COMMUNICATION STRENGTHS AND WEAKNESSES OF RADIATION PROTECTION PROFESSIONALS IN THE UNITED STATES AND CANADA

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INTRODUCTION

Effective health risk communication may well determine the future of peaceful applications of nuclear technology and the social acceptance of risks from radiation in medicine, research, and industry. However, radiation protection professionals who know how to quantify risks and provide appropriate safeguards, have historically encountered great difficulties in communicating their risk perspectives to the concerned public. Since the early days of the Manhattan Engineering District, health physicists have struggled with the problems of communicating the benefits and risks of radiation technology to non-technical people.

In the U.S., organizations, such as the Health Physics Society and the American Nuclear Society, have traditionally attributed communication difficulties to the public's lack of technical understanding. This has led to the belief that if the public could be provided sufficient information or education, they would "understand" radiation issues and their concerns about radiation risks would be resolved. Consequently, these national organizations and their local chapters have established public information programs and speakers bureaus. These programs primarily focus on presentation of technically accurate data and attempt to foster understanding of radiation by analogies with background radiation or other sources of risks commonly accepted by society.

This paper will show that such public information programs can at their best reach only about 25% of the general public. These programs could greatly enhance their effectiveness by learning the different ways that radiation professionals and the general public prefer to gather data and make decisions. This insight was derived from a four year study of communication styles conducted by the Baltimore-Washington Chapter of the Health Physics Society. The study began in early 1983 following a meeting convened by the Chapter President, Dr. Allen Brodsky, to address what we knew about the communication strengths and weaknesses of health physicists. Recognizing that traditional communication approaches were not achieving desired results, the Chapter's Public Information Committee decided to host a one day workshop in early June 1983 to explore other approaches. The

authors, as both radiation professionals and communication specialists, conducted the workshop. This included an analysis of communication profiles using the Myers-Briggs Type Indicator (MBTI), a tool that has become the main basis of the ongoing communication study*.

MBTI COMMUNICATION STUDY

The MBTI provides a quantitative measure of how we prefer to gather information, make decisions, and relate to other people. The development of this tool was a lifelong effort by Katherine Briggs and her daughter, Isabel Briggs Myers, to measure concepts of psychological type originally defined by Carl Jung, a Swiss psychologist in the 1920's (My80)(Ju23). The MBTI is now used worldwide for management training, organizational development, team building, conflict resolution, and communication training.

The MBTI uses 166 multiple choice questions to determine our natural preferences in four categories:

1) Where we get our energy by EXTRAVERSION (E) -- from interacting with people, activities, and things, or by INTROVERSION (I) -- from inner reflection, ideas, and private time.
2) How we collect information by SENSING (S) -- using our five senses for specific, detailed, and practical data, or by INTUITION (N) -- seeing patterns, connections, meanings, and imaginative possibilities.
3) How we make decisions by THINKING (T) -- using logical analysis, principles, and laws to determine the truth, or by FEELING (F) -- using personal values, other's concerns, and sentiments for what is good.
4) How we relate to others by JUDGING (J) -- planning, organizing, making decisions, and striving to reach closure, or by PERCEIVING (P) -- enlarging our awareness, keeping options open, resisting closure, and striving for understanding.

Jung said that everyone will have a distinct preference for one side of each category in the same way that we naturally favor our right or left hand. With the current data base of over 800 profiles, we find that the preferences of radiation protection professionals in the U. S. and Canada are as follows:

(E) EXTRAVERSION -- 37%	(I) INTROVERSION -- 63%
(S) SENSING -------- 43%	(N) INTUITION ------ 57%
(T) THINKING ------- 80%	(F) FEELING -------- 20%
(J) JUDGING -------- 66%	(P) PERCEIVING ----- 34%

The overall preference is for I N T J. This is one of 16 possible combinations of Myers-Briggs type, however, this particular combination of preferences represents only one percent of the general population. On the other hand, it is not

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coincidental that people with the I N T J preference would choose the health physics profession. People will naturally choose occupations that allow them to most freely exercise their natural preferences. I N T J's have attributes that are vitally important to radiation protection. Their strengths are that they tend to be independent decision makers, self confident, high achievers, competent, efficient, good with theoretical models, creative, logical, and analytical. Their weaknesses arise when they are seen as too independent, unemotional, demanding, reserved, and critical. They may neglect social rituals and do not like to waste time in idle dialogue and play. Dealing with opposite types is their major problem in communications.

LANGUAGE DIFFICULTIES

This MBTI study has also revealed some insights that could revolutionize the ways we communicate with the public. Namely, even when we all use the same English words, there are actually four English languages in current use today where the meaning and context of the words represent lifestyles as totally different as those of foreign countries.

The languages are based on one of our data gathering preferences, SENSING or INTUITION, or on one of our decision making preferences, THINKING or FEELING (Ye82). The first preference of the majority of radiation protection professionals (60 to 80%) is to communicate in the THINKING language. In this language they will provide logical, rational, analytical conclusions to radiation issues. Since this approach is favored primarily by technical professionals, such as scientists, engineers, and managers it will miss 75 - 90% of any general audience. Realizing this discrepancy, radiation professionals could turn to their second preferred language which is INTUITION (25 - 30%). This language relies on inspiration, imagination, ingenuity, theories, and models. Unfortunately, this language will be heard by less than 10% of any general audience, mostly those who are writers, artists, theoreticians, or entrepreneurs.

The preferred language of 40% or more of the general population is SENSING. This language is based on the five senses for communication. It depends on first hand experience and focuses on what is said and done at the present moment. SENSING types want answers to radiation issues in terms of "Is is safe or not safe, right now?" They do not want to hear about concepts of linear non-threshold dose models or future probabilities of radiation risks. SENSING is third in preference for radiation professionals and less than 10% are inclined to speak this language.

The most difficult language of all for radiation professionals is the language of FEELING. This is fourth in preference and the language they would prefer to avoid as far as possible. Less than 10% of health physicists will use this language, even though it is favored by 25% or more of the general population. This language is the opposite of THINKING as a decision making lifestyle and relies upon subjective values, sentiments, and personal experience.

WHY COMMUNICATIONS FAIL

When we realize that, in our every day communications, people are using four different languages, we can begin to appreciate why we have so many misunderstandings. To have any understanding at all, we have to continuously translate into our frame of reference. Communications break down when we cannot (or will not) do the translating. Failures in communication arise when two people speak different languages and are not able to share a common value system or derive a common meaning.

PUBLIC COMMUNICATIONS

Most public information programs are oriented towards providing simplified information to give the public a basis for understanding nuclear technology. What is usually not stated (but we know deep in our hearts), and what we really want, is for the public to understand radiation "THE WAY WE DO" and for them to think "THE WAY WE DO," in order to arrive at the same logical conclusions "AS WE DO." Therefore, we engage our best technical experts, who primarily use only the THINKING language to present both verbal and written communication to the public. But, what is the primary language of our audience? Most general audiences with concerns for radiation, especially at public hearings, will prefer to communicate in the FEELING or SENSING languages.

CONCLUSION

The key to successful public information is to recognize that there are two (or more) languages in use. Then we have the option of communicating in the preferred language of our audience. We can do the translation into the language they will hear and appreciate as their own, rather than forcing our audience to deal with our foreign language. When we attempt to communicate in their language, audiences will be more comfortable and receptive, even if we are not perfect in their language. Radiation professionals can easily double their effectiveness for addressing public concerns about nuclear technology by learning to communicate in the preferred language of the audience (Jo84).

REFERENCES

Jo84 Johnson, R. and L. Petcovic, 1984 to present, "Insights in Communication," Monthly Articles, The Health Physics Society Newsletter.

Ju23 Jung, C.G., 1923, "Psychological Types," (New York: Harcourt Brace Publishers.

My80 Myers, I.B. and P.B. Myers, 1980, "Gifts Differing," (Palo Alto, California: Consulting Psychologists Press).

Ye82 Yeakley, F.R., 1982, Communication Style Preferences and Adjustments as an Approach to Studying Effects of Similarity in Psychological Type, "Research in Psychological Type," 5, p.30 - 48.