

Verbal Communication Skills Requirements for Information Systems Professionals

ABSTRACT: The role of information systems (IS) professionals in organizations has changed through the years, from one who works mostly with technically oriented peers, to one who spends a significant amount of time interacting with people who are involved in the functional areas of the organization. In many organizations, IS professionals are assigned permanently to the user area and they are expected to not only be technically competent, but also be competent in the user's area. This move of IS professionals to the functional areas necessitates that they communicate more with the functional users whose IS needs they are fulfilling. The users, on the other hand, are also required to interact and communicate more with the IS people. With the move toward distributed IS, users are becoming more involved in the specification, design and sometimes even construction of their own systems. It is therefore imperative that analysts and users be able to communicate with each other unequivocally, so that the systems are specified and developed properly. This research investigated the verbal communication skills requirements for IS practicing professionals and new university graduates. A survey was used for data collection. It was sent to IS professionals in several large organizations, that represented the industry in general. A nearly perfect response rate was achieved. The findings are useful for both IS professionals and university programs. Organizations can use the findings to identify areas of weaknesses in the skills of their IS personnel and eliminate them with continuing education. Universities can use the findings to identify skills that they may not be currently emphasizing in their curricula and make necessary adjustments.

IMPORTANCE OF COMMUNICATIONS SKILLS

Information Systems (IS) professionals develop IS solutions for their organizations by being involved in all stages of the Systems Development Life Cycle (SDLC). They have a major role during each of the typical phases of the SDLC [1] (p. 13), by either performing the required activities or by providing support to users who do so. During the systems investigation phase, which produces the feasibility study, the IS professional has to help determine whether a business problem or opportunity exists, assess the feasibility of a new improved system and develop a realistic project management plan. During the systems analysis phase, which produces the functional requirements specification, the IS professional has to work with the users in order to analyze and document users' informational requirements, the organizational environment and the existing systems [1] (p. 102). During the systems design phase, which produces the system specification, the IS professional has to develop detailed specifications for the hardware, software, people, data and procedures that will meet the users' requirements of the system. During the systems implementation phase,

which produces the operational system, the IS professional has to acquire hardware, acquire software by evaluating existing packages or construct the software with traditional or advanced programming techniques if no available "canned" software exists [2] (p.309). Furthermore, the IS professional is responsible for thorough testing of the software regardless of whether it was purchased or constructed in-house, for training the users in the use of the new system and for a smooth conversion from the old system to the new system [3] (p.519).

During the last phase of the SDLC, the operations and maintenance which produces a new improved system that operates smoothly, the IS professional has to perform post-implementation reviews in order to monitor, evaluate and modify the new system as necessary. During each of the phases of the SDLC, the IS professional works alone or in a group consisting of both IS and user personnel. Whether alone or in a group, however, the IS professional has to remain in constant communication with both peers from the IS division as well as users from the user areas [3] (p.71). This communication is necessary to ensure that the system is being developed properly. A

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typical form of communication is the activity of "user reviews" which can take the form of informal walkthroughs or formal management reviews [4] (p.312). Walkthroughs bring together users and developers and enable both parties to agree on requirements specifications and provide frequent feedback to each other [2] (p.339). Management reviews are usually more formal meetings conducted after project milestones to ensure user acceptance of system modules, to review the project schedule and again ensure that both users and developers are in agreement about the project.

TYPES OF COMMUNICATIONS SKILLS

It is therefore imperative that the IS professional be able to communicate with each other and with their user-clients. IS professionals should have the ability to communicate using a variety of communications skills [5]. These communication skills should be based on underlying principles which include respect and consideration for other people, the avoidance of an attitude that may overwhelm or intimidate other people, and the knowledge that other people will have to respond and give answers to issues raised during an exchange

of information [1] (p.34). For effective communication, people need to properly identify their audience, clearly define the purpose of the communication, develop and outline the subject, and be focused and concise in order to make a point. While communicating, people will engage in either a written or a verbal communication process. Previous research [6] has focused on assessing written communications skills requirements for IS professionals. That research concluded that, based on industry response, written communication skills are very important for an IS professional to be efficient and effective. It was found that while lengthy written communication is infrequent, short concise memoranda and reports transmitted via e-mail or fax are used very frequently by IS professionals. A slight weakness in training for preparing short concise reports was perceived and many survey respondents commented that one of the most important skills sought in new IS recruits is communications skills, both written and verbal. While communications skills are extremely important, it is also clear that in today's rapidly changing IS world, a variety of skills are necessary. Related studies report that a combination of skills, including communications, is necessary to properly manage, on-going changes in information technology (IT) applications [7], [8].

VERBAL COMMUNICATIONS SKILLS

Verbal skills clearly seem to be one set of abilities that an IS professional must have in order to be effective and efficient [9] [10]. This research focuses on assessing verbal communications skills for IS professionals. The objective is to assess any changes in the need for verbal communications skills, to assess the specific types of verbal communication and their frequency, and to determine the current importance of these skills as related to their current job as well as upward mobility in the organization.

METHODOLOGY

A questionnaire was sent to IS professionals in both the public and private sectors. The objective of the questionnaire was to gather data on the importance of and need for verbal communication skills. This instrument was a modification of a previously validated and used questionnaire which had been used to assess written communication skills requirements and needs [6]. The questions elicited responses on the

frequency of use and duration of various forms of verbal communication and supporting visual aids, as well as on the perceived importance of those skills to the IS professional's present position and upward mobility. The questionnaire data were used to answer the following questions:

1. What forms of verbal communication do IS professionals use? How frequently do they use the different forms?
2. What kinds of visual aids do IS professionals use to support their verbal communication? How frequently do they use the different kinds?
3. What is the frequency and duration of oral presentations according to audience size?
4. What is the relative importance of various verbal communication skills? What is the importance of such skills to the IS professional's career?

The full text of the questionnaire is available in appendix A of this paper.

SURVEY DISTRIBUTION

The survey instrument was a revision of a previously validated similar questionnaire. After an internal review and limited pilot testing, it was distributed to a select group of 8 firms where professional relationships with the collaborating managers guaranteed a very high response rate. These few companies were specifically targeted as to guarantee the high response rate to ensure strong statistical inferences from the data analysis. The objective of this project was to learn from a few select organizations and subsequently refine the instrument and target it to a larger sample of randomly selected organizations. The researchers felt that since response rates from "randomly selected organizations" tend not to be very high, it was more useful to do the first phase of this research project with participants that would ensure a very high response rate and support strong statistical inferences. The response rate from all the organizations was well over 90% since the collaborating

managers administered, collected, and mailed the completed surveys back to the researchers. These organizations included the following types of institutions: retail, service, government, financial and energy (oil and gas) (Table 1.)

The classification in Table 1 is used to classify respondents by organization type. All of the participating firms have well over 500 employees each. Therefore it should be emphasized that this research reflects the responses of large organizations with a long standing tradition of using information technology applications.

DATA ANALYSIS

The responses were categorized in terms of the purpose of each question and subsequently tabulated and analyzed in terms of the objectives of this study.

Demographics

As requested, and expected, all respondents were engaged in some area of IS (Table 2). The respondents had held their current position for an average of 4 years, with a range of 0 to 24 years. Moreover, they had been in the IS profession for an average of 9.45 years with a range of 0 to 31 years. Clearly, the length of experience and the types of positions they hold, makes them a qualified pool of people to participate in this research.

Table 1. CLASSIFICATION OF ORGANIZATIONS PARTICIPATING IN THE STUDY

| Organization Type | Number of Respondents | Percent |
|-------------------|-----------------------|---------|
| Retail | 56 | 21.5 |
| Service | 107 | 41.0 |
| Government | 10 | 3.8 |
| Financial | 35 | 13.4 |
| Energy | 53 | 20.3 |

Table 2. JOB TITLE OF RESPONDENTS PARTICIPATING IN THE STUDY

| JOB TITLE | Number | Percent |
|--------------------|------------|-------------|
| Programmer | 20 | 7.7 |
| Programmer/Analyst | 79 | 30.4 |
| Systems Analyst | 57 | 21.9 |
| Team Leader | 9 | 3.5 |
| Project Manager | 27 | 10.4 |
| Supervisor | 25 | 9.6 |
| Other | 43 | 16.5 |
| Missing Value | 1 | 0.0 |
| Total | 261 | 100% |

Table 3. FORMS OF VERBAL COMMUNICATION AND FREQUENCY

| | Frequency | | | | |
|---|-----------|---------------------|---------------------|--------|-------|
| | Daily | Frequently (Weekly) | Sometimes (Monthly) | Seldom | Never |
| Face to face conversation with another IS professional | 254 | 5 | 1 | 0 | 1 |
| Face to face conversation with a non-IS professional | 131 | 82 | 32 | 14 | 1 |
| Formal presentation before a group of other IS professionals | 4 | 23 | 84 | 126 | 24 |
| Formal presentation before a group of non-IS professionals | 1 | 5 | 63 | 139 | 51 |
| Formal presentation of product or service to an individual or a group | 5 | 11 | 65 | 114 | 52 |
| Telephone conversation | 219 | 22 | 3 | 11 | 5 |
| Audio teleconferencing | 7 | 39 | 50 | 75 | 88 |
| Video teleconferencing | 1 | 3 | 15 | 65 | 163 |
| Speak as an officer (i.e. President, Secretary, Committee Chair) | 0 | 8 | 29 | 47 | 171 |
| Informal meetings with peers/users | 127 | 103 | 23 | 7 | 0 |
| System reviews/walkthroughs | 12 | 68 | 121 | 56 | 2 |

Table 4. GENERAL FORMS OF VERBAL COMMUNICATION

| | Frequency | | | | |
|---------------|-----------|---------------------|---------------------|--------|-------|
| | Daily | Frequently (Weekly) | Sometimes (Monthly) | Seldom | Never |
| Informational | 233 | 17 | 8 | 2 | 8 |
| Persuasive | 76 | 95 | 58 | 16 | |
| Entertaining | 91 | 38 | 30 | 49 | 39 |
| Instructional | 90 | 88 | 49 | 28 | 4 |

Table 5. USE OF VISUAL AIDS

| | Frequency | | | | |
|-----------------------|-----------|---------------------|---------------------|--------|-------|
| | Daily | Frequently (Weekly) | Sometimes (Monthly) | Seldom | Never |
| Handouts | 66 | 106 | 65 | 21 | 1 |
| Chalkboards | 41 | 71 | 72 | 56 | 19 |
| Flipcharts | 9 | 20 | 54 | 103 | 72 |
| Samples and models | 16 | 48 | 54 | 77 | 62 |
| Overhead projectors | 7 | 29 | 78 | 105 | 39 |
| Demonstrations | 8 | 40 | 91 | 82 | 32 |
| Slide projectors | 0 | 6 | 12 | 75 | 163 |
| Filmstrips | 0 | 3 | 2 | 33 | 220 |
| Motion pictures | 0 | 2 | 8 | 30 | 218 |
| Video tapes | 1 | 7 | 29 | 89 | 130 |
| CRT computer graphics | 22 | 22 | 56 | 86 | 70 |
| CRT output display | 22 | 49 | 72 | 56 | 19 |

RESULTS AND DISCUSSION OF FINDINGS

Forms of Verbal Communication and Frequencies of Use

The first objective of the study was to determine what forms of verbal communication are used by IS professionals and how often each form is used. The responses to this item on the survey are shown in Tables 3 and 4.

The number in the intersection of columns

and rows in the above two tables, signifies the number of respondents marking that cell. For example, 254 respondents indicated that they have daily face to face conversations with another IS professional.

The data in the above two tables suggest that IS professionals engage very frequently in informal communications with other people in and out of their organizations. A significant part of that communication is informal and informational in nature. This

means that the objective of the communication is to exchange knowledge on an informal basis. Under such conditions, people should be expected to be able to communicate concisely and briefly. It would seem that IS professionals are better off when they have the skills to be brief, concise and informal than have the skills to give long formal presentations.

Kinds of Visual Aids and Frequencies of Use

The second objective of the study was to determine what forms of visual aids IS professionals use and how often. The responses to this item of the survey are shown in Table 5.

As we see from Table 5, IS professionals use a variety of visual aids to communicate. Handouts and chalkboards are used more than other means to facilitate exchange and/or presentation of information. The CRT is also used as a communication aid. These results again suggest the informal nature of communicating with handouts and through the use of a chalkboard, but also the use of computer technology as another communication medium. This would suggest that meeting rooms should be equipped with chalk (or porcelain) boards (and indeed most every company affords these to their employees) but also that the technology itself is important. Better quality graphics terminals and better resolution and colors would facilitate communication.

Frequency and Duration of Oral Presentations by Audience Size

The next objective of the study was to determine the frequency and duration of oral presentations and the size of the audience. The responses to this item of the survey are shown in Table 6.

As we see from Table 6, IS professionals tend to have frequent meetings in small groups and one on one. It is therefore preferable to ensure that IS professionals are comfortable with and can function well in small groups. It is important that each individual is prepared and able to speak publicly, because in a small group every member will probably be called upon to contribute to the meeting either as a presenter or a participant. As we see, the average duration of the most frequent meetings is around one half hour. This suggests that the participants of those small group meetings, have to be well prepared, concise, precise and efficient. There doesn't seem to be any time for mis-communication.

Importance of Various Verbal Skills

The next objective of the study was to determine the importance of various verbal communication skills, as perceived by IS professionals. The results of this item of the survey are shown in Table 7.

As we see from Table 7, all of the above verbal communication skills are deemed important by IS professionals. The respondents found the ability to listen correctly to someone else, very important. When someone does not listen carefully, mis-communication may occur which will lead to an incorrect response, which will lead to a correction, with the result being wasted time and effort on behalf of the people who are trying to communicate. Careful listening and interpretation of one's presentation will lead to a productive exchange of information without wasted time and effort nor probable frustration.

The next two items of the survey assessed the importance of formal verbal communications skills to the respondents' present position and their upward mobility in the organization, respectively. Table 8 shows the responses to this item of the survey.

As we see from Table 8, IS professionals think that verbal communications skills are important for both their present position as well as their upward mobility. As seen in the demographic data analysis section, the respondents had, on average, been in the IS profession for a longer time than they had held their present position. This would suggest that the ability and the skills necessary to change positions and move upwardly, is something that is important to IS professionals. It is interesting to note that verbal skills were marked more important for upward mobility than for one's current position. Since upward mobility is usually affected by people outside one's work circle, namely senior managers and executives, one of the ways that junior professionals can impress their managers is by having the ability to communicate verbally in a clear and constructive manner.

Open-Ended Responses

The last item on the survey asked the respondents to specify whether they feel there are any areas of verbal communications in which new IS college graduates are deficient. The responses to this item were open-ended but the respondents were forthcoming with comments. The majority of those responding to this item pointed out that new IS college graduates (as well as many of their older colleagues) do not possess good listening skills. This can create

problems by necessitating multiple iterations and repetition in order to get through to someone. Another area that was addressed in this item, was the lack of the ability to make oral presentations and briefings in front of small groups and to summarize and simplify a topic according to the composition of the audience. They pointed out that it is important to be able to comfortably present a subject to a group and be able to use communication aids such as overheads, slides and computer generated graphics and output. Other written comments included low levels of persuasive skills, inability to ad-lib and inability to conduct meetings.

CONCLUSIONS

Based on the results of this research we can draw some general conclusions. First, it is evident that IS professionals engage in numerous verbal communication activities that are informal in nature, brief in duration and with a small number of people at a time. Second, we can infer that most of the communication is indeed verbal in nature but sometimes it is supported by notes or graphs on a board or a handout and also by computer output. Third, it is clear that people expect their peers to listen carefully during a conversation and respond correctly to the issues at hand. Fourth, all IS professionals must be aware of the fact that they will have to engage in some form of informal public speaking. Fifth, it is evident that IS professionals must be able to communicate

Table 6. FREQUENCY AND DURATION OF ORAL PRESENTATIONS

| Audience size | Frequently (weekly) | Sometimes (monthly) | Seldom | Mean duration (minutes) | Never |
|---------------|---------------------|---------------------|--------|-------------------------|-------|
| 1 | 105 | 27 | 30 | 27 | 31 |
| 2 - 5 | 73 | 64 | 47 | 39 | 27 |
| 6 - 25 | 28 | 64 | 98 | 59 | 44 |
| 26 - 50 | 3 | 9 | 67 | 40 | 113 |
| 51 - 100 | 0 | 7 | 33 | 40 | 148 |
| 501 + | 0 | 1 | 6 | 20 | 175 |

Table 7. RATED IMPORTANCE OF VERBAL COMMUNICATIONS SKILLS

| | Very Important | Important | Somewhat Important | Not Important |
|--|----------------|-----------|--------------------|---------------|
| Body language | 95 | 118 | 45 | 2 |
| Maintaining eye contact | 164 | 81 | 14 | 1 |
| Listening carefully when remarks are made or questions asked | 246 | 14 | 0 | 0 |
| Interpreting feedback | 218 | 34 | 0 | 0 |

Table 8. IMPORTANCE OF VERBAL SKILLS IN CURRENT POSITION

| | |
|--|-------|
| Mandatory | 28% |
| Very Important | 39 |
| Moderately Important | 25.5 |
| Of Average Importance | 6 |
| Of Little Importance | 0.5 |
| Not Important | 1 |
| Importance of Verbal Skills for Upward Mobility | |
| Mandatory | 45.5% |
| Very Important | 44.5 |
| Moderately Important | 8 |
| Of Average Importance | 1.2 |
| Of Little Importance | 0 |
| Not Important | 0.8 |

effectively in order to be successful in their current position but they must also be able to do so in order to move to higher positions. Since our respondents, on average, seem to have moved throughout their IS career, from lower to higher positions, and they ranked verbal skills more important for their advancement than for their current job, the ability to communicate verbally seems to be a key factor in career advancement.

RECOMMENDATIONS

As companies look for ways to improve their employees' productivity and as faculty committees working with advisory councils try to look for ways to enhance IS curricula, this research can provide some recommendations in the area of verbal communication

skills education and training. We must emphasize informal verbal communications among IS professionals (college students are future professionals).

We can do so using several instructional means. One way would be by engaging in small group projects and by ensuring that students get a chance to make brief presentations to their peers. Those presentations can be evaluated by faculty and peers and feedback provided for improvement.

In addition to group projects, individual students can be assigned to research a specific topic and make a short presentation to the entire class.

Practicing professionals can benefit by enhancing their own verbal communication skills. This can be done with internal or external seminars and by encouraging people to hone these skills.

FUTURE RESEARCH

This research focused on large companies with established IS departments. As a next step, a wider sample size can be selected to include a larger variety of organizations, in order to verify the applicability of the above results to all IS professionals at large and make stronger recommendations to IS educators and practitioners.

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APPENDIX A: VERBAL COMMUNICATION SKILLS REQUIREMENTS FOR INFORMATION SYSTEMS PROFESSIONALS

One of the most important goals of a business curriculum is to ensure the relevance of its courses. In order to analyze curriculum needs in the Department of Computer Information Systems at Southwest Texas State University, we are conducting a survey to determine the verbal communication skills needed by information

systems (IS) professionals. The Department's awareness of industry needs is essential in preparing future professionals who can communicate verbally in an effective and efficient way.

Please complete this questionnaire. Your responses will be held in strict confidence.

1. Your job title

- Programmer
- Programmer/Analyst
- Systems Analyst
- Team Leader
- Project Manager
- Supervisor
- Other (Please specify) _____

Degree: _____ Major: _____
 Years at your present position: _____
 Years as an IS professional: _____

2. Classification of your company (Place an "X" for your Company)

- Wholesale
- Manufacturing
- Educational
- Service
- Financial
- Other (Please specify) _____
- Retail
- Real Estate/Construction
- Military
- Government
- Oil & Gas

Size of your organization (Approximate number of employees)
 0 - 100 101 - 500 501 +

3. How frequently do you use the following forms of verbal communication in your job as an IS professional?

| | Daily | Frequently | Sometimes | Seldom | Never |
|---|----------|------------|-----------|--------|-------|
| | (Weekly) | (Monthly) | | | |
| Face to face conversation with another IS professional | _____ | _____ | _____ | _____ | _____ |
| Face to face conversation with a non-IS professional | _____ | _____ | _____ | _____ | _____ |
| Formal presentation before a group of other IS professionals | _____ | _____ | _____ | _____ | _____ |
| Formal presentation before a group of non-IS professionals | _____ | _____ | _____ | _____ | _____ |
| Formal presentation of product or service to an individual or a group | _____ | _____ | _____ | _____ | _____ |
| Telephone conversation | _____ | _____ | _____ | _____ | _____ |
| Audio teleconferencing | _____ | _____ | _____ | _____ | _____ |
| Video teleconferencing | _____ | _____ | _____ | _____ | _____ |
| Speak as an officer (i.e. President, Secretary, Committee Chair) | _____ | _____ | _____ | _____ | _____ |
| Informal meetings with peers/ users | _____ | _____ | _____ | _____ | _____ |
| System reviews/walkthroughs | _____ | _____ | _____ | _____ | _____ |

4. How often do you use the following visual aids in your job as an IS professional?

| | Daily | Frequently | Sometimes | Seldom | Never |
|---------------------|----------|------------|-----------|--------|-------|
| | (Weekly) | (Monthly) | | | |
| Handouts | _____ | _____ | _____ | _____ | _____ |
| Chalkboards | _____ | _____ | _____ | _____ | _____ |
| Flipcharts | _____ | _____ | _____ | _____ | _____ |
| Samples and models | _____ | _____ | _____ | _____ | _____ |
| Overhead projectors | _____ | _____ | _____ | _____ | _____ |
| Demonstrations | _____ | _____ | _____ | _____ | _____ |
| Slide projectors | _____ | _____ | _____ | _____ | _____ |
| Filmstrips | _____ | _____ | _____ | _____ | _____ |

| | | | | | |
|------------------------|-------|-------|-------|-------|-------|
| Motion pictures | _____ | _____ | _____ | _____ | _____ |
| Video tapes | _____ | _____ | _____ | _____ | _____ |
| CRT computer graphics | _____ | _____ | _____ | _____ | _____ |
| CRT output display | _____ | _____ | _____ | _____ | _____ |
| Other (please specify) | _____ | _____ | _____ | _____ | _____ |

5. How often do you make oral presentations? Indicate the frequency and the duration (in minutes according to the size of the audience).

| Audience size | Frequently (weekly)/ duration | Sometimes monthly)/ duration | Seldom duration | Never |
|---------------|-------------------------------|------------------------------|-----------------|-------|
| 1 | _____ | _____ | _____ | _____ |
| 2 - 5 | _____ | _____ | _____ | _____ |
| 6 - 25 | _____ | _____ | _____ | _____ |
| 26 - 50 | _____ | _____ | _____ | _____ |
| 51 - 100 | _____ | _____ | _____ | _____ |
| 501 + | _____ | _____ | _____ | _____ |

6. How often do you engage in the following types of verbal communications?

| | Daily | Frequently (Weekly) | Sometimes (Monthly) | Seldom | Never |
|------------------------|-------|---------------------|---------------------|--------|-------|
| Informational | _____ | _____ | _____ | _____ | _____ |
| Persuasive | _____ | _____ | _____ | _____ | _____ |
| Entertaining | _____ | _____ | _____ | _____ | _____ |
| Instructional | _____ | _____ | _____ | _____ | _____ |
| Other (please specify) | _____ | _____ | _____ | _____ | _____ |

7. Rate the following verbal communications skills as to the degree you consider them important for an IS professional.

| | Very Important | Somewhat Important | Not Important |
|--|----------------|--------------------|---------------|
| Body language | _____ | _____ | _____ |
| Maintaining eye contact | _____ | _____ | _____ |
| Listening carefully when remarks are made or questions asked | _____ | _____ | _____ |
| Interpreting feedback | _____ | _____ | _____ |
| Other (please specify) | _____ | _____ | _____ |

8. To what extent are formal verbal communications skills important in your present position? (Circle that which applies to you).

| | | | | | |
|-----------|----------------|----------------------|-----------------------|----------------------|---------------|
| Mandatory | Very Important | Moderately Important | Of Average Importance | Of Little Importance | Not Important |
|-----------|----------------|----------------------|-----------------------|----------------------|---------------|

9. How important will verbal communications skills be for your upward mobility? (Circle that which applies to you).

| | | | | | |
|-----------|----------------|----------------------|-----------------------|----------------------|---------------|
| Mandatory | Very Important | Moderately Important | Of Average Importance | Of Little Importance | Not Important |
|-----------|----------------|----------------------|-----------------------|----------------------|---------------|

10. Are there any areas of verbal communications skills that you feel new college IS graduates are deficient in? (Please specify).



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