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# THE RELATIONSHIP OF EXTENT OF USAGE OF COMMUNICATION METHODS AND OCCUPATIONAL TYPES

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Research has investigated the extent of usage of different communication mediums (face-to-face communication, telephone calls, meetings, written correspondence) required in particular occupations (Di Salvo, 1980; Di Salvo, Larsen, & Seiler, 1976; Kreps & Thornton, 1984; Tunstall, 1971). However, more research is needed to directly compare the extent of communication medium used by those in different occupations. Results may show that one occupation relies more on face-to-face interaction with those outside the organization, whereas another occupation depends more on scheduled meetings and telephone calls. Faculty, administrators, and career counselors could then know if training for those entering different occupations should include training in usage of different communication mediums. People contemplating entering a particular occupation would know what communication mediums they would be required to use.

The present study compared the extent of usage of communication methods by people employed in different occupations. Occupations representing each of the six occupational types developed by Holland were used as a basis for distinguishing among occupations. Holland (1985) developed a theory of personalities and work environments found in six different occupational types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The theory was based on the following four assumptions. First, most people in our culture can be classified into one of the six occupational types. Second, six model environments with the same labels as the types exist. Third, individuals seek environments that match their skills, abilities, attitudes, values, and also allow them to address agreeable problems and roles. Fourth, personality and environment determine a person's behaviors such as educational behavior, vocational choice, and vocational achievement.

Holland pointed out that differences in the communication of personalities in the various occupational environments would be found in different occupational types. Some words that Holland used to describe each of the six distinct occupational types were: Realistic — Asocial, Frank; Investigative — Reserved, Retiring; Artistic — Emotional, Expressive; Social — Friendly, Persuasive, Tactful; Enterprising — Extroverted, Talkative; Conventional — Defensive, Inhibited (Holland, 1985). Thus, a friendly and persuasive person, for example, would more likely fit in the Social occupational environment. People gravitating toward different occupational types may

have different abilities and expectations regarding the communication they will do at work.

The current paper first discusses past research findings about the communication mediums used by particular occupations. Then, design of the present study is discussed. The current study examines whether those who have prepared for entering different Holland occupational types use different communication mediums at work. Results of the current study comparing the extent of usage of communication mediums required by different occupations are presented. Implications for career counseling and for training for various occupations in use of communication mediums are considered.

### Literature Review of Communication in Occupations

An example of Holland's Realistic occupational type would be mechanical engineers. Engineers may have to engage in face-to-face communication, present ideas to groups, write reports, communicate within the company, and serve as advisors to government committees. Engineers may also have to present papers and chair large, formal group meetings (Fitch, 1980; Florman, 1987; Gray, 1987; Jones, 1988).

Physicians are representative of the Investigative type. The following have been suggested as mediums of communication for physicians: face-to-face communication involving practitioner and client, face-to-face and telephone communication with other health care professionals, and written communication, such as case studies, papers, instruction sheets, and letters (Block & Coulehan, 1987; Daly & Hulka, 1975; Kahn, Cohen, & Jason, 1979; Kreps & Thornton, 1984; Lichstein & Nieman, 1985; Sharf, Wood, & Flaherty, 1982; Smith & Bass, 1979).

Journalists are a typical Artistic type. Journalists may do writing, editing, graphics, layout, photography, and basic speech communication including oral communication skills (Spicer, 1979). They spend time in face-to-face communication and in telephone calls with sources and with other journalists, working with documents, dealing with letters, and writing and sending stories (Tunstall, 1971). Journalists have been increasingly utilizing computers and video display terminals in their work (Rucker & Williams, 1974).

Registered nurses fit the Social type. Nurses use face-to-face communication, telephone communication, and meetings with patients, medical doctors, other nurses, and health care administrators (Di Salvo, Larsen, and Backus, 1986; Honeycutt & Worobey, 1987; Morse and VanDenBerg, 1978).

Lawyers are representative of the Enterprising type. Much of the research and writing related to this occupational communication has concerned communication between lawyers and their clients. Face-to-face communication, telephone conversations, meetings, and written correspondence have been discussed as methods of communication for lawyers (Brown, 1978; Gillers, 1979; Macaulay, 1984; Rosenthal, 1974; Schoenfield and Schoenfield, 1981). Other important areas of communication for lawyers are written and oral advocacy (Domenic, 1973; Fontham, 1985).

Accountants are examples of the Conventional type. Di Salvo, Larsen, and Seiler (1976) learned that finance graduates utilized listening, advising, information exchange, instructing, and persuading at work. These finance graduates also used writing, listening, small group problem solving, public speaking, presentation of technical information, and interviewing.

### The Present Study

The present study investigated possible differences in the extent of usage of communication mediums among the six Holland occupational types. The previous research suggested that different occupational types may emphasize use of different communication mediums. The aforementioned research on particular occupations and Holland's research leads one to hypothesize that a part of an occupational type encompasses the use of communication mediums appropriate for the particular occupational classification. The present study investigated whether differences in the use of various communication mediums exist among the six occupational types.

### Methods

#### Subjects

Subjects were 1,175 alumni of a Midwestern university. In order to study individuals who had been in their occupations a number of years, the present study utilized alumni who had received their degrees between 10 and 20 years previously. An attempt was made to obtain a representation from each of Holland's six occupational types. College majors or professional school majors were used as an indication of the occupational types in which people in these professions would be found. Occupations, in the sample population, representing Holland's six occupational types were: Realistic — all mechanical engineering graduates (from that time period),  $N = 167$ ; Investigative — a random sample of medical school graduates,  $N = 189$ ; Artistic — all fine arts and journalism graduates,  $N = 195$ ; Social — a random sample of registered nursing graduates,  $N = 200$ ; Enterprising — a random sample of law school graduates,  $N = 195$ ; Conventional — a random sample of accounting graduates,  $N = 229$ .

The questionnaire included a cover letter stating that the questionnaire was to be completed anonymously. After administering a pilot questionnaire to a university alumnus, a mail questionnaire was distributed. A follow-up was done. A total of 395 questionnaires was returned for a response rate of 33.6 percent. Two addressees could not be located and these two questionnaires were returned by the postal service. The number of respondents in each of Holland's categories was as follows: Realistic — 63 (38%); Investigative — 49 (26%); Artistic — 63 (32%); Social — 75 (38%); Enterprising — 61 (31%); and Conventional — 84 (37%). The computer utilized 362 of these responses in the computer analyses. The remainder were excluded by the computer due to missing data.

The mean age of respondents was 38 years. Ages of respondents ranged from 30 to 60 years. Two hundred fifty-one were male, 125 were female, and 19 did not reveal their sex. Marital statuses of the respondents were: married — 319; divorced — 28; widowed — 0; and single — 29. Nineteen didn't reveal their marital status. The average number of children was 1.87, with a range of zero to nine. The demographic representation of the respondents appears representative of the sample population.

## Measures

**Communication Mediums.** A list of communication mediums was generated. A communication medium was included in the current study if the medium was mentioned in the literature as used by at least one of the occupations examined in the current study. For example, Tunstall (1971) suggested that journalists utilized face-to-face communication and telephone calls with sources and other journalists, as well as communicating with documents, letters, and through writing stories. In the present study, communication mediums assessed for extent of usage included face-to-face communication with individuals inside and outside the organization, telephone calls with people inside and outside the organization, addressed and unaddressed documents, outside written correspondence, scheduled and unscheduled meetings, typewriter, computer/word processor, and walkie/talkie beeper use. A list of the questions can be found in Appendix 1.

## Results

### Means, Standard Deviations, and Correlations

Results of the means, standard deviations, and correlations for the communication mediums for Holland's six occupational types are in Table 1. The Manova and Univariate F-test results are in Table 2.

The Manova results yielded a significant overall F-value of 6.38 (Wilks-Lambda = .37,  $df = .60$ ,  $p = .001$ ). Univariate analyses of variance were then conducted for each of the communication mediums. Significant differences on the Anovas were found for all of the communication mediums except face-to-face communication inside the organization and unaddressed documents within the organization.

Tukey's Honestly Significant Difference (HSD) tests were calculated to further examine the nature of these differences. Because of discrepant sample sizes, the Behrens-Fisher method was used to adjust for unequal sample sizes in calculating Tukey's HSD (Keselman & Rogan, 1977). Due to the conservative nature of the Tukey HSD tests, two additional variables were found not to be significant. These variables were telephone communication inside the organization and addressed documents within the organization. Communication mediums which showed significant results for the Tukey's HSD were as follows:

Face-to-face communication with those outside the organization was employed most by medical school, nursing, and law school graduates. Medical

Table 1

## Correlation Matrix for Communication Methods

	<u>M</u>	<u>SD</u>	1	2	3	4	5	6	7	8	9	10	11
1) Face-to-face outside organization	5.02	1.39											
2) Face-to-face within organization	5.48	.80	.20										
3) Telephone outside organization	4.80	1.33	.43	.17									
4) Telephone within organization	4.49	1.40	-.03	.21	.24								
5) Addressed documents within	3.78	1.53	.04	.20	.16	.44							
6) Unaddressed documents within	3.10	1.56	.03	.15	.13	.27	.55						
7) Outside written correspondence	4.07	1.46	.15	.09	.47	.21	.38	.33					
8) Scheduled meetings	3.60	1.33	.18	.17	.25	.27	.37	.31	.45				
9) Unscheduled meetings	3.40	1.40	.05	.19	.28	.26	.34	.30	.52	.68			
10) Typewriter use	2.05	1.41	.02	-.08	.01	-.01	.04	.10	.07	-.06	-.02		
11) Computer/Word Processor use	3.24	1.95	-.21	-.06	-.06	.11	.15	.22	.04	.06	.08	.27	
12) Walkie-talkie/Beeper use	2.01	1.63	.15	-.03	.02	.14	.09	.10	.07	.21	.08	.05	-.04

N = 362

The significance levels are .19 ( $p \leq .05$ ) and .25 ( $p \leq .01$ ) for a two-tailed test of significance.

Table 2

Means, Standard Deviations, and Anovas of Communication Methods for Occupational Types<sup>a</sup>

	Realistic (N=58)		Investi- gative (N=43)		Artistic (N=56)		Social (N=71)		Enter- prising (N=54)		Conven- tional (N=80)		Uni- variate F
	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	
1. Face-to-face outside organization	4.31	1.56	5.61	.82	4.70	1.61	5.66	.72	5.54	.91	4.44	1.60	14.55***
2. Face-to-face inside organization	5.43	.84	5.44	.59	5.47	1.06	5.52	.81	5.54	.54	5.45	.83	.18
3. Telephone outside organization	4.69	1.34	5.12	.70	4.46	1.66	4.54	1.36	5.46	.91	4.65	1.40	4.93***
4. Telephone inside organization	4.81	1.19	4.61	1.08	4.25	1.67	4.37	1.23	4.07	1.64	4.75	1.30	2.92**
5. Addressed documents within	4.19	1.30	3.81	1.42	3.61	1.65	3.48	1.57	3.46	1.65	4.06	1.44	2.62*
6. Unaddressed documents within	3.24	1.48	3.47	1.62	3.09	1.69	2.92	1.50	2.76	1.58	3.18	1.52	1.32
7. Outside written correspondence	4.07	1.36	4.63	1.00	3.71	1.56	3.07	1.39	5.06	1.22	4.21	1.28	16.60***
8. Scheduled meetings	3.72	1.24	3.83	1.25	3.43	1.45	3.24	1.30	4.15	1.42	3.38	1.16	4.07***
9. Unscheduled meetings	3.60	1.11	3.30	1.19	3.34	1.48	2.76	1.35	4.07	1.44	3.39	1.26	6.58***
10. Typewriter use	1.50	.90	1.63	.85	3.02	1.86	2.10	1.29	1.91	1.34	2.03	1.38	8.95***
11. Computer/word processor use	4.07	1.82	2.26	1.36	3.75	2.14	2.76	1.86	2.57	1.84	3.68	1.88	8.83***
12. Walkie-talkie/beeper use	1.95	1.52	3.61	1.88	1.93	1.58	2.24	1.76	1.19	.73	1.56	1.21	15.24***

N = 362

<sup>a</sup>The Wilks-Lambda of the Manova is .37 (F = 6.38, df = 60, p < .001)

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

school alumni used this communication medium more than did engineering ( $p \leq .01$ ), journalism ( $p \leq .01$ ), or accounting ( $p \leq .01$ ) alumni. Nursing alumni scored higher on this communication medium than did engineering, journalism, and accounting alumni at the  $p \leq .01$  level. Law school alumni rated higher than did engineering, accounting ( $p \leq .01$ ), and journalism ( $p \leq .05$ ) alumni on use of face-to-face communication with those outside the organization.

Law school alumni appeared to use the telephone with those outside the organization significantly more than did the other occupations. Law school graduates utilized use of telephone with those outside the organization more than did engineering ( $p \leq .05$ ), journalism ( $p \leq .01$ ), nursing ( $p \leq .01$ ), or accounting ( $p \leq .01$ ) graduates.

Outside written correspondence was utilized most by medical school alumni and law school alumni and least by nursing alumni. Medical school graduates used outside written correspondence more than did journalism ( $p \leq .05$ ) or nursing ( $p \leq .01$ ) graduates. Law school alumni used this communication method more than did engineering ( $p \leq .01$ ), journalism ( $p \leq .01$ ), nursing ( $p \leq .01$ ), or accounting ( $p \leq .01$ ) alumni. Nursing school graduates utilized outside written correspondence significantly less than did all occupations ( $p \leq .01$ ) except journalism school graduates.

Scheduled meetings were used most by law school alumni. Law school graduates spent more time in scheduled meetings than did journalism ( $p \leq .05$ ), nursing ( $p \leq .01$ ), or accounting ( $p \leq .01$ ) graduates.

Unscheduled meetings were employed most by law alumni and least by nursing alumni.

Law school alumni utilized unscheduled meetings more than did medical school ( $p \leq .05$ ), journalism ( $p \leq .05$ ), nursing ( $p \leq .01$ ), or accounting ( $p \leq .05$ ) alumni. Nursing alumni used unscheduled meetings less than did engineering ( $p \leq .01$ ) or accounting ( $p \leq .05$ ) alumni.

Typewriters were utilized most by journalism alumni. Journalism graduates employed the typewriter more than did engineering ( $p \leq .01$ ), medical school ( $p \leq .01$ ), nursing ( $p \leq .01$ ), law ( $p \leq .01$ ), and accounting ( $p \leq .01$ ) graduates.

Computers and/or word processors were used most by engineering, journalism, and accounting alumni. Engineering graduates utilized this communication method more than did medical school ( $p \leq .01$ ), nursing ( $p \leq .01$ ), and law ( $p \leq .01$ ) graduates. Journalism alumni employed this communication method more than did medical school ( $p \leq .01$ ), nursing ( $p \leq .05$ ), and law ( $p \leq .01$ ) alumni. Accounting graduates employed computers and/or word processors more than did medical school ( $p \leq .01$ ), nursing ( $p \leq .05$ ), or law ( $p \leq .01$ ) graduates.

Walkie-talkies, beepers, and/or cellular or cordless phones were employed most by medical school alumni and somewhat by nursing alumni. Medical school alumni used this communication method more than did engineering ( $p \leq .01$ ), journalism ( $p \leq .01$ ), nursing ( $p \leq .01$ ), law ( $p \leq .01$ ), and accounting



( $p \geq .01$ ) alumni. Nursing alumni utilized walkie-talkies, beepers, and/or cellular or cordless phones more than did law alumni ( $p \leq .01$ ).

### Discussion

The present study examined the relationship of the extent of usage of communication mediums by different occupational types. Results showed that there were significant differences in the extent of various communication mediums used by different occupations. These results suggest that knowledge about and practice in usage of different communication mediums should be studied and developed in preparing for occupations in the different occupational categories. By identifying which communication mediums are used by specific occupational types, people wishing to enter a certain occupation can spend more time developing skill in use of the communication mediums needed for that particular occupational type. Counselors can use results of the present research to help counsel people who prefer to enter the various occupation types. Usage of communication mediums found in different occupational types can be developed and refined by individuals. People will have an expectation of what usage of communication mediums are required of them in that occupational type. An idea might be to consider communication mediums used in the occupational area while the individual is in college and adjust the curriculum accordingly.

Those entering the Investigative (e.g., medical school graduates), Social (e.g., nursing graduates), and Enterprising (e.g., law graduates) occupational environments should be skilled in areas of personal interaction with people from outside the organization. These students could take courses which would allow them to develop practice in face-to-face communication with those from outside the organization.

People in the Investigative and Enterprising occupational fields might learn how better to express ideas and communicate on paper. Lawyers additionally should have skills to communicate effectively by telephone. The dynamics of telephone conversations between lawyers and their clients and between lawyers and their colleagues could be better understood. Lawyers should hone the skills used in scheduled and unscheduled meetings. These skills likely include face-to-face interactions and mastering group dynamics.

The Realistic (e.g., engineering graduates), Artistic (e.g., journalism graduates), and Conventional (e.g., accounting graduates) occupational categories could have more classes to develop skills and practice using the computer and word processor. Because physicians rely on beepers and cellular phones, the impact of communicating through these devices could be better understood. For example, more could be learned about how nurses and other health care professionals feel regarding interacting with physicians through beepers.

A limitation of the study is that the sample consisted only of individuals who graduated from one Midwestern university. Other universities may not find the same effects. Also, in an effort to study those who had been in their occupations for a number of years, graduates from between 10 and 20 years ago were utilized. Some of these individuals had changed career paths. Per-

sonality tests were not administered. The present study assessed those in Holland's various occupational environments and how communication differs in each.

In summary, this initial investigation of communication mediums in the occupational types indicated significant differences among the occupational environments. Future studies may explore this topic further and in greater detail.

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## Appendix 1

### Job Communication

Rate the frequency, of the following items, in your on-the-job communication. Use the following scale:

- 1 = Never
- 2 = Less than once a week
- 3 = Once a week
- 4 = Once a day
- 5 = Several times daily, usually less than five minutes per time
- 6 = Several times daily, usually more than five minutes per time

In my job, I:

- \_\_\_ 1. Communicate face-to-face with suppliers, clients, patients, and/or students.
- \_\_\_ 2. Communicate face-to-face with those employed by my organization.
- \_\_\_ 3. Communicate by telephone with suppliers, clients, patients, and/or students.
- \_\_\_ 4. Communicate by telephone with those employed by my organization.
- \_\_\_ 5. Spend time sending and/or receiving addressed documents (e.g., memos, bulletins) within the organization.
- \_\_\_ 6. Spend time sending and/or receiving unaddressed documents (e.g., flyers, general memos).
- \_\_\_ 7. Deal with outside written correspondence.
- \_\_\_ 8. Conduct and/or participate in scheduled meetings.
- \_\_\_ 9. Conduct and/or participate in unscheduled meetings.
- \_\_\_ 10. Use the typewriter.

- \_\_\_ 11. Use the computer and/or word processor.
- \_\_\_ 12. Use a walkie-talkie, beeper, and/or cellular or cordless telephone.
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