Systems Analysts’ Attitudes Toward Information Systems Development

JAMES J. JIANG  
Louisiana Tech University

GARY KLEIN  
University of Texas of the Permian Basin

JOSEPH L. BALLOUN  
Nova Southeastern University

Certain researchers argue that systems analysts are too technical, a situation that may contribute to system failures. The results of this study, however, contradict this argument. By applying a framework of Dos Santos and Hawk (1988), analysts were found to have three primary orientations: technical, socio-political, and user. No one orientation dominated. Using the framework applied in this study, managers can consider the analysts’ orientations in assigning development activities. Researchers can identify diverse orientations in future studies where attitudes may be significant predictors of system performance or development success.

Researchers and practitioners observe that systems analysts play a key role in systems development success (Lyytinen and Hirschheim, 1987; Markus, 1983; Zmud, 1979). Besides other factors (e.g., organizational management, technology, complexity, political influences), systems analysts’ attitudes toward system development are consistently and significantly related to the quality of the final products (Bostrom and Heinen, 1977a, 1977b; Lyytinen, 1988; Zmud, 1979). A diagnosis of the attitudes of systems analysts may provide insights leading to future system success.

Certain researchers argue that systems analysts subscribe to too technical and economic design ideals (Kaiser and Srinivasan, 1982; Kumar and Welke, 1984). Alleged causes of system failures include the analysts’ ignorance of social, political, behavioral, managerial, and psychological factors. Suggestions for improvements to system development include formal training or education of systems analysts in managerial skills, behavioral ideas, and communications techniques (Benbasat, Dexter, and Mantha, 1980; Green, 1989). Others suggest improvements that include use of a socio-technical approach to system design (Bostrom and Heinen, 1977a, 1977b; Davis, et al., 1992; Markus, 1983). These approaches, however, are expensive and largely unproven. What is more important, the implicit assumption of these proposed solutions, that systems analysts have an undifferentiated technical attitude, may be incorrect. To clarify analysts’ attitudes, Dos Santos and Hawk (1988) describe a survey study of 30 systems analysts. The study found that some systems analysts had a technical orientation, however, the majority had a user or socio-political orientation.

The intent of this study is to confirm or refute the identification of major attitudes toward system development held by systems analysts as identified by Dos Santos and Hawk (1988). This study will correct problems in the earlier study associated with the small homogeneous sample. Moreover, this study will describe analysts’ attitudes, and examine relationships of several demographic traits to analysts’ attitudes.

The sequence of issues follows a logical progression to help in addressing the following questions: 1) do systems analysts possess diverse attitudes toward system develop-
ment; 2) which primary attitudes do systems analysts hold; and
3) are analysts’ attitudes related to their demographic charac-
teristics? Results of this study will have implications for
information system (IS) practitioners and researchers by:
1) providing guidance for planning education and training
programs for system analysts, 2) presenting information for
effective development team formation, and 3) suggesting
areas that IS researchers may wish to reevaluate and refine,
such as current strategies for system development.

Methods

This study used the instrument developed by Dos Santos
and Hawk (1988). Exploratory principal components analysis
was used to decide if the three categories of orientation (user
orientation, socio-political orientation, and technical orienta-
tion) hold for a larger, more heterogeneous sample.

Questionnaire

The survey instrument was a set of 33 statements on
various aspects of system development (Dos Santos and
Hawk, 1988); abbreviated statements are presented in Table 1.
The set included statements on user/analysts communication,
individual differences among users, technical capabilities of
the development staff, and systems that alter the balance of
power in an organization. Instructions requested respondents
to rate how strongly they believed the listed statements were
critical to successful system development. A Likert scale was
used with strongly disagree at the low anchor of one and
strongly agree on the high anchor at five.

Procedure and Sample

The questionnaire was pretested on a class of MBA
students. Ambiguities in the instructions were corrected after
the pretest. Questionnaires were then provided to six Chief
Information Officers (CIO) from six organizations in the
Kansas City metropolitan area. The number of employees in
these organizations ranged from 2,500 to more than 25,000
employees with an approximate average of about 1,000 IS
personnel. The CIOs in turn asked at least 40 of their staff
members to complete the survey. Respondents were system
analysts, IS project leaders, and IS department managers with
experience in system development and were assured that their
responses would be kept confidential. Apparently the direct
request from the CIOs resulted in a full response. Two
hundred forty four questionnaires were returned with 239 used
in the data analysis due to question omissions.

Table 2 shows the respondents’ working experience in
information systems design and development. More than half
of the respondents (51%) had more than nine years of work
experience, and about half the respondents (46.4%) had sys-
tem experience in more than five application areas. Only 5.9
percent had less than two years of work experience and 3.8
percent had system experience in only one application area.
The data showed that the respondents were experienced in the
field of system development. Complexity of applications
varied, suggesting that the analysts collectively had been
involved in large and small projects.

The respondents were well educated, with 63 percent
(149) having completed college and 22.3 percent (53) having
completed a graduate degree program (Table 3). Within the
119 college educated respondents, 31 had a college diploma in
Computer Science and 33 had a college diploma in Informa-
tion Systems. Seventy-one percent (170) were male and 29
percent (69) were female. The sample was young, but still
represented a wide age spectrum. The first, second and third
quarters of age were respectively 31, 34 and 41 years old.
About half the respondents had management responsibilities.

Results

To classify respondents with similar attitudes, compo-
nent analysis was done. First, principal components analysis
was used to extract the dominant attitude components. Three
components with eigenvalues greater than chance expectation
were retained for further analysis (Lautenschlager, 1989).
Components were then rotated by the varimax procedure
(Table 4). The five highest loadings in each component served
to identify associated questions.

Reliability of measurement for each component was
computed as follows. First, the scores of the respondents on

| S1 | Positive user attitude towards system |
| S2 | User on project team during system definition phase |
| S3 | Project should be carefully monitored |
| S4 | Prototyping is useful |
| S5 | Good communication is necessary |
| S6 | Steering committee should manage project |
| S7 | Top management support |
| S8 | User on project team during system design |
| S9 | User confident in system analysts |
| S10 | Turnover in IS staff causes problems |
| S11 | Technically competent IS staff avoids problems |
| S12 | Large project should be split into smaller project |
| S13 | Quantifiable benefit to projects |
| S14 | Users initiate projects |
| S15 | Realistic expectation from users |
| S16 | Post implementation follow-up |
| S17 | Walkthroughs with user is important |
| S18 | Careful planning for changes for new system |
| S19 | Turnover in top management |
| S20 | IS staff’s commitment |
| S21 | Analysts should be in users’ area |
| S22 | Projects address important problems |
| S23 | User interface is important |
| S24 | Proper user training on new system |
| S25 | System design should be frozen before programming |
| S26 | Users integral part of development team |
| S27 | IS staff’s political skills |
| S28 | The urgency of the systems |
| S29 | Turnover among users leads to lack of commitment |
| S30 | Dealing with many different user personalities |
| S31 | Different personnel should be involved |
| S32 | Use of structure technique is important |
| S33 | Project leader managerial skills |

Table 1: Abbreviated Statements