The Nursing Terminology Summit Conferences: a case study of successful collaboration for change

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Abstract

The Nursing Terminology Summit, a series of invitational conferences and ongoing collaboration, has played both initiating and contributing roles to bring about a second-order change in the development and integration of standards for nursing terminology. What factors enabled this success? What factors made change difficult? This paper examines the structure and process of the Nursing Terminology Summit using concepts, principles, theories, and strategies identified in Lorenzi and Riley [Organizational Aspects of Health Informatics: Managing Technological Change, Springer, 1995]. As a case study, this critical analysis offers practical lessons for informaticians in managing change across disciplinary, organizational, and national boundaries.

1. Introduction

Annually since 1999, the Nursing Terminology Summit Conference has brought together developers of nursing terminologies, leaders of organizations sponsoring terminologies, experts on methods of developing healthcare terminologies and standards, and representatives of professional organizations, healthcare enterprises, government agencies, and the health informatics industry. The first conference focused primarily on issues of developing terminology standards as experienced in the United States of America, with limited international participation to broaden the perspective. Subsequent conferences have looked toward global standards, with much greater international participation.

Prior to the 1999 conference, US developers of nursing terminologies tended to perceive one another as rivals in the struggle to produce “the” standard terminology. They imagined that such a standard terminology would be universally adopted and would become the basis for comparable data across times and locations [1–3]. Alternatively, the various terminologies might be mutually mapped to one another to achieve a unified nursing language [4]. By the end of the 1999 conference, participants had differentiated between concept-based reference terminologies and expression-based interface terminologies [5]. Interface terminologies have the virtue of offering colloquial or specialized terms to represent clinical events in different sites or clinical specialties but pose the problem of non-comparable data when different interface terminologies are used. A standard reference terminology, with clearly defined concepts and relationships, could serve as an interlingua for any number of interface terminologies that were mapped to it. Application systems that used different interface terminologies could then achieve semantic interoperability if they were linked to terminology systems based on a common reference terminology. Reference terminology, then, not universal adoption of a single interface terminology nor mapping among all terminologies, would become the key to semantic interoperability [5].
With that understanding, participants acknowledged that most of the terminologies recognized by the American Nurses Association were actually interface terminologies. Only SNOMED RT [5] was aiming to become a reference terminology. Participants in the 1999 Summit Conference agreed to collaborate across terminologies and across disciplines in developing a reference terminology model for nursing. This agreement represented not merely a change in the ways of developing and using the recognized interface terminologies—a first-order change—but a larger, more fundamental change in the very meaning of terminology development: collaboration to create a transcendent, concept-based nursing terminology model. This kind of logical metamorphosis is called a second-order change [6, pp. 23–26].

The significance of the change is evident from the speed and importance of subsequent events. Within three weeks of the 1999 conference, Evelyn Hovenga, chair of the Nursing Informatics Special Interest Group (NI-SIG) of the International Medical Informatics Association (IMIA) reviewed a report of the Summit [7] submitted for the 2000 triennial conference of the IMIA NI-SIG. Hovenga immediately contacted the organizer of the Summit (Ozbolt) to request the participation of Summit members in an effort she was organizing to propose a New Work Item for a nursing standard to the International Standards Organization (ISO). Based on the work of the Summit, on the “categorial system for nursing” [8] that had been developed by the European Standards Committee (Comité Européen de Normalisation, or CEN), and on existing terminology research studies, the New Work Item would be the development of a reference terminology model for nursing. Summit participants collaborated with an international team to prepare and submit the proposal to ISO under the joint sponsorship of IMIA and the International Council of Nurses (ICN).

Summit participants who were also participating in the European effort invited all Summit participants to subscribe to the listserv the Europeans were using to review and comment upon drafts of their proposed standard. In this way, non-European Summit participants were able to share in the development of the drafts. The primary authors and other leaders of the European effort were invited to the 2000 Summit Conference, where all participants critically analyzed the CEN model and other candidate models. Under the Vienna Agreement, ISO was designated as the lead for this standards work, and the IMIA–ICN effort explicitly took into account the CEN document.

Simultaneously, Summit participants were evaluating the adequacy of the semantic structure of the Clinical Logical Observation Identifiers, Names, and Codes (LOINC) [9,10] and the Health Level 7 Reference Information Model (HL7 RIM) [11,12] for representing nursing concepts. These efforts have led to extensions in definitions of the elements of the LOINC semantic structure to accommodate nursing concepts [13,14] and to registration of nursing terminologies by HL7 [15].

Collaboration continues across disciplines, employment settings, and nations to develop and test reference information and terminology models and eventually reference terminology (or terminologies) for nursing, and to integrate them into the larger context of healthcare terminology standards. The reference terminology models of nursing diagnosis and nursing intervention were accepted at ISO in 2003 as a Final Draft International Standard [16]. The Nursing Convergent Terminologies Group at SNOMED has used the CEN and ISO models to guide the integration of nursing terms and concepts into SNOMED Clinical Terms [17,18]. Summit participants, working in the context of the Summit and elsewhere, have drawn upon knowledge and collaborations developed at the Summit to bring major advances to the development, evaluation, and integration of nursing terminology and standards [19–31]. The Nursing Terminology Summit has contributed substantially to the transformation of nursing terminology development from isolated, competitive efforts to develop nursing-specific sets of terms into collaborative efforts to integrate nursing concepts and knowledge into reference models and terminologies that embrace all of health care.

2. Materials and methods

How could the Nursing Terminology Summit bring about such fundamental change so quickly? What factors promoted success? What barriers impeded progress? This paper seeks to answer those questions by examining the structure and process of the Nursing Terminology Summit using constructs described by Lorenzi and Riley [6] as critical to introducing information technology changes in organizations. This examination differs from the usual case study of organizational change related to informatics in two ways. First, the “technological change” in this instance was not the implementation of a new information system, but rather a change in the goals and methods of developing terminology standards, an important underpinning of healthcare information system software. Second, the change occurred not in a well-defined organization, but in a loosely organized global community of healthcare informaticians. Nevertheless, Lorenzi and Riley’s ideas about organizational change illuminate lessons that can be applied elsewhere in collaborative efforts to create and implement informatics innovations that will transform health care.

2.1. Readiness for change

Lorenzi and Riley [6, pp. 97–101] identified 17 variables that measure readiness for change. This analysis
evaluates the readiness for change on those dimensions of the “community of informaticians” represented by Summit participants.

2.2. Critical skills

Three types of skills, conceptual, human, and technical, are critical for organizational management [6, pp. 75–78]. The analysis considers how those skills affected the processes of the Terminology Summit.

2.3. Critical issues

Seven issues are crucial to ensure effective change [6, pp. 79–96]. The analysis describes how the Summit process addressed each of those issues.

2.4. Change management psychology

Small group theories explain factors that promote or hinder change [6, pp. 152–153]. The analysis describes aspects of the Summit processes and outcomes that relate to these theories.

2.5. Change management strategies

Five change management strategies are recommended for promoting change in organizations [6, pp. 157–161]. The analysis looks at the degree to which the Summit process has used or not used these strategies and infers the effects on the adoption of the change.

3. Results

3.1. Readiness for change

When Lorenzi and Riley speak of readiness for change, they refer to the readiness of an organization and of the members of that organization. The change to which Lorenzi and Riley refer is the introduction of a new technology. In the case of the Summit, the “organization” consisted only of the annual conferences and the listservs and other communications media that permitted collaboration between conferences. The change had two dimensions. For participants to see beyond the competing interface terminologies to a collaboratively developed reference terminology was one significant change in goals and methods. For participants to see nursing terminologies not as a unique type of terminology separate and distinct from all other healthcare terminologies but as an integral part of a comprehensive terminology for all of health care was a change in understanding of the nature and scope of the endeavor.

Lorenzi and Riley offer a 17-item “quiz” consisting of self-ratings on readiness for change. Awarding 3 points for “We do this well,” 2 points for “We need to improve on this,” and 1 point for “We do this poorly or not at all,” let us consider how ready the Nursing Terminology Summit was for change in 1999. (Ratings are the author’s own, based on the evidence cited.)

3.1.1. Sponsorship
Principle. The more powerful and influential the sponsors of the change, the greater the ability to overcome resistance.

Relevant facts. Financial sponsorship of the Summit came from the National Library of Medicine, which funds most health informatics research in the United States, and the Division of Nursing of the Health Resources and Services Administration, which funds many nursing education initiatives in the United States. In addition, the Nursing Informatics Working Group of the American Medical Informatics Association (AMIA) sponsored the summit as a Working Group initiative. Finally, seven major vendors of healthcare information systems and services participated and provided financial support.

Interpretation. The prestige of the sponsors lent credibility and seriousness to the Summit.

Rating. 3 points.

3.1.2. Leadership
Principle. Change is more likely to succeed if the leaders of the change have direct responsibility for that which is to be changed.

Relevant facts. Participants in the Summit included the primary authors or leaders of sponsoring organizations of nursing terminologies; presidents, committee chairs, and members of editorial boards of standards-developing organizations; the persons at federal agencies responsible for informatics and terminology initiatives; persons at healthcare institutions responsible for selecting and implementing terminology standards; and informatics industry representatives who were participating in terminology work within their companies.

Interpretation. Participants in the Summit were in a position to make decisions and lead the execution of those decisions.

Rating. 3 points.

3.1.3. Motivation
Principles. Change is more likely to succeed if there is a shared sense of urgency for the change. Change is less likely to succeed to the degree that members of the organization are committed to the status quo.

Relevant facts. All participants were strongly committed to terminology standards, and most had been working actively to establish standards. One participant had co-authored the seminal paper on the concept of the reference terminology, but not all participants had read the paper or understood the concept. Some developers
of nursing terminologies came into the 1999 Summit with a history of promoting their own terminology as “the” standard. Some members of standards developing organizations had had little experience with nursing terminologies.

**Interpretation.** Although all participants were motivated to achieve nursing terminology standards, they had different ideas (or vague ideas) about what would constitute nursing terminology standards.

**Rating.** 2 points.

### 3.1.4. Direction

**Principle.** Change is more likely to succeed when members of the organization have a shared view of the future that is different from the present.

**Relevant facts.** Prior to the 1999 Summit, a few participants had published papers that integrated work in nursing terminology development with emerging insights from terminology standards development outside nursing. Most participants, however, had knowledge of one domain or the other, not both. Most participants did not have the specific expertise in both domains to create a vision of the future that included the integration of nursing into a comprehensive healthcare reference terminology. A participant who did have this expertise and vision (Bakken) took on the responsibility of planning and leading the scientific program of the 1999 Summit Conference.

**Interpretation.** Developing a shared vision would be challenging because, apart from the leadership, most participants lacked the dual expertise needed to imagine nursing terminology standards consistently with other healthcare terminology standards.

**Rating.** 1 point.

### 3.1.5. Measurements

**Principle.** Performance measurements that show the inadequacies of the status quo and that can demonstrate the impact of the change reduce resistance to initiating and accepting the change.

**Relevant facts.** Some participants had written critiques of the interface nursing terminologies based on criteria from the broader domain of terminology standards development. Among all participants, the level of understanding of these critiques was mixed.

**Interpretation.** Getting agreement on the inadequacies of current terminologies and the need for a different kind of standard would depend on getting all participants to acknowledge and understand the criteria and the critiques. This would be especially difficult for those whose own work was critiqued.

**Rating.** 2 points.

### 3.1.6. Organizational context

**Principles.** Change is more likely to succeed to the degree that it is linked strategically to other ongoing organizational activities and related changes. Isolated changes are likely to lack the support necessary for success.

**Relevant facts.** Government, industry, healthcare organizations, and professional associations were all calling for terminology standards for nursing. The Summit was organized to respond to these calls and supported by funds from these sources.

**Interpretation.** By bringing together the leaders of nursing terminology development with the leaders of healthcare terminology standards development and the leaders of terminology efforts in government, healthcare institutions, professional organizations, and industry, the Summit increased the likelihood that the group would identify and adopt changes that were compatible with contextual activities and changes.

**Rating.** 3 points.

### 3.1.7. Competitor benchmarking

**Principle.** Major changes are more likely to succeed to the degree that members are willing “to change critical processes and sacrifice perks and power for the good of the group” [6, p. 28].

**Relevant facts.** Developers of nursing terminologies perceived the potential to gain prestige and perhaps financial rewards if their terminology were accepted as “the” standard. “The group” in this instance was not even a formal organization, just a collection of colleagues who were trying to forge a common goal and find ways to work toward it.

**Interpretation.** There was little motivation for participants to sacrifice the perceived possibility of benefits to be gained from competing rather than collaborating.

**Rating.** 1 point.

### 3.1.8. Customer focus

**Principle.** Change is more likely to succeed when organization members have objective assessments of what competing organizations are doing.

**Relevant facts.** Many participants in the Summit were also participating in other efforts to develop reference terminologies, such as those involving SNOMED RT, GALEN, and CEN. Some authors of nursing terminologies, however, had limited knowledge of the content or methods of these other efforts.

**Interpretation.** The varying degrees of awareness of other efforts to develop terminology standards were likely to produce different levels of comfort with the status quo of nursing terminology standards.

**Rating.** 2 points.

### 3.1.9. Customer focus

**Principle.** Knowledge of the customers enhances an organization’s ability to change to serve them.

**Relevant facts.** At the Summit, representatives of healthcare institutions, professional organizations, and
the health informatics industry could speak for the users and uses of terminology standards.

**Interpretation.** Strong representation of the customer focus would make it easier for participants to see the need for change and the kind of change required.

**Rating.** 3 points.

### 3.1.10. Rewards

**Principle.** Change is more likely to succeed to the degree that the organization rewards innovation and refrains from punishing failed attempts to innovate.

**Relevant facts.** As an informal organization, the Summit had limited ability to confer rewards or sanctions. As a community of leaders, however, Summit participants had the ability to reward or punish one another through direct or indirect expressions of esteem or disdain as members took the risk of thinking aloud together about how to resolve issues of nursing terminology standards.

**Interpretation.** Because participants had never met together as a group before the 1999 Summit, there was uncertainty as to whether and how members would reward or punish one another in group interactions.

**Rating.** 3 points.

### 3.1.11. Organizational structure

**Principle.** An organizational structure that is both stable and flexible facilitates change.

**Relevant facts.** In the case of the 1999 Summit, the organizational structure was both informal and brand new. Only the willingness of members to participate suggested that the invitational conference, guided by a steering committee and an organizer, might be able to contribute to the resolution of difficulties in developing terminology standards for nursing.

**Interpretation.** The organizational structure of the Summit in 1999 was new, weak, and unknown. It would not be reasonable to predict a successful change based on the organizational structure of the Summit.

**Rating.** 1 point.

### 3.1.12. Communication

**Principle.** Change is facilitated by multilevel, multidirectional communication throughout the organization.

**Relevant facts.** The Summit provided an arena and mechanisms for communication among the participants, all of whom bore leadership responsibility for one or more aspects of developing and using terminology standards.

**Interpretation.** A strength of the Summit was the facilitation of communication among the leaders of efforts to develop terminology standards in nursing and health care, among themselves and with the major clients of those standards.

**Rating.** 3 points.

### 3.1.13. Organizational hierarchy

**Principle.** Change is more likely to succeed when there are fewer hierarchical levels in the organization.

**Relevant facts.** Summit participants met as a community of peers, increasing the likelihood that each would contribute and be heard.

**Interpretation.** The egalitarian structure of the Summit would favor change.

**Rating.** 3 points.

### 3.1.14. Prior experience with change

**Principle.** The greater the organization’s history of successful change, the greater the likelihood that the current change will succeed.

**Relevant facts.** As a new and informal organization, the Summit in 1999 had no history of implementing change.

**Interpretation.** The Summit’s lack of any history did not necessarily mean that it would fail, but it was certainly an absence of strength on this dimension.

**Rating.** 1 point.

### 3.1.15. Morale

**Principle.** Trust, team spirit, and voluntary effort facilitate change.

**Relevant facts.** Prior to the first conference in 1999, some Summit participants knew one another well and had collaborated effectively in a variety of endeavors. Some were unacquainted with one another. A few had had public interactions with others that could be characterized as rancorous. The new, informal organization had not yet had an opportunity to develop team spirit, but all participants did agree to devote time and effort to the Summit.

**Interpretation.** The morale of the group included positives and negatives. It was not clear at the outset whether team spirit would develop.

**Rating.** 2 points.

### 3.1.16. Innovation

**Principle.** Change is more likely to succeed in organizations where collaboration occurs across boundaries to try new ideas.

**Relevant facts.** The work plan of the Summit called for collaboration across national, disciplinary, and terminology boundaries to develop new ways of thinking about nursing terminology standards.

**Interpretation.** The participants and the plans for the Summit were selected to promote innovation.

**Rating.** 3 points.

### 3.1.17. Decision-making

**Principle.** Change is more likely to succeed when the locus of decision-making is clear and when decisions are made quickly, taking into account a wide variety of input.

**Relevant facts.** The Summit involved leaders who could speak legitimately for the organizations they...
represented and the focus of the Summit was on the intersection of the domains the participants represented (e.g., specific terminologies and specific standards-developing organizations).

**Interpretation.** It was possible for Summit participants to make decisions that would be implemented in the various organizations they represented. Participation of the multiple individuals and organizations with legitimate interest in each decision assured broad input.

**Rating.** 3 points.

### 3.1.18. Overall readiness for change

The ratings on these aspects of readiness for change yield a total score of 38. Lorenzi and Riley [6, p. 101] interpret a total score in the range of 28–40 to mean, “Change is possible but may be difficult, especially if you have low scores in the first seven readiness dimensions. Bring those up to speed before attempting to implement large-scale changes.” At the beginning of the 1999 Summit, therefore, many conditions favored the identification and adoption of significant change, but other conditions made the outcome uncertain. Much would depend on the effectiveness of the Summit process, especially its ability to influence motivation, direction, measures of success, and willingness to forgo personal advantages for the greater good.

### 3.2. Critical skills

According to Lorenzi and Riley [6, pp. 75–78], the three types of skills that Katz identified as necessary for good management of an organization are also necessary for effective management of change. **Technical skills** are required to do the basic work of the organization. **Human skills** build teams and help persons to interact effectively. **Conceptual skills** relate the work of each part of the organization to the whole and relate the organization to the larger world.

Prior to the 1999 Summit, it was a widely espoused goal of the community represented by Summit participants to have a nursing terminology standard that would enable the collection and analysis of comparable data across sites and times and the integration of those data into comprehensive healthcare databases. Differing interpretations of that goal and the means to reach it, however, had resulted in competing, incompatible nursing terminologies that did not integrate readily with other healthcare terminologies. The concept of **semantic interoperability**, well known to informaticians working to develop terminology standards, was less known to some nurses working to develop standard sets of terms. To reach a shared understanding of the nature of the goal and the methods required that all three types of skills—human, technical, and conceptual—be brought into play during the Summit.

In this context, the **technical skills** and the **conceptual skills** were closely related. Although the Summit participants were the leaders of nursing terminology development and healthcare terminology standards development, few of them in June 1999 had comprehensive knowledge that spanned nursing concepts, nursing terminologies, and mainstream healthcare terminology standards development. Rather, each participant had deep knowledge of the aspects of the problem on which he or she worked—and few had worked across the boundaries. A major task of the 1999 Summit was to have participants inform one another of their work so that they could use their shared knowledge (conceptual and technical skills) to think together about the problems and the goal. As they did so, they were able to conceptualize how particular nursing terminologies fit into the larger context of healthcare terminology standards. Participants who were skilled in developing and testing terminology models and information models imparted the rudiments of those skills to others. As participants collaboratively examined and tested alternative models, nursing terminology developers began to see how models could help them to make their terminologies more comprehensive. As standards developers worked with nursing terminologies to derive and test models, they became aware of conceptual differences in nursing terminologies that required revisions of their healthcare terminology and information models to incorporate the nursing concepts. Leading this work were members of the Steering Committee who, more than most other participants, had worked across the boundaries of nursing terminologies and standards development. It was the sharing of technical and conceptual skills that enabled participants, halfway through the 1999 Summit, to envision a reference terminology that was different in content, structure, and purpose from the interface terminologies and to begin to propose models on which the reference terminology might be built.

Accomplishing the technical and conceptual work required careful application of **human skills**. Because participants differed in the closeness and cordiality of their acquaintance with one another, the Summit was deliberately structured to foster positive relationships. The meeting site helped to set the tone. Rather than a hotel, which might have been both impersonal and distracting, participants met at a conference center that resembled a small university campus or a seminary. Sleeping rooms were small and simply furnished, with each pair of private rooms sharing a connecting bath. Every hall had a sitting room for conversation. The gothic style of the stone buildings and the quiet gardens provided an almost cloistered setting conducive to serenity and reflection. Plenary sessions took place in a meeting room just large enough for the 40 participants, who were seated at tables arranged in an open square. Everyone could see everyone else, and there was no fixed “head of the table.”

Even in surroundings that promoted egalitarian fellowship, the Steering Committee could not assume that participants would work together effectively. After all,
their shared history had included competitiveness and sharp exchanges among nursing terminology developers and “parallel play” between nursing terminology developers on the one hand and terminology standards developers on the other. If participants were to arrive at a new, shared understanding of a common goal, competitiveness and disregard would have to be replaced by collaboration. In addition, although every member of the Summit was accustomed to being “the” expert in his or her domain, at the Summit all were equal and, if the Summit were to succeed, all would have to learn from the others. Steering Committee members therefore strove to model the desired behaviors. This included freely admitting their difficulty in understanding complex new ideas. Steering Committee members also showed a willingness to think aloud in the group without excessive concern that the emerging thoughts might not stand up to scrutiny. It was the nature of the Summit’s work to think critically together about problems for which the solution was not known. This required courage until members could develop trust in the process: ideas might be discarded, but the person producing them would be valued. The group norm soon became one of mutual respect and mutual searching for solutions. About two-thirds of the way through the 1999 Summit, a participant who had been particularly committed to the status quo, especially with regard to her own work, remarked, “This is very hard, but we have to do it.”

The work was hard. It was intense, prolonged, and challenging. Experts had to acknowledge their ignorance and learn from one another. Aspects of terminology problems had been poorly defined because the requisite combination of expertise had never before been applied. Consequently participants often felt themselves groping for adequate understanding and useful methods. To reduce and relieve the stress of the work, the Steering Committee designed the social program with human skills in mind. The Summit opened with a welcome reception at the home of a university official. The hospitality and the pleasant surroundings were intended to be gratifying to the participants, of whom much would be demanded in the ensuing days. In addition, opening the Summit with an evening reception maximized the probability that all participants would be present at the beginning of work the following morning. Like the opening reception, other evening events gave the participants opportunities to get better acquainted. Dinner on the second evening was somewhat less formal than the opening reception. By the third evening, participants were ready for a picnic and a swim at the organizer’s home. The increasingly casual social events both promoted and reflected the growing collegiality.

Developing a common understanding of a reference terminology, differentiated from interface terminologies, and of methods to develop and test terminology models was a major accomplishment of the 1999 Summit. Evaluating candidate models and determining that the CEN model could, with further evolution, become the common model, was a major accomplishment of the 2000 Summit. Conceptual, technical, and human skills played a critical role in these achievements.

### 3.3. Critical issues for change

To create successful changes, say Lorenzi and Riley [6, pp. 79–96], organizations must address seven issues. Let us consider how the Terminology Summit dealt with each of these.

#### 3.3.1. Making proactive versus reactive changes

Whereas reactive changes aim merely to ameliorate the symptoms of a problem, proactive changes strive to achieve some positive goal. The Summit might have been conceived in reaction to either of two major problems: the rivalry among incompatible interface terminologies or the isolation of nursing terminology work from mainstream healthcare standards work. Rather than targeting these symptoms, however, the Summit expressly convened participants to identify and work toward a common goal that would surpass and supersede all prior efforts. As a result, participants did not spend their time “rearranging the deck chairs on the Titanic.” Instead, Summit participants engaged in designing and building a new vessel (a reference terminology model for nursing) that would take them to the desired destination, nursing terminology standards integrated with mainstream standards and supporting semantic interoperability.

#### 3.3.2. Understanding the critical global and local issues

To understand whether change is needed and what kind of change is needed, organization members must assess global issues, including the environment and the direction in which the field is moving, and local needs. With regard to nursing terminology, important global issues concern how healthcare terminology standards are being developed and used. Important local issues are the definitions, relationships, and uses of nursing concepts and terms. When the 1999 Summit opened, few people beyond the Steering Committee knew very much about both the global and the local issues. Most participants were experts in one or the other. Consequently, the Summit began by having participants share key aspects of their expertise with one another. With at least a rudimentary appreciation of both global and local issues, participants were prepared to collaborate in defining the goal and methods of the Summit.

#### 3.3.3. Creating a vision for change

Lorenzi and Riley [6, p. 89] say, “The keys to successful creation of a vision are

- visionary leadership possessing a ‘can do’ attitude,
- knowledge and understanding of the needs of the major stakeholders, and
• knowledge and understanding of the organizational milieu, including both the opportunities and the constraints.”

The Summit Steering Committee includes persons who, by 1999, had already identified reference terminology as the key to semantic interoperability. They had, moreover, begun to draft and to evaluate models, and they were convinced of the practical utility of the work. Confident, visionary leadership was therefore in place at the first Summit Conference. But would anyone follow? On the Tannenbaum–Schmidt [32] leadership continuum cited by Lorenzi and Riley [6, pp. 90–91], the Summit is far to the right, at a point where the Steering Committee sets general limits for the group to operate within, but the participants have maximum freedom to make decisions and to take actions. The pattern at every Summit therefore has been to begin with an educational exchange of information and then to elicit from the group clarification on the definition of the problem and decisions about the direction and scope of actions to be taken. This approach has enabled the group to combine its expertise to create a vision that all members can own. Because the major stakeholders are present at each Summit Conference, they are able to speak to their needs and assure appropriate consideration. The affiliations of participants represent the organizational milieu: academic researchers, health care providers, government administrators, professional association leaders, standards developers, and information system designers and marketers. It is important, in fact, that the Summit vests power in the hands of the participants, because only their combined knowledge provides the necessary understanding to solve problems. The responsibilities of leadership are to set the agenda, to facilitate discussion, to be aware of unresolved issues, to track decisions, and to summarize periodically so that the group has a shared understanding of its progress. The Steering Committee sets the agenda collectively by consensus and shares the remaining tasks among its members.

The big breakthrough, the differentiation of reference terminology as distinct from interface terminology and its acceptance as a unifying goal, came at the first Summit Conference. Each conference thereafter has gone through a similar process of identifying a vision of the work to be accomplished at that meeting and the contribution of such work to the grander mission. Not until 2002 (the fourth conference) did members identify the continuing purpose and strategic vision of the Nursing Terminology Summit: to promote the development, evaluation, and use of reference terminology and reference terminology models for nursing within a larger context of health care data standards.

3.3.4. Identifying the key change leader characteristics

Lorenzi and Riley [6, p. 92] identify four concerns of change leaders: the point-person role, knowledge and commitment, formal and informal power, and rapid shifts in focus. Let us consider how these concerns played out in the early Summit Conferences.

The point person leads the change but is likely to be blamed if things go badly. As the organizer of the Summit and therefore the point person, Ozbolt immediately sought to strengthen the leadership and broaden knowledge and commitment by recruiting the Steering Committee. In 1998, as now, the Steering Committee members were at the forefront of research on nursing terminology and were well respected for their achievements. Recruiting them not only made it possible to share the blame if blame occurred, but more importantly increased the likelihood of success. The knowledge and commitment of leaders in the field assured that the Summit agenda would take useful shape.

In addition, the knowledge and commitment of the members of the Steering Committee conferred informal power on the Summit. The identities of the leaders lent credibility to the endeavor. The leadership was at first the sole resource of the Summit, which was to become only an informal organization. The organizer leveraged that resource in several ways. First, the Steering Committee laid out an agenda for the first meeting and identified persons to be invited. Second, the organizer sent emails to those nominated, describing the conference aims and agenda and identifying the Steering Committee. The organizer asked invitees to fax back a statement that they would attend such a conference if funding could be obtained. Third, with faxes in hand, the organizer contacted potential sponsors. The agenda and the well-known accomplishments of invitees, coupled with the commitment of invitees to attend, persuaded decision makers at sponsoring organizations that the Summit would be worth an investment of time and money. Each sponsor was invited to send one or more representatives to participate in the conference. Participation not only yielded benefits to sponsors, but also strengthened their commitment to the Summit. The Summit continues to have no formal power but to have informal power through the influence of Summit participants in the formal organizations to which they belong.

Planning and conducting each Summit Conference and consolidating the gains require rapid shifts in focus among technical, conceptual, and human issues. What new development at HL7 do members need to consider in relation to nursing terminology? What difficult conceptual issues must be resolved? What competing approaches must be mediated—and how can the leaders and proponents of rival approaches have their say while keeping the discussion on the plane of ideas, not personalities? The Steering Committee addresses such issues in email correspondence and conference calls between Summit Conferences. During conferences, Steering Committee members remain alert to issues and difficulties and intervene as needed to promote resolution.
3.3.5. Gaining commitment from the organizational leadership

If reference terminology is to serve as the key to semantic interoperability, then the leadership of stakeholder organizations—terminology developers, standards developers, health care providers, information system developers and vendors, government agencies, and professional organizations—must support the use of reference terminology for this purpose. Recognizing this truth, the Steering Committee from the beginning invited not only individuals who were working toward reference terminology for nursing but also the leaders of all the constituencies. Continuing the Summit Conferences each year not only permits solving emerging problems but also maintains the commitment of participants.

3.3.6. Defining the end-user needs

Lorenzi and Riley [6, pp. 94–95] emphasize the importance of involving end users throughout the process of design and implementation of change, and of providing them with prompt results. Who are the end users of reference terminology models and reference terminology? If the answer is that the end users are the developers of data standards for health care, the professional associations that oversee the interests of their members, and the government and industry organizations that adopt and implement the standards, then the Summit has done a good job of involving them in the process and delivering new knowledge to incorporate into their own efforts. As cited in the introduction, knowledge developed at the Summit has been incorporated into formal standards and into electronic systems to support health care. Collaborations developed at the Summit have led to much greater nursing involvement in standards developing organizations. If, however, the end users are practicing nurses and nurse managers, the Summit has done little to enlighten them about the relative roles of interface and reference terminologies. And participants continued to return to the original agenda items merited attention. Although the tension was uncomfortable at times, the extensive discussion and critique of the CEN model. During sessions, the leadership had to make sure that differing views were heard and that discussions remained civil. Outside of sessions, the leadership made a point of soothing ruffled feelings, explaining the motivation for the change in agenda, and validating participants’ concerns that the original agenda items merited attention. Although the tension was uncomfortable at times, the extensive discussion was vital in determining which aspects of the CEN model were controversial and which had strong consensus. And participants continued to return to subsequent Summit Conferences.

3.4. Psychology of change

Lorenzi and Riley [6, p. 20] say, “In the real world, the impact of inertia is huge. If not pressured, both organizations and individuals will tend to continue doing what they currently do—or very near derivatives of what they do.” It would have been easier for the nursing terminology developers and the healthcare data standards developers to continue doing what they had been doing: competing among themselves and ignoring the other group. What kind of pressure did the Summit conferences exert to promote change?

An important source of pressure was the prestige of the participants. Every invitee was a leader respected for noteworthy accomplishments. Early in the first Summit Conference, the organizer remarked to a member of the Steering Committee, “I’m delighted that everyone came. I was worried that some might not want to participate.” The Steering Committee member responded, “When they heard who else was coming, they didn’t dare not to come.”

The desire to be part of a prestigious group taking consensus-based action motivated participants to be a part of the action and helped to overcome resistance to change. But pressure alone does not assure success. The Steering Committee used principles of small group theories to promote collaboration for change. Participation in the Summit Conferences has deliberately been limited to 40 people. Too large a group would not permit adequate discussion by every member. A smaller group, however, could not encompass the necessary range of expertise. As Lorenzi and Riley point
out [6, pp. 152–153], the risk in reaching consensus in a small group is that an opinion leader who expresses views strongly may induce compliance in others without a true commonality of beliefs and values. At the first Summit Conference, because many nursing terminology developers lacked deep knowledge of informatics principles and requirements for terminology systems to be incorporated in computer-based systems, the Steering Committee explicitly requested experts on informatics, language, and standards to speak up if the group seemed headed toward consensus on erroneous ideas. The Steering Committee was confident that the nursing terminology developers had sufficient deep knowledge of nursing and sufficient assertiveness not to be swayed toward consensus on ideas that would not serve nursing well. On the second full working day of the first Summit Conference, when one member of the Steering Committee presented “assumptions” on which subsequent work would be based, another member of the Steering Committee asked the group to pause and reflect on those points to be sure that there was consensus. After much discussion and clarification, the group did agree on key points, and the work proceeded with greater understanding.

In subsequent Summit Conferences, participants have become quite comfortable with one another, as well as more expert in the work of terminology development, evaluation, and integration. The Steering Committee continues to remind participants of the importance of expressing their questions or discomfort with ongoing work, even if not sure of how to express the idea. The result is extraordinarily stimulating discussion, replete with questions, arguments, and mutual respect. Whether in plenary sessions or breakout working groups, participants show no hesitation in speaking out. When the group reaches consensus, members are satisfied that their concerns have been resolved and are excited about the new understanding that has emerged.

3.5. Change management strategies

Lorenzi and Riley [6, pp. 157–160] propose a five-stage model of change management. Let us look at how those stages have played out in the Summit process.

3.5.1. Assessment

This stage involves informing stakeholders that the change will take place and getting information from them about their current perceptions of the potential change, their concerns, and their suggestions to reduce concerns. Before the first Summit Conference, as has been described above, the organizer and the Steering Committee informed potential stakeholders of the upcoming meeting, its agenda, and its purpose. A briefing book sent out before the meeting contained background knowledge to help participants with differing expertise to begin to get acquainted with the complementary domains of knowledge that would be in play at the Summit Conference. Not until participants arrived at the conference, however, did they have an opportunity to express concerns or to make suggestions. Providing such an opportunity at the very beginning might have helped to smooth the process. The long acquaintance of the Steering Committee with the other participants, however, greatly facilitated foreseeing many areas of concern.

3.5.2. Feedback and options

Information obtained from stakeholders shows change agents the areas of strength and weakness, excitement and resistance, and promising and risky actions. At the Summit Conferences, the Steering Committee has had to be agile to act on emerging feedback from participants. Between conferences, the Steering Committee has reported informal feedback and incorporated it into planning for upcoming meetings. In addition, Steering Committee members bring feedback from their work with standards-developing organizations, research, or practical applications to help identify unresolved problems. More formal processes of soliciting feedback and weighing options might make the process more productive.

3.5.3. Strategy development

The strategies for change developed for use at the first Summit Conference were based less on feedback from potential participants than on the personal knowledge of the organizer and the Steering Committee. The committee invited a broad range of leaders in nursing terminology and standards development. Because participants came from different backgrounds with differing expertise, the Steering Committee decided to use a briefing book and an opening educational session to give everyone some common base of knowledge. In consideration for the lack of acquaintance or the less than cordial relations among some participants, the Steering Committee opted to host group social events in the evenings and to model courteous and respectful discourse during the sessions. Social events, breaks, and pleasant conference surroundings were also designed to relieve the tension of hard work and necessary change. Finally, the Steering Committee was committed to demonstrating the value of every participant and of every participant’s ideas in every aspect of the Summit.

3.5.4. Implementation

Lorenzi and Riley are referring here to the implementation of change strategies, not to the new technology itself. This paper has already described strategies used at the first Summit to promote adoption of a common,
transcendent goal: development, evaluation, and use of reference terminology for nursing. Each year the Steering Committee seeks to identify issues that transcend the work of any one group and whose resolution is a prerequisite for progress. Such issues become the focus of the upcoming Summit Conference. To facilitate communication with participants, the Steering Committee uses a listserv. To educate the wider circle of stakeholders, participants publish papers and speak at conferences. A strategy not yet implemented because resources have been lacking is a Web site devoted to the Summit. Again, a more deliberative process that addresses not only the agenda of any one conference but also the larger impact of the work would enhance the effectiveness of the Nursing Terminology Summit Conferences.

3.5.5. Reassessment

Reassessment after implementation of the new technology, say Lorenzi and Riley [6, p. 160], provides the basis for fine-tuning. At the conclusion of the first Summit Conference, participants took stock of progress and decided that it would be worthwhile to continue meeting. At the end of each subsequent conference, participants have reaffirmed the utility of continuing the process. At the 2002 conference, the participants adopted a strategic plan that identifies the domain of continuing work at the Summit. As an informal organization, the Summit will continue to meet for as long as participants find it a useful arena for collaborative work on reference terminology.

4. Discussion

An analysis conducted by the organizer of an endeavor cannot be construed as disinterested. Readers should therefore be cautious about accepting the perspectives presented here as fact. Conversely, the organizer has intimate knowledge of events, processes, motivations, and perceptions not available elsewhere. If this analysis illuminates factors that have enabled the Summit to facilitate important changes in the development of terminology standards and points out ways in which the Summit has at times fallen short of its potential, then it has served its purpose.

5. Conclusion

In four years the development of terminology standards for nursing has moved from competitive activities within nursing to collaborative activities integrated into the larger arena of healthcare standards. Nurses now hold leadership positions in standards organizations, and general standards have been adapted to incorporate nursing content. In many ways, the field was ripe for these changes, and many forces converged to bring them about. The Nursing Terminology Summit Conferences, by providing a forum for collaborative knowledge development, have made strong contributions to the transformation of work on nursing terminology standards.

The persons listed below have participated in one or more of the Nursing Terminology Summit Conferences:

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<th>Charles Mead</th>
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**References**


