The Changing Roles of the Systems Analyst

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The role of the systems analyst continues to be integral to the backbone of the organization—the organization’s information system. The nature of the systems analysts’ activities and work environment has undergone many changes in recent years. A more computer literate user community, new systems innovations, and a move toward cooperative systems development have contributed to these changes. This study attempted to develop and clarify the roles of the systems analyst based upon the frequency of selected systems analyst activities within the context of human relationships encountered by the systems analyst.

A systems analyst is an ambiguous title that has been used to describe everyone from programmer to team leader. In spite of its shortcomings, this title comes closest to defining the person (or persons) who play the most critical role in systems development, and who have the ultimate responsibility of overseeing the system project from inception to maintenance.

Although the position of a systems analyst didn’t emerge at the same time as computer technology became available, those involved in developing computer applications quickly recognized the need for such an individual. A great deal of energy and effort was initially directed toward making the early computer systems produce output. In time, organizations and individuals became more demanding in terms of what the system was to do, how the system did it, and who decided how the system would operate. Out of this need, the position of systems analyst emerged. Today there is almost unanimous support for the need of systems analysts to successfully develop information systems.

The activities of the systems analyst are varied and changing. Systems analysts today know more about business and users know more about computing (Senn, 1989). Current literature suggests that the 1990s will be quite different from the 1980s, that the technological focus will not be on computational technology, but on information access (Straub and Wetherbe, 1989). Besides technical skills and business understanding, the systems analyst must also possess strong interpersonal skills (Wetherbe, 1988). MIS research recognizes interaction between systems analysts and users to be a key dimension of information systems design and implementation. The spirit of cooperation, be it within a more traditional Systems Development Life Cycle model or
within a prototyping model, has added many new skills and activities needed by the successful systems analyst of the 1980s and beyond. This study attempts to clarify the roles of the systems analyst based upon the frequency which selected systems analyst activities are performed within the context of human relationships encountered by the systems analyst.

**General Description of the Problem**

This study examined the frequency of systems analyst activities within human contexts in order to clarify the analyst’s roles. Three research steps were established for the study:

1. To determine the estimated frequency selected activities are performed by systems analysts.
2. To determine the human contexts within which the selected activities are performed.
3. To analyze the responses to define the roles of systems analysts.

Current research in the area of identifying and defining systems analyst activities has been limited to the validation and ranking of tasks and skills. Tasks represent specific pieces of work or duties. Skills relate to the ability to do something well. Activities, the focus of this study, are more broadly defined as spheres of action. The current research is helpful in identifying tasks or skills in order to categorize them as activities. For purposes of this study, a combination of traditional and recent tasks formed the basis of the systems analyst activities.

Systems analyst activities are not performed in a vacuum. Complex systems increase the need for purposeful interaction between technology-wise users and systems analysts. The literature concurs that an increasing amount of the systems analyst’s time is spent interacting with other professionals. These professionals include MIS professionals and personnel from functional areas of the organization. Time is also spent doing individual activities.

Prior research offers little empirical evidence of which systems analyst activities are performed in various human contexts. Also, the wide variation of instruments constructed, techniques used, information professionals sampled, and the age of much of the research leaves room for additional investigation.

**Prior Research**

The research related to this study can be broadly categorized into two major areas based on the primary focus of the research: 1) specific tasks and skills; and 2) the roles and interactions of systems analysts.

**Specific Tasks and Skills.** This area of research is most relevant to this research project since it led to the development of the activity list. Research studies were conducted from the mid 1980s to early 1990s to learn more about the evaluation, psychology, and skills of the systems analyst. Guimaraes (1980) sought to develop a skills hierarchy for systems analysts and provides a starting point for developing a list of important skills. Skills requirements based on employment trends and subjective management perspectives are presented by Cheney and Lyons (1980). A similar approach was taken by Alloway (1980) in interviewing management and analysts to determine what skills were considered important, and also which skills were rewarded by management. The 1972 ACM curriculum study and subsequent modifications in 1982 also provided relevant skills and skill category background (Nunamaker, 1982). Other researchers (Nelson, 1991; Vitalari and Dickson, 1983) refined existing knowledge/skill and activities lists to conduct personnel evaluation research. Vitalari (1985) further developed a list of knowledge categories that practicing analysts actually use when solving systems analysis problems.

Personal history, activities, and an attitude questionnaire was yet another approach used to predict the success of a systems analyst (Bryant and Ameen, 1976). Skill requirements across a dimension of “organizational maturity” was tested by Benbasat, Dexter, and Mantha (1980) to determine whether the skills required of a systems analyst needed to change as the organization matured.

**Role and Interactions of Systems Analysts.** Research in this area included research on the changing role of the systems analyst (Sayani, 1976) and the difficulty of explicitly defining what the role of a systems analyst is (Addlemen, 1976; Dance, 1976; Ho, 1976). More recent research studied the perceived importance of systems analysts’ job skills and roles (Green, 1989; Scharer, 1982). Green surveyed users and systems analysts and looked at the perceptions each group had toward the role of the systems analyst. Comparisons were also made of users and systems analysts who worked on system development and design teams (Kaiser and Bostrom, 1982).
Goldstein and Rockart (1984) found that the addition of role and leadership variables to job characteristics significantly increased the explained variance in job satisfaction. Newman and Robey (1992) characterized systems development encounters in terms of “types of episodes” which they characterize as analyst-led, user-led, and joint development. The previous research provided a useful foundation for the study from applicable roles and interactions of systems analysts.

Methodology

This research study revolves around the activities that systems analysts perform and the human contexts in which they are performed.

Development of the Research Instrument

The research instrument required systems analysts to respond to three stimuli: 1) 41 commonly performed activities; 2) the human contexts in which each of the activities are performed; and 3) the frequency which each activity is performed within the human contexts. Figure 1 provides an example of the research instrument format.

The activity list used in the research instrument represents a compilation and summarization of tasks, skills, and duties, which were cited in prior research. When these tasks, skills, and duties were grouped as activities, they included many which were traditional, but also several which reflected recent changes in methodology and technology. As a final step, before administering the instrument, the activity lists were presented to a panel of practicing systems analysts who were asked to evaluate the appropriateness, completeness, and clarity of the activities. From an original list of 69 activities, 41 were retained or restructured. Appendix A contains the list of the 41 activities utilized in the study.

The environment in which an activity might be conducted was measured by means of a frequency rating scale. The research instrument required the respondent to evaluate the frequency with which each of the 41 activities was performed (Never, Seldom, Sometimes, Frequently). Recent research by Wilson and Harvey (1990) confirmed prior studies which called for the abandonment of the relative-time-spent scale in task inventories. Their research indicated that this input may provide little information beyond that obtainable from a simple percent for performing each task. For purposes of this study, “Never” captured the analysts who did not perform an activity within a specific human context within their organization. The other three degrees represented the intensity of each activity performed.

The research instrument asked systems analysts to evaluate each work activity frequency in the human context in which it was performed. The context settings were again derived from prior research. These contexts included the systems analyst working alone, with individual users, as part of a larger project group or team, and with other MIS professionals. Participants were provided with specific definitions of each human context in the instructions. These definitions were as follows:

- **Group/Team**: Working in a group or other project team which could be composed of MIS personnel such as systems analysts, systems designers, programmers, MIS leaders/managers, and user representatives from functional areas.
- **Users**: Working one on one with current or future users of the system being developed or modified.
- **Individual**: Working independently on MIS activities.
- **Not Used**: This activity is not performed by you as a systems analyst.

For purposes of this study, “Not Used” represented a measure of the number of systems analysts who simply did not perform a specific activity. The percentage responding for this category was calculated for each activity. The responses for the sample questionnaire (Figure 1) would be interpreted as: Activity is seldom...
done within a Group/Team, frequently done with Users, never done as an Individual, and sometimes done with MIS/Peers.

Prior to mailing the research instrument, the instrument was again presented to the panel of systems analysts who were asked to evaluate the clarity of the instructions and appropriateness of the groups and frequency of performing the activity. Based on the feedback received, the instrument was revised and prepared for mailing to the target population.

**Dissemination of Research Instrument**

The research instrument was sent to a national group of 622 MIS managers listed in the *Directory of Top Computer Executives*, published by Applied Computer Research Inc. (Howard, 1992). The stratified sample included 67% manufacturing and service, 8% banking, 7% finance, 5% retail, 9% insurance, and 4% transportation firms represented in the directory. Firms were selected from all 50 states. The MIS managers were asked to identify an individual within their organization who fit the definition of a systems analyst developed for the study through the use of eight systems analysis textbooks and prior research. The following definition resulted from this process:

A systems analyst is a problem-solving specialist who works with users and management to gather and analyze information on current and/or future computer-based systems. With this information, the systems analyst, working with users and other MIS personnel, defines the requirements which are used to modify an existing system, or to develop a new system. The systems analyst identifies and evaluates alternative solutions, makes formal presentations, and assists in directing the coding, testing, training, conversion, and maintenance of the proposed system.

One mailing and one follow up yielded 115 respondents for a 17 percent response rate. Although the response rate was low, the 115 firms participating far exceeded the number of responses of most prior skills or task research studies. The responding analysts were selected by their managers from randomly selected private sector firms within the SIC categories found in the directory. The responding firms industry classification varied by no more than two percent for each of the six industries represented in the directory population as shown in Table 1.

**Demographics of Systems Analyst Sample**

While the definition of a systems analyst was derived specifically for this study, the position titles of the respondents varied only slightly from “systems analyst.” All but six of the respondents had position titles related to systems analysis or the analysis/design function. The remaining six held managerial titles, such as Vice President of MIS. The mean years as systems analysts were 6 years and the mean years in the MIS field in general were 12 years. Almost all (90 percent) of the respondents have at least a 2-year college degree and 65 percent have at least a bachelor’s degree. Formal education does not end the systems analyst’s education, however. The group attended an average of three or more training programs in the past three years.

The respondents had the most experience (65 percent) in developing accounting/finance applications. This was followed by inventory/purchasing (38 percent), personnel/payroll (35 percent), operations/manufacturing (32 percent), and marketing/sales (28 percent). The systems analysts could identify experience with more than one system type. Thirty-two percent included work with various other systems such as insurance, operations, and transportation. Finally, the analysts were asked to provide answers to the systems development approaches, tools, and methodologies used to develop their systems. Table 2 is a summary of responses to this question. The respondent responses include use

<table>
<thead>
<tr>
<th>Industry</th>
<th>% of Returns</th>
<th>Population Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>67%</td>
<td>67%</td>
</tr>
<tr>
<td>Banking</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Finance</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Retail</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Insurance</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Transportation</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Utilities</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1: Distribution of Firms Expressed as Percent of Population, Percentage of Returns, and Variance
Table 2: Systems Development Approaches, Tools, and Methodologies Used in Your Current Job

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-JAD</td>
<td>26</td>
<td>23.01%</td>
</tr>
<tr>
<td>B-CASE</td>
<td>27</td>
<td>23.89%</td>
</tr>
<tr>
<td>C-Structured Analysis</td>
<td>88</td>
<td>77.88%</td>
</tr>
<tr>
<td>D-Prototyping</td>
<td>50</td>
<td>44.25%</td>
</tr>
<tr>
<td>E-Critical Success Factors</td>
<td>13</td>
<td>11.50%</td>
</tr>
<tr>
<td>F-Business System Planning</td>
<td>28</td>
<td>24.78%</td>
</tr>
<tr>
<td>G-Other</td>
<td>3</td>
<td>2.65%</td>
</tr>
</tbody>
</table>

of many of the tools available to systems analysts.

Definition of Systems Analyst Roles

Based Upon Findings

The research instrument asked systems analysts to evaluate their work activities in two ways. First, each of the 41 tasks was evaluated in light of the frequency of the activity in each human context (Group/Team, Users, Individuals, and MIS/Peer). The activity frequency was coded as Never (0), Seldom (1), Sometimes (2), and Frequently (3).

Appendix A displays the results of the activity analysis based upon the responses of the 115 analysts. Each of the 41 tasks has been considered separately for each of the four human contexts--Users, Team/Group, Individuals, and MIS/Peer. The 164 (41 activities x 4 human contexts) activity/human contexts were further divided into quartiles for the purpose of selecting those activities most often performed by systems analysts regardless of work setting. The median frequency for all 164 activity/human contexts was 1.47 (the grand mean frequency for the 164 activity/human contexts was 1.51). Only the top two quartiles between “Never” (0.00) and “Frequently” (3.00) were considered for determining the roles of the systems analyst.

Each activity was also analyzed as a percentage of systems analysts who checked “Not Used” or performed in an organization. All activity/human contexts were rated as being performed to some degree by at least 70 percent of the respondents.

Definition of Systems Analyst Roles

Based Upon Findings

In order to clarify the roles of systems analysts, activities were organized into seven groups according to frequency and the human contexts within which they were performed. Roles are listed in descending average frequency for the activities grouped with the role. Human contexts are described for each of the roles. Unlike past studies, a post-hoc analysis was done to develop systems analyst roles after the importance of each activity was determined. The role name was created to reflect the activities within the groupings.

1. Communicator. Systems analysts rated “maintain good human relations” with the highest frequencies for all three human contexts. The result of the high intensity of this activity (2.72 average) suggested that this one activity represented an important role category in systems analysis. This role appears to agree with other more recent studies (Green, 1989; Leitheiser, 1992). The role of communicator has increased in importance when compared with earlier studies (Cheney, 1980; Bryant 1976).

2. Developer. Seven activities were included in this role. The frequency of these activities when considered collectively is high (2.15 average) and are performed by the analyst as an individual. While the activities represent all stages in the traditional SDLC, they clearly point to the importance of technical skills translated into writing by the analyst working alone. The group of seven activities includes:

- Summarize and Document Interviews with Users
- Prepare Written Reports of Project Specs, Project Progress, Etc.
- Develop Systems Models (i.e., dfds, Structure Charts)
- Write Computer Programs
- Prepare User Manual and/or User Reference Materials
- Prepare Program Documentation
- Perform Administrative Project Management Tasks

The developer activities require the systems analyst to work well independently as well as with others. Other studies support the high frequency of most of the activities in this group. More recent studies have been mixed on programming activity. Green (1989) found that users valued the programmer role far more importantly than did the analyst. Leitheiser (1992) found that MIS managers rated the programming role as important. Many textbook definitions of the systems
analyst do not include programming activity, however.

3. **Analyst.** The five activities included in this group were highly ranked within all human contexts (2.06 average). The analysts worked individually, but their activities also included close relationships with MIS/Peers, Users, and Group/Team members. The activities in this group were associated with traditional systems analysis activities’ diverse human contexts including:

- Analyze Existing Systems
- Define Scope and Objectives of Systems/Projects
- Define New Systems Requirements
- Determine Impacts of New System on Organization and People
- Prepare For and Conduct Interviews With Users

Sayani’s (1976) predictions that systems analysts would have to concentrate even more strongly on the front-end of the life cycle and that their role with the user will have to be strengthened appear to have come true. The systems analyst role defined within a group context verifies the high importance the analyst places on human relations skills.

4. **Technician.** The activities associated with this role included high frequency individual activity and lower frequency MIS/Peer activity. This role (1.91 average) implies that the individual spends a great deal of time alone, but also works either in tandem or has work confirmed by peers. Activities include:

- Develop, Design, and Implement Databases
- Define Structured Design of Programs/Models
- Review and Check the Work of Others
- Specify Program Tests
- Debug Computer Programs
- Debug System Problems
- Learn New Hardware
- Learn New Software
- Perform System Maintenance on Existing Programs and/or Systems

The technician role includes many systems design activities along with other activities such as learning new hardware and software which may support systems design. The unique combination of activities places the systems analyst firmly in an MIS professional context.

5. **Project Manager.** This role combines four activities where the analyst plays an intense individual role (2.16 average), but interacts with other groups as well at a lower frequency (1.65 average). The project manager role is slightly lower in overall frequency (1.81 average) than other roles, but highly important to the systems analyst. Activities in this group include:

- Develop and Track Project Schedules
- Design Systems Components
- Plan Group and Individual Assignments Related to Systems Analysis Tasks
- Evaluate New System Against User Requirements

Other studies have placed activities related to the project management role in similar relative positions. When human context is considered, the findings imply a leadership role in the project management activities. Again, a strong human relations activity is evident to work with the diverse groups ranging from MIS/peers to individual users.

The last three roles are performed less often by systems analysts based upon the frequency of activities. The average frequency for the activities in each role fall in the second quartile of intensity.

6. **Strategist.** Activities in this group represent those where the analyst works individually to manage or implement change. The role is not a high profile one (1.70 average), but represents a combination of traditional and newer activities. Activities in this category include:

- Define and/or Create Prototypes of New Systems
- Design Data Collection Procedures
- Locate New Information About Analysis and Design Tools and Productivity Aids
- Develop Training Materials

The data found in Table 2 verifies the lower position of activities within this role. The more traditional structured analysis received frequent use within the respondent firms. Newer developments such as CASE were used by approximately 25% of the respondents.

7. **Consultant.** This role represents activities at a lower intensity (1.66 average), but with two unique perspectives. First, the analyst does not perform these activities with high intensity as an individual. When they perform them, they spend more time with others than they do alone. Second, analysts as a group perform these activities less often. The average number of analysts who perform these activities at all is 84 percent, the
lowest of any role. The activities which define this role are:

- Review MIS (Dept.) Plans and Scope
- Define Security Standards
- Implement and Enforce Security Standards
- Demonstrate Prototypes
- Conduct Formal Presentations
- Choose Hardware
- Choose Software
- Conduct Structured Walkthrough
- Assess systems costs and benefits
- Provide training to others
- Develop standards and guidelines for systems development

**Summary and Conclusions**

This study determined the estimated frequencies of 41 selected activities performed by systems analysts in 4 human contexts. Post hoc groupings of activities/contexts resulted in the development of seven systems analyst roles.

The activities of the systems analyst should not be cast in a one-dimensional format. Only one major role and one minor role of the seven, place the activities of the systems analyst within an “individual” human context. The study clearly portrays the systems analysts in multidimensional roles based upon the human contexts in which they find themselves. The systems analyst as “communicator” is almost an umbrella under which other roles are arranged.

When the roles were developed, it became evident that in most cases the human contexts rather than the activities themselves defined the roles. Previous studies defined the ad hoc roles of systems analysts and then ranked them for evaluative purposes. The developer, analyst, technician, and project management roles were clearly defined by their human contexts. In most cases, the activities were related in terms of type of activity (i.e., writing/development activities) rather than roles developed around a preconceived set of skills related to an SDLC level.

**Appendix A: Activity Analysis of 41 Systems Analyst Activities**

(First and Second Quartile Frequencies)

<table>
<thead>
<tr>
<th>Task</th>
<th>First Quartile (1.84-2.81)</th>
<th>Second Quartile (1.47-1.82)</th>
<th>% Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Main Good Human Relations</td>
<td>Users 2.81 Group/Team 2.68</td>
<td>MIS/Peers 2.67</td>
<td>0</td>
</tr>
<tr>
<td>2. Review MIS (Dept.) Plans and Scope</td>
<td>MIS/Peers 2.00 Group/Team 1.65</td>
<td>Individual 1.50 Group/Team 1.49</td>
<td>7</td>
</tr>
<tr>
<td>3. Develop Standards and Guidelines for System Development</td>
<td>MIS/Peers 2.03</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>4. Define Security Standards</td>
<td>MIS/Peers 1.79 Group/Team 1.47</td>
<td>Individual 1.50 Group/Team 1.49</td>
<td>20</td>
</tr>
<tr>
<td>5. Implement and Enforce Security Standards</td>
<td>MIS/Peers 2.00</td>
<td>Group/Team 2.09 MIS/Peers 2.00</td>
<td>20</td>
</tr>
<tr>
<td>6. Analyze Existing Systems</td>
<td>Users 1.89 Individual 2.42 Group/Team 1.88</td>
<td>Individual 2.42 Group/Team 1.88</td>
<td>2</td>
</tr>
<tr>
<td>7. Define Scope and Objectives of Systems/Projects</td>
<td>Users 2.24 Individual 2.24 Group/Team 2.12 MIS/Peers 2.00</td>
<td>Users 2.24 Individual 2.24 Group/Team 2.12 MIS/Peers 2.00</td>
<td>1</td>
</tr>
<tr>
<td>8. Define New Systems Requirements</td>
<td>Users 1.88 Individual 1.00 Group/Team 1.00</td>
<td>Individual 1.00 MIS/Peers 1.92</td>
<td>0</td>
</tr>
<tr>
<td>9. Determine Impacts of New System on Organization and People</td>
<td>Users 1.88 Group/Team 1.88</td>
<td>Individual 1.80 MIS/Peers 1.74</td>
<td>5</td>
</tr>
<tr>
<td>Task</td>
<td>First Quartile (1.64-2.81)</td>
<td>Second Quartile (1.67-1.82)</td>
<td>% Not Used</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>10. Develop and Track Project Schedules</td>
<td>Individual 2.13</td>
<td>Group/Team 1.62</td>
<td>4</td>
</tr>
<tr>
<td>11. Assess Systems Costs and Benefits</td>
<td>Individual 1.78</td>
<td>MIS/Peers 1.58</td>
<td></td>
</tr>
<tr>
<td>12. Define and/or Create Prototypes of New System</td>
<td>Individual 1.73</td>
<td>Users 1.59</td>
<td>10</td>
</tr>
<tr>
<td>13. Demonstrate Prototypes</td>
<td>Individual 1.82</td>
<td>Group/Team 1.59</td>
<td></td>
</tr>
<tr>
<td>14. Design Data Collection Procedures</td>
<td>Individual 2.07</td>
<td>Users 1.84</td>
<td>5</td>
</tr>
<tr>
<td>15. Prepare For and Conduct Interviews With Users</td>
<td>Individual 2.18</td>
<td>Group/Team 1.62</td>
<td>8</td>
</tr>
<tr>
<td>16. Summarize and Document Interviews With Users</td>
<td>Individual 2.11</td>
<td>Users 1.62</td>
<td>2</td>
</tr>
<tr>
<td>17. Conduct Formal Presentations of Project Spec, Project Progress, Etc.</td>
<td>Individual 1.92</td>
<td>MIS/Peers 1.82</td>
<td>14</td>
</tr>
<tr>
<td>18. Prepare Written Reports of Project Spec, Project Progress, etc.</td>
<td>Individual 1.93</td>
<td>MIS/Peers 1.82</td>
<td>30</td>
</tr>
<tr>
<td>19. Locate New Information About Analysis and Design Tools and Productivity Aids</td>
<td>Individual 2.08</td>
<td>MIS/Peers 1.56</td>
<td>21</td>
</tr>
<tr>
<td>20. Develop Training Materials</td>
<td>Individual 2.09</td>
<td>MIS/Peers 1.58</td>
<td>15</td>
</tr>
<tr>
<td>21. Provide Training to Users</td>
<td>Individual 2.10</td>
<td>MIS/Peers 1.62</td>
<td></td>
</tr>
<tr>
<td>22. Develop, Design, and Implement Databases</td>
<td>Individual 1.92</td>
<td>MIS/Peers 1.82</td>
<td>14</td>
</tr>
<tr>
<td>23. Choose Hardware</td>
<td>Individual 1.93</td>
<td>MIS/Peers 1.82</td>
<td>30</td>
</tr>
<tr>
<td>24. Choose Software</td>
<td>Individual 2.07</td>
<td>MIS/Peers 1.58</td>
<td></td>
</tr>
<tr>
<td>25. Conduct Structured Walkthroughs</td>
<td>Individual 2.08</td>
<td>MIS/Peers 1.58</td>
<td>10</td>
</tr>
<tr>
<td>26. Develop System Models (i.e., dfds, structure charts)</td>
<td>Individual 2.15</td>
<td>MIS/Peers 1.51</td>
<td>10</td>
</tr>
<tr>
<td>27. Define Structured Design of Programs/Models</td>
<td>Individual 2.44</td>
<td>MIS/Peers 1.66</td>
<td>2</td>
</tr>
<tr>
<td>28. Design System Components</td>
<td>Individual 2.20</td>
<td>Group/Team 1.56</td>
<td>7</td>
</tr>
<tr>
<td>29. Plan Group and Individual Assignments Related to Systems Analysis Tasks</td>
<td>Individual 2.07</td>
<td>Users 1.76</td>
<td>3</td>
</tr>
<tr>
<td>30. Evaluate New Systems Against User Requirements</td>
<td>Individual 1.87</td>
<td>Users 1.78</td>
<td></td>
</tr>
<tr>
<td>31. Review and Check the Work of Others</td>
<td>Individual 2.02</td>
<td>Group/Team 1.78</td>
<td>3</td>
</tr>
<tr>
<td>32. Specify Program Tests</td>
<td>Individual 2.31</td>
<td>MIS/Peers 1.65</td>
<td>6</td>
</tr>
<tr>
<td>33. Write Computer Programs</td>
<td>Individual 2.18</td>
<td>MIS/Peers 1.59</td>
<td></td>
</tr>
<tr>
<td>34. Debug Computer Programs</td>
<td>Individual 2.35</td>
<td>MIS/Peers 1.58</td>
<td></td>
</tr>
<tr>
<td>35. Debug System Problems</td>
<td>Individual 2.40</td>
<td>MIS/Peers 1.75</td>
<td></td>
</tr>
<tr>
<td>36. Prepare User Manual and/or User Reference Materials</td>
<td>Individual 1.96</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>37. Prepare Program Documentation</td>
<td>Individual 2.22</td>
<td></td>
<td>7</td>
</tr>
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</table>
When studying the activities of systems analysts, educators would do well to place them in a human context. Each skill set requires different human contexts. It is soon apparent that technical skill does not stand alone. Career management within such contexts would also be more helpful in avoiding being boxed into a narrow skill set working alone.

References

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