

Journal of

INDUSTRIAL TECHNOLOGY

Volume 20, Number 2 - February 2004 to April 2004

Assessing the Professional Development Needs of the National Association of Industrial Technology's Industry Division Members

By Mr. Bruce DeRuntz and Dr. Ronald Meier

Peer-Refereed Article

KEYWORD SEARCH

*Certification
Leadership
NAIT
Professional Development
Research*



Bruce DeRuntz is an Assistant Professor in the Department of Technology at Southern Illinois University Carbondale. Bruce develops and teaches courses in Quality Control, Industrial Metrology, Manufacturing Policy, Manufacturing Processes, and First-line Supervision. He is a past recipient of his department's Outstanding Teacher award and currently serves as President Elect of NAIT's Industry Division. Bruce's industrial experience includes 10 years with defense and automotive companies designing and implementing quality systems, supervision and administration, project management, and supplier development. His consulting experience includes three years with the Manufacturing Extension Partnership. He is a Certified Quality Engineer, Certified Senior Industrial Technologist, and ISO 9000 Auditor.



Dr. Ronald L. Meier has been in the Technology Department at Illinois State University since 1994. His scholarly work focuses on organizational competitiveness issues, primarily oriented toward enterprise risk and project management. His teaching responsibilities include graduate level project management courses and the oversight and delivery of a six-course series of project management courses designed for business and industry professionals. Dr. Meier has published or co-published over 50 papers in various technical and management journals.

Assessing the Professional Development Needs of the National Association of Industrial Technology's Industry Division Members

By Mr. Bruce DeRuntz and Dr. Ronald Meier

Last year NAIT proudly celebrated its 40th anniversary and reminisced about the many accomplishments it has achieved through the efforts of its dedicated and talented leadership. The past leadership was successful by maintaining NAIT's vision and adapting to the changing demands of education and manufacturing. Two of the cornerstones of NAIT's stated vision are:

1. The promotion of industrial technology in business, industry, education, and government;
2. The certification of industrial technologists and the recognition of their continued professional development.

While it's widely accepted that NAIT performs this duty to the satisfaction of its three academic divisions, there is strong evidence that the industry division is being overlooked and underserved. The industry division has averaged the second largest membership for a division over the past three years, but suffers from the lowest conference attendance of any division at approximately 1% of its membership ([D. Monforton, personal communication, April 26, 2003](#)). Compared to an approximated 25% representation from the other divisions, the industry division membership representation is virtually nonexistent. Why is this observation important to a conference that is 99% students and academicians? The importance resides in NAIT's long term growth strategy that depends upon the demand of our students, success of our graduates, and competitiveness of United States manufacturers.

Background

NAIT's success is due in part to the watchful eye of its conscientious membership, where opportunities are identified by analyzing the organization's data and surveying its membership. In research conducted by Miller (2000), he targeted the university division in a survey to assess how well NAIT was "successfully serving the needs of its constituents". In this survey of department chairs of baccalaureate Industrial Technology (IT) programs, he found that "although some of the data was not too encouraging, the results from this research should be interpreted as a wake up call to unite NAIT members to promote IT". The same type of wake-up call is being delivered by the industry division membership which has averaged the second largest membership from 2001 to 2/28/03 (NAIT 2003). Within the same time period, each division has had the following changes in its membership; Industry, -25.4%; CCTI, -3.4%; Student, -2.7%; University, +0.4%. Table 1 illustrates the calculated average division membership from 2001 to 2003 (2/28), the following proportionate representation exists, (see table 1 on page 3).

Correspondingly, the number of members holding certification within NAIT has had the following changes over the same time period; Industry, -20.6% (-104); University, -1.2% (-6); CCTI, -1.0% (-5); Student, +5.5% (+28). Table depicts the certification trend over the last three years (2001-2003).

Table 1. Historical perspective of NAIT Industry Division memberships

	Average division membership (2001-2003)	Proportion of total	% change in division
CCTI	141	8.3%	-3.4%
Industry	520	30.7%	-25.4%
Student	580	34.3%	-2.7%
University	452	26.7%	+0.4%
Total	1693	100%	

Table 2. Decline in certifications from 2001 to 2003 (2/28/03)

	Change in division count	% change from total	% change in division
CCTI	-5	-1.0%	-11%
Industry	-104	-20.6%	-32%
Student	28	5.5%	280%
University	-6	-1.2%	-6%
Total	-87	-4.9%	

To summarize, in the past three years the second largest division lost one fourth of its members, corresponding to NAIT losing one-fifth of its certified members. Clearly not even the benefit of professional certification is able to retain our graduate’s membership. As alarming as these statistics may appear for the industry division, it is easy to misinterpret their true importance. The decreasing membership and loss of revenue is only a symptom of the larger problem. NAIT needs to understand why these members are leaving our organization, and take steps to integrate industry into NAIT that will “promote IT in industry” and support the “continued professional development” of our graduates. Today, NAIT’s growth is directly tied to our department’s enrollment (*vis-à-vis*, students and faculty). If the needs of our IT graduates were being met, there would be a cumulative growth in the industry division membership; instead there is a cycling of membership through the industry division that resembles a first-in first-out exodus of these members. If this trend is to be reversed and the vision of NAIT preserved for the entire IT profession from academia to indus-

try, we must understand and respond to what the needs of industry are.

Purpose

The purpose of this study was twofold. First data was collected concerning industry member perceptions of how the NAIT office and NAIT conference could better serve its industry membership’s professional development needs. And second, report the findings to the NAIT Executive Board and recommend procedural and strategic changes designed to increase the industry division membership, conference participation, and most importantly, transform NAIT into a more industry centered organization. Opinions on how NAIT can better serve this division were collected through a comprehensive survey of industry division members in January 2003. By surveying and analyzing the preferences of our Industry Division, NAIT hopes to better serve one of our most important groups of Industrial Technology practitioners.

Methodology

A survey instrument was developed with the help of several members of the

NAIT Executive Board. Input was received from academic administrators (Deans and Department Heads), University and Community College faculty, as well as current industry division members. A list of current industry division members (as of January 2003) was obtained from the NAIT office (n = 450). A mailing to all 450 industry members was done in late January of 2003. This mailing resulted in 109 completed questionnaires or a 24.2% return rate. Descriptive statistics were used to interpret 16 of the 19 items on the survey. The remaining three items were opened ended questions seeking additional perceptions related to conference participation, increasing industry involvement, and types of programs that would be beneficial to industry members. The open-ended questions were subjected to a content analysis to analyze the responses in a systematic, objective, and quantitative manner. The authors utilized Berelson’s (1954) and Markoff, Shapiro, and Weitman (1974) treatments of the five major units of content analysis. These five units were: words, themes, characters, items, and space and time measures.

Survey Findings

The first four questions on the survey examined participation at NAIT’s annual conference. The survey found that only 20.2% of the respondents had ever attended a NAIT conference. Of the 22 that had attended a NAIT conference, 15 had done so as a student, and seven attended as a professional member. Question 3 was an open ended question that asked “What is your perception about the conference?” The authors conducted a content analysis of the responses. Ninety-two respondents addressed this question with many of the respondents writing multiple items. The overwhelming response was that the conference focus was not geared toward business and industry professionals (61 of 92 comments received). A secondary theme among the responses focused on the perception that conference presentations are being made by University professors with no business or industry experience. This perception

was echoed in 41 of the 92 comments. Other thematic areas identified in the content analysis included:

- The conference was located too far from current location of employment (30 of 92 comments received),
- Survey respondents were not able to get the time off to attend the conference because employers saw no value in the conference, (26 of 92 comments received) and
- The conference focus and agenda did not apply to the respondents current job (22 of 92 comments received).

Question four asked “What would be the primary reason preventing you from attending the conference?” Participants were given three choices. Sixty-one selected work, 24 selected families, and 44 selected conference location as the primary reasons for not attending the annual conference.

Questions 5 – 12 requested information regarding how to best increase industry member participation at the annual NAIT conference. Question five sought information on what would attract industry division members to attend the conference. Seventy-four of the respondents identified recertification credits, 35 stated close proximity to work, and 22 identified the program focus or conference theme. Question six was another open ended question that asked “What would be your recommendation for increasing industry involvement in NAIT?” Again the authors conducted a content analysis of the responses. Eighty-one respondents addressed this question with many of the respondents writing multiple items. The vast majority of the responses identified a need for topics important to business and industry (60 of 81 comments received). The second most common theme requested presentations to be made by non-academics (47 of 81 comments received). A third thematic area identified the need for professional certification programs (27 of 81 comments received).

Questions seven and eight solicited information on the need for an “Industry Track” and what types of programs would be most beneficial to industry members. The data indicated that 62.3% of the respondents thought an “Industry Track” would influence their decision to attend. Only 14.6% of the respondents indicated an “Industry Track” would not influence their decision to attend the conference. Respondents indicated the following programs would be most beneficial for industry members and the inclusion of these topics in the annual conference would impact their decision on conference attendance.

- Lean management (40 of 102 comments received),
- Quality & six-sigma (38 of 102 comments received),
- Productivity issues (32 of 102 comments received),
- Change-over time reductions (19 of 102 comments received),
- CNC technologies (19 of 102 comments received),
- Manufacturing strategy development (18 of 102 comments received), and
- Project management (17 of 102 comments received)

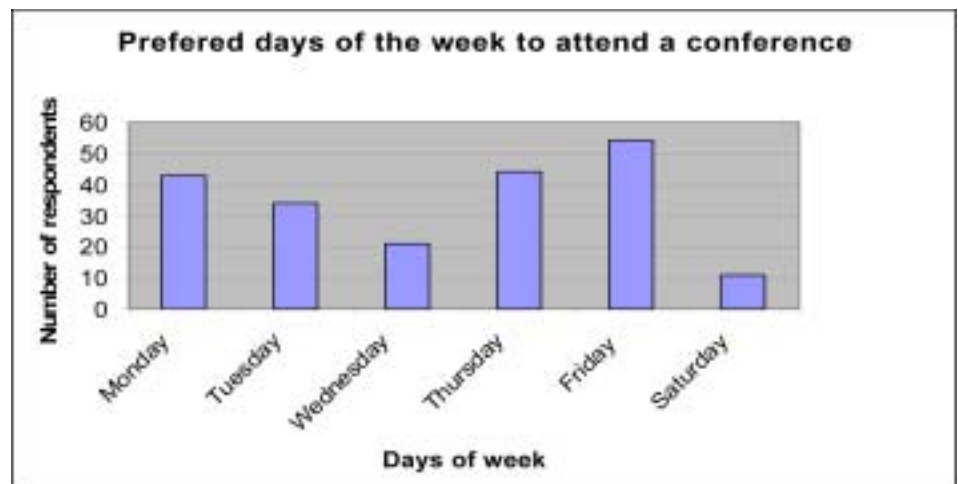
The last four questions in this section examined respondent perceptions on what days of the week were best for attending the conference, who should be conducting the programs or ses-

sions, what is the best length of time for each program/session, and if a student recruitment fair would be of interest. Data indicated that 54 of 109 (49.5%) respondents selected Friday as the best day to attend a conference. Thursday (44 of 109 or 40.4%) and Monday (43 of 109 or 39.4%) were the next best days for attending conferences (See Figure 1).

As for whom industry members would like to see conducting workshops or seminars an overwhelming 85 of the 109 respondents selected industry representatives or practitioners. The respondent’s second choice was consultants (55 of 109 or 50.5%) and, the respondent’s third choice was community college or university professors (12 of 109 or 11%). When asked to describe the ideal workshop or seminar length: 42 respondents indicated 60 minutes, 38 specified 90-minutes, 32 declared ½ day, and 13 designated a full day. When the respondents were asked if a student recruitment fair would be of interest to their company 17, indicated definitely, 76 maybe, and 16 definitely not.

The next five questions asked for information related to professional certifications. When asked if their current employer valued professional certifications 74 of the 109 respondents (67.9%) said “yes.” When asked if the respondent held any professional

Figure 1. Best days of the week for Industry members to attend seminars/workshops



certifications 63 of the 109 respondents (57.8%) indicated they held one or more professional certificates. Table 3 illustrates the types of professional certificates held by NAIT industry division members.

When the NAIT Industry members were asked how important recertification credits were 39 of 109 indicated very important, 36 of 109 somewhat important, and 34 of 109 Not at all important. Table 4 depicts the types of professional development seminars/workshops NAIT's Industry members would like to attend.

The last question sought information regarding NAIT Industry member job titles. Thirty-nine of the 109 (35.8%) respondents stated they had the word engineer in their respective job titles.

Conclusions

As management practices and technology continue to rapidly evolve, it is becoming progressively more and more difficult for industrial technology professionals to keep abreast of the essential knowledge, skills, and attitudes required by business and industry. Therefore, being able to maximize the outreach and professional development opportunities of NAIT's Industry members has become a primary concern for the NAIT management team. More specifically, the NAIT governing body needs to address the professional development needs of its Industry constituency through a combination of targeted workshops and/or seminars aimed at providing professional certification and recertification. This charge has many implications for NAIT's University and Community College faculty who rely

Table 3. NAIT Industry member professional certifications

<i>CQA</i> [2]	<i>CMfgT</i> [11]	<i>CQE</i> [4]	<i>CMfgE</i> [6]
<i>CQT</i> [1]	<i>CIT</i> [40]	<i>CRE</i> [2]	6 σ Black Belt [3]

Table 4. Seminar/Workshop topics Industry Division members would most likely attend

<i>Activity Based Costing</i> [43]	<i>Lean Manufacturing</i> [62]
<i>JIT Inventory Mgmt</i> [29]	<i>Human Ergonomics</i> [19]
<i>Supply Chain Mgmt</i> [44]	<i>Quality Control</i> [49]
<i>OSHA, ISO 14000</i> [30]	<i>Six Sigma</i> [38]
<i>EPA, ISO 18000</i> [16]	<i>Total Predictive Maintenance</i> [33]
<i>Manufacturing Simulation</i> [34]	<i>E-Manufacturing</i> [32]

heavily on making presentations at the annual NAIT conference as a means for achieving promotion and tenure. The findings of this study suggest that NAIT Industry Division professionals place little or no value on the "academic" presentations made by community college and university faculty. This charge needs to create a sense of urgency for faculty, university administration, and the students for which we serve. This is no small task for our professional educators to overcome. It is becoming more and more difficult to prepare students for industry, especially if the faculty has never been involved with the business/industry community. The findings of this study directly support a 2003 paper written by Shaw and Downing that examines "The Status of Industrial Interaction/Outreach in Industrial Technology." Their study found mutual benefits to faculty and industry interactions.

Overall the data acquired in this study indicated a need for the NAIT governing body to carefully examine how best to serve its Industry constituency. NAIT must examine its strategic goals

and objectives to determine if the needs of the Industry Division members can best be served under the guise of the existing NAIT annual conference. Additionally, the need for professional certifications and recertification was deemed to be important.

References

Berelson, B. (1954). *Content Analysis*. In G. Lindzey and E. Aronson, eds., *The Handbook of Social Psychology*, 2nd Ed. Reading, MA: Addison-Wesley 1954, Vol 1, Chap. 13.

Markoff, J.; Shapiro, G.; & Weitman, S. (1974). *Toward the Integration of Content Analysis and General Methodology*. In D. Heise, ed. *Sociological Methodology 1975*. San Francisco: Jossey-Bass, 1974, chap. 1.

Miller, M. R. (2000). The status of NAIT: Perceptions of industrial technology department chairs. *Journal of Industrial Technology*, 16(3), 1-8.

NAIT (2003, March 8-9). Executive Board Spring 2003 Meeting Book. Ann Arbor, MI. 3