comfort level that “[the recommendations] were right on and that we needed to do something” (Owen, personal communication, April 21, 2003). As BOD members communicated and interacted with each other they formed interpersonal relations or communication network links.

### **Interpersonal Relations/Communication Linkages**

As previously discussed, interpersonal relationships and network links influenced participant interactions and the BOD organization. The current research identifies



information transfer, development of cultural understanding or conventions, and intra-BOD cultural themes. These themes resulted in organizational, interpersonal relation, and interpretation adaptations that influenced ER importance to participants (Gerald, personal communication, April 17, 2003; Ike, personal communication, April 22, 2003; John, personal communication, April 17, 2003; Karl, personal communication, April 18, 2003; Owen, personal communication, April 21, 2003).

Education reform criticality and professional impact led some participants to comment on the amount of interaction and information transfer. Gerald (personal communication, April 17, 2003) stated that the "discussion was heated, voluminous, and repeated."

Interaction amount was greater than other issues because of the enormity of the task and ER decision impact.

Articles about incoming BOD members underscore perceived ER importance. In interviews in 1991 and early 1992, NATA presidential candidate Denny Miller stated his presidential goal as to

improve the product we're producing by strengthening the athletic training education programs. . . . We have embarked in a direction of promoting this profession the right way by emphasizing education. . . . We must produce better and better certified athletic trainers. Many other problems will then be solved. (NATA Presidential Election Slated, 1991, p. 2)

From 1993 to 1996 there were six articles about incoming BOD members. Incoming BOD members directly reference ER importance in three articles. Indirect references to issues believed to be solvable through education changes were made in the other three articles (Carl Krein: In the Spotlight, 1993; Cynthia "Sam" Booth Takes Over as New

District 4 Director, 1995; David "DC" Colt Steps on Board, 1993; New Members, 1994; Foster-Welch, 1996).

During their board service, participant ER opinions were solidified, supported, or altered through interpersonal relations and communications. All participants identified presentations or BOD interaction as especially important to creation and reinforcement of their ER opinion. Interaction type and effect differences were briefly mentioned in Table 15 (p. 148). They are discussed more fully in the following sections.

### ***BOD Interaction Influences***

Participant interpersonal relations and communication networks ultimately influenced the BOD ER decision system. Participant interactions were developed from participant reports of influential people about education reform. Two participants provided minimal linkage influence data. Marshall declared that although board discussion was important, he was not influenced by individual BOD members more than others. Barry declined to provide influence linkage. He stated that he was uncomfortable providing names even after the researcher explained the methodology and network analysis technique goals and promised anonymity. The links provided by the 14 remaining participants included influences by Barry and Marshall to varying degrees. They provided data for intra- and extra-BOD influence analysis. The people who participant groups identified as the most influential to their ER opinion are summarized in Table 17.

ETF/ER participants were greatly influenced through other BOD members. However, individual BOD members do not exist in isolation. They have jobs, history,

Table 17

*Most Influential Persons to Participants ER Opinion*

<b>Number of BOD References</b>	<b>Influential Person</b>	<b>Committee/Influence Categories</b>
6	Barry	BOD-Background, ETF/ER
	Frank	BOD-ETF/ER
	Karl	BOD-ETF/ER, NATABOC
	J*	Former BOD, PEC/JRC former chair, ETF co-chair
5	Adam	BOD-Background, PEC/JRC
	Ike	BOD-ETF/ER/NATA President
	A	PEC/JRC chair
	B	PEC JRC former chair
	C	Former BOD, ETF
4	Ethan	BOD-ETF/ER
	Harry	BOD-ETF/ER
	Marshall	BOD-ETF/ER, ETF
3	Devon	BOD-Background
	Larry	BOD-ETF/ER
	Owen	BOD-ETF/ER
	E	PRC/JRC chair
	F	Former BOD, BOD-did not qualify for participation in research
	H	PEC/JRC, Educational Pioneer
	I	ETF co-chair
	K	BOD, did not qualify for participation in research

personal contacts, and communication networks and influential others who are not part of the BOD. These persons influential to the participants form extra-BOD communication networks. Both intra- and extra-BOD links occurred through formal and informal interactions. Formal and informal interaction influences are discussed in the

following sections. Four participant interaction categories over time were identified as previously described in Table 13 (p. 144) and Table 14 (p. 146).

*Formal interactions/discussions.* BOD formal discussions were held within the confines of the boardroom. All ETF/ER participants identified the education reform decision as crucial. It was one of the most highly discussed items in board history (Barry, personal communication, April 16, 2003). BOD members were politically correct in the board room, and did not discuss antitrust issues such as the continually increasing number of graduates and the lack of increases in the job market (Ike, personal communication, April 22, 2003). All participants felt that the formal board room discussions resulting from ETF reports or participant questions to each other were an important influence on formulating their opinion.

Participants reported a range of communication amounts as previously shown in Table 15 (p. 148). NATA Presidents reported that education reform discussions occurred at every meeting and conference call because of the professional magnitude of educational reform (Gerald, personal communication, April 17, 2003). "The talk [about educational reform] never ended" (Ike, personal communication, April 22, 2003). In contrast, other board members reported that education reform was only discussed formally in board meetings when progress reports were delivered by the ETF (Ethan, personal communication, April 16, 2003). This may be related to ER importance and the leader's interest. BOD Meeting Minutes document regular ER discussions. Occasionally specific comments were reported. These comments did not occur frequently, and did not span participant issue discussion.

Some BOD members felt that education reform discussions prevailed in board meetings with occasional discussions of the issues outside it during dinner or cocktail parties (Larry, personal communication, April 26, 2003; Nick, personal communication, April 20, 2003). Karl (personal communication, April 18, 2003) reported that he did not discuss the issue very much because "I was on the right page anyway . . . and I was not getting any heat from my district so it was not as needy for me to discuss education reform." Others reported increased numbers of informal ER discussions as often as daily or weekly (Gerald, personal communication, April 17, 2003; Owen, personal communication, April 21, 2003; Paul, personal communication, April 19, 2003).

*Informal interactions/discussions.* Participant informal ER interactions occurred often with the people that they sat next to in the board meetings after establishing a relationship (Ethan, personal communication, April 16, 2003). Some interacted regularly with the same people during non-arranged dinner times (Larry, personal communication, April 26, 2003). Some discussions occurred during informal social interactions in the president's suite (Frank, personal communication, May 10, 2003).

As Karl (personal communication, April 18, 2003) explained, "informal conversations always take place when you deal with the board of directors. There are relationships that are very strong." Informal BOD discussions were important for some participants to establish organizational culture rules and address concerns that are inappropriate for formal boardroom discussion such as antitrust issues (Gerald, personal communication, April 17, 2003). These discussions occurred at dinner or breaks and were important in maintaining conventions and organizational culture understanding.

### *Intra-BOD Interaction*

Each participant was an elected BOD member. Three participants were also elected BOD Presidents. They attributed a difference in knowledge compared to members based on information they had access to and board participant experiences (Ethan, personal communication, April 16, 2003). Participants were indoctrinated into subculture conventions as previously discussed in this chapter. BOD members interacted frequently with other BOD members formally and informally. Participants described varied interaction needs for education reform discussion and opinion influence.

All participants identified intra-BOD communication and interaction as an important to the education reform decision process. Whether the BOD discussed education reform formally or informally, many of the participants felt that education reform discussions had a strong influence on their opinion. The influence was supportive for the format and substance of the education reform decision through passing the ETF recommendations. There were 14 participants who named specific influences. Out of the 14, no single participant influenced all participants' ER opinions. Sixty-nine percent of the participant population was identified as influential by at least 3 of those 14 participants (Table 18). Ten BOD members were designated influential to at least three participants. Participants who named influences averaged 3.7 intra-BOD influences, or 23.3% of the population. The range was 1-6 intra-BOD influences.

Seating arrangements played a role in interaction potential. When the seating chart (Figure 4) was compared to interactions 8 of 14 participants (57%) named at least one adjacent BOD member as influential. In this way, BOD seating arrangements

Table 18

*Participant Intra-BOD Influences*

Number of Participants Identifying Intra-BOD Member as Influential	Influential Participants
6/14	Barry, Frank, Karl
5/14	Adam, Ike
4/14	Ethan, Harry, Marshall
3/14	Devon, Larry, Owen

facilitated communication and interaction between participants. This increased organizational culture properties and homogeneity of participant ER opinions.

The common link to the Background Information (Group 1) participants who named influences (3 of the 4) was the PEC/JRC chair. In 1990 the PEC/JRC chair was applying for and finalizing the American Medical Association CAHEA accreditation process for athletic training education programs and transitioning from NATA curriculum program approval. He served as the PEC chair, a CAHEA link, had been the force behind American Medical Association accreditation of athletic training education programs, and also became the JRC chair in 1993. Another weak link noted by 2 of the 4 Group 1 participants was the previous former PEC chair. He was also a strong curriculum proponent, having developed the required athletic training major for curriculum programs during his PEC tenure (Ebel, 1999).

From 1994-1998 the ETF/ER participants (Group 2) voted during the ETF formation and the ER decision or just the ER decision. Two of these participants did not

specify influences as described earlier. Of the remaining 11 participants, primary ER influences were other Group 2 members. On average, Group 2 members identified an average of 9.2 influences per participant compared to 3.7 average influences for Group 1 members. Group 2 influences ranged from 0-31.

### *Extra-BOD Interactions*

BOD members serve as the elected NATA leadership. However, the BOD does not exist in a vacuum. Each BOD member brings personal experience and historical perspective to the board. BOD members have a service history to the NATA through state, district, and national level committees and positions. This experience allows BOD members a large contact network with people at state, district, and national levels. BOD members also practice athletic training and/or athletic training education. BOD members discuss issues with other athletic trainers. These contacts form potentially influential communication networks or linkages about the education reform decision process for participants.

Participants identified personal influences to their education reform opinion. Influences and networks were analyzed. Participants identified 59 extra-BOD influential links. Of these 59 links, 49 were members of four categories (Table 16, p. 149). The categories included PEC/JRC members, former BOD members, other NATA influences, and ETF members. Intra-BOD influences have already been discussed. ETF influences included both group and individual influences. Although NATABOC reports were often mentioned as influential by the participants, individual NATABOC members were not. There were links between the BOD and NATABOC through one participant, and there



was one NATABOC member on the ETF. NATABOC current and former presidents served as ex-officio ETF members.

### *Extra-BOD Influence Interactions/Linkages*

*PEC/JRC.* The first category of individuals identified by participants as extra-BOD influences was PEC/JRC members. Four PEC/JRC individuals were identified by three or more participants. Two former PEC chairs were identified by five participants each. The incumbent PEC chair, who also became the JRC chair, was identified by four participants. The current JRC chair was identified three times. There were also five PEC linked pioneers in athletic training education history over the past 50 years and two current prolific researchers. Two of the PEC links also served on the ETF.

*Former BOD members.* Former BOD members were the second group specified by participants for extra-BOD influences. Participants specified a group of 13 former BOD members as influential to the education reform opinion. One of these people was also an ETF Co-Chair and former PEC Chair. He was identified by five participants as influential. Another ETF member who was also a BOD member until 1991 was identified by five participants as influential as well.

*Other NATA influences.* Participants also identified a third group of 10 people who served in the NATA. Nine of these people served on a variety of committees such as the College and University Athletic Trainers Committee, the Journal of the National Athletic Trainers Association, Reimbursement Advisory Group, the Research and

Education Foundation, the Ethics Committee, and other committees. The remaining two individuals serve as the executive officer of the NATA and legal counsel.

*ETF members.* The fourth influence group included ETF members. Some of these individuals have been identified already. Both ETF Co-Chairs were identified as influential, one to three participants, and the other, also an ex-BOD member and PEC chair, to five participants. Another ETF influence to five participants was also a BOD member whose term ended in 1991. Two other ETF members were mentioned as a participant influence. Two participants also served on the ETF, whose interactions with the remaining participants have already been classified as intra-BOD. One of those participants had been identified by four of his participant peers as influential to the education reform opinion as previously discussed. Ex-officio members of the ETF included the BOD President, the NATA Chief Executive Officer, and NATABOC members.

### **Social Network Analysis**

When social network maps were created, Adam and Barry influenced most of the remaining BOD members. Adam was directly linked as an influence to four participants, and Barry was a direct influence to five participants. Chris and Devon influenced two individuals each. However, Adam, Barry, and Chris had a direct influence on Frank. Frank had a direct influence on five other participants. Adam also directly influenced Karl. Karl was a direct influence to one other participant and also to three of the five that Frank influenced. Most of this influence came from Adam and Barry who were members of the Background group, although Barry was also a member of the ETF/ER group.

As previously described, Group 1 was primarily influenced by personal opinion and related organization presentations to the BOD (Figure 5). The primary influence was the PEC/JRC. The three extra-BOD influences had all served as PEC/JRC chairs (Table 17, p. 162).

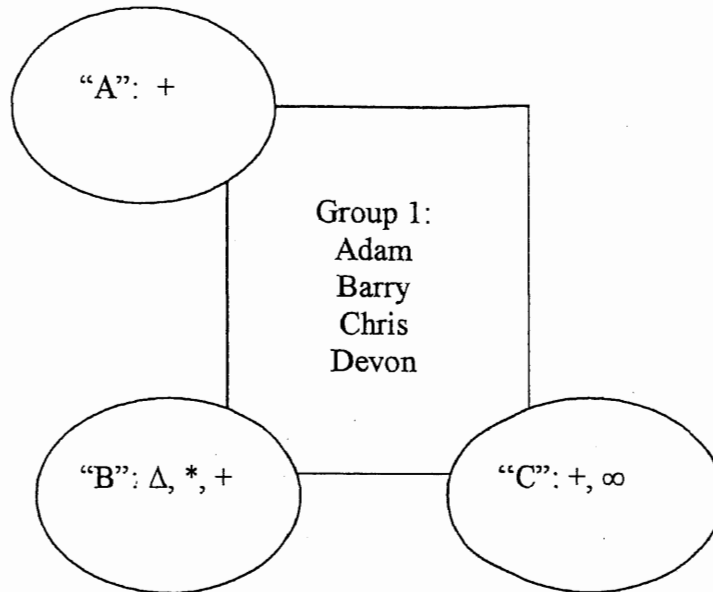
Group 2 was influenced by a number of intra-BOD and extra-BOD factors. Figure 6 summarizes Group 2 influences (Group 2 ETF/ER influences). The majority of Group 2 was influenced by Barry and Adam through secondary or tertiary links. A social network analysis chart identifying Group 1 influence on Group 2 members can be found in Figure 7.

As previously discussed, Group 2 participants were subdivided by perceived ER importance and interaction characteristics (Table 14, p. 146). Group 2A consisted of three participants: Harry; Karl; and Nick. They felt that ER was critical and required little interaction about ER. Group 2A interactions reinforced the opinion that ER was critical.

Group 2B consisted of five participants: Ethan; Frank; Gerald; John; and Paul. They felt strongly that ER was needed, and required a range of medium to frequent interactions about ER. Group 2B interactions enhanced ER criticality opinion, reinforced the need for ER, and created some concerns about the ER process.

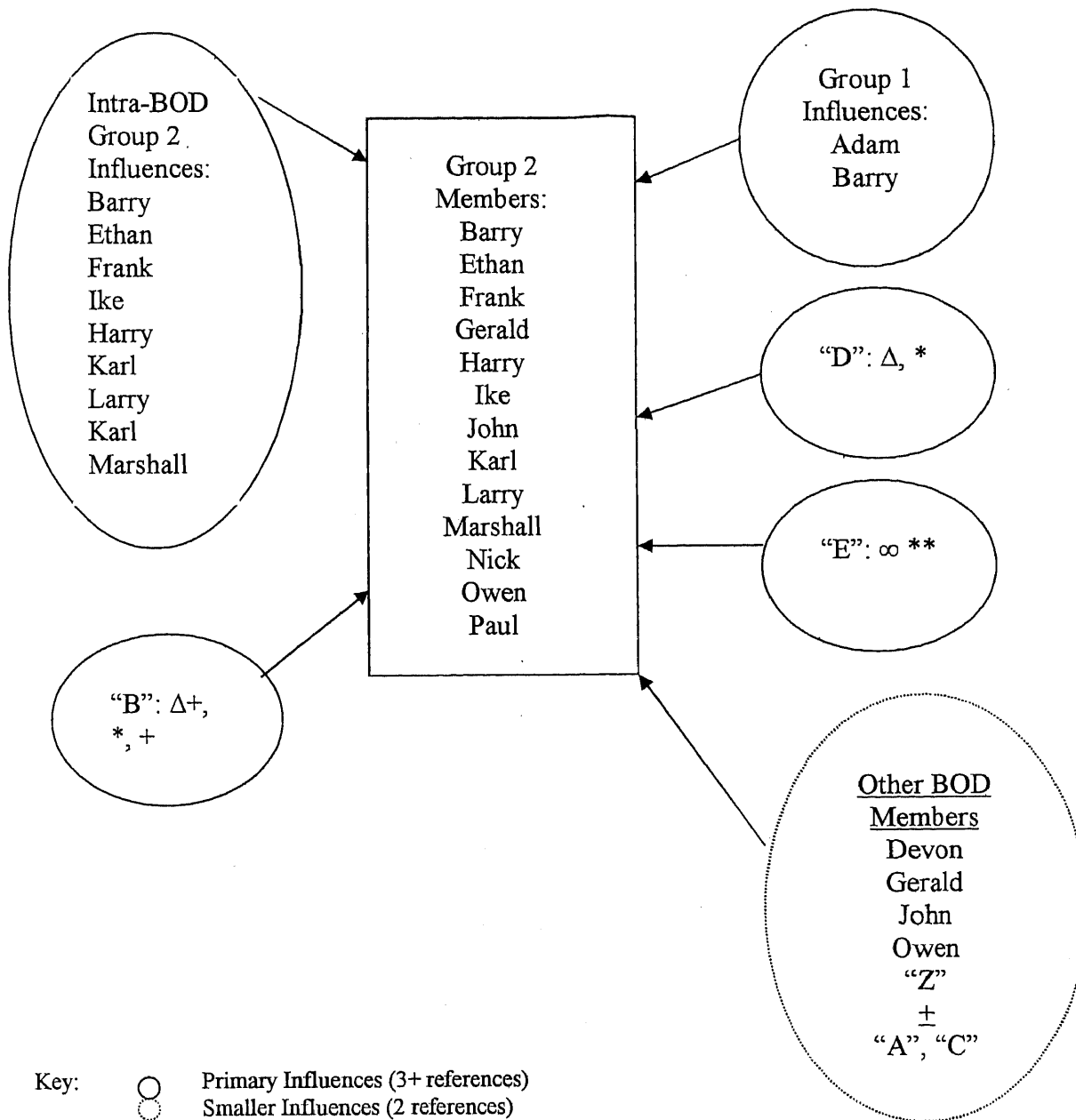
Group 2C consisted of five participants: Barry; Ike; Larry; Marshall; and Owen. They were initially neutral towards ER. Over time with interaction, their ER opinion changed to a critical need. Group 2C members interaction needs varied, but the interaction served to modify their ER opinion.

Figure 5. Group 1 (background information) influences (Extra-BOD\*\*).



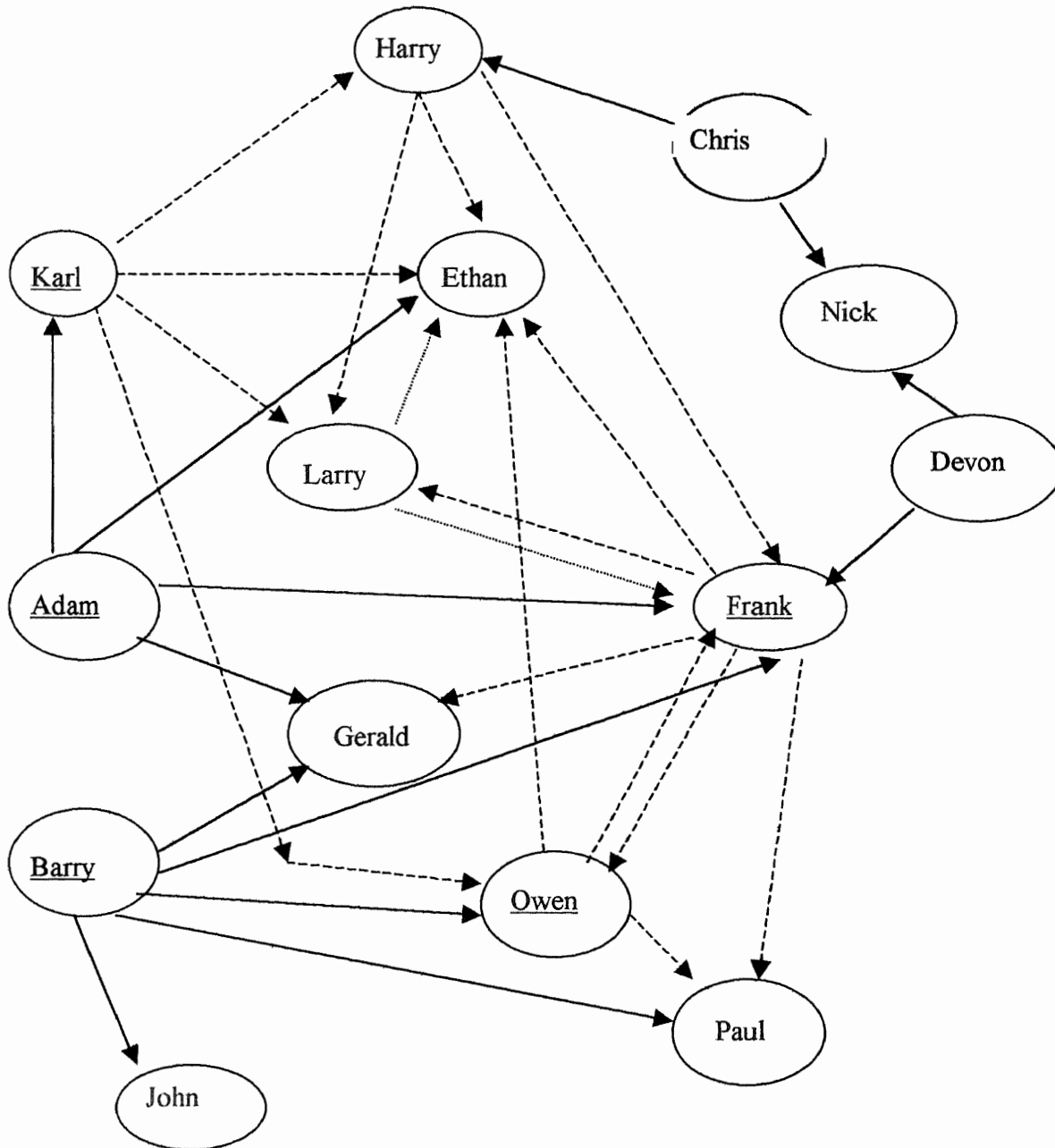
Key: "X" Pseudonym for Individual Influencing Group 1 Members  
 Δ+ ETF Co-Chair  
 \* Former BOD Member, Other Committee Member  
 + PEC/JRC Member  
 ∞ Unrelated NATA Committee Member Only  
 \*\* No Intra-BOD influences existed between Group 1 members

Figure 6. Group 2 (ETF/ER) influences.



- Key:
- Primary Influences (3+ references)
  - Smaller Influences (2 references)
  - "Name" Individual Who Influenced Group 2 Members
  - "Z" BOD member not qualified as participant
  - Δ ETF Member
  - Δ+ ETF Co-Chair
  - \* Former BOD Member, Other Committee Member
  - + PEC/JRC Member
  - ∞ Unrelated NATA Committee Member **Only**
  - \*\* Pioneer in Athletic Training Education **and** Certification

Figure 7. Intra-BOD Influence: Group 1 (Background Information) Influence on Group 2 Member ER Opinion



Black Text: Group 1 member  
 Blue Text: Group 2 member who served as secondary or tertiary influence link  
 Red Text: Other  
Underlined Text: Primary or secondary influence to at least three BOD members  
 — Primary Link- Group 1 member to another participant  
 - - - Secondary Link- from Group 1 members  
 . . . Tertiary Link- Group 2 to Group 2 members only, no direct link from Group 1

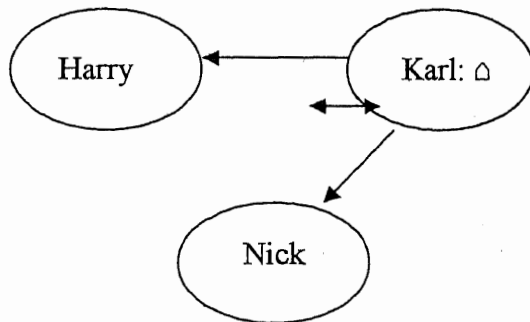
When influential individuals to each subgroup were compared with social network analysis, each subgroup (2A, 2B, and 2C) was influenced by a number of individuals who overlapped among subgroup members. Group 2A was primarily influenced by each other (Figure 8). This ended up also being an influence by Group 1 members, because Karl was a link from Adam to many other Group 2 members. Karl was also a former NATABOC member.

Group 2B was influenced by other Group 2 members, Group 1 members, and other extra-BOD individuals (Figure 9). All of the extra-BOD influences to Group 2B, and many of the intra-BOD influences, were members of the other related organization categories identified in the interaction segment of this research. Again, Adam and Barry were primary links to all Group 2B members.

Group 2C was influenced by other Group 2 members and extra-BOD influences. Extra-BOD influences included both ETF Co-Chairs, a BOD member not qualified to participate in this study but who was well respected by participants, and a NATABOC member (Figure 10).

In general, social network analysis identifies intra and extra-BOD influence patterns and networks. Group 1 was primarily influenced by BOD reports from the PEC and NATABOC. Group 1 was very influential to Group 2 members who actually made the ETF/ER decisions. Group 2 participants were also influenced by other Group 2 members, PEC members, former BOD members, other NATA committee members, and the ETF.

Figure 8. Group 2A overlapping influences.



- ←→ Single link between Group 2A members  
 ∅ NATABOC  
 Δ ETF Member  
 Δ+ ETF Co-Chair  
 \* Former BOD Member, Other Committee Member  
 + PEC/JRC Member  
 ++ PEC/JRC Chair, Former Chair  
 ∞ Unrelated NATA Committee Member Only  
 \*\* Pioneer in Athletic Training Education and Certification

The PEC and Group 1 used an educational language convention. Athletic training “education” was synonymous with curriculum education rather than generic athletic training education or curriculum and internship education. This convention underscored the criticality of ER to those individuals. Social interactions of Group 1 members, the former BOD members that influenced Group 1 members, and PEC members created sharing and maintenance of the “education” convention. Shared meaning occurred easily because influential individuals were overlapping members in all categories. For example, J, a single influential individual, was a member of the former BOD, PEC, and ETF categories (Table 17, p. 162). The “education” convention was then transferred, or internalized and spread, through organizational culture to Group 2 members through



Figure 9. Group 2B (ETF/ER) ER opinion influences.

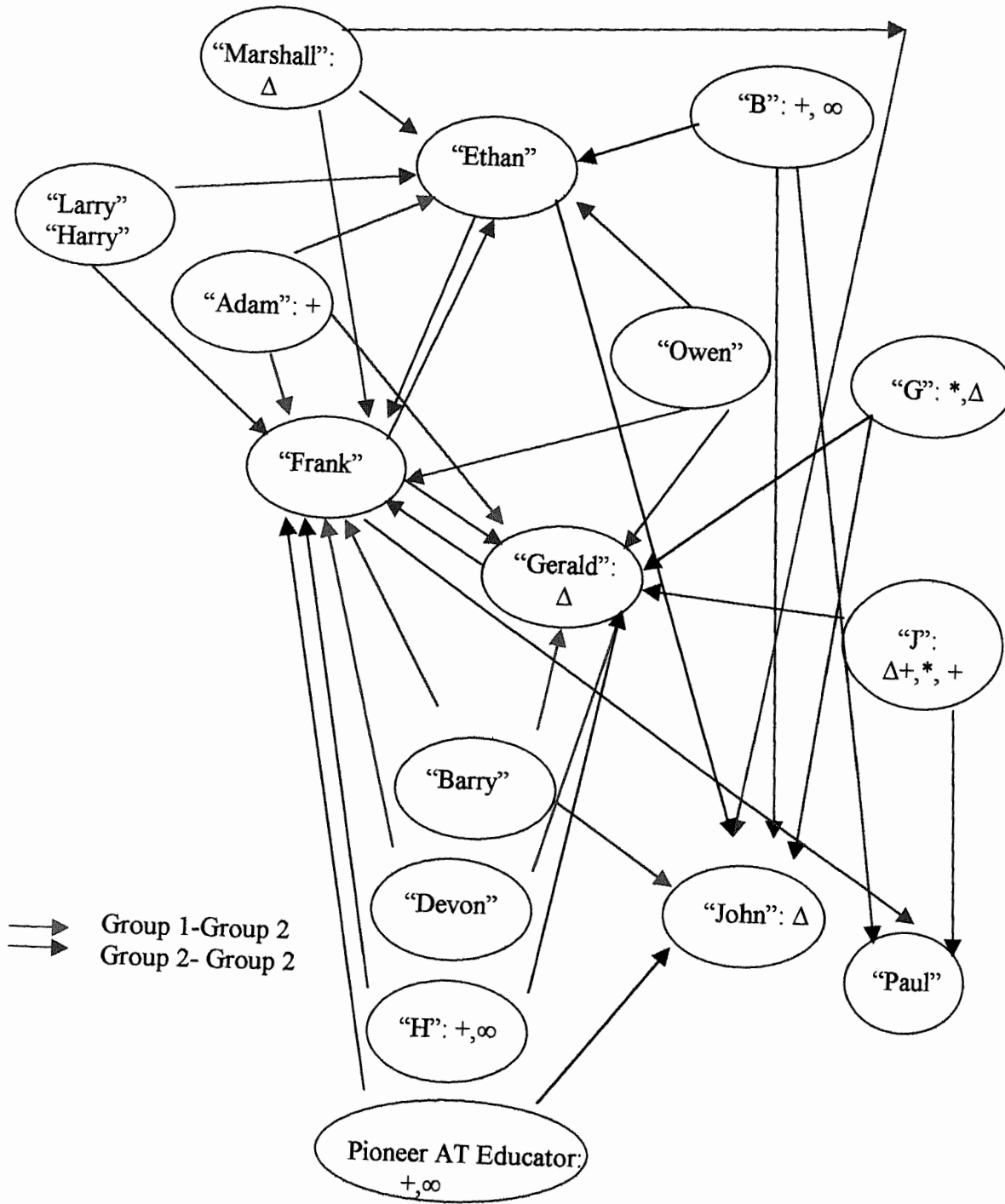
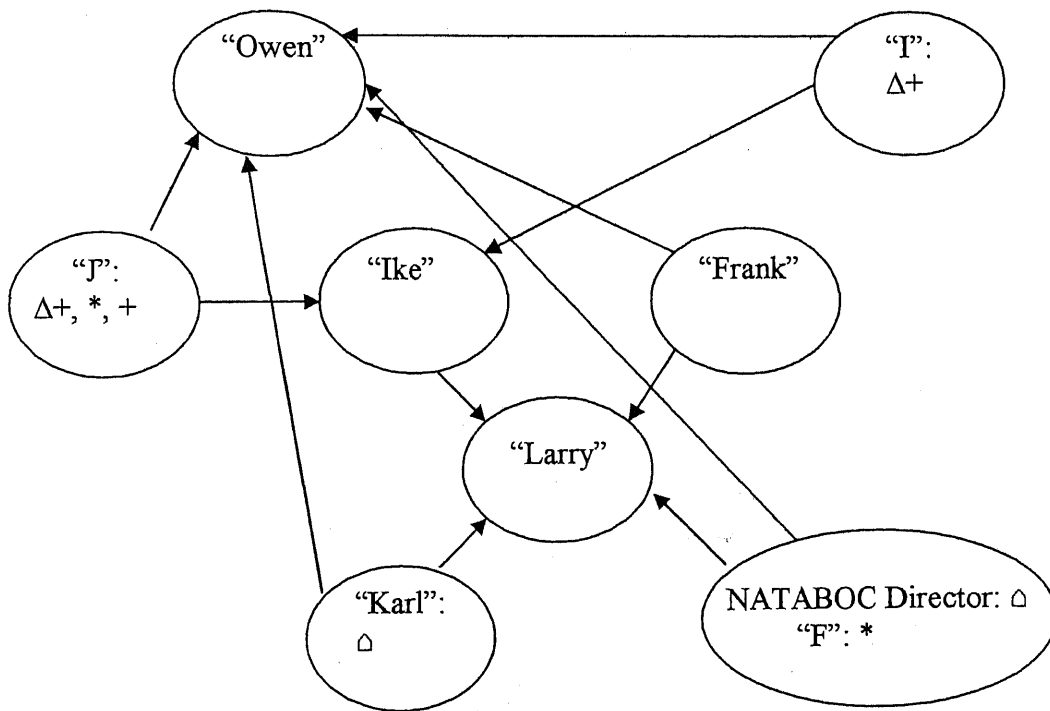


Figure 9 continues

- △ NATABOC                      \* Former BOD Member, Other Committee Member
- Δ ETF Member                    + PEC/JRC Member
- Δ+ ETF Co-Chair                ++ PEC/JRC Chair, Former Chair
- ∞ Unrelated NATA Committee Member Only
- \*\* Pioneer in Athletic Training Education and Certification

Figure 10. Group 2C ER opinion influences



- △ NATABOC
- Δ ETF Member
- Δ+ ETF Co-Chair
- \* Former BOD Member, Other Committee Member
- + PEC/JRC Member
- ++ PEC/JRC Chair, Former Chair
- ∞ Unrelated NATA Committee Member Only
- \*\* Pioneer in Athletic Training Education and Certification

influential individuals. The shared convention was again spread and internalized through social influence and interactions.

### **Cultural Issue and Participant Interaction Results Summary**

BOD members shared a vision to advance the athletic training profession. BOD members also share common interests and knowledge. BOD actions and meetings create and sustain a specific organizational culture. NATA leaders expect the BOD to function as a single unit and support all board decisions after voting occurs. Leaders from 1990-1998 strove to minimize controversy by encouraging unanimous votes. BOD members interacted with each other formally and informally. Through interaction they developed interpersonal relation and communication networks to share information and opinions. During the ER decision, participants were influenced more by intra-BOD interactions than by any other group.

Extra-BOD interactions also influenced participant educational reform beliefs. Discussions between BOD members and their communication networks influenced participant beliefs and voting on education reform based partly on the perception of discussion importance to participants. Extra-BOD participant ER opinions were influenced most often by the PEC/JEC. The second influence was through former BOD members. ETF members also influenced BOD ER opinions. There was overlap between influence members in groups. This included the former BOD member and former PEC chair who also served as ETF Co-Chair. Influence is partially based on information transfer between individuals (Choo, 2000). Information transfer and its relationship to

participant ER opinion and BOD philosophy changes regarding ER will be examined in the following section.

### *BOD Information Transfer*

As outlined in Chapter 1 and earlier in this chapter, information is a powerful factor in organizational action for individual and group influence. Communication occurs through interaction as a message is transmitted by an individual or group, received by another individual or group, decoded, interpreted, and reacted to (Knoke, 1990). Greer (1987) labels linear information transfer process components. The components include information creation, production, dissemination, diffusion, utilization, preservation and destruction.

Many authors overlap between definitions for dissemination and diffusion. The researcher proposes different terminology for those two terms. Information dissemination will be considered information spread, defined as the passing of information from one individual/group to another. Information diffusion will be termed internalization, where the recipient of the information reviews and interprets the information.

Choo (2000) explains that the information transfer process may not be linear. For example, as information is transferred between individuals and groups it is examined, interpreted according to beliefs and experiences, and potentially utilized. Information must be understood by the user. It is interpreted and modified for understanding prior to use by the user. Information must be actively interpreted so that it may be utilized. For example, if participants did not understand the convention of the education definition as curriculum or accredited education only, they were limited in effective communication

within BOD conversations. Understanding of the convention resulted from interpretation of the word education in context as it was being used. Without interpretation, the participant has not internalized the information so the information can not be utilized. As a result, the information bit has changed, and does not flow smoothly or linearly through the information transfer process.

Information is traceable as it passes between individuals and groups, although it may change format as each individual or group internalizes it. Internalization may change the initial information as the interpretation may differ between individuals and groups. As a result, the previously defined linear information transfer process is proposed to be nonlinear as factors are interrelated and the information is modified through the process.

Information transferred between BOD members, ER related committees, and extra-BOD influences during the education reform decision process. As discussed earlier in this chapter, internal group bonding of the BOD through organizational culture led to an increased premium or value to information transfer between specific groups. These groups included other BOD members at the time, Group 1 members, participants present for the ETF background process but not during the ETF formation or ER votes, other former BOD members, PEC/JRC members, and ETF members. Information was transferred both formally in BOD meetings and conference calls through formal discussions and presentations as well as informally through discussions and conversations. Both of these mechanisms occurred simultaneously while the ETF was working to develop final ER recommendations that the BOD would support. Also, there was overlap between individual influences roles. For example, a strong influence to the

ER opinion was a former BOD member who had served as a PEC chair in the past who also served as ETF co-chair. This individual was influential to a number of participants and networks through his overlapping current and former roles.

Information was transferred simultaneously formally and informally between overlapping influence categories. This occurred during face to face meetings, conference calls, informal group discussions when the participants were together but not formally in the boardroom, and through extra boardroom personal contacts such as phone calls and e-mails. Direct information transfer specific to ER occurred over a 2 ½ year ETF working process as BOD members entered and left the BOD. As shown by the previous examples, information transfer between BOD members results from multiple and intertwined participant contacts through BOD operation.

This indicates that information transfer could not have been a linear, noncomplex process. Looking at the data over time provides the understanding that organizational action and coherence was enriched through information transfer and organizational culture. The process includes the actions and the results of those actions. The active BOD communications, interactions, interpretations, enhanced information transfer while they were simultaneously a part of the information transfer process.

In an ideal information transfer study, the researcher would have been present during the conversations, meetings, communications, and events. The various participant activities would have been studied to determine what the information bits were that were transferred, how they were transferred, and what modifications resulted to the original information. However, this was not possible because of the decision process time span.

As previously explained, the ER process was initiated by BOD members from 1950 on. The information eventually became important enough in context that the BOD acted with direct results on the ER process in the early 1990s. Over time, the information and results became increasingly important as a solution to BOD professional issues. The importance of the information and actions was not clear until long after the process had started.

As ER information importance increased the information transfer process saw a corresponding increase in interaction, influence, and information use to create and maintain organizational culture. During the complex information transfer process, participant internalization and understanding of ER information impacted BOD opinions and the final ER vote. The following section will identify the information transfer process concerning ER.

Information about contextual/environmental influences to ER and BOD opinions about ER need was readily available to participants. The BOD discussed items during meetings and conference calls. The participants also accessed expert opinions from task force members. The ETF was composed of board selected participants from all practice segments affected by education reform (Table 12).

Information spread is the passing of intact information between sources. There was frequent communication between the ETF or ETF Co-Chairs and various board members about what was happening and what the ETF thoughts were and what they needed from the board. Participants reported more frequent communication from the ETF than from other task forces and committees based on issue impact and importance (Barry,

personal communication, April 16, 2003). BOD and ETF communication was enhanced by two things. The BOD President was an ex-officio member of the ETF. Also, ETF members included two participants and two board members whose terms ended in 1992. Information about the ETF ER process was spread to board members primarily through board reports. ETF reports from the Co-Chairs occurred at each regular meeting, as well as some conference calls. Much of that information was accepted by the BOD as a report for information purposes.

There are discrepancies between the communication amounts reported by participants, but all participants reported that they were kept in the loop and there were no surprises by the final recommendations (Ethan, personal communication, April 16, 2003; Larry, personal communication, April 26, 2003). Participants also emphasized the need to make sure that information was not spread to non-BOD members prior to board approval. This was another factor in information internalization and BOD organizational culture.

The ETF/BOD began communicating with NATA members after the ETF preliminary recommendations were provided to the BOD in 1995 (NATA BOD Meeting Minutes, December, 1995). In February, 1996 those recommendations, with rationale, were published (A Report From the Education Task Force, 1996). Then the ETF Co-Chairs and board members went to NATA District meetings to present and explain the ETF rationale at the Town Hall meetings. This was primarily information spread as there was no feedback between NATA and ETF and BOD members in a print format. There was limited member feedback at district meetings. Participants reported little opposition to ER recommendations during the earliest district meetings (NATA BOD Meeting



Minutes, January, 1996). Others reported that opposition primarily came from members concerned about loss of their student labor force. Labor force issues had already been determined inappropriate by ETF and BOD members. This will be further discussed in the following section. The result of the district meetings was information spread.

The lack of member information and understanding of the spread information is clear from the listserv postings as discussed previously. The ETF Co-chairs monitored the listserv and occasionally posted remarks, answers, and clarifications. There were no posts related to member instigated questions from BOD members.

### *Education Reform Information Internalization*

The ETF ER recommendations were internalized by the BOD members during discussions and interactions after ETF reports during meetings. Participants reported that any issues or concerns that they were discussed then. Participants also internalized information through interaction and discussions with others. Both intra- and extra-BOD interactions occurred as described in the previous sections. As the participant was interacting, he was interpreting and understanding the information so that it was internalized and could be utilized again. Much of the internalization occurred between other BOD members. The process of receiving and discussing information served to formulate a cohesive, consistent board thought pattern. ER opinions developed over time for some participants and quickly for others. The result of the internalization was participant opinion enhancement of the ER decision necessity and correctness.

All but one BOD member voted for the final ETF recommendations. All participants agreed that ER was critical for the profession (Gerald, personal

communication, April 17, 2003; Ike, personal communication, April 22, 2003). Some participants commented that **the** results over the next 25 years will prove that ER was the appropriate decision (Barry, **personal** communication, April 16, 2003; Ike, personal communication, April 22, 2003). Some participants pointed to licensure and third party reimbursement progress as **proof** that the profession had already advanced because of the education reform decision. **Published** data and other interviews reveal that those factors had already begun to change **prior** to the education reform decision (Six Hats of Leadership Training, 1999; **NATA Board Books**, February, 1999; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003, Starkey, 1999).

#### ***Participant Information Spread and Internalization***

Participants were **primarily** influenced by other BOD members, with a strong influence from those in the **Background** group who did not make either the ETF or ER decisions. Other primary **interaction** influences were the PEC/JRC, former BOD members, and the ETF. **These** influences were not isolated. Nine individuals held membership in at least two **of** the **PEC/Formal BOD/BOD/and ETF** categories (Table 17, p. 162). **These factors** influenced allowed participant ER information internalization.

Information was **transferred** to participants through formal board reports and formal and informal **participant** discussions (Appendix D). ER contextual issues were identified from board **meeting** minutes prior to 1994. ER related factors began with the 1987 decision to seek **AMA** accreditation. In 1990 the AMA recognized athletic training

as an allied health profession. The stated **purpose** of AMA recognition was to facilitate CAHEA accreditation of athletic training **education** programs. The second factor was the NATABOC decision to study the internship **route** to certification. Other contextual/environmental factors discussed **in** Chapter 3 that related to educational reform were professional image and **political issues**. Participants spread and internalized information during formal and informal **discussions**.

In 1994 the BOD identified a need **to study** athletic training education. An ETF was created. The ETF disseminated, or **spread**, information in writing and in progress reports to the BOD. This information and **the** resulting BOD discussions created information diffusion, or participant **internalization**. The result was a group of participants familiar with and accepting **of the** rationale and recommendations based on the explained need for the preliminary **recommendations**. Some of the participants, Group 2A, already felt that ER was critical and **the TF** recommendations reinforced that opinion. Group 2B felt strongly that ER was **needed**, but the interactions served to create and reinforce their opinion as well as creating **a few** process concerns for discussion. Group 2C was initially neutral, but the **organizational** culture and information transfer convinced them of ER importance and created their **own** ER opinions.

The ETF Co-Chairs regularly **disseminated** information to the BOD (Gerald, personal communication, April 17, 2003). **These** presentations and formal and informal discussions allowed participants to **internalize** the information and develop a more homogeneous ER opinion that was **similar to** the majority ETF opinion. The BOD internalized ER need and ETF **recommendation** appropriateness to form a fairly cohesive

support group. This group was maintained through information internalization.

Participant internalization continued as the preliminary recommendations were spread to NATA members. This was especially evident as February 1995 BOD Board Book document with a report titled Education Task Force Issues: What To Do—What To Say.

Information spread to NATA membership was different and much less frequent. Prior to ETF formation, ER information, including the Summary Long Range (Lawrence-Leitner, 1989) and Visionary Strategic Plans (Lawrence-Leitner, 1990), was not disseminated to the NATA membership except through individual conversations by BOD members. The only mention of ER related issues concerned the American Medical Association accreditation process. Following ETF formation in June-September 1994, the primary ER related dissemination consisted of ETF comments by incoming BOD members and presidential candidates about the importance of enhancing and improving athletic training education. A single article in February 1995 describes the ETF progress including mission, scope, structure, members, progress, and future plans (Education task force report, 1995). In 1996 a pair of articles describes the ETF preliminary recommendations and rationale (McCullan, 1996). In 1997, another pair of articles describes the final 18 ETF recommendations that had already been approved by the BOD with rationale (NATA education task force, 1997).

Published documents show no difference between the preliminary ETF recommendations to the BOD and the published recommendations. The ETF and BOD members presented the ER recommendations to NATA members at district meetings. This format created an increase in participant internalization. At the district meetings,

conflicting opinions were dismissed as labor force arguments (John Baxter, personal communication, September 20, 1998). Labor force arguments had already been determined an inappropriate issue by the ETF and BOD in the planning for ETF recommendations and town hall presentations (Chris, personal communication, April 17, 2003). Participants stated that there were few differing opinions brought to their attention (Larry, personal communication, April 26, 2003; Larry, personal communication, April 26, 2003; Ike, personal communication, April 22, 2003).

ETF preliminary recommendations were then refined. Two participants asked for district votes to approve or vote against the ER recommendations. Other participants followed their vision about what the profession needed from the internalized information. The published recommendations were identical to the ETF preliminary recommendations presented to the BOD. Some published rationales for the recommendations differed from the original rationale provided to the BOD. Most of the differences seem to be space saving for publication, as the content did not differ much (Appendix J).

There was a slight difference between the preliminary recommendations and the final ETF recommendations. The main difference between the final ETF recommendations to the BOD and the published recommendations occur with specific length of the rationale given for each recommendation. One recommendation was also added.

The athletic training listserv provided ample opportunity for NATA member discussion about ER issues and athletic training problems. Many individuals posted items for and against internship and curriculum formats. No BOD member or participant

participated in the discussions. Occasionally an ETF Co-Chair or ETF member commented on the incompleteness of the decision process at the time. The purpose was dispelling rumors and relating that the format of ER had not been selected yet, regardless of the rumors (Ray, Elimination of Internships Rumor, 2 Feb 1995 Listserv posting).

The final ETF recommendations and rationale were provided to the BOD in November, 1996 (NATA BOD Meeting Minutes, December, 1996). Participants commented that they knew prior to that what all the recommendations were and that there were no surprises. The recommendations were packaged as a unit with rhetoric underscoring the importance of voting for all the recommendations because of their interconnected nature. Some participants felt like there were issues with a few of the recommendations, but it was stated to the BOD that the recommendations were designed to be taken as a group and it was problematic to separate them (Owen, personal communication, April 21, 2003). There was one BOD member who abstained from the ER vote after many discussions with the president (Ike, personal communication, April 22, 2003; John, personal communication, April 22, 2003).

Information internalization occurred only between participants and their influences, although two participants specifically mentioned ETF influences who strongly disagreed with the ETF recommendations at the time. The information transferred through board reports, board book handout materials, publications, and discussions about the education reform process and decisions were utilized by the participants to influence their opinion on education reform and their ultimate vote on the education reform decision. Formal board reports/presentations and resulting discussions as well as other

interactions were primary participant influences. The importance and results of these have already been discussed. The emergent concepts from discussion importance will be briefly delineated in the following section.

### **Study Summary/Overview**

#### ***Discussion Importance and Effects***

Participants considered discussion with influential others very important. Discussions provided two influence types. First, the conversations informed concepts for issues that were impermissible for board room discussion. Secondly, discussions provided information and reinforcement for participants' educational reform opinion and vote. These mechanisms will be further examined in the following paragraphs.

***Informed context.*** There were many contextual/environmental issues surrounding the education reform decision process. These were identified in Chapter 3. One of the most important and often brought up contextual issues by participants and members in listserv discussions was the lack of job opportunities because of an oversupply of athletic trainers. This issue is legally protected by anti-trust laws and was immediately stopped by legal counsel present at all BOD meetings if brought up (Gerald, personal communication, April 17, 2003). However, the membership did not understand that the issue was protected. Oversupply for the demand was perceived as leading to poor job conditions and low respect for the profession. Members discussed this with their BOD district directors and the athletic training listserv.

Informal discussions became an important mechanism for information transfer and interpretation. As Gerald (personal communication, April 17, 2003) stated,

informal discussions that went on at dinner or breaks that were important. For example, so numbers were an issue. What do you do? If you stiffen the requirements for a college or university to provide a quality curriculum, fewer colleges and universities will be able to do that, so that would have an effect on the numbers. If you increase the difficulty of the coursework that a curriculum demands, fewer students would have a chance of completing it. That would have an effect on numbers. That was foremost in our thoughts. So when we came back and were talking about the educational concept [in a board meeting], you knew full well.

Another contextual issue was the political struggle between the BOD and NATABOC. The BOD felt that they were responsible for the entire profession of athletic trainers, including the athletic training credential which they had initiated in 1970. NATABOC legally separated from the NATA. NATABOC administers the athletic training credential by determining qualifications for the national exam, exam scoring, and continuing education requirements. The BOD has no formal influence in NATABOC actions. It was clear to at least some of the participants that NATABOC had already determined that the internship route to certification would be eliminated although when that would occur had not been determined (Karl, personal communication, April 18, 2003; Larry, personal communication, April 26, 2003). The elimination of the internship programs for a number of reasons, including NATABOC stance, was informally discussed between participants. Internship elimination by the standardization of education through one educational route to certification was seen as the ETF charge by some participants (Gerald, personal communication, April 17, 2003).

Also, the BOD had pursued educational accreditation and sought an accredited body to replace NATA-approved curriculum status. The American Medical Association recognized athletic training as an allied health profession in 1990 so athletic training



educational programs could be accredited under CAHEA (Behnke, 1991). The projected initial CAHEA/CAAHEP accreditation of athletic training educational programs was 1993. In 1994, when the ETF was formed, there was already a formal nationally accredited process linked to the American Medical Association for maintaining educational quality. A natural progression of education reform discussions was to combine internship program elimination with CAHEA/CAAHEP athletic training educational program accreditation. This was especially possible as PEC members became JRC members, and the PEC/JRC, especially former PEC chairs and the current PEC/JRC chair served as major influences to the participants as previously discussed.

Participants discussed this information. As Gerald (personal communication, April 17, 2003) stated, "when the NATA board had a subject come up they liked to beat it to death, to rehash and rehash." In this way, informal discussions informed participant understanding of the importance and context of the organizational issue and context. Informal discussions also reinforced collective participant opinions (board opinions) about issues which were developed through information provided in board presentations and formal and informal discussions to maintain organizational culture.

*Collective opinion reinforcement.* Participants each had a personal opinion about education reform. Participants were careful to make sure that they were visionary and served the needs of the profession rather than themselves (Owen, personal communication, April 21, 2003). Based on this attitude, participants stated that the board was neutral and made its mind up on ETF facts (Harry, personal communication, April 25, 2003; Ike, personal communication, April 22, 2003). Collective opinion through

organizational culture was developed and maintained through presentations and handouts at board meetings and informal discussions.

The need for education reform was determined through collective examination of professional image and political issues as described in Chapter 3. The board saw education reform as a method of solving or influencing almost all professional issues at the time. Informal discussions about education reform were primarily held by intra-BOD discussions. Extra-BOD influences were divided into four social network analysis groups as discussed earlier in this chapter. The groups include PEC/JRC members, former BOD members, ETF members, and others. The groups were all linked to educational standards, mainly to curriculum/accreditation efforts.

Board discussions were extremely important for some participants in increasing personal comfort level with the education reform decision and decision need—thereby creating a collective board opinion. Conversations provided new information about implementation aspects, ETF recommendation specifics, and rumor dispelling (Harry, personal communication, April 25, 2003; Ike, personal communication, April 22, 2003; Larry, personal communication, April 26, 2003; Owen, personal communication, April 21, 2003). The information provided in discussions was very supportive, reinforced participant opinions, and increased clarity of the necessary direction for ER (Barry, personal communication, April 16, 2003; Ethan, personal communication, April 16, 2003; Frank, personal communication, May 10, 2003; Larry, personal communication, April 26, 2003; Marshall, personal communication, April 24, 2003; Owen, personal communication, April 21, 2003; Paul, personal communication, April 19, 2003).

Information internalization made it easy for participants to justify the educational reform change (Paul, personal communication, April 19, 2003). The information internalization through interaction resulted in a collective board opinion that ER was necessary. The actual mechanics of the reform, the final ETF recommendations, were supported 14-2 by the ETF. They were also supported almost entirely in the BOD. The reservations that participants expressed had to do with implementation of specific requirements, such as the Certificate of Additional Qualification, rather than the ETF recommendations (Owen, personal communication, April 21, 2003). There was one participant who also served on the ETF who felt that there were unresolved implementation issues that needed clarification prior to the actual ER decision. He eventually abstained from the vote after discussion with the board and the board leadership, and the ETF recommendations were passed as a package 9-0-1 (Ike, personal communication, April 22, 2003; NATA BOD Meeting Minutes, December, 1996).

### *BOD Philosophy Changes*

The BOD ER opinion was that there were many problematic issues within the profession that educational changes could influence. As discussed previously, BOD philosophy changed about ER over time. Within the BOD, there were a few participants who felt very strongly that education reform must occur from the very beginning of their terms. They supported the ER decision process and components in entirety. They did not have many influential discussions as their opinion remained consistent throughout the education reform decision process (Karl, personal communication, April 18, 2003).

A few participants felt that education reform was not necessarily a critical issue at the beginning of their terms. Their opinion was clarified and converted over time through information presentation and discussions with influences. These individuals realized through the information and discussion provided in the education reform decision process that the concepts were critical, and were very supportive of the final education reform decision in 1996 (Barry, personal communication, April 16, 2003; Larry, personal communication, April 26, 2003).

Many participants supported the need to evaluate athletic training education at the beginning of the education reform decision process. These participants noted that they did not realize at the beginning of the process how overreaching the effect was going to be and although they were basically supportive, they had questions during the process. These questions were addressed and resolved through discussions and information creating a collective board opinion. During the education reform decision, these participants were fully supportive of the basic concepts, although there were a few questions about specific implementation aspects. These questions were resolved through interaction. Nine of the 10 BOD members were in full support of the ETF final recommendations by the ER vote.

Following complexity theory principles the ER recommendations and elimination of the internship route to athletic training certification followed a set and predictable pattern that was probably not recognizable at the time. Influences to BOD member ER internalization and opinions were overwhelmingly related to curriculum/accredited routes to certification through membership in a curriculum program, the PEC/JRC which serves

to review curriculum/accredited athletic training education programs, former BOD members who maintained the history of the NATA focusing on improving the quality of education through formalization of programs such as the curriculum program, NATABOC who was already planning to eliminate the internship route to certification, and other related organizations. BOD organizational culture and member interaction served to enhance that process as information was spread and internalized by BOD members within the culture. Information was disseminated to the members after decision had been made.

BOD members are the NATA leaders who perceive themselves as visionaries responsible for keeping the needs of the athletic training profession and advancement of the profession above the needs of any single person. The BOD is an organizational entity sharing common interests and knowledge between BOD members. BOD member actions and BOD actions through meeting and interaction social negotiations formed an organizational culture.

Part of the organizational culture focused on the BOD as a single unit supporting all decisions after the vote. By focusing on unanimous votes, the leadership strove to minimize controversy within the board and the NATA. BOD members interacted formally and informally during meetings, conference calls, other social events, and personal contacts. Participant interactions formed interpersonal relations and communication networks. These interactions and networks created an information and opinion sharing mechanism related to participant ER beliefs which influenced the final vote.

Some BOD members felt responsible for voting in the best interests of their district according to the wishes of the district members who elected them. Participants also communicated with various non-BOD individuals and groups to gain information and opinions about the education reform issues. These discussions influenced participant beliefs and voting on education reform based on the importance of those discussions to the participants. Networks included BOD members, PEC/JRC members, former BOD members, and ETF members. The discussion participants and effects, information sharing, and changes in ER contextual/environmental issues led to BOD philosophy changes over time. All of these issues formed a part of the complex nature of the education reform decision by the BOD and influenced the educational reform decision.

The result of the BOD culture, participant interactions within and outside of the BOD, and contextual/environmental changes over time was a change in the BOD ER philosophy. The basic ER concept had been important to many of the participants at the initiation of the ER process. As the ETF worked and reported to the BOD over time the participants became believers in the importance of the specific ETF format for ER rather than generally supporting the process (Appendix B). Information was an influential factor to this philosophy change based on the organizational culture, information internalization, and shared meanings.

In this way, the BOD organization used information and information transfer to adapt, self-organize, self-regulate, and co-evolve with the environment through maintenance of organizational culture, shared meanings and conventions, and feedback to BOD members for norms, expectations, and information internalization. Emergent

properties, including informed context, conventions created increased coherence, or sense making from which the BOD functioned. The organization set the circumstances in motion to flow towards the end result of the ER decision process based on the emergent organizational properties, interaction characteristics, interpersonal relations, and the context/environmental circumstances surrounding the ER decision process.

## Chapter 5

### Conclusion

#### *Complexity Theory and the Board of Directors Education Reform Decision Process*

The current study analyzed organizational decision making and information transfer with a complexity framework for the NATA BOD ER decision. As discussed in Chapter 1, complexity theory explains system behavior over time within the surrounding environment and context. Component interactions and system and environment adaptations are analyzed to identify emergent properties. Emergent properties are created through component interaction, and are more than, and different than, the individual components that created them. The result explains system behavior through system adaptations over time and system and environment/context modification analysis.

Critical system behavior components include feedback, adaptation, self-organization, self-regulation, system and environment co-evolution, emergence, and coherence. These components are present within the system as well as the context/environment in varying degrees at different times. The components are examined by evaluating critical system and component influences and interactions to create a theoretically based explanation which is as accurate and complete as possible (Elliott & Kiel, 1999; Hertz, 1999; Jervis, 1997).

As the BOD ER decision process evolved, feedback, adaptation, self-organization, self-regulation, co-evolution, emergence, and coherence were found to vary over time. Interaction and information transfer played critical roles in the ER decision process evolution and BOD function within that decision process. ER

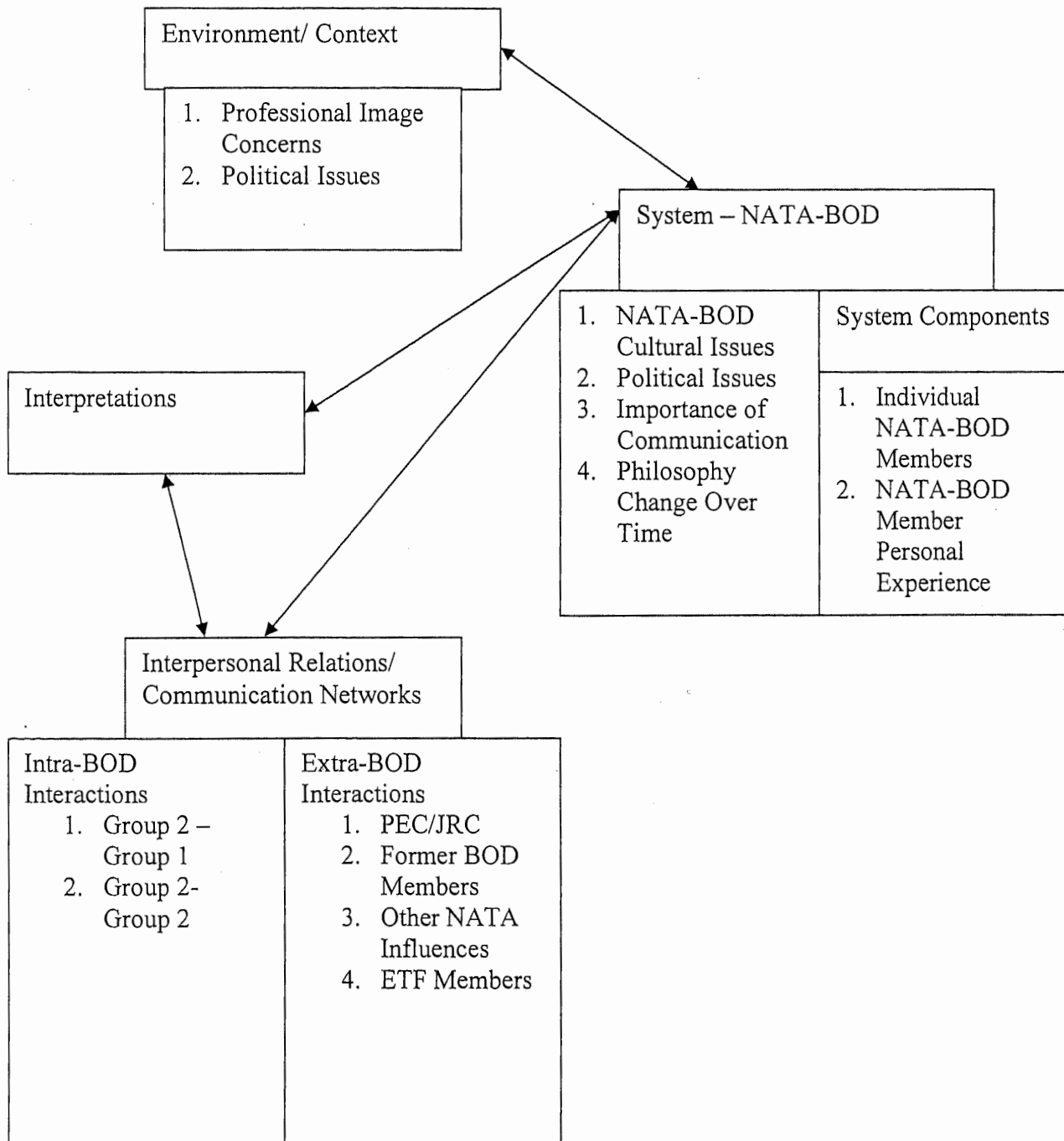


context/environmental influences were discussed in Chapter 3. BOD interactions and information transfer specifics in relation the ER decision process were analyzed in Chapter 4. They will be summarized and combined in Chapter 5. The result is a summary of the total picture of BOD ER decision making in concert with complexity theory, organizational analysis, and information transfer frameworks. The combination of influences to the ER Decision Process can be seen in Figure 11.

The BOD acted as an entity rather than isolated individuals. It acted and reacted to the context/environment as well as individual, linkage, and system changes during the ER decision process. As described in Chapter 3, the ER decision process context/environment included educational and political issues for health care, the athletic training profession, and the NATA. Some of these issues included professional image concerns, a perceived need to standardize the educational process, state credential and third party reimbursement issues, and other educational related issues. The context/environment circumstances set the stage for further ER developments, interactions, and events. These developments, interactions, and events were created and emphasized through the BOD organizational culture lens.

Interwoven with ER context/environment were individual BOD members and the organizational culture. Participant's individual contexts included beliefs, experiences, interpersonal relations, and interactions. These individual contexts affected interpersonal relations and interactions between BOD members and influential others. As a result, the

Figure 11. NATA-BOD educational reform decision influences: Complexity outline.



system and system links were modified. One adaptation was the organizational culture related to ER.

The BOD culture developed and maintained individual linkages and system changes as it was influenced by interactions. Organizational culture was created through participant interpersonal relations/interactions and interpretations of various events and beliefs. Individuals interacted with others. Influences to participants formed networks. Within networks, influential others shared information which was interpreted and internalized by participants. Many members of the participants' networks overlapped forming social networks common to many participants.

As information was internalized through social network interaction, participant beliefs and opinions were modified, and participant ER beliefs became more homogeneous between BOD members. This resulted in promotion of BOD professional goals. Because organizational culture was a component of the process, ER beliefs became more homogeneous even as BOD members were completing their terms and being replaced with new BOD members.

### ***Information Transfer and the BOD ER Decision Process***

Information is a strategic resource in organizational and agent interactions (Achleitner & Grover, 1988; Kast & Rosenzweig, 1970). Information is critical to organizational networks and system relations because it is the medium through which beliefs and interpretations are modified. Information is transferred in complexity organizational analysis through feedback, self-regulation, self-organization, emergence, and coherence. Information transfer between system components, or participant BOD

members, creates the knowledge and impetus for component interaction and system adaptation (Elliott & Kiel, 1999). Social systems evolve and emerge through communication (Mokros & Ruben, 1991). Communication links are formed between participants and their networks for information sharing and to maintain organizational culture (Achleitner & Grover, 1988).

Each participant had an individual communication network composed of personal influences for ER issues. Significant overlap exists across participants' communication networks that were maintained through organizational culture. There were a number of influences to individuals who also influenced other participants. These influences formed a social network in which combined participant influences were analyzed. The result was a picture of the primary influences to the participants and participant groups.

Greer's information transfer process describes the way information is shared, communicated, or transferred between participants and networks (Grover et al., 1997). The information transfer process is a linear continuum of information creation, production, dissemination, organization, diffusion, utilization, preservation, and destruction. An issue which developed through the literature review was the overlap in various dissemination and diffusion definitions. The current study has proposed clarifying dissemination and diffusion with different terms to standardize the definitions and meaning.

To accomplish this, in this study, spread replaces the term dissemination and internalization replaces diffusion. The current study defines information spread as the passage of information from one source, site, individual, or network to another.

Understanding or further use is not required for information spread. However, information spread is difficult to measure unless the researcher has access to all communications or the information has been used. For information to have been utilized, information spread must have occurred.

Information internalization replaces the previous term diffusion. Internalization is a term designed to include participant understanding. Internalization might also include information conversion or adaptation which must occur for participants to utilize information with higher order understanding. For higher order thinking, reasoning, and understanding to occur, information must be internalized prior to being utilized.

Besides standardizing key definitions, another methodology difficulty was applying Greer's information transfer theory. A linear process of information transfer is difficult to follow because a piece of information may be created, interpreted, adapted, and modified by each individual user prior to transfer or use (Ferguson, 1999). As information is interpreted and modified, it no longer has the exact characteristics as the original information bit.

Choo (2000) briefly identified this problem when he stated that the information transfer process may not be linear. The current study proposes an information transfer process modification. The process is developed as a circular, adaptive process. This circular process may eliminate the accuracy issues inherent in following modified information through a linear process, although tracking changes in information bits after they occurred is not an easy task.

This study analyzed available information from published literature, NATA BOD Meeting Minutes, NATA BOD Meeting Board Books, and athletic training listserv postings. Information from BOD Meeting Minutes and Board Books was triangulated with influence interview data. This formed the information base of BOD members. Both public information and interview data were important for this study because neither in isolation provided a complete picture of events.

Participant lenses including organizational culture affected information interpretation and assessment. Organizational culture was a significant factor as participant influences were partially determined by organizational needs, beliefs, and shared meanings. The information from BOD Books was then compared to published items and listserv postings to identify the information that was transferred to the members. The results were discussed thoroughly in Chapter 4. The results will be further summarized following the Research Questions section.

The current study analyzes influences, networks, and information transfer during analysis of organizational decision making. Doubtlessly, ongoing developments in information technology will yield new techniques. The addition of new techniques and increased information technology support for current and upcoming methodologies will yield new qualitative and quantitative analysis approaches. These approaches will provide for increased understanding of complex circumstances. An example is the inability of researchers to effectively analyze artificial intelligence and non-random but subtle patterns such as fractals until the development of complexity mathematics. As new

techniques are developed, the same pattern should hold true in complexity and organizational analysis methods.

### *The Research Questions*

The research questions were designed to clarify and explain the BOD ER decision process through complexity analysis of the organization and the environment over time using information transfer theory. The basic research questions were previously identified in Chapter 2. The questions and their significance are considered in this section.

The most pertinent question to initiate the research process was how did the BOD make the decision to implement educational reform? The decision result is common knowledge and has been published in a variety of formats. However, the decision process has not been addressed. Specifically, the factors and system links that influenced the ER decision are important to explaining in context what occurred. The study could not develop further analysis until how the BOD ER decision was made had been determined. The result provided a foundation for the remainder of the study.

The second critical question included information transfer during the ER decision process. The information transfer process is not a factor if information is not transferred between influences and participants. What information transferred and how between participants and influences allowed linkage and social network identifications. This formed the basis of system and component analysis. BOD members formed the organizational individual components. System linkages were the participant interactions and interrelations. Linkages between participants and influences created emergent system properties that were not present prior to the interactions.

Emergent properties were developed to sustain and maintain organizational importance, and inform participants of that importance. Participants transferred information and acted through linkage interaction while emergent properties sustained, maintained, and informed about ER. Participant ER actions included interpretation, internalization, information transfer, and decisions. Because influences and networks affected participant interpretation, they may have had an effect on the BOD decision process. If an effect existed, the BOD would have been modified during the decision process.

Finally, BOD information transfer about ER and the decision process to the NATA members was analyzed. This provides an important triangulation of leadership values and principles during a potentially critical professional decision made by the NATA leadership on behalf of the members. It also provides the final complexity analysis picture of changes made within the organization and procedures which might have occurred as the organization reflected on the events and results of the ER decision process.

Complexity analysis performs an exhaustive study of an organization, organization events, in this case a decision process, organizational and component links, influences, and the emergent properties from those components and links. The hallmark of complexity analysis is the ability to utilize theory from the organization as a whole and component interactions to explain how and why system and environment/context adaptations occurred.



To do this effectively, this study must answer the third question, what, if any, were the effects of the ER decision on the BOD? The ER decision had far reaching impact on the athletic training profession by modifying the entire educational process. The primary effects were eliminating the internship educational programs and creating increased requirements and specifics for former curriculum and accredited athletic training education programs to satisfy. A third organization, the Education Council was formed to serve as a clearinghouse for all educational issues. The educational changes resulting from a 2 year decision process with direct effects from a minimum 7 years of background. The participants overwhelmingly identified the ER decision as one of, if not the, most important decision they had made in the past 30 years.

The ER decision process was utilized to address BOD and NATA members concerns during the years prior to and during the decision process. The context/environmental concerns included a large number of educational and political concerns. Many of these concerns were national concerns, such as professional image, difficulties in reimbursement and state credential issues, and lack of jobs. These concerns, added to BOD educational language conventions and educational philosophies, created a circumstance which increased the potential significance of the ER decision process.

ER decision significance led to increased interaction, interpersonal relations, and communication between the ETF and BOD than had been standard with other task forces. The professional significance of the ER decision and increased interaction may have led to BOD, BOD function, and linkage and interaction modifications. Professional

significance and potential emergent properties may have led to a change in BOD decision making or information transfer to the members. This would identify a change in organizational function related to knowledge and experience gained during the decision process.

Information utilization or use is important in analyzing the information transfer process. Sometimes use is the only method of determining information internalization or diffusion. Organizational modifications in information transfer to members can only be identified after analyzing ER process information transfer. A potential change in information transfer may be a factor of organizational knowledge and increased efficiency for important decisions. It may also be a factor of information transfer techniques.

For example, the athletic training listserv was initiated in 1993. Early adopters included some influences to the ER decision process. The ETF Co-Chairs monitored the listserv for ER related discussion items, issues, and arguments. Over time, more athletic trainers adopted the listserv innovation. As ER significance increased over time preliminary and final public ETF recommendations were published and presented. As described in Chapter 4, the number of listserv postings related to ER and ER issues increased. The postings were often uninformed and “flamed” other individuals or opinions. Occasionally, authorities such as ETF Co-Chairs or NATABOC members informed the listserv about posting inappropriateness or inaccuracy. The BOD did not make any official comment. Individual BOD members did not comment publicly.

These reasons indicate the importance of the final research question, was the educational reform decision information transferred to the individual members of the NATA? A complete organizational analysis of an issue with the breath and significance of the ER decision requires study of the entire decision process through utilization by transfer to the membership. This completes ER information spread and internalization through public decision information utilization.

The research questions were answered by this researcher in data triangulated from BOD participant interviews, NATA BOD Meeting Minutes, published literature, and the athletic training listserv. A grounded theory methodology entailed generating a theory and then testing its validity by comparing it to the data. As more data were collected, the theory was modified. In this way the theory was grounded for accuracy in the triangulated data. The result utilized the theoretical constructs of complexity, information transfer, and organizational analysis theories to the BOD ER decision process. In doing so it added to the literature base for those fields through relating system and environmental adaptations over time.

### *Summarized Conclusions*

The BOD is an organizational system which, like any organizational system, functions within a societal context and environment. The BOD interacts with and adapts to the context/environment over time. The BOD also has the capacity to create adaptations in context/environment as well, as the systems interlink and may influence each other. The BOD interacts with system components within organizational norms and culture. The culture is created and maintained through system relations such as meetings.

System relations for human organizations include interpersonal relations and interactions between the individuals forming that system. In this study those individuals are the BOD members of the NATA.

The BOD self-organizes and self-regulates through adaptive mechanisms. These mechanisms are driven by interaction feedback which is required for system and component adaptations. Self-organization and self-regulation lead to system modifications. The modifications are adaptation of organizational culture and work as they affect component relations and BOD actions. Feedback, adaptation, and BOD member interaction are also critical to emergent system properties. Emergent properties are the key to complexity research because they are not visible with the study of either the system as a whole or the individual components in isolation.

The ER decision was made through the influence of a variety of factors and system linkages. Chapter 3 detailed contextual/environmental influences. Chapter 4 detailed interpersonal relations/interactions and information transfer. These organizational factors meshed together and ultimately influenced the BOD organization, the individual components, and the ER decision process. This is combined and summarized in the following pages.

Individual BOD members and BOD organizational structure are affected by interaction, political, and cultural issues that affect BOD interpretations about knowledge and events, thereby influencing beliefs and opinions. Interaction/information, political, and cultural issues form the basis from which individual BOD members interpret, act, and react to a changing environment (Figure 11, p. 201).

Interactions, or interpersonal relations, among BOD members create information sharing and allow BOD interpretation modifications. Interpersonal relations and BOD member interactions form influence networks that aid in knowledge sharing and organization homogeneity. For example, initially there were some BOD members who felt that ER was not really a critical issue. Over time, all BOD members came to the conclusion that ER was critical for the profession. Specific issue influences vary per BOD member (system component) and by topic. BOD political and cultural issues also influence topic specific context and influence BOD interpretations.

The BOD organizational culture is based on the structure that is created and maintained by BOD member interpretations, actions, and interactions. The BOD system is affected by the organizational culture, and functions in accordance with the norms of that culture. The system is tied together, functions because of, and is influenced by the information that is available about the context/environment and the BOD as a system which influences individual and network BOD interpretations. BOD organizational culture is maintained by leadership philosophy, formation of behavioral and belief norms, information sharing that led to increased homogeneity of beliefs, seating arrangements, frequent contact and interaction, and influences who all exhibited similar thoughts on ER. Table 11 (p. 120) summarizes how this occurred within the BOD education reform decision.

Although the information transfer process has rarely been utilized in organizational analysis it is the epicenter of relations among the context/environment, BOD system, and BOD member ER interpretations. All information is considered,

interpreted, adapted, and utilized or discarded by BOD members based on their previous experiences, the context/environment of the situation, topic, and information, and the interrelations between the BOD system components of cultural issues, political issues, and interpersonal relations.

However, because of the links between context/environment and system components, the information may be interpreted differently at various times by various BOD members. The information internalization and adaptation is individualized per participant. Over time and interaction, the participants became philosophically closer to the common belief that ER was critical and that the ETF recommendations were the best possible solution with minor questions. This occurred through interpersonal relations and interactions between participants between each other and the influences to each participant's network.

Individual participant's network influences overlapped. The primary influences were intra-BOD and extra-BOD individuals. Intra-BOD influences included other BOD members. Extra-BOD influences primarily included PEC/JRC members, former BOD members, and ETF members. The influences overlapped between participants (Table 18, p. 166). These influences were a factor in participant interpretations of events, ideas, and the need for and identified ER specifics.

BOD interpretations continue through further interactions over time, and eventually, the organization reaches homogeneous stasis. At this point the BOD majority reaches a similar conclusion, consensus is attained, and the culture is preserved for a time. This is not a linear process, as the information changes through interaction and

interpretation over time. Information transfer through interaction and interpersonal relations facilitates the development of consistent opinions between individual BOD members.

### *Study Result Specifics*

The current study has shown the usefulness of a non-linear information transfer model which accommodates for the problems (e.g., inaccuracy of information tracking because the information changes with each individual) of the linear information transfer model. In this study the information transfer process combined with the context/environment early in the ER process. This led to the 1990 American Medical Association CAHEA accreditation of athletic training education programs. Following that in 1994, the BOD appointed an ETF to study ER. This research identified emergent conventions. These include leadership philosophies, BOD ownership, language and assumed definitions of athletic training education, task force purpose, BOD interpersonal relations, and cultural and political issues. Emergent conventions sustained organizational culture and aided BOD consensus on ER importance and ETF solution adequacy (Table 11, p. 120). The ETF solution was the 18 ER recommendations that were approved by the BOD in December, 1996 (Appendix B).

The combination of information and interactions with context/environment and system components resulted in organizational culture maintenance. BOD information sharing informed participants of the context and importance of the issues and solutions. It also led to increased comfort of participants in ER importance and the need for a particular solution format as there was more discussion and interaction. Interpersonal

interactions combined with system conventions and culture reinforced collective BOD ER opinion. This occurred in part because of the leadership emphasis on consensus votes with no deviations for important issues. It also occurred over time as the circumstances led to conclusions based on the events, interpretations, and interactions.

Participants were divided by time frame and work into two distinct categories. Background Information (Group 1) BOD members were present only for the decision to attempt to replace NATA curriculum approval of athletic training education programs with AMA/CAHEA accreditation. Group 1 members BOD terms ended prior to the ETF decision. Group 1 members had strong ties to PEC/JRC and former BOD members. From 1987 to 1990 the PEC was attempting to gain American Medical Association accreditation status, after which most of its duties were transferred to the JRC. All JRC members were former PEC members. Many served concurrently on both committees until the PEC was disbanded.

The underlying educational concept for Group 1 members was that real athletic training education existed only for NATA approved curriculum programs. This definition then transitioned to American Medical Association accredited athletic training education programs. Group 1 members also were present as the athletic training profession blossomed with an ever increasing number of graduates.

They heard continual presentations from many sources about the profession lacking respect, difficulties with professional issues with competition and alienation from other professions, increasing numbers of graduates, and NATABOC internship education



programs concerns (Adam, personal communication, April 15, 2003; Chris, personal communication, April 17, 2003; Devon, personal communication, April 27, 2003).

Partially because of strong influences from PEC members and similar educational philosophies and definitions, Group 1 participants were very strong in their beliefs that ER was critical to the profession. In this respect, they were similar to Roger's early innovation adopters. As these issues continued to influence the BOD over time and BOD member interpretations, later adopters (Group 2 participants) joined the organizational culture identifying ER importance and task force process solidness as ETF recommendations were defined.

ETF/ER members (Group 2) participants made the ETF decision and/or the ER decision. Except for one member, they were not present for the background information which initially drove the ER decision (Chris, personal communication, April, 2003). Group 2 participants relied on both intra-BOD and extra-BOD interactions to form their ER beliefs. The original ER beliefs in this group spanned from neutral about ER to feeling that ER was critical to the success of the profession. Group 2 was subdivided into three categories based on differences in ER beliefs and participant requirements for interaction. In general, primary Group 2 influences included Group 1 members, the PEC/JRC, former BOD members who were highly supportive of curriculum and accredited athletic training education programs, and the ETF. Many of these influences overlapped between categories, such as the ETF Co-Chair who was an ex-BOD member and PEC Chair (Table 18, p. 166).

Group 2A was influenced primarily by another Group 2A member (Karl) who was directly influenced by Group 1 members and himself influenced a number of Group 2 members. Group 2A required little interaction and the interaction they had served to reinforce their ER opinion. Group 2B was influenced by Group 1 members, Group 2 members, and former BOD members and PEC members. Group 2B required medium to frequent interaction amounts. The interactions served to create and reinforce ER opinions as well as create some concerns about ER specifics. Group 2C was influenced by other Group 2 members, both ETF Co-Chairs, former BOD members, PEC/JRC members, and NATABOC members. They had varied needs for interaction but the interaction served to create their ER opinion.

Influence support for ER criticality and format solidified the path to accreditation. As the ETF was pursuing a set of proposed recommendations for education reform, the BOD received constant briefings from the Co-Chairs which provided the opportunity for solidarity and increased ER belief homogeneity within the system. This follows from the research stating that communication continues until the system reaches consensus, or the BOD members internalize the information (Rogers, 1981). This occurred when the BOD voted to approve the ETF preliminary recommendations.

The BOD continued to identify context/environmental issues relating to the need for ER, which did not change over the ER decision time frame. These included educational/professional image related issues and political concerns. As these issues continued to influence the BOD and participant interpretations, organizational culture and interactions allowed the BOD to become innovation adopters of the need for ER. Early

adopters included the Background group. Later adopters joined the culture identifying the importance of ER and the solidness of the task force process and accuracy of their recommendations causing the BOD educational philosophy to change over time.

The ETF was formed when most participants thought that ER needed to be studied. Some participants had strong feelings about specifics of the needed reforms. Some participants merely felt that education ought to be studied. In part, the purpose of the ETF was to provide a single educational route to athletic training certification, thereby eliminating a route which caused problems in a variety of educational/professional and political contexts. Over time, meetings, and task force presentations, the BOD became convinced that ER was a requirement, that the proposed solution was the best solution, and that the route that was being taken was the optimal route.

After the BOD collective ER opinion was created, it was consistently reinforced through interpersonal interactions, BOD member information and interaction interpretations, and organizational culture maintenance. This led to ER information and ETF recommendation and rationale internalization. The internalized information was eventually spread to NATA members via public formats such as articles and presentations. In this way, the BOD presented a unified front regarding ER importance and basic requirements. The basic requirements were proposed and voted on. Many of the specifics were left to further committees after the ER approval.

The information which was transferred between BOD members and their influences during the ER decision process included information about a variety of

problems that the BOD felt could be adequately addressed through educational modifications and a single educational route athletic training certification. The issues included environmental/contextual concerns such as educational/professional image concerns and political concerns previously identified in Chapter 3. Participant interpretations, interpersonal relations/interactions, and information transfer as detailed in Chapter 4 created and maintained an organizational culture and emergent conventions which aided information transfer and ER opinion homogeneity.

In brief, the BOD had determined that AMA/CAHEA accreditation was a positive replacement for NATA-curriculum approval in 1987. The American Medical Association CAHEA approval process was determined by 1990. By 1994 when the ETF was formed, the BOD felt that studying athletic training education was important because there were a number of political and education related issues which the BOD felt were potentially solvable through control of athletic training education.

The impetus to standardize education was to result in ETF proposals to eliminate all but American Medical Association CAHEA/CAAHEP accredited athletic training education programs. Since a number of ETF members had been PEC members and former BOD members focusing on formal curriculum and accreditation education, a common assumption (though not shared by all ETF members or all participants) was that the ETF would serve to standardize education by eliminating all but accredited programs to give teeth to ER reform (Ike, personal communication, April 22, 2003).

During 1994-1995 the ETF worked on preliminary recommendations. As they ETF worked, the Co-Chairs communicated at every meeting with the BOD. BOD

participants felt that the ETF was working hard, following the charge, and that they served as the experts in ER because of the effort they had put in to the committee. As such, the BOD was presented with updates and information, discussed the information, and continued discussing the information informally. During these interactions, the ER format and recommendations were internalized. As participants stated, there were no recommendations that came as a surprise, they knew of all of them and primarily approved of all of them to standardize athletic training education.

After the BOD approved the ETF preliminary recommendations, the recommendations and the supporting rationale was spread to the NATA members. There was BOD discussion, as well as ETF discussion and presentation of the recommendations and rationale to the membership in that year. However, the ETF/ER participants reported that interactions between BOD members were much more influential than any other source, followed by PEC/JRC members who supported American Medical Association accreditation and former BOD members who felt strongly about the need for ER.

The final ER recommendations provided after information spread to the membership, with explanatory comments, were very similar to the preliminary recommendations. NATA members did comment on the ER recommendations on the listserv, and postings display confusion about the rules, process, changes, and decisions. This confusion was partially addressed by ETF members. BOD members did not post any responses. After the preliminary ER recommendations were spread and member input was considered through district meetings and town hall meetings, the preliminary

recommendations were modified. The changes included the addition of one recommendation and additions to the rationale for the original 17 recommendations.

As discussed previously in this chapter and in Chapter 4, information transfer through interactions and interpretations reinforced the collective BOD ER opinion. The effects of the interactions and interpretations supported the organizational culture which had developed previous to the ER decision process through emergent conventions. The conventions were further developed and solidified through the ER decision process because the issue was a huge issue for the BOD and the profession.

The ER decision did not affect BOD function. The organizational culture had provided a method of addressing complex, controversial issues through task force development and presentations prior to the ER decision process. Task forces were found to be effective ways of addressing issues, but the importance and significance of task force work did not change the BOD at all. BOD links and influences remained the same, developed and maintained through organizational culture and history. Participants felt that the BOD system was not affected in terms of function by the breadth of the ER decision at all.

A few participants reported that the ER decision changed the method of communicating, by revealing the need to be more open and ask for more input from the members. This change can be seen in the change in information provided in publications about the specifics of ER as the ETF provided final recommendations and rationales and as the specifics of ER were initiated through the formation of the EC. As the EC was

developed there were many more articles asking for input and providing skeleton plans for proceeding than there had been through the ER decision process.

This change in information pursuit has been internalized in BOD function. Currently, there is another debate about the need to change the name of the profession from athletic trainer to another title, which was a large part of the professionalism debate that instigated ER. A task force has been formed, led by one of the former ETF Co-Chairs. That task force has posted information to the listserv about the charge, and is currently collecting an internet survey of ATC on their opinion and the reasons for their opinion about the need for a name change (NATA Nomenclature Survey, 2003).

Many Background Information (Group 1) and ETF/ER (Group 2) participants emphasized ER decision criticality. Some participants also acknowledged that they were personally affected as BOD members by the importance and breadth of the ER decision process. The perceived ER decision importance increased the feelings of closeness between participants, very similar to any group going through a difficult experience that draws together to support each other. This again relates to organizational culture maintenance. As explained previously, the ER decision related back to participant education language beliefs, interpretations, interactions/interpersonal relations, information transfer, and individual participant and BOD network influences.

Primary participant influences included other BOD members, PEC/JRC members, former BOD members, or ETF members. These influences combined with the leadership philosophy supporting unanimous votes, the organizational culture that defined beliefs by interactions with BOD members, and the development and maintenance of organizational

culture and belief systems through a number of mechanisms led to participant homogeneity about the need for ER and the specific ETF recommendations. BOD leadership and the ETF emphasized that the recommendations were meant to be approved as a unit and that any deviation would be problematic (NATA BOD meeting minutes, December, 1996).

In part because of the recommendation design and organizational culture pressure, participants with reservations about specific recommendations such as the Certificate of Added Qualification (Provision 2, Appendix B) approved the final ETF recommendations anyway with the understanding that there was still much actual work to be performed by the EC to support the recommendations. A single participant felt that the ETF recommendations were not complete enough to be approved. After much discussion, that participant agreed to abstain. In this way, "the ETF recommendations were approved unanimously" (Ike, personal communication, April 22, 2003).

#### *Further Research Issues*

The current research examined organizational analyses of a specific decision within a complexity framework incorporating the information transfer process. In doing so, the researcher modified the information transfer process and filled in some gaps in organizational analyses and the information transfer literature. However, as usual in research processes, the researcher also determined that there were some issues which require further study within the field. These issues relate to the breadth of the complexity framework and the methodology chosen in concert with the analysis time. They include



initial conditions, system adaptations, and the tracing of information through transformations within a system.

Systems, and human organizations, are sensitive to initial conditions. This study has explained how the initial professional and BOD conditions during Group 1 (Background Information) participant tenure led to the educational language convention and promoted organizational culture. The research was deliberately designed to span from 1990 to 1998. This time frame covered the four years prior to and the four years after ETF formation. Group 1 participant beliefs and recollections were fully explored. However, the American Medical Association CAHEA movement began in the 1970's, was stopped, and begun again in 1987. This condition may have led to different results if the sample time frame had been increased to include all BOD members from those years rather than those with a four year term during the study time period of 1990-1998.

Complexity theory considers the system adaptations through self-organization, self-regulation, and emergent properties. However, there are a number of system adaptations which may not be successful, and therefore, not available for study in a human organization which is in the midst of the critical decision process studied. Adaptations which were not successful would not necessarily be visible through text analysis, and may not be mentioned by participants in relation to a decision process for which the results are currently in process. This issue might be avoided by system observation over time during the decision process rather than text and interview analysis of participant recollections and interpretations after the decision.

Information transfer is a difficult issue within organizations because humans interpret and modify all information to gain understanding and internalize or discard the information. It has already been suggested that the information transfer process is not necessarily linear. This study has developed a nonlinear picture of the influences to information and information transfer as well as replaced terms with a wide range of definition overlap with more precise terms. However, it is still difficult to identify and trace information through many permutations within and between participants. It is not quite as clear as a scan of radionucleotide tracings through a human body.

This issue is compounded by the study design. By necessity because the ER decision process formally began in 1994, participants were interviewed about their recollections and beliefs. During the intervening time, beliefs and recollections may have changed, especially given the decision difficulty. The ER decision athletic training profession final results have yet to be determined. Another important milestone will be reached in January 2004 as internship candidates will no longer be allowed to apply for the national certification examination through NATABOC. This event might change ER decision perceptions. However, the current study is a good snapshot of the process and influences and results at this time. It will be interesting to see if the results are the same in 2014 and what the professional results will be.

This issue is true in all research. Time and new technologies, statistical analyses, and methodologies impact what research is and modify what it has been. The current study strength is the capacity to add to organizational analysis and decision making theories with a complexity framework utilizing qualitative methods grounding the theory

in the data. Information transfer theory incorporation and adaptation increases the accuracy of organizational analysis tools and methods. As always, further research in qualitative and quantitative information and research methods and techniques should increase and modify research capacity.

## References

- 2002 Exam Report. (2003, Summer). *Certification update*. Raleigh, NC: NATABOC.
- A Report from the Education Task Force. (1996, February). *NATA News*, 19-27.
- Achleitner, H., & Grover, R. (1988, Spring). *Managing in an information rich environment: Applying information transfer theory to information systems*.  
Special libraries.
- Altheide, D. L., & Johnson, J. M. (1994). Criteria for assessing interpretive validity in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Alvesson, M., & Deetz, S. (1996). Critical theory and postmodernism approaches to organizational studies. In S. Clegg, C. Hardy, & W. Nord (Eds.), *Handbook of organizational studies*. London: Sage.
- Alvesson, M., & Willmott, H. (Eds.). (1992). *Critical management studies*. London: Sage.
- AMA endorses athletic training as allied health profession. (1990, September). *NATA News Bulletin*. Dallas, TX: NATA.
- Anderson, M., Hall, P., & Martin, M. (2002). *Sports injury management* (2nd ed.). Philadelphia: Lippincott Williams and Wilkins.
- Annual Examination Report: 2001*. (2002). Retrieved October 25, 2002 from  
[www.nataboc.org/ATC/docs/other/reporting01.pdf](http://www.nataboc.org/ATC/docs/other/reporting01.pdf).
- ANSI generic word processing format for windows*. (1996, January 19). Athletic training listserv posting.

- Arthur, W. B. (1995, April). Complexity in economic and financial markets. *Complexity*, 1(1).
- Athletic Training Listserv Archives. (1993-1998). Retrieved June 26, 2003 from <http://lists.indstate.edu/guest/archives/ATHTRN-L>.
- Athletic Training Programs*. (2002). Retrieved October 25, 2002 from [www.cewl.com](http://www.cewl.com).
- Backer, T. (1998). Dissemination in a time of great change. *Science communication*, 20(1), 142-147.
- Becker, H. (1982). *Art worlds*. University of California Press: Berkley, CA.
- Becker, H., Greer, B., & Hughes, E. (1995). *Making the grade: The academic side of college life*. New Brunswick, NJ: Transaction.
- Becker, H., Greer, B., Hughes, E., & Strauss, A. (1961). *Boys in white: Student culture in medical school*. Berkley, CA: University of California Press.
- Behnke, R. (1991, April). NATA "approved" to CAHEA "accredited": The transition. *NATA News*, 4-5.
- Bellin, D. (1993). The economic values of information. *Knowledge: Creation, Diffusion, Utilization*, 15(2), 233-240.
- Berwick, DM. (2003). Disseminating innovations in health care. *Journal of the American Medical Association*, 289: 15, 1969-1975.
- Board of Directors Meeting. (1993, Nov). *NATA News*, 7.
- Board sponsors leadership symposium. (1992, April). *NATA News*, 4(4), 14.
- Calas, M. B., & Smirich, L. (1996). The woman's point of view: Feminist approaches to organization studies. In S. Clegg, C. Hardy, & W. Nord (Eds.), *Handbook of organizational studies*. London: Sage.

- Capra, F. (1996). *The web of life*. New York: Anchor.
- Carl Krein: In the spotlight. (1993, January). *NATA News*, 10-11.
- Carver, J. (1992, July-August). Board leadership: A bimonthly workshop. 2. From 1992  
NATA BOD Board Books.
- Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In  
N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.).  
Thousand Oaks, CA: Sage.
- Choo, D. (2000). Working with knowledge: How information professionals help  
organizations manage what they know. *Library management*, 21(8).
- Clegg, S. R. (1989). *Frameworks of power*. New York: Sage.
- Clegg, S. R., Hardy, C., & Nord, W. R. (Eds.). (1980). *The handbook of organizational  
studies*. London: Sage.
- Cohen, M. D., & March, J. G. (1976). Decisions, presidents, and status. In J. G. March &  
J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway:  
Universitetsforlaget.
- Cohen, M. D., March, J. G., & Olsen, J. P. (1976). People, problems, solutions, and the  
ambiguity of relevance. In J. G. March, & J. P. Olsen (Eds.), *Ambiguity and  
choice in organizations*. Norway: Universitetsforlaget.
- Comfort, L. K. (1999). Nonlinear dynamics in disaster response: The Northridge, CA  
earthquake. In E. Elliott & L. D. Kiel (Eds.), *Nonlinear dynamics, complexity, and  
public policy*. Commack, NY: New Science.
- Crandall, D. P. (1989, September). Implementation aspects of dissemination. *Knowledge:  
Creation, Diffusion, Utilization*, 11(1), 79-105.

- Cyert, R. M., & March, J. G. (1992). *A behavioral theory of the firm*. Cambridge, MA: Blackwell.
- Cynthia "Sam" Booth takes over as new district 4 director. (1995, Aug). *NATA News*, 19.
- David "DC" Colt steps on board. (1993, July). *NATA News*, 4.
- Deetz, S. (1992). Disciplinary power in the modern corporation. In M. Alvesson & H. Willmott (Eds.) *Critical management studies*. London: Sage.
- Denzin, N. K. (1994). The art and politics of interpretation. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N. K. (2000). The practices and politics of interpretation. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N. K., & Lincoln, Y. S. (2000). *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Dobbins, M., Ciliska, D., Cockerill, R., Barnsley, J., and DiCenso, A. (2002, November 18). A framework for the dissemination and utilization of research for health care policy and practice. *The on-line journal of knowledge synthesis for nursing*, 9(7). Retrieved September 25, 2003 from <http://www.stti.iupui.edu/library/ojksn/articles/090007.htm>

- Draper, D. (1996). Ten mistakes commonly made with ultrasound use: Current research sheds lights on myths. *Athletic Training: Sports Health Care Perspectives*, 2(2), 95-107.
- Dutton, J. E. (1997). Strategic agenda building in organizations. In Z. Shapira (Ed.), *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- Ebel, R. G. (1999). *Far beyond the shoe box: Fifty years of the National Athletic Trainers Association*. New York: Forbes Custom.
- Education Task Force issues- What to do, what to say*. (1995, February). NATA Board Book.
- Education task force report. (1995, April). *NATA News*, 9.
- Elliott, E., & Kiel, L. D. (1999). *Nonlinear dynamics, complexity, and public policy*. Commack, NY: Nova Science.
- Elimination of internship rumor*. (1995, February 2). Athletic training listserv postins.
- Enderund, H. (1976). The perception of power. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- Essentials and guidelines for athletic training education programs*. (1991). CAAHEP.
- Ferguson, N. (1999). *Virtual history: Alternative and counterfactuals*. New York: Basic Books.
- Foster-Welch, T. (1996, June). Tony Marek joins the NATA board of directors. *NATA News*, 14.
- Friedman, M. A., & Farag, Z. E. (1991). Gaps in the dissemination/knowledge utilization base. *Knowledge: Creation, Diffusion, Utilization*, 12(3), 266-288.



- Garud, R., & Shapira, Z. (1997). Aligning the residuals: Risk, return, responsibility, and authority. In Z. Shapira (Ed.), *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine de Gruyter.
- Goffman, E. (1967). *Interaction ritual: Essays on face to face behavior*. First pantheon books: NY.
- Greer, R. C. (1987). A model for the discipline of information science. In H. Achleitner (Ed.), *Intellectual foundations for information professionals*. New York: Social Science Monographs, Columbia University Press.
- Grover, R., Achleitner, H., Thomas, N., Wyatt, R., & Vowell, F. (1997, Fall). The wind beneath our wings: Chaos theory and the butterfly effect in curriculum design. *Journal of Education for Library and Information Science*, 38(4), 268-282.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Gubrium, J. F., & Holstein, J. A. (2000). Analyzing interpretive practice. In N. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Guastello, S. J. (1999). Hysteresis, bifurcation structure, and the search for the natural rate of unemployment. In E. Elliott & L. D. Kiel (Eds.), *Nonlinear dynamics, complexity, and public policy*. Cammack, NY: New Science.

- Guidelines for the clinical education of students enrolled in accredited athletic training education programs. (1998, July). *NATA News*, 26-27.
- Hall, N. (Ed.). (1991). *Exploring chaos: A guide to the new science of disorder*. New York: W.W. Norton.
- Hall, P. M. (1985). Assymetrical relationships and processes of power. *Studies in Symbolic Interactionism, Supplement 1*, 309-344.
- Hall, P. M. (1995). The consequences of qualitative analysis for sociological theory: Beyond the microlevel. *The Sociological Quarterly*, 36(2), 397-423.
- Hertz, K. (1999). The chaos of program evaluation. In E. Elliott & L. D. Kiel (Eds.), *Nonlinear dynamics, complexity, and public policy*. Cammack, NY: New Science.
- Holland, J. H. (1998). *Emergence: From chaos to order*. Reading, MA: Helix.
- Huberman, A. M., & Miles, F. M. (1994). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Hunt, V. (2000, May). As internships end, experts offer advice, alternatives. *NATA News*, 8.
- Janesick, V. J. (1994). The dance of qualitative research design: Metaphor, methodolaty, and meaning. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Jervis, R. (1997). *System effects: Complexity in political and social life*. New Jersey: Princeton University Press.
- Kast, F. E., & Rosenzweig, J. E. (1970). *Organization and management- A systems approach*. New York: McGraw Hill.

- Kearns, K. P. (1989). Communication networks among municipal administrators. *Knowledge: Creation, Diffusion, Utilization*, 10(4), 260-279.
- Kelly, K. (1994). *Out of control*. Reading, MA: Perseus.
- Kent Falb's speech on education. (1997, Aug). *NATA News*, 16-18.
- Kiel, D. L. (1994). *Managing chaos and complexity in government*. San Francisco, CA: Jossey-Bass.
- Kiel, D. L. (2002). Knowledge management, organizational intelligence and learning, and complexity. Retrieved September 26, 2002 from [www.utdallas.edu/~dkiel/Fourth-knowledge%20mgnmt.htm](http://www.utdallas.edu/~dkiel/Fourth-knowledge%20mgnmt.htm)
- Klein, S. S. (1989, September). Federal program in educational dissemination. *Knowledge: Creation, Diffusion, Utilization*, 11(1), 3-9.
- Klein, S. S. & Gwaltney, M. K. (1991). Charting the education dissemination system. *Knowledge: Creation, Diffusion, Utilization*, 12(3), 241-265.
- Koehneke, P. (1999, September). Seeking accreditation: JRC-AT offers insight to decision. *NATA News*, 14-16.
- Kosko, B. (1993). *Fuzzy thinking: The new science of fuzzy logic*. New York: Hyperion.
- Knoke, D. (1990). *Political networks: The structural perspective*. England: Cambridge University Press.
- Knoke, D., & Kuklinski, J. H. (1983). *Network analysis*. London: Sage.
- Kroll, J. A. (1995). *Closure in international politics: The impact of strategy, blocs, and empire*. Boulder, CO: Westview Press.
- Lawrence-Leitner & Co. Management Consultants. (1989). *Summary long range plan*.

- Lawrence-Leitner & Co. Management Consultants. (1990, August 7). *Visionary strategic plan*.
- Lemert, C., & Branaman, A. (Eds.). (1997). *The Goffman reader*. Malden, MA: Blackwell.
- Lincoln, Y. S. & Denzin, N. K. (2000). The seventh moment: Out of the past. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Lissack, M. R. & Gunz, H. P. (Eds.). (1999). *Managing complexity on organizations: A view in many directions*. Westport, CT: Quorum.
- Looking for answers in all the wrong places*. (1995, May 11). Athletic training listserv postings.
- Louis, K. S. (1992, March). Comparative perspectives on dissemination and knowledge use policies. *Knowledge: Creation, Diffusion, Utilization*, 13(3), 287-304.
- Louis, K.S. & Jones, L.M. (2001). *Dissemination with impact: What research suggests for practice in career and technical education*. National Research Center for Career and Technical Education, St. Paul, MN.
- Machlup, F. (1993, June). Uses, values, and benefits of knowledge. *Knowledge: Creation, Diffusion, Utilization*, 14(4), 448-466.

- March, J. G. (1997). Understanding how decisions happen in organizations. In Z. Shapira (Ed.), *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- March, J. G. (1999). *The pursuit of organizational intelligence*. Malden, MA: Blackwell.
- March, J. G., & Olsen, J. P. (1976a). *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- March, J. G., & Olsen, J. P. (1976b). Attention and the ambiguity of self-interest. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- March, J. G., & Olsen, J. P. (1976c). Organizational choice under ambiguity. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- March, J. G., & Olsen, J. P. (1976d). Organizational learning and the ambiguity of the past. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- March, J. G. & Romelaer, P. J. (1976). Position and presence in the drift of decisions. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- McCullan, D. (1996, February). Renewing athletic training education: A step into the future. *NATA News*, 17- 18.
- McCullan, D. (1997, February). NATA board takes first step in reform. *NATA News*, 4- 25.
- Midyear NATA board actions. (1992, May). *NATA News*, 4(5), 11-12.

- Miller elected new NATA president. (1992, January). *NATA News*, 4(1), 6.
- Miller, S. J., Hickson, D. J., & Wilson, D. C. (1996). Decision making in organizations. In S. R. Clegg, C. Hardy, & W. R. Nord (Eds.), *The handbook of organizational studies*. London: Sage.
- Mokros, H. B., & Ruben, B. D. (1991, June). Understanding the communication-information relationship: Levels of information and contexts of availabilities. *Knowledge: Creation, Diffusion, Utilization*, 12(4), 373-388.
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- NATA accomplishments during 1991-1992. (1992, April). *NATA News*, 4(4), 12.
- NATA board action summary Jan 30, 1996. (1996, April). *NATA News*, 33.
- NATA-BOD Board Books. (1990-1998).
- NATA BOD Board Book. (1995, June).
- NATA BOD Board Book. (1999, February).
- NATA-BOD meeting and conference call minutes. (1990-1998).
- NATA BOD Meeting Minutes. (1990, November).
- NATA BOD Meeting Minutes. (1991, February).
- NATA BOD Meeting Minutes. (1991, April).
- NATA BOD Meeting Minutes. (1991, June).
- NATA BOD Meeting Minutes. (1992, January).
- NATA BOD Meeting Minutes. (1992, February).
- NATA BOD Meeting Minutes. (1992, June).

NATA BOD Meeting Minutes. (1992, July).

NATA BOD Meeting Minutes. (1992, October).

NATA BOD Meeting Minutes. (1992, December).

NATA BOD Meeting Minutes. (1993, June).

NATA BOD Meeting Minutes. (1994, February).

NATA BOD Meeting Minutes. (1994, June).

NATA BOD Meeting Minutes. (1994, August).

NATA BOD Meeting Minutes. (1994, September).

NATA BOD Meeting Minutes. (1995, March).

NATA BOD Meeting Minutes. (1995, December).

NATA BOD Meeting Minutes. (1996, January).

NATA BOD Meeting Minutes. (1996, November).

NATA BOD Meeting Minutes. (1996, December).

*NATA education council "education reform" process in print press.* (2002, August 29).

Retrieved from [www.cewl.com\ED%20Reform\\_files\process\\_press.htm](http://www.cewl.com\ED%20Reform_files\process_press.htm)

*NATA education council entry-level education change information in print press.* (2002,

August 29). Retrieved from

[www.cewl.com\EC%20Entry%20Level\\_files\ec\\_press.htm](http://www.cewl.com\EC%20Entry%20Level_files\ec_press.htm).

*NATA education task force.* (1995, February 17). Athletic training listserv postings.

NATA education task force. (1997, February). Recommendations to reform athletic training education. *NATA News*, 16-24.

NATA long range strategic plan (1992). Video. *NATA*. Kansas City, MO.

*NATA nomenclature survey.* (2003, Sept. 19). Athletic training listserv postings.

- NATA presidential election slated. (1991, October). *NATA News*, 3(5), 1-3.
- NATA Public Relations Presentation. (2002).
- National Athletic Trainers Association. (1999). *Athletic training educational competencies*. Dallas, TX: National Athletic Trainers Association.
- National directors report*. (1990, May 31-Jun 1). NATA.
- Nelson, S. (1981). Knowledge creation: An overview. *The knowledge cycle*. Thousand Oaks, CA: Sage.
- New members bring combined 50 years of experience to board. (1994, September). *NATA News*, 12.
- Newell, S., & Clark, P. (1990). The importance of extra-organizational networks in the diffusion and appropriation of new technologies. *Knowledge: Creation, Diffusion, Utilization*, 12(2), 199-212.
- O'Connor, B. (1996). Background concepts. In *Explorations in indexing and abstracting: Pointing, virtue, and power* (pp. 1-17). Englewood, CO: Libraries Unlimited.
- O'Shea, M. (1980). *A history of the National Athletic Trainers Association*. Dallas, TX: National Athletic Trainers Association.
- Olsen, J. P. (1976). Choice in an organized anarchy. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- Owens, T. (2001, Fall). *Dissemination: A key element of the ATE Program*. The Evaluation Center, Western Michigan University: Kalamazoo, MI.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Newbury Park: Sage.
- Perley, C. (2001). *Underlying meanings of the physician curbside consultation*. Dissertation from Emporia State University, Emporia: Kansas.



- Pettigrew, A. M. (1973). Decision making as a political process. In *The politics of organizational decision making*. London: Tavistock.
- Pherigo, R., Lee, M. E., Nehman, G., & Eve, R. A. (1999). Environmental regulation versus ecological self-regulation: Implications of complex adaptive systems theory to regulatory policy. In E. Elliott & L. D. Kiel (Eds.), *Nonlinear dynamics, complexity, and public policy*. Commack, NY: New Science.
- Phillips, D. C. (1976). *Holistic thought in social science*. Stanford, CA: Stanford University Press.
- Polkinghorne, D. (1983). *Methodology for the human sciences*. Albany, NY: State University of New York Press.
- Public relations presentation*. (2002). Retrieved October 25, 2002 from [www.nata.org/downloads/publicrelations/2](http://www.nata.org/downloads/publicrelations/2)
- Radner, R. (1997). Bounded rationality, indeterminacy, and the managerial theory of the firm. In Z. Shapira (Ed.), *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- Raiffa, H. (1970). *Decision analysis: Introductory lectures on choices under uncertainty*. Reading, MA: Addison-Wesley.
- Ray, R. (1994). *Management strategies in athletic training*. Champaign, IL: Human Kinetics.
- Rich, R. F. (1979). The pursuit of knowledge. *Knowledge: Creation, Diffusion, Utilization*, 1(1), 6-30.

- Rist, R. C. (1994). Influencing the policy process with qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Rogers, E. M. (1986). Models of knowledge transfer: Critical perspectives. In G. Beal, W. Dissanayake, & S. Konoshima (Eds.), *Knowledge generation, exchange, and utilization*. Boulder, CO: Westview.
- Rogers, E. M. (1995). *The diffusion of innovations*. New York: Free Press.
- Rogers, E. M., & Kincaid, D. L. (1981). *Communication networks: Towards a new paradigm for research*. New York: Free Press.
- Rogers, E.M., & Shoemaker, F.F (1971). *Communication of Innovations: A cross cultural approach*. New York: Free Press.
- Rommetveit, K. (1976). Decision making under changing norms. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- Rosser, M. V. (1999). Economic transition coming of age: Lessons learned in complex contexts. In E. Elliott & L. D. Kiel (Eds.), *Nonlinear dynamics, complexity, and public policy*. Commack, NY: New Science.
- Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Ryan, J. (2003, Summer). Message from the president. *Certification update*. Raleigh, NC: NATABOC.

- Salancik, G. R., & Brindle, M. C. (1997). The social ideologies of power in organizations decisions. In Z. Shapira (Ed), *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Schwartz, P., & Ogilvy, J. (1979). *The emergent paradigm: Changing patterns of thought and belief*. Analytical report of values and lifestyles program. Menlo Park, CA: SRI international.
- Scullion, P.A. (2002). Effective dissemination strategies. *Nurse researcher*, 10(1): 65-78.
- Shapira, Z. (Ed.). (1997). *Organizational decision making*. Cambridge, MA: Cambridge University Press.
- Six Hats of Leadership Training* (1999, February). NATA BOD Board Book.
- Smaha and Max on the future of NATA. (1991, August). *NATA News*, 3(4), 1-2.
- Standards and guidelines for accredited athletic training education programs*. (2000). CAAHEP.
- Starkey, C. (1997, April-June). Reforming athletic training education. *Journal of Athletic Training*, 32(2), 113-114.
- Starkey, C. (1997, December). Education council update. *NATA News*, 14-15.
- Starkey, C. (1999, June). Educational and professional reform. *Athletic therapy today*.
- Starkey, C. (2000, May). Beware the Y2004bug. *NATA News*, 4.

- Stava, P. (1976). Constraints on the politics of public choice. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations*. Norway: Universitetsforlaget.
- Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Town hall meeting on education*. (1995, May 15). Athletic training listserv postings.
- Valente, T. W., & Rogers, E. M. (1995, March). The origins and development of the diffusion of innovations paradigm as an example of scientific growth. *Science Communication*, 16(3), 242-273.
- Waldrop, M. M. (1992). *Complexity*. New York: Simon & Schuster.

Appendix A

General Athletic Training and Professional Terminology Glossary

## Appendix A

General Athletic Training and Professional Terminology Glossary

## ATC- Athletic Trainer Certified

An allied healthcare professional who is educated and skilled in meeting the healthcare needs of individuals involved in physical activity under the direction of a licensed physician.

NATA-BOD- Board of Directors of the NATA (also NATA-BOD)

NATA- National Athletic Trainers Association

Organization for athletic trainers

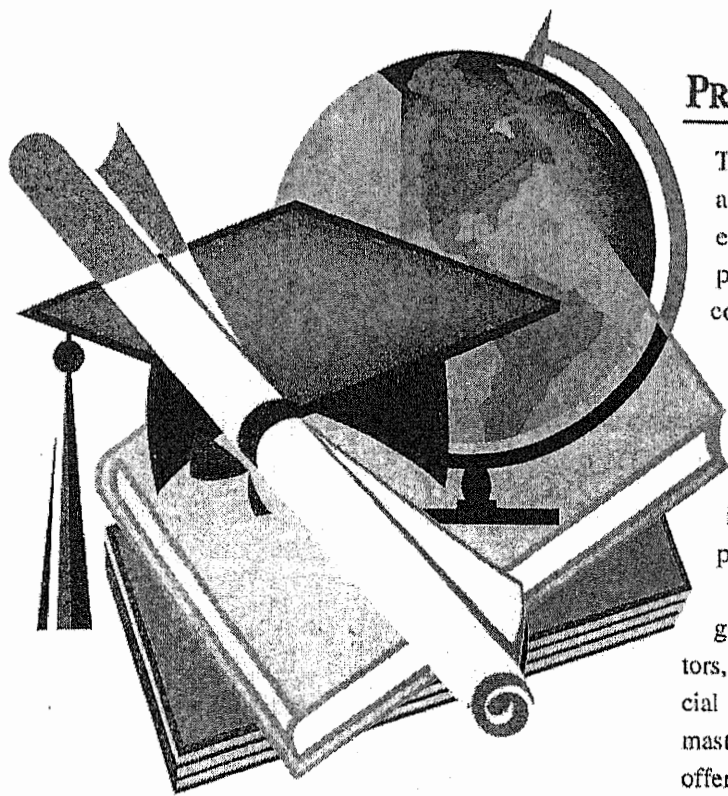
NATABOC- Board of Certification for the NATA

Responsible for development and administering the ATC credential

Appendix B

Recommendations to Reform Athletic Training Education

by the NATA Education Task Force



# RECOMMENDATIONS TO REFORM ATHLETIC TRAINING EDUCATION

*by the NATA Education Task Force*

## ***Editor's Note:***

*These recommendations were adopted by the NATA Board of Directors at its December 1996 meeting in Dearborn, Michigan. See pages 4-6 for the history of Education Task Force and the decision-making process.*

## **PROVISION 1**

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The NATA should work with the NATABOC to institute a requirement, to take effect in 2004, that in order to be eligible for NATABOC certification, all candidates must possess a baccalaureate degree and have successfully completed a CAAHEP accredited entry-level athletic training education program.

## **RATIONALE**

The body of knowledge in athletic training is increasing at a phenomenal rate every year. Evidence of this is provided in part by the number of new books and journals in sports medicine, and athletic training in particular, generated by various publishers every year. Some educators, especially those whose programs lack human or financial resources, find it increasingly difficult to help students master this body of knowledge. The NATA has historically offered two routes to certification one requiring education in the context of a formal educational program and the other a more "hands on" experiential route supplemented by a minimal amount of course work. There is a mounting body of evidence that the second route —the internship route —no longer functions to consistently prepare entry-level athletic trainers in accordance with standards that the profession is (or should be) willing to accept.

Many educational programs that now prepare students via the internship route to certification could, with a few modifications, qualify for CAAHEP accreditation if they were willing to submit to the review process. The newly proposed Education Council (see Provision 8) should stand ready to provide assistance to these programs as they make the transition. This group's assistance would presumably go a long way toward reducing the anxiety that many educators who prepare students by the internship route now have about the process.

## **PROVISION 2**

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The NATA should encourage the development of accredited entry-level post-baccalaureate certificate programs in athletic training and allow these programs to consider an applicant's previous didactic and clinical experience as a partial criterion for admission. The NATA should encourage the development of 2-3, 3-2, 4-1, and other creative models for entry-level education.



## RATIONALE

Not all athletic trainers make the decision to pursue entry into our profession in their freshman or sophomore year of college. Many come to this decision later in their college career or even after some post-baccalaureate experience. Conversely, some students know that they want to become athletic trainers, but for a variety of reasons choose to attend a college or university not accredited by CAAHEP. Their reasons are many. The college they choose often has special qualities that both they and their parents desire in an undergraduate experience. Perhaps the college has offered them an attractive financial aid package critical to their ability to pursue higher education. The list is endless.

What should we do with these students, many of whom would be excellent athletic health care professionals? We think that we should encourage people like this to pursue entry into our profession through entry-level post-baccalaureate certificate programs in athletic training, some of which may be bundled with traditional master's degree programs. These people are usually older and more mature than the typical college freshman. Graduate education is often more consistent with their learning style. They are often more financially committed to pursue their career goals than undergraduates dependent on parental support.

The other point that must be made explicit is that these programs will be expected to adhere to the same accreditation criteria as CAAHEP applies to undergraduate programs. This will present special challenges to graduate educators, but we believe the potential payoffs, both for the institutions and the profession, are significant. The Education Council (see Provision 8) should stand ready to provide advice and assistance to institutions interested in developing these programs.

It should be stated categorically that we are not recommending that all programs convert to the graduate level as a prerequisite for certification for their students. We remain committed to the baccalaureate model of education. This suggestion is simply intended to help provide educational opportunity in athletic training for those students who would be better served by an alternative to the traditional baccalaureate program. This approach will help our profession establish a bona fide alternative route to certification. In addition, it will provide an opportunity for students in internship "programs" to eventually become certified.

## PROVISION 3

The NATA should develop and implement a program leading to certificates of advanced qualification (CAQ) for athletic trainer educators. The educational content of these continuing education courses would be developed by the NATA Education Council (see Provision 8). Certification of competence of the participants and the subsequent awarding of the credential should be contracted to the NATABOC.

## RATIONALE

Our purpose in recommending this program is twofold. First we want to recognize those among us who have developed special skills and acquired specialized knowledge that extends significantly beyond that required for entry-level certification. We should hold these people up as examples of what our professionals are capable of both to our younger members and to those outside the profession who may lack respect for our talents.

The second reason we think this is important is that we feel an obligation to not only prepare health care professionals for the practice of "generic" athletic training, but also for the special skills required in the marketplace. Although there are vast areas of overlap, the high school demands different skills than the sports medicine clinic. The industrial setting requires different skills than the university. We are specifically not trying to water down the basic set of skills that have made athletic trainers so adaptable in the marketplace. We're not trying to change the essence of what it means to be an athletic trainer. We are trying to help athletic trainers position themselves as uniquely qualified professionals in the markets we've already identified and in new health care niches we haven't identified yet.

- The NATA should recommend to the JRC-AT that the CAAHEP Essentials & Guidelines be amended to include a guideline recommending that clinical instructors possess a Clinical Instructor CAQ or its equivalent by the year 2000. (see *Essentials & Guidelines, Section I.B.1.b.[1][b]*).

## RATIONALE

A common assumption in our profession is that every certified athletic trainer is qualified to educate students. Virtually anyone can supervise the clinical experience of

student athletic trainers. We assume that athletic trainers, by virtue of their certification, have both the knowledge and expertise to establish learning objectives, structure learning experiences, and assess student learning, even though the vast majority have had no formal training in these areas.

This provision is intended to help provide those who supervise the clinical experiences of student athletic trainers with the tools they need to help them create the most meaningful clinical education experience possible. We think that program directors will appreciate the opportunity to improve the quality of their students' clinical experiences. We think that clinical instructors will feel more comfortable knowing that they have the tools they need to structure experiences of high quality. Finally we think that students will appreciate the improvements in their clinical education that are likely to accrue from this programmatic enhancement.

- The NATA should recommend to the JRC-AT that the CAAHEP Essentials & Guidelines be amended to include a guideline recommending that program directors possess a Program Director CAQ or its equivalent by the year 2001. (see *Essentials & Guidelines, Section I.B.1.a.[1][b]*).

### **RATIONALE**

This provision builds on the previous one. It goes one step farther by insuring that those who design and implement the educational programs our students rely upon to help them master the entry-level competencies possess the knowledge, skill, and experience to accomplish these tasks. Educational program design, management, and evaluation are not entry-level skills. Yet any certified athletic trainer with a minimum of three years of post-baccalaureate experience is presumed to be qualified in these areas. Our students deserve, and frankly need, better than this. We feel the standards for program directors are set too low. Some members are concerned that program directors can move from degree to degree with little actual athletic training experience before assuming the leadership of an educational program. The Program Director's CAQ would provide a useful service to those who would educate our students.

Should some program directors be "grandfathered?" Perhaps. Those program directors who have doctorates in educational leadership, educational administration, or curriculum design and evaluation may find the content of the CAQ course redundant and unnecessary. Perhaps a set of

equivalent qualifications similar to those just listed should be developed to parallel the CAQ requirement. This provision will obviously require further refinement before it is ready to be implemented, but we think the idea is sound and the time is right to raise the standard in this area.

### **PROVISION 4**

The NATA should recommend to the JRC-AT that the CAAHEP Essentials & Guidelines, section II.B.2.b., be modified to reflect formal instruction in pharmacology and pathology.

### **RATIONALE**

Although athletic trainers are typically although not always prohibited from prescribing, storing, or dispensing prescription medications, they have an important role to play in the medications that athletes use as a part of their recovery from athletic illness and injury. In some states athletic trainers can and do legally participate as an intermediary in the "prescription medication chain" from physician to athlete. Even in jurisdictions where athletic trainers are statutorily prohibited from such activity, they still remain a source of information to athletes regarding their medication questions. Athletic trainers can, under appropriate circumstances, help athletes make appropriate choices about non-prescription medications. That athletic trainers store and dispense non-prescription medications is common knowledge in our profession.

At present, formal instruction in pharmacology is only recommended for athletic trainers. We think that there are at least three reasons why formal instruction in pharmacology ought to be required of all athletic trainers. First, the most recent role delineation study identified pharmacology knowledge as one of 10 "universal competencies." The second reason this guideline should be changed to a requirement is that pharmacology is included in many places in the Competencies in Athletic Training. Finally, athletic training educators from both accredited and non-accredited programs agree to an overwhelming degree that formal instruction in pharmacology should be included in our entry-level programs.

Many of the arguments used to support formal instruction in pharmacology apply in equal measure to the teaching of pathology. It can be argued that it is impossible for athletic trainers to restore injured and ill athletes to normal function

unless they can make rational treatment decisions based on their knowledge of the body's reaction to injury and illness. Unfortunately and somewhat surprisingly athletic trainers are not presently required to receive formal instruction in the pathology. Knowledge of pathology is basic to many of the activities identified in the most recent role delineation study. Although this is more implicit than the pharmacologically oriented activity described above, it nonetheless forms the foundation for many of the functions we undertake on a daily basis.

## **PROVISION 5**

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The NATA should recommend that the NATABOC reevaluate the minimum number of hours necessary to sit for the certification exam and that the present high-risk sport requirement be reevaluated.

### **RATIONALE**

Most candidates who sit for the certification examination have far more clinical hours than the minimum requirement. Many athletic training education programs have clinical experience requirements that exceed the minimum recommended by CAAHEP and required by NATABOC. The perfect clinical education mix is still an elusive phantom after which we continue to chase. The effectiveness of the clinical experience is still probably more closely related to the quality of the experience, rather than the quantity of clinical hours.

The definition of "high-risk" requires additional study. The list presently used by the NATABOC has been called into question by some and should be reviewed. We suggest that a joint committee of the JRC-AT and the NATABOC be appointed to re-define the standards for what constitutes "high-risk." Perhaps the injury rates identified through the NCAA Injury Surveillance System would be a useful point of departure for defining "high-risk." Whichever method is eventually used, this issue must be addressed.

## **PROVISION 6**

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The NATA should recommend that the JRC-AT investigate the extent to which the various practice settings in which athletic trainers are commonly employed are incorporated into the clinical and didactic components of the education programs.

### **RATIONALE**

The clinical skills required in different settings in which athletic trainers are employed are, in fact, different. Even if one chose to argue that the skills are the same, there could be very little reasonable argument with the statement that the patients are different.

Our students need to learn to work with patients in a variety of settings for at least two reasons. First, our profession has asserted that its members are qualified to work in a variety of settings. It is difficult to justify that position if we don't provide our students with access to the kinds of patients they are likely to encounter in those settings. Second, these kinds of clinical experiences provide our students with the information they need to be able to decide where they want to work. Our profession has a national goal of placing a certified athletic trainer in every high school, yet we don't require our students to acquire any experience with adolescents during their education that will help them decide if they even want to work in a high school. The sports medicine clinic has become the primary source of employment for our members, yet we don't require our students to acquire any experience in the very setting in which they are most likely to work after college.

## **PROVISION 7**

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The NATA should subcontract the accreditation of accredited master's degree programs in athletic training to the JRC-AT.

### **RATIONALE**

Program evaluation and review requires special knowledge and skill. This knowledge and skill requires an investment of time, financial resources, and people. The JRC-AT exists to evaluate educational programs in athletic training. It has invested in all three of these elements to develop a comprehensive education evaluation and accreditation program. It has made itself an expert body in the art of helping institutions uphold the high standards for athletic training education that we in the profession demand. It also fulfills an important requirement for the NATA's membership in CAAHEP.

The JRC-AT has so far limited its activity to the evaluation of entry-level athletic training education programs. This is entirely appropriate and consistent with its mandate. In

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light of the expertise the JRC-AT has developed in this area, however, it doesn't make sense to develop another, separate, body to evaluate accredited master's degree programs in athletic training. Why not take advantage of the JRC-AT's expertise? We think that the most logical way to approach the accreditation of advanced master's degree programs in athletic training is to contract this function to those who already have the expertise in this area. The JRC-AT is in a better position than we are to determine how they would organize for this advanced responsibility. Perhaps they would create a subcommittee devoted to post entry-level program accreditation. This, in addition to the financial considerations inherent in such an arrangement, remain to be negotiated between the NATA and the JRC-AT.

## PROVISION 8

The NATA should reconfigure the way professional education is organized. The NATA should establish an Education Council to act as the clearinghouse for educational policy, development, and delivery in our profession. Specific functions of the Education Council should include, but not be limited to the following:

- Maintain a constant dialogue on accreditation of entry-level programs through its association with the JRC-AT.

### RATIONALE

The importance of this provision seems self-evident.

- Maintain a constant dialogue on accreditation of master's degree programs through its association with the JRC-AT.

### RATIONALE

Assuming that Provision 7 above is enacted, this function of the Education Council seems rather obvious. The question of who would establish (the Graduate Subcommittee of the Education Council vs. the JRC-AT) the standards for accreditation of master's degree programs, as opposed to who would enforce (The JRC-AT) the standards is open to debate. In any case, however, a close working relationship between the two bodies would be a prerequisite to effective accreditation of master's degree programs under this scenario.

- Act as a resource for the development of doctoral programs in athletic training.

### RATIONALE

The profession of athletic training needs more doctoral educated members for several reasons. The doctorate is still considered the terminal degree in most institutions of higher learning. If our profession hopes to impact higher education policy we must have a critical mass of doctoral-educated athletic trainers among the senior faculty of colleges and universities around the country. Doctoral programs are also important because they provide much of the research agenda that helps expand our body of knowledge. Finally, doctoral programs in athletic training are important because they will provide the next generation of athletic training educators. Athletic trainers could continue to seek doctorates in related fields like exercise science, education, and health, but considering the way our body of knowledge has increased over the past few years, and given the likelihood of further expansion, we think the need for more athletic trainers with PhDs in athletic training is justified.

- Coordinate the educational content and delivery of all NATA-sponsored continuing education and CAQ programs.

### RATIONALE

There is no area of greater duplication in our profession than continuing education. At least three entities, excluding the PEC, have expanded some willingly, some unwillingly, and some through necessity into ventures designed to enhance the professional capability of the post entry-level athletic trainer. These entities include the Convention Committee, the NATA Board of Certification, and the NATA Research and Education Foundation. In addition, district and state continuing education groups are responsible for planning and delivering a substantial percentage of all the continuing education hours available to our members.

Is this duplication of services all bad? Not necessarily. The problem that arises from our diversified approach to continuing education programming is that we may be losing sight of who should be appropriately accountable for the quality of continuing education in our profession.

We recommend that the Education Council be empowered as the official clearinghouse of continuing education at the national level in our association. The EC should develop partnerships with others who have a legitimate interest in

continuing education and continuing competence of the post-entry-level athletic trainer, including the NATABOC and the NATAREF. The Education Council is especially encouraged to work with the NATAREF to develop funding sources for continuing education programs. This will be an important factor in keeping the cost of continuing education low as possible for our members, in addition to acting as a possible source of revenue for REF programs.

3] Serve as a resource to district, state, and local continuing education program planners.

### **RATIONALE**

The Education Council, if properly staffed and funded, will have the expertise to substantially assist local continuing education planners. They will be able to help local planners develop programs that are educationally sound. They will be able to assist in the evaluation of local continuing education programs. The national body has resources it can share with local entities. This should be viewed by local planners as a positive move that will help them improve program quality.

4] Act as the approval agency for certifying continuing education providers.

### **RATIONALE**

The people in our profession who have the best understanding of education in its broadest sense ought to be responsible for determining the suitability of continuing education providers. They have the expertise needed to judge the competence of potential providers to deliver continuing education consistent with the standards we desire. It seems logical to us that the group responsible for overall coordination of the continuing education program ought to also take responsibility for approving the providers of the programs.

5] Develop new technologies for the delivery of continuing education programs.

### **RATIONALE**

New technologies for the delivery of educational services are being developed at a surprisingly fast rate. Satellite education programs and learning opportunities that take advantage of computer technology, especially the Internet, are just two examples of the avenues we ought to explore as

we consider new continuing education ventures for our members. The EC should be in a good position to do this since many of its members will presumably work in colleges and universities where such technologies are already being used. As the cost of travel continues to rise and fewer of our members are able to travel to our national symposium, we must consider new and innovative ways to bring education to them. The EC is the logical choice for this important assignment.

6]  The Education Council should replace the present Professional Education Committee. This provision is contingent upon approval of Provision 7.

### **RATIONALE**

Since the Education Council would be assuming all of the responsibilities of the present Professional Education Committee, in addition to taking on a few additional duties, it seems logical that the PEC be phased out.

### **PROVISION 9**

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The NATA should cooperate with the NATABOC in its ongoing evaluation of the new rules for CEU accumulation and recertification.

### **RATIONALE**

In 1994, the Board of Certification adopted new standards for accumulation of CEUs. We are in the third year of a three-year cycle. The NATABOC is presently engaged in a process to evaluate the effect of the new rules. Because we will not have any conclusive evidence of the effect of these changes until late 1996, it seems logical that we must wait for the results of the BOC investigation before recommending any action in this area.

### **PROVISION 10**

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The NATA should develop and implement a program leading to certificates of advanced qualification (CAQ) for the post-entry level athletic trainer. The educational content of these continuing education courses would be developed by the NATA Education Council (*see Provision 8*). Certification of competence of the participants and the subsequent awarding of the credential should be contracted to

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NATABOC. By the year 2000 an inaugural CAQ program should be made available.

### RATIONALE

Our association should help its members develop the specific expertise they need to gain meaningful and full employment in specialized work environments. This is important because, although we all share the same basic set of skills, some of us are required to use some of those skills to a greater extent in some settings. The work that a high school athletic trainer does, although similar in most respects, is different in some important ways from that of the athletic trainer employed in a clinical or corporate environment. CAQs can be useful to ATCs in specialized settings because they provide the highly qualified individuals who meet the requirements of the CAQ program with the recognition they deserve.

CAQ programs are not intended to diminish the credentials of the ATC who does not go through the program. We view this as a highly specialized program that will provide recognition for specialists of our profession. We do not want these specialty certificates becoming the standard by which all of us are judged in the marketplace.

CAQ programs are likewise not intended to replace the requirements of advanced graduate programs in athletic training. These programs will be very narrowly focused, and will be offered as continuing education. Indeed, a graduate degree may be a prerequisite for some CAQ programs.

### PROVISION 11

The NATA should encourage the development of interdisciplinary education programs that coordinate athletic training with teaching, nursing, physical therapy, occupational therapy, or other appropriate baccalaureate professions.

### RATIONALE

The provision of health care services in the future is likely to be divided, to an increasing degree, by professionals who are multi-skilled. The multi-skilling movement is being driven by many forces. One of the most important is economic. Professionals who can perform multiple functions can promote athletic training, education and health care more effectively than those with a narrower range of skills at a similar cost. The education and health care markets demand more multi-

skilled providers as the dollars available for health care delivery continue to shrink.

The athletic trainer is already a multi-skilled professional. We are trained in a broad range of important health care roles ranging from injury and illness prevention to the provision of counseling and guidance. Indeed, our wide range of skills, high standards and professional flexibility are responsible for our successful penetration of so many health care markets. These are some of our strongest and most enduring professional characteristics.

Are we suggesting that every entry-level athletic training program be forced to align itself with another profession's preparation program as a condition of accreditation? The answer is an emphatic "NO." It is clearly unnecessary, both in our view and presumably in CAAHEP's as well, to merge another profession's knowledge and skill in order to master the entry-level competencies in athletic training. We are simply suggesting that those institutions who share this vision of education and health care futures with multi-skilled professionals be allowed or encouraged to investigate and establish joint programs. We accompany this Provision with the expectation that if such programs wish to be accredited by CAAHEP as entry-level athletic training education programs, they would still have to meet all the requirements mandated for such programs.

### PROVISION 12

The NATA should encourage new athletic training education programs to consider aligning themselves in colleges of health-related professions.

### RATIONALE

Athletic training is an allied health profession. Our roots, however, are found in physical education and athletic programs. There are several reasons why we think this Provision is important. First, traditional professional preparation programs for physical educators are becoming less financially and politically viable. The market for physical educators in the nation's public schools never rebounded after the drastic cutbacks of the 1970s. Athletic training programs housed in departments of physical education may find themselves at risk of redundancy as these programs continue to be downsized or eliminated.

A second reason for this provision is related to the curricular content of the modern athletic training program.

Athletic training used to be a modified physical education curriculum. Even a cursory review of the requirements for accreditation of the modern athletic training education program reveals that athletic trainers are now educated in a manner much more consistent with other health professionals than with physical educators. The resources needed to educate athletic trainers exist in abundance in educational units designed to prepare other health professionals. Athletic training course work looks almost out of place in the physical education section of most university course catalogues.

Will athletic training programs be required to make this move in order to maintain their accreditation? No. CAAHEP will not place such a mandate on universities. This decision is one that each institution will have to make for itself. Many accredited athletic training programs exist in colleges or universities that have no medical, nursing, or allied health schools. Our profession should, however, strongly encourage every program than can to make the move.

### PROVISION 13

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The NATA should strongly encourage athletic training education programs to title their programs as "Athletic Training."

#### RATIONALE

Anyone familiar with the issues our profession has faced over the past few years is aware that the name "athletic training" is a source of contention among our members. For every argument against changing our name another equally compelling reason can be found to maintain the status quo. We do not intend to propose a solution to this problem, for it clearly lies beyond our charge. The problem of naming our educational programs, however, does have political consequences for our profession. Where are physicians educated? In medical schools. Where are nurses educated? In nursing schools. Where are athletic trainers educated? In athletic training programs. Or in sports medicine programs. Or in physical education programs. Or in sports science programs. The list goes on. The consequences of this problem are intangible, but not unimportant.

### PROVISION 14

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The NATA should encourage the Research and Education Foundation, the *Journal of Athletic Training*, and other appropriate entities to continue to recognize and reward high quality research in those areas of the body of knowledge specific to athletic training.

#### RATIONALE

The amount and quality of athletic training research produced over the past several years is impressive. The research not only improves the quality of clinical practice in athletic training, it helps legitimize our profession as a leader in health care for physically active people. Good research should be rewarded, both for its own sake and as a statement to those both inside and outside the profession. We should look for every possible avenue to reward and encourage good research in athletic training. The REF and the *Journal* have made a good start toward this effort. We should applaud their efforts and supplement them wherever we can.

### PROVISION 15

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The NATA should encourage and assist in initiating the process of legislative reform, with particular emphasis on standardization of educational requirements for state credentialing.

#### RATIONALE

State credentialing is our greatest hope for the future and our biggest threat both at the same time. The present patchwork quilt of state credentialing laws define athletic training in such different ways that planning for our profession at the national level including educational planning will become more difficult with each passing year. Our education and professional preparation should be the defining characteristic of our professional practice irrespective of geographic region. The days when it was enough for the NATA to simply act as a resource for states seeking credentialing must be put behind us. We need a firm, centralized, and direct approach to state credentialing especially as it relates to educational requirements or the education reforms we propose will have minimal impact.

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## PROVISION 16

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The NATA should work to identify and promote positive work models for the high school environment including, but not limited to, the full-time athletic trainer and the teacher-athletic trainer.

### RATIONALE

The high school environment has been an important employment setting for athletic trainers for many years. The NATA has long recognized its responsibility to serve the single largest group of injured athletes in America our nation's high school students. The commitment to serve the high school population runs deep in our profession, both because the need is so great and due to the sheer size of the potential employment market.

The high school setting is, for a variety of reasons, the one that has the greatest lack of health care resources. High school athletic trainers frequently experience burdens not shared by others in our profession. The teacher-athletic trainer is often forced to work two jobs for one salary. Athletic trainers who are contracted to a high school (or in some cases to several high schools at the same time) often find it difficult to provide the level or continuity of care that they would like to provide.

Nevertheless, many high school athletic trainers have created model programs for which they and we can be justifiably proud. Ironically, even though the funding for most high school programs is precarious, some of our profession's best paid members are high school athletic trainers. The NATA should seek out these athletic trainers and hold them up as examples of what is good about this employment setting. It should promote minimum standards for high school health care programs so that athletic trainers who want to work in this setting can do so knowing that they won't have to sacrifice their personal lives for their professional ones.

## PROVISION 17

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The NATA should encourage and provide assistance to the JRC-AT for the process of helping them contract their administrative functions with a professional management firm.

### RATIONALE

The JRC-AT is presently housed at Indiana State University. Its administration is carried out by a certified

athletic trainer who has released time from his faculty duties and a full-time administrative assistant. The present workload involved with administering the accreditation of approximately 90 programs is a significant burden for such a small staff. We can reasonably predict that the number of educational programs applying for accreditation will increase. The JRC-AT has responded to over 300 requests for accreditation information packets this year alone. The demands associated with attempting to service what is likely to be a growing number of programs will soon exceed the ability of the staff to meet those demands.

The JRC-AT has already received two proposals from professional management firms who specialize in educational accreditation. They should be encouraged to follow up on these proposals. To the extent that the NATA can be of assistance with this process, it should stand ready to help.

## PROVISION 18

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The NATA should collaborate with the NATAREF to make planning grants available to those institutions who wish to make the transition from the internship to the accredited model, but whose financial or historical situation hinders them from doing so.

Some colleges and universities will want to make the transition from the internship to the accredited model, but will be faced with financial and other concerns that may impede their ability to do so. In some cases, the loss of these institutions will have a disproportionate impact on universities that help provide much needed diversity in our profession. If the REF could help these institutions begin to plan for how they might make the transition through modest, short-term financial grants, it is reasonable to conclude that at least some of these universities will develop enough ownership in the process to see it to fruition after the grants have been exhausted. ■



Appendix C

*Educational Accreditation Related Terms*

## Appendix C

### *Educational Accreditation Related Terms*

ATEP- Athletic Training Education Program

CAHEA- AMA Committee on Allied Health Education Accreditation responsible for accrediting educational programs until 1994

CAAHEP- Committee for Accreditation of Allied Health Education Programs

Derivation of CAHEA in 1994, independent from the AMA but still responsible for accrediting educational programs

Essentials and Guidelines-

CAHEA requirements for accreditation of athletic training education programs as of 1991 until 2000

JRC-AT- Joint Review Committee- Athletic Training

Subcommittee of CAHEA and CAAHEP responsible for determination of individual educational programs satisfaction of the requirements for CAAHEP programs

PEC- Professional Education Committee

Subcommittee of the NATA responsible for approving curriculum ATEP's until 1994

Standards and Guidelines- CAAHEP requirements for accreditation of athletic training education programs as of 2000

Appendix D

*Education Reform Related Event Timeline*

## Appendix D

*Education Reform Related Event Timeline*

Key: NATA Events  
 NATABOC Events  
 ER Events

Date    Events

1950 NATA begun, administered by the BOD

1956 **PEC precursor formed**

1959 **BOD approved curriculum program requirements and procedure**

1962 *BOD began studying certification plans*

1965 *Active NATA members given certification numbers*

1968 *BOD appoints subcommittee on certification by exam*

1969 *BOD approves certification process*

1970 PEC created Competencies in Athletic Training to guide curriculum ATEP program evaluation

1971 *NATABOC formed, first national certification exam given*

1979 BOD recommends study of finding accrediting body to approve ATEP's

1982 *NATABOC granted administrative independence from NATA*

1989 June: Long Range Plan developed which assumed that internship route to certification will be phased out, timeline for applying to AMA for accreditation as Feb. 1990

**PEC recommends that CAHEA accreditation replace NATA curriculum approval**

Date    Event

1990    *NATABOC formally separated from NATA*

**June: AMA awards allied health profession status to athletic training so the PEC can seek CAHEA accreditation of ATEP instead of NATA approved curriculum status**

August: Visionary Strategic Plan developed

**November: BOD dissention about whether the move to CAHEA accreditation had been actually approved- decision, BOD previous decision had occurred**

1991    **Some PEC members become the JRC-AT, PEC continues**

**Feb: JRC-AT created Essentials and Guidelines for CAHEA accreditation of ATEP**

**Information dissemination about CAHEA process begins**

**June: PEC reports uncertainty about CAHEA accreditation, BOD reasserts CAHEA is the method chosen**

1992    **Feb: JRC replaces PEC, PEC winds down**  
**BOD President appoints TF on Long Range Planning for Education**

*NATABOC dissolves Continuing Education Committee*  
*NATABOC sets up task force to evaluate routes to certification*

May: Strategic Task Force established

**June: BOD reports that NATABOC task force will evaluate routes to certification**

October: Strategic Task Force members approved  
**Continuing Education only education specifics of Strategic Task Force**

**Dec: BOD reports NATABOC discussing internship route to certification without waiting for task force information, set up meeting with NATABOC**

Date   Event

1994 *NATABOC discusses their responsibility for all aspects of certification, internship candidates not performing as well as curriculum candidates, decides to ask for BOD input about methods of improving internship education*

**Feb: PEC asks to disband**

**May: BOD determines that they can aid NATABOC by: input, facing issues together, urging task force formation by June**

**June: Education Task Force created by BOD to help NATABOC with educational preparation and continuing education  
AMA replaces CAHEA with independent agency, CAAHEP**

**Sept: ETF members accept assignment  
ETF Co-Chairs ask for name change to ETF**

**Oct: ETF name change**

*Dec: ETF presented at NATABOC meeting, BOC gave instructions to a NATABOC/ETF member about working with the ETF and appropriate use of exam statistics*

1995 **Feb: Confidential ETF discussion summary, report on ETF progress with sections titled What to Do and What to Say.**

**April: ETF members concerned that the recommendations are not considering the needs of internship students, therefore, entry-level masters degree programs should be the route to certification  
Hypothetical question asked seeking information on how internship students can be proven less qualified than curriculum students seeking athletic training certification  
ETF provides lists of Facts, Assumptions, NATABOC data on exam differences between internship and curriculum candidates, and discussion summary**

**June: Determination that NATA membership needed to be informed about ETF recommendations, plan for ETF to present at each district meeting in 1996**

**Oct: ETF Mini-call Minutes  
ETF recommendation vote 14-2. Acknowledgment that ER controversy was shifting from internship programs to the proposed new body, the Education Council.  
Report on How to Communicate BOD Decision about ER**

Date    Event

1995    **Dec: ETF Initial Recommendation Report with Back-up and Rationale provided. BOD vote to accept the recommendations in general, get NATA member input, final ETF recommendation vote 12/96. Note that the JRC and the BOC support the ETF recommendations. Presidential goal in 1996 described as enhancing accredited route to certification.**

1996    **April: Note that Phasing out of internship route to certification met with little resistance**

**Aug: Meeting to finalize Recommendation Implementation Timeline (if approved)**

**Nov: ETF presents Final Recommendations to BOD- confidential**

**Dec: ETF decision mentioned one of most important BOD will make. ETF recommends approval of all recommendations because they are interdependent.**

**ETF purpose was to evaluate and propose recommendations for education and credentialing for the ATC job market.**

**Major ETF issues include:**

**-educational consistency**

**-making sure that every institution that wants an ATEP can have one**

**-competency definition**

**-Certificates of Added Qualification**

**-acknowledging trend of internship students having a tough time getting jobs.**

**ETF asks for approval of recommendation concepts that will be carefully worked out later with input from all concerned groups.**

**BOD accepts ETF Final Recommendations 9-0-1.**

**BOD disbands ETF.**

**ETF Co-Chairs urged BOD to see the recommendations as an NATA sponsored change and program.**

**ETF Recommendation Result-**

**BOD requires CAAHEP accreditation for institutions to qualify students to sit for the national certification exam**

- **Education Council (EC) created for Educational Policies**

Date   Event

1997   Mar: BOD looking for volunteers for EC Chair- notices in Jan/Feb NATA News  
Mar 9: BOD voted on EC Chair

April: EC plan to meet with BOD, Research and Education Foundation,  
JRC/PEC, and NATABOC at National Convention to discuss changes and effects  
to organizations



Appendix E

*Explanation of Tektology and Cybernetics*

## Appendix E

### *Explanation of Tektology and Cybernetics*

#### Tektology

Tektology was developed by Alexander Bogdanov as the science of structures. First published in 1912 in Russian. The primary goal of Tektology was to determine the general organizational principles of living and nonliving systems through the mechanisms of formulation and regulation. Also defined the mechanism for what was later termed feedback.

#### Cybernetics

Cybernetics was named so by Norbert Wiener and defined as the science of animal and machine control and communication. It was developed as an intellectual concept by mathematicians, neuroscientists, social scientists, and engineers. The focus was placed on auto- or self- regulating systems including machines and human social components with self-balancing (negative) and self-reinforcing (positive) feedback. Also developed into information theory (how to transmit information) and cognitive theory.

Appendix G

*NATA-BOD Members 1990-1998*

## Appendix G

## NATA-BOD Members 1990-1998

NATA-BOD Members	1990	1991	1992	1993	1994	1995	1996	1997	1998
A	Y	Y							
B	Y	Y							
Adam	Y	Y	Y	Y					
D	Y	Y		Y					
Barry	Y	Y	Y		Y	Y	Y		
E	Y	Y							
F	Y	Y							
G	Y	Y							
Chris	Y	Y	Y	Y					
Devon	Y	Y	Y	Y	Y				
Ethan		Y	Y	Y	Y	Y	Y	Y	
Frank		Y	Y	Y	Y	Y	Y	Y	
XX1		Y	Y	Y	Y				
Gerald			Y	Y	Y	Y	Y		
Harry			Y	Y	Y	Y	Y	Y	Y
Ike			Y	Y	Y	Y	Y	Y	Y
John			Y	Y	Y	Y	Y	Y	Y
Karl				Y	Y	Y	Y	Y	Y
Larry				Y	Y	Y	Y	Y	Y
Marshall				Y	Y	Y	Y	Y	
Nick					Y	Y	Y	Y	
Owen						Y	Y	Y	Y
Paul						Y	Y	Y	Y
XX2					Y	Y	Y	Y	Y
H							Y	Y	Y
I							Y	Y	Y
J								Y	Y
K								Y	Y
L								Y	Y
M								Y	Y

\*Note- Partial Years are Counted as Full Years

## Key:

Pseudonym Names = Participants

A-M = Ex- NATA-BOD Members, did not fit criteria for inclusion into research

XX = Ex-NATA-BOD Members who qualified for interview but could not be interviewed

Y = present on NATA-BOD

Appendix H

*Dissertation Introduction to Participants*  
*Interview Questions*

## Appendix H

### *Dissertation Introduction to Participants*

Hi, my name is Courtney Burken. I am an athletic trainer and educator who is currently working on my dissertation, and I was wondering if I could interview you as an ex/current (whichever fits that person) NATA-BOD member.

My dissertation is a historical study of information and communication links in organizational decisions. My committee suggested that I choose the NATABOD because of its importance in athletic training, and I selected the education reform decision because of the importance of that decision on the profession, the time frame and scope of the decision, and its potential impact on future decisions by the BOD.

My goal is to identify how the NATA-BOD education reform decision occurred in context by studying information and communication. I am also hoping to identify any changes that have occurred for the NATA-BOD after the decision because of its importance and far reaching effects.

I will use BOD meeting minutes, published documents in the NATA News and JNATA, and interviews with the 18 BOD members who were involved with the decision through at least 4 years through the period of 1990-1998.

I'd like to set up an interview with you, for approximately 45 minutes to an hour to discuss your recollection of the communication process, both formal and informal, of the decision process the BOD went through for the important education reform decision. The interview will be recorded for completeness for my chosen methodology which is a qualitative analysis technique.

*Interview Questions*

## Topic A: Task Force Implementation and Charge

1. Were you on the NATA-BOD when the task force was implemented?
2. As you remember them, what were the circumstances that led to the education task force formation?
  - a. What did you discuss?
  - b. Who did you discuss it with?
  - c. How and when did the discussions occur?
  - d. Did you have a personal opinion at the time about education reform?
  - e. Who were the most influential people and events that helped you make up your mind?
3. Was the NATA-BOD decision to name a task force common practice or an unusual step?
  - a. How was the decision to name a task force reached?
    - i. What other options were considered?
  - b. As you recall, what were the guidelines set for the task force?
  - c. In your opinion, please rate the importance of educational reform in priority from 1-low to 5-high at the time that the education task force was implemented?
    - i. Did certain NATA-BOD members feel that the priority for educational reform was greater or less than you did? Higher or lower?
  - d. In your recollection, how were education reform task force members selected?
    - i. Were you personally involved as a NATA-BOD member in choosing the task force chair and committee members?
    - ii. Did you consult with anyone else?
      1. If so, whom?
      2. In your recollection, whose opinion was most important to you and what events were most influential to influence your choices for task force members.
  - e. Were other task forces or committees in place at the time the education task force was charged that would have provided information that was considered during the implementation of the education task force?
  - f. Once the task force was in place and charged with a duty did you continue to communicate with them or did they operate as a separate entity?
    - i. Did the NATA-BOD ever modify the charge of the task force over the xx year task force span?
  - g. Were the same members on the task force the entire time, or did they change?

## Topic B: Task Force Working Time

4. During the time the task force was working, were you aware that there was work being done?
  - a. Did you have a personal opinion about the need for and specifics about educational reform during the time the task force was working?
    - i. Did that opinion change over the time that the task force worked?
  - b. Communication to NATA-BOD?
    - i. Did you personally communicate with Task Force members during that time frame?
      1. Who did you talk to (communicate with)?
      2. How often?
      3. Were these conversations important in changing or reinforcing your opinion?
      4. What new information were you given?
      5. What information was supported in those communications?
      6. Does your personal experience corroborate the findings of the education task force?
    - ii. Were there NATA-BOD members on the task force?
  - c. What information was returning to the NATA-BOD if any?
    - i. On-going reports?
      1. If so, who made them?
    - ii. Other formats for information
    - iii. What information was provided to the NATA-BOD in those reports?
  - d. Was any further direction given to the education task force or goals redefined while you were on the NATA-BOD?
    - i. In your opinion, was the NATA-BOD approach to the task force hands-on or hands-off (guiding or asking for study with a report at the end).
    - ii. Was this NATA-BOD approach typical for task force and committee work?
  - e. Did the NATA-BOD discuss education reform during that time frame?
    - i. When?
    - ii. What information was provided?
    - iii. Who did the discussing?
  - f. Did you personally communicate with NATA-BOD members about education reform during that time frame?
    - i. Who did you communicate with?
    - ii. How often?
    - iii. Were these conversations important in changing or reinforcing your opinion?
    - iv. What new information were you given?
    - v. What information was supported in those communications?



### Topic C: Organizational Decision Impact

5. How do you see the impact of the educational reform decision in affecting the NATA-BOD?
6. Where would you rank the educational reform decision in terms of importance to the profession- 1- least important, 5= most important.
  - a. Are there any decisions that rank higher or the same?
    - i. If so, what?
7. Do you think that making the educational reform decision led to changes in the NATA-BOD?
  - a. Organizational?
  - b. Decision making structure?
  - c. Communication links- important influences?

### Topic D: General Information about Communication Links

8. Who are the most important people you talk to about professional decisions?
  - a. Do you have colleagues or mentors that you rely on for opinions and discussing issues?
  - b. Are these people the same when you are on the NATA-BOD?
  - c. Are these people the same for all professional decisions?
    - i. Who did you talk to about education reform prior to the decision to add the JRC-AT?
    - ii. Who did you talk to about education reform during the time when the JRC-AT was working prior to the educational task force establishment?
    - iii. Who did you talk to during the time the educational task force was working?
    - iv. Who did you talk to during the time between the educational task force recommendations and the NATA-BOD decision?
    - v. Who do you talk to now about educational reform?

### Topic E: General Information about Educational Reform Decision

9. What do you think the greatest impact of the educational reform decision will be on the profession?
 

Was that impact expected and anticipated?
10. What are your thoughts on how the process of educational reform has progressed?
11. Have your thoughts about the need for educational reform changed since the education reform decision?
12. Has the NATA-BOD changed as a result of the education reform decision?
 

If so, how?

Appendix I

*Published Events Timeline*

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## Appendix I

*Published Events Timeline*

<u>Date</u>	<u>Article Summary</u>
1990, Sept.	Article announcing that the AMA had recognized athletic training as an allied health profession, describing the proposed impact of profession designation, and acknowledging that the accreditation efforts were revived in 1987 by the PEC Chair (AMA endorses athletic training as allied health profession, 1990).
1991, April	Article by PEC Chair defining purpose of AMA designation of athletic training as an allied health care profession as a requirement for CAHEA accreditation of ATEP (Behnke, 1991).
1991, Aug.	Interview of current NATA President stating that CAHEA accreditation was one of the biggest challenges for the NATA and that the Long Range Plan was in process (Smaha and Max on the future of the NATA, 1991).
1991, Oct.	Article of NATA presidential election biographies, emphasis on education and the need to improve education (NATA presidential election slated, 1991).
1992, Jan.	Article of presidential election results, NATA President agenda included continued emphasis on education (Miller elected new NATA president, 1992).
1992, April	Article describing NATA goals and history of 1989 Strategic Plan and four stages of the Visionary Strategic Plan which were started in Feb. 1991 with no detail of content (NATA accomplishments during 1991-1992, 1992). Announcement of forthcoming JRC formation (Board sponsors leadership symposium, 1992).
1992, May	Announcement that the PEC would present a transition timeline for the PEC to become the JRC (Midyear NATA board actions, 1992).
1993, Jan.	Interview of incoming BOD member focuses on the need to improve education (Carl Krein: In the spotlight, 1993).
1993, July	Interview of incoming BOD member focuses on the need to improve issues not specific to education except the perception of athletic trainers by the medical community (David "DC" Colt steps on board, 1993).

<u>Date</u>	<u>Article Summary</u>
1993, July	Announcement that at some future date the AMA would replace CAHEA with another, separate entity for accreditation purposes
1993, Nov?	Announcement of meeting minutes xx (Board of directors meeting, 1993).
1994, May	Announcement of 1 <sup>st</sup> CAHEA ATEP accreditation in February PEC/JRC scheduled to discuss CAHEA to CAAHEP transition at the June National Meeting
1994, Sept.	Interview of incoming BOD member describing health care reform as the most important issue for athletic training and another interview of incoming BOD member describing the most important issue as the lack of jobs, attributed in part to educational improvements (New members bring combined 50 years of experience to board, 1994). Announcement of ETF creation to address the educational preparation and continuing education of athletic trainers.
1995	PEC/JRC Newsletter invitation to curriculum/accredited ATEP program directors to attend Town Hall Meetings to hear the preliminary ETF recommendations
1995, April	Article describing ETF February Meeting providing a general description of ETF purpose, mission, scope, structure, members, progress, and future plans (Education task force report, 1995).
1995, Aug.	Interview of incoming BOD member describing ATEP status as the greatest issue facing the profession (Cynthia "Sam" Booth takes over a new district four director, 1995).
1996, Feb.	Article describing the history of ER process, why ER was needed, and the ETF plan for a proposal to accomplish mission with no detail of specific plan (McCullan, 1996). Second article: Report from the ETF describing what the ETF knew about athletic training, the history of ETF activities, planned ETF activities, the 14 major issues driving the ER process, and the preliminary 17 ETF recommendations with rationale .
1996, April	Announcement of meeting minutes xx (NATA board action summary Jan. 30, 1996, 1996).
1996, June	Interview of incoming BOD member describing education as one of the major professional issues (Foster-Welch, 1996).

<u>Date</u>	<u>Article Summary</u>
1997, Feb.	Article describing the 18 Final ETF recommendations that had been approved by the BOD in December, 1996 (McCullan, 1997). Second article detailing 18 approved recommendations with ETF rationale (NATA education task force, 1997).
1997, June	Announcement of Education Council (EC) goals (Starkey, 1997a) Editorial from EC Chair about reforming athletic training education (Starkey, 1997b).
1997, Aug	Text copy of NATA President's Speech on Education presented at Educator's Conference January 1997 (Kent Falb's speech on education, 1997).
1997, Dec.	EC Announcement
1998, Jan.	Article by NATA staff member providing a historical overview of athletic training. Statements that in 1997 the BOD approved ER with the major change being the merging of the internship and curriculum routes to certification. The change in requirements would be completed in December, 2003. NATA President quoted as a dramatic result of the educational changes was a wider variety of practice settings for athletic trainers.
1998, Feb.	Announcement by the JEC Chair of the process of revising the Competencies for Athletic Training
1998, April	EC Announcement
1998, July	Article and EC Announcements including implementation timeline and how to find draft of Continuing Education guidelines (Guidelines for the clinical education of students enrolled in accredited athletic training education programs, 1998).

Appendix J

*Differences Between Preliminary and Final ETF Recommendations*

## Appendix J

*Differences Between Preliminary and Final ETF Recommendations*

Preliminary ETF Recommendations		Recommendations to Reform Athletic Training Education (ER)	
Recommendation	Rationale	Provision	Rationale
I	I	1 Same as Rec. 1	1 Slightly different, added lack of standards for internship programs
II	II	2 Replaced entry-level masters degree terminology with post-baccalaureate degree terminology	2 Addition of rationale that this established bona fide alternative route to certification
III	III None Provided	3 Same as Rec. 3	3 None Provided
3.1	3.1	First bullet Same as Rec. 3.1	First bullet Expanded language from Rec. 3.1 Rationale – same concept
3.2	3.2	Second bullet Same as Rec. 3.2	Second bullet Expanded language from Preliminary Rationale with specific examples of problem areas

Preliminary ETF Recommendations		Recommendations to Reform Athletic Training Education (ER)	
Recommendation	Rationale	Provision	Rationale
IV	IV	4	4
		Same as Rec. 4	Expanded language from Rec. 4 Rationale- same concept
V	V	5	5
		Same as Rec. 5	Eliminated specific reference to NATABOC and JRC joint committee to study definition of high risk sport
VI	VI	6	6
		Same as Rec. 6	Changed rationale to address differences in practice setting skill expectations
VII	VII	7	7
		Same as Rec. 7	Included more elaborate rationale- same concept
VIII	VIII	8	8
	None Provided	Same as Rec. 8	Short rationale provided.
	Bullet 1		Rationale added.
	Bullet 2		Rationale added.
	Bullet 3		Rationale added.



Preliminary ETF Recommendations		Recommendations to Reform Athletic Training Education (ER)	
Recommendation	Rationale	Provision	Rationale
VIII, Cont.	VIII Cont.	8, Cont.	8, Cont.
	Bullet 4		Rationale added.
	Bullet 5		Rationale added.
	Bullet 6		Rationale added.
	Bullet 7		Rationale added.
	Final Statement		Added as Bullet 8.
	Rationale for all above Bullets and Statement		Rationales split into bulleted segments and further elaborated upon
IX	IX	9	9
		Same as Rec. 9	Rephrased, essentially similar
X	X	10	10
		Same as Rec. 10	Elaborated upon.
XI	XI	11	11
		Added teaching to list of professions	Expanded and defended from objections
XII	XII	12	12
		Same as Rec. 12	Expanded and defended from objections
XIII	XIII	13	13

Preliminary ETF Recommendations		Recommendations to Reform Athletic Training Education (ER)	
Recommendation	Rationale	Provision	Rationale
XIV	XIV	14	14
		Same as Rec. 14	Slightly expanded
XV	XV	15	15
		Same as Rec. 15	Slightly expanded
XVI	XVI	16	16
		Same as Rec. XVI	Expanded
XVII	XVII	17	17
		Same as Rec. XVII	Expanded
		18	18
		New addition focusing on financial grants for transition to new education format requirements	None provided

I, Courtney Burken, hereby submit this dissertation to Emporia State University as partial fulfillment of the requirements for a doctoral degree. I agree that the Library of the University may make it available for use in accordance with its regulation governing materials of this type. I further agree that quoting, photocopying, or other reproduction of this document is allowed for private study, scholarship (including teaching) and research purposes of a nonprofit nature by ProQuest Information and Learning or other entities. No copying which involved potential financial gain will be allowed without written permission of the author.

Maria Courtney Burken

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1/12/04

Date

The Information Transfer Process In The Nata-BOD Education Reform

Decision: A Complexity Analysis

Title of Dissertation

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