
The Impact of Socialization on the Role Adjustment of Information Systems Professionals

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ABSTRACT: The study of socialization and its practices has only recently been applied to organizations to investigate the manner in which new employees adjust to corporate culture. Past studies have examined the nature of human-resource development from an individual perspective. Research in socialization practices represents an organizational approach toward understanding the manner in which new employees adjust to their roles. This study examines the impact of socialization practices on the nature of this role adjustment with respect to information systems professionals. One hundred and sixty newly hired IS personnel in five different cities were surveyed to examine the relationship between organizational socialization tactics and adjustment variables such as role orientation, role ambiguity, and role clarity. Results suggest that socialization practices affect professional role adjustment. Specifically, institutionalized socialization tactics lead to a custodial role orientation and individualized socialization tactics produce an innovative role orientation. In addition, institutionalized tactics are shown to reduce role ambiguity and role conflict in new employees. Implications for human-resource management of IS personnel and future research in this area are discussed.

KEY WORDS AND PHRASES: information systems personnel, role adjustment, socialization, training.

MANAGING, DEVELOPING, AND RETAINING PROFESSIONALS IS ONE OF THE MOST significant managerial concerns. American firms spent an estimated \$50 billion on

training costs in 1994 [20]. IS training costs now represent 4.3 percent of total IS budgets [74] and IS personnel costs average 48 percent of total IS departmental budgets [36]. In addition, high employee turnover can have serious consequences for a firm. Wakin [77] notes that the departure of a staff member is estimated to cost an organization from one-half to one and a half times that employee's annual salary.

The above statistics have resulted in a renewed focus on academic studies in human-resource management. This can be seen by research in areas such as career mobility [48], career stability [46], career anchors [57], fast track careers [40], voluntary turnover [43], layoffs [45], and job loss through corporate restructuring [68].

Recent studies in the IS area have also focused on career development, motivation, and turnover among IS personnel. For example, O'Bryan and Pick [56] noted that job hopping is easier for IS personnel because little firm-specific knowledge is required in IS as compared with other functional disciplines. As the demand for IS professionals increases, so does the pressure on IS managers to design innovative strategies for attracting and retaining talent [41]. Discenza and Gardener [21] similarly point out that IS managers are charged with maintaining and increasing organizational productivity. One way to do this is to foster organizational loyalty by motivating constructive employee behavior [2]. Retention policies thus consist of actions and procedures that produce low turnover while promoting high commitment.

Various recommendations have been made to promote loyalty among IS personnel. For example, Stokes [72] identified team-based reward and recognition practices as a major factor; and Gilliam [27] recommended that IS management focus on the morale and stress levels inherent in an IS position. A survey conducted by *ComputerWorld* [28] found that several organizational factors can promote employee commitment. These include linking performance to business success, moving computer people out into the user community, offering noncash inducements, and stressing teamwork.

Other academic studies have examined the impact of the turnover of IS personnel and the determinants of employee turnover [8, 36]. These studies found that role stressors such as role ambiguity and role conflict have a direct negative impact on satisfaction and commitment. A key finding of these studies is that reducing job stressors can significantly reduce an employee's desire to quit [7, 34]. In addition, Arnett and Obert [2] mention the need for an innovative work environment to retain IS employees.

This study examines one set of strategies that an organization can employ to reduce role stressors in the workplace and increase commitment among IS personnel. These strategies—socialization practices—can be designed to affect an employee's role adjustment. Role adjustment, in this context, refers to the nature of the role orientation that is inculcated in employees and how they cope with ambiguity and conflict in their roles.

Previous IS studies have also outlined the need to incorporate socialization practices into academic research. McLean, Smits, and Tanner [49] developed a model based on job expectations to understand the processes by which a new employee becomes committed to an organization. Based on the model and the responses received from 261 IS students, they concluded that MIS graduates enter their jobs with expectations

regarding work, technology, opportunities for promotion, and competitive benefits. The confirmation of these expectations leads to employee loyalty.

The study concluded that the first few months of employment are critical to the development of commitment. The authors note that:

This is the time that the newly employed individual attempts to verify the degree to which the job meets his, or her, pre-entry expectations and preferences. If the initial commitment is high, and if the initial work experience creates a feeling of responsibility, then there is increased likelihood that lasting commitment will evolve. [p. 262]

In further explanation of the importance of initial-entry experiences in an organization, Smits, McLean, and Tanner [71] note that managing the entry period can be particularly challenging for IS management. The manner in which IS professionals are socialized into the organization and the work group can be difficult because "IS personnel demonstrate high achievement needs but interpersonal insensitivity, poor people skills, and a preference for working alone" (p. 103).

These propositions, however, have not been examined empirically in the IS area. Therefore, in order to better understand the nature of the adjustment of IS employees to their new environments, this study examines socialization processes used to introduce IS professionals to their new jobs within an organization. We propose that socialization tactics in organizations can encourage desired responses in new IS employees. Organizations can initiate strategies to reduce role ambiguity and role conflict. At the same time, new employees can also be encouraged to adopt a desired role orientation—innovative or custodial.

Socialization Practices and Newcomers' Role Adjustment

THE STUDY OF SOCIALIZATION AND ITS PROCESSES HAS BEEN GREATLY influenced by works such as Charles Cooley's *Human Nature and Social Order* [17]; George Mead's *Mind, Self and Society* [50]; Jean Piaget's *The Moral Judgement of the Child* [60]; and Erving Goffman's *The Presentation of Self in Everyday Life* [29]. Although a wide variety of definitions have been used to describe socialization, one representative statement is from Elkin [23]:

We may define socialization as the process by which someone learns the ways of a given society or social group so that he can function within it.

And more recently from Wentworth [78]:

[Socialization is the] activity that confronts and lends structure to the entry of non-members into an already existing world or a sector of that world.

These general definitions of socialization were applied to an organizational setting by Van Maanen and Schein [76], who defined organizational socialization as "the fashion in which an individual is taught and learns what behaviors and perspectives are customary and desirable within the work setting as well as what ones are not."

Thus, socialization involves the process of learning what is expected in an organization. Its effectiveness determines employee loyalty, commitment, productivity, and

turnover [3]. Organization scholars have recently examined empirically the effect of socialization practices on variables such as employee role orientation and commitment [10, 14, 16, 22, 26, 51, 54, 58, 61, 63, 65, 66, 69, 80]. The general premise of these studies is that newcomers experience reality shock [19, 33, 55] or surprise [47] when entering an organization and try to reduce this uncertainty response by seeking information [47, 52, 53].

According to Brett [12], newcomers may experience both “effort behavior uncertainty”—“Do I have the technical skills to fit in with my work group?”—and “behavior uncertainty”—“What do I do in my job?” Information transmitted by various organizational sources is used by newcomers to deal with this uncertainty and to interpret individual roles, work group culture, and expectations. Messages thus received may lead to a sense of acceptance into the work group and to a sense of comfort at being there.

Chao et al. [15] divided the information acquired during the socialization process into six categories: performance proficiency—the identification of what needs to be learned and how well; (2) people—individual characteristics of organizational members; (3) politics—formal and informal power structures within the organization; (4) language—organization- and work-group-specific jargon; (5) organizational values—formal and informal values espoused by organizational members; and (6) history—the organization’s customs and culture.

Organizations may choose to ease the transition of newcomers and provide information in a variety of ways. This can include assigning newcomers to specifically designed tasks to induce learning; for example, routine maintenance work can help new programmers learn the system. Another alternative is the use of formal training to introduce newcomers to information systems architecture. Formal programs may also be designed to introduce newcomers to organizational culture, vision, history, and structure. Where formal sources of such information are lacking, new employees tend to seek this information by developing informal ties.

Outcomes of the Socialization Process

The role theory literature links newcomer socialization to three outcomes: role orientation, role ambiguity, and role conflict [30].

Role orientation refers to a newcomer’s response to what he or she perceives to be expected behavior. There are two extreme cases of role orientation: custodial and innovative. With innovative role orientation, new employees significantly change role requirements. Custodial role orientation, on the other hand, entails little significant change; new employees simply accept assigned roles.

For example, a new programmer may be required to use explicit coding procedures (how to comment, format the code, required use of standard libraries, etc.). This is an example of a custodial role. On the other hand, a new programmer may be given a task and left to develop his or her own definitions of the work (in the above example, left to determine his or her own coding style). Organizations may choose to design their socialization strategies to encourage either role orientation.

Role ambiguity and *conflict* are also hypothesized to be outcomes of the socialization process. Kahn et al. [38] describe role ambiguity as a condition resulting from uncertain information about role behavior. Uncertainty can arise from complex organizational structures or poor communication between the newcomer and other organizational members. A clear definition of roles is enhanced by proper feedback and formal orientation procedures. Similarly, mixed feedback or contradictory feedback may result in role conflict.

Both role conflict and role ambiguity are likely to have a negative impact on newcomers' performance and organizational tenure. Both variables have been shown to be related positively to intention to quit and negatively to job satisfaction [36]. Therefore, appropriate socialization strategies can not only ease a newcomer's transition into an organization, they can also have a positive long-term impact on that newcomer's performance.

These outcome variables are further described below in the specific context of the structural theory of socialization.

Structural Theory of Socialization

In what can be called the structural theory of socialization, Van Maanen and Schein [76] proposed that different methods of socialization result in varying role responses. They further identified six major socialization tactics (see Table 1):

1. Collective versus individual tactics;
2. Formal versus informal tactics;
3. Sequential versus random tactics;
4. Fixed versus variable tactics;
5. Serial versus disjunctive tactics; and
6. Investiture versus divestiture tactics.

Of the six socialization tactics, collective versus individual and formal versus informal tactics refer to the *context* of socialization; sequential versus random and fixed versus variable tactics refer to the *content* of socialization; and the last two tactics—serial versus disjunctive and investiture versus divestiture—refer to the *social* environment of socialization.

The above six socialization tactics are hypothesized to be significant in influencing newcomers' role orientation. Jones [37] examined this proposition empirically and regrouped these six tactics by categorizing one extreme (collective, formal, sequential, fixed, serial, and investiture tactics) as *institutionalized socialization tactics* and the opposite extreme (individual, informal, random, variable, disjunctive, and divestiture tactics) as *individualized socialization tactics*.

Collective versus Individual

The first two categories, collective versus individual socialization and formal versus informal socialization, concern the context in which organizations provide information to

Table 1. A Classification of Socialization Tactics and Their Relationship to Role Orientation

Tactics mainly concerned with	Institutionalized vs. individualized	Hypotheses proposed by Van Maanen and Schein [76]	Hypotheses tested
Context	Collective vs. individual	Custodial vs. innovative	Same
	Formal vs. informal	Custodial vs. innovative	Same
Content	Sequential vs. random	Custodial vs. innovative	Same
	Fixed vs. variable	Innovative vs. custodial	Opposite
Social aspects	Serial vs. disjunctive	Custodial vs. innovative	Same
	Investiture vs. divestiture	Innovative vs. custodial	Opposite

new recruits. With collective tactics, recruits go through common learning experiences designed to convey specific information in order to produce homogeneous responses to situations. In contrast to collective tactics, individual socialization tactics provide each newcomer with a unique set of learning experiences through designated socialization agents. The "in-the-same-boat" collective consciousness [75] developed in the process does not occur when individual tactics are used. The views adopted by people learning individually are likely to be far less homogeneous than the views of those learning collectively. The resultant effects of these two tactics create divergent role orientations. As hypothesized by Van Maanen and Schein [76] and by Jones [37], collective tactics will produce custodial role orientation, in which newcomers accept the status quo and the requirements of their assigned tasks or roles. Individual socialization tactics, on the other hand, will produce innovative role orientation because differentiated responses are allowed and may further encourage newcomers to change the conventional methods of performing their roles or even their tasks and missions.

Sacks [64] provides some examples from the software industry to illustrate the use of individual tactics. In interviews conducted in a software company responsible for creating customized programs for the telecommunications industry, he found that the emphasis was on getting the new programmers to become proficient with the system. The philosophy was, therefore, one of immediate immersion in the product: "Getting in there, getting incredibly frustrated, and figuring it all out" (p. 60). This ensured creativity and innovation on the part of new programmers and provided them with the key skills necessary for customization.

Formal versus Informal

Formal tactics involve segregating newcomers from other regular organizational members while they learn the responsibilities of their roles. These learning experiences are tailored for the newcomers. With informal tactics, the organization makes fewer efforts to segregate newcomers from experienced staff members and puts them in their work group so that learning takes place on the job. As a result, Van Maanen

and Schein [76] argued that formal tactics, particularly when combined with collective tactics, increase the propensity of newcomers to accept the definitions of their roles offered by senior organizational members and adopt a less innovative and more custodial role orientation. By contrast, informal and individual tactics offer greater flexibility for differentiated responses and result in more innovative role orientations.

Sacks [64] provides an example to illustrate these tactics. New programmers in Cellsoft (a hypothetical software company) were frequently sent to formal training designed to introduce them to the system they would be working on and also to company culture. Four-week classes were used not only to orient the newcomers to the company's software but also to provide considerable details regarding its customers. Programmers thus were able to see the whole system from the customer's viewpoint even though their work would limit them to one component of the system.

Sequential versus Random

Sequential versus random tactics are related to fixed versus variable tactics in that both are concerned with the content of the information furnished to newcomers via socialization [37]. Sequential socialization refers to a transitional process symbolized by a series of discrete and identifiable stages through which an individual must pass to achieve an expected role [75]. Organizations provide specific information to newcomers concerning the sequences of activities or experiences they will undergo. On the other hand, random socialization tactics occur when the sequence of activities leading to the expected role behavior is ambiguous or random. Consequently, sequential tactics, in which specific information is given about the stages of role fulfillment, are more likely to produce a custodial role orientation, whereas random socialization, in which information is given in a random manner, permits a wide variety of interpretations about the role and the employee's organizational future. This results in a more innovative role orientation [37, 76].

For example, an insurance company headquartered in the Midwest has designed its training programs for new employees in the IS department such that all newcomers take in-house courses in the AS400 operating system, RPG, corporate applications, and expected programming style, in that order. Specific assignments and programming projects are given during each training module and these are evaluated by senior staff members. Each module must be successfully completed by the new recruit before proceeding to the next. This is an example of sequential socialization tactics.

This contrasts sharply with smaller organizations in which the new programmer learns the software by reading such system manuals as he or she feels are necessary. In this case, the newcomer decides the content of learning and its schedule. This is an example of informal, random, and variable learning.

Fixed versus Variable

While sequential versus random tactics involves the specific order of events, fixed versus variable socialization tactics have to do with their temporal nature. Fixed tactics

provide new recruits with a precise timetable associated with completing each stage in the transition from one job to another, while variable tactics provide no consistent time frames and/or few cues as to when to expect the next stage. Van Maanen and Schein [76] argued that fixed socialization tactics will lead to innovative role orientation and variable socialization tactics to custodial role orientation. They argued that variability leads to anxiety, and this anxiety motivates people toward role conformity. However, Jones [37] contended that sequential socialization leads to low role innovation because it specifies the events individuals should expect; similarly, fixed socialization will produce low role orientation because individuals will have no desire to “rock the boat” if they can see their future direction. Jones [37] found evidence that fixed socialization tactics are associated with low role orientation (the custodial role), and variable socialization is related to high role orientation.

An example of fixed socialization tactics can be seen in a multidivisional manufacturing organization in the Midwest. New programmer analysts in this company spend a fixed period of time (six months) in each division of the company. This is done to familiarize the newcomers with all aspects of the business. It also enables each divisional IS manager to evaluate the suitability of the employee for his or her division. At the end of the training period, IS managers may request specific individuals for their departments.

Serial versus Disjunctive

Serial versus disjunctive and investiture versus divestiture tactics refer to the social aspects of socialization. Jones [37] posited that these two categories are closely associated with each other and are related to the social and interpersonal dimensions of socialization. Serial socialization tactics involve experienced or senior organizational members acting as role models to “show the ropes” to the newcomers. Newcomers are thus following in the footsteps of their predecessors. Van Maanen [75] asserted that, when serial socialization is used, innovation is unlikely, but continuity and a sense of history will be maintained, even in a turbulent environment. In the disjunctive socialization process, however, new staff members are left alone to “learn the ropes.” Newcomers must develop their own definitions of situations because no role models or incumbents are available. For this reason, disjunctive socialization tactics provide newcomers with an opportunity to be inventive and original and are more likely to produce high innovative role orientation, whereas serial socialization results in custodial role orientation [37, 76].

Sacks [64] notes that serial orientation (involving mentors or the “buddy system”) can be very helpful in teaching new programmers steps required in their jobs. He gives an example in which new programmers were typically started on maintenance jobs so that they could learn the system and ask questions about the system. This was done to introduce the feeling of “Ah, I’m new to the group. I want to prove that I’m a good person, and my manager has told me I must repair the bug in the XYZ module” (p. 58).

Investiture versus Divestiture

The last category of socialization tactics describes how newcomers' knowledge and personal characteristics are supported or disapproved of by more experienced organization members. Investiture processes ratify and confirm the viability and usefulness of the newcomers' characteristics. The organization does not wish to change these recruits; rather, it wants to capitalize on their capabilities. For example, some employees may be hired because of their experience with a specific customer or vendor. In divestiture socialization tactics, the organization provides negative feedback to newcomers relative to their past knowledge or behavior. It explicitly intends to have newcomers change old behaviors or attitudes in order to mold them to new desired ones. Van Maanen and Schein [76] proposed that investiture socialization tactics provide positive support to newcomers' past experiences, thus reinforcing confidence and leading to an innovative role, and, by contrast, divestiture tactics lead to a custodial role. However, Jones [37] argues that divestiture socialization tactics may not lead to a custodial role. Instead, the disconformance may challenge newcomers to "excel in their roles" and encourage them to innovate on the definitions of their role offered by other senior members. On the other hand, confirming newcomers' beliefs about their competence at an early stage in their entry process may "paradoxically cause them to believe in their self-fulfilling prophecies of their own worth" and lead to a custodial role. However, Jones [37] did find some preliminary support, using a sample of graduating M.B.A. students, that role orientation is positively related to the use of divestiture tactics and negatively related to investiture tactics.

Hypotheses

VAN MAANEN AND SCHEIN [76] POSITED THAT DIFFERENT COMBINATIONS of tactics will result in varying role orientations. These relationships are shown in Table 1. To investigate these relationships, the first two hypotheses of this study examine the impact of socialization on the role orientation of IS professionals.

H1a: Individualized socialization tactics will be associated with innovative role orientation for newly hired IS professionals.

H1b: Institutionalized socialization tactics will be associated with custodial role orientation for newly hired IS professionals.

Although these hypotheses test the role adjustment outcome of the socialization process, role orientation is certainly not their only result. Jones [37] suggests that other outcomes may be influenced by socialization practices. By providing or withholding certain information, the degree of uncertainty surrounding role expectation and clarity will vary. This uncertainty can be examined in two contexts: in terms of congruency–incongruency in the requirements of an employee's role, and in terms of predictability behavior. The first context is called role conflict. According to Rizzo, House, and Lirtzman [62], role conflict may occur (a) between an individual's internal standards and required job behavior; (b) between time, resources, or capabilities of an individual

and required behavior; (c) between several roles for the same person which require incompatible behavior; and (d) because of conflicting expectations and organizational demands. The second context refers to role ambiguity—unpredictability of outcome reflects uncertainty about duties, authority, and allocation of time. Institutionalized socialization tactics tend to present newcomers with more specific information at their entry than individualized socialization; thus, new hires develop clearer role expectations and a stronger sense regarding their role in organizations. Thus, it is proposed that:

H2a: Institutionalized socialization tactics will be negatively related to newly hired IS professionals' role ambiguity and role conflict.

H2b: Individualized socialization tactics will be positively related to newly hired IS professionals' role ambiguity and role conflict.

Figure 1 presents the research framework of this study.

The hypothesized relationships between the six socialization tactics and the three role adjustment outcomes of socialization practices form the basis of this study. These hypotheses were examined by a questionnaire survey described in the next section.

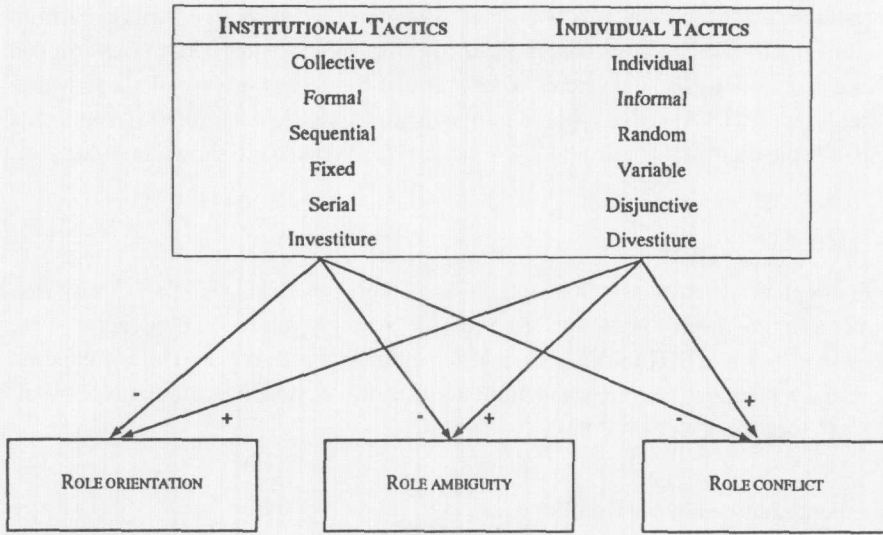
Methodology

Procedures

ONE HUNDRED AND SIXTY-ONE FIRMS WERE RANDOMLY SELECTED from local chamber of commerce listings of five metropolitan areas (two midwestern, three eastern United States). IS directors of these firms were contacted by phone and asked to participate in the study. This was followed by a letter explaining the project. Among these firms, forty-nine did not have any socialization programs in place, and twenty-three declined to participate. IS directors in the remaining eighty-nine organizations agreed to distribute questionnaires to IS employees hired within the last two years. Two hundred and fifty-three questionnaires were distributed to the IS directors. Respondents were asked to return completed questionnaires directly to the first author. As a result, 207 questionnaires were returned for an 81.8 percent response rate. Further screening of the questionnaires revealed forty-seven cases in which the respondents had been on the job more than two years. These were excluded from the study since more than two years was considered too long a period after initial entry to study the effects of socialization. This cutoff period was also used in research conducted by Feldman [24] and Katz [39]. This resulted in a total sample of 160 responses.

Respondents

The study sample included organizations from a variety of industries (insurance 8 percent, manufacturing 19 percent, financial services 13 percent, consulting 15 percent, utilities 7 percent, retail 13 percent, health care 12 percent, transportation 5



percent, and information technology 7 percent). Job titles of individual respondents included system programmers (13 percent), project leaders (8 percent), application programmers (17 percent), systems analysts (20 percent), IS managers (8 percent), software engineers (14 percent), consultants (6 percent), and other (13 percent). Sixty-one percent of the respondents were involved in system development activities and 31 percent performed end-user computing support.

The average age of the 160 professionals was 27 years; average tenure in the organization was 15 months. These demographic data suggest that these newly-hired professionals were in an early stage of their careers.

Measures

This section discusses the measurement and operationalization of the socialization tactics and outcome variables.

Socialization Tactics

Table 1 shows the six socialization tactics. A complete list of items developed by Jones [37] to measure socialization tactics is shown in appendix A.

Although the different ends of the scale bear different names in the table, for the purpose of clarity (e.g., collective versus individual), the scales are not bipolar, but are based on a 1–7 Likert-type scale ranging from “strongly disagree” to “strongly agree.” For instance, collective versus individual was measured using five items from the Jones study that were summed to form an index of collective tactics (Cronbach’s alpha = 0.86). Similarly, the dimensions—fixed versus informal, investiture versus



divestiture, and sequential versus random—were measured by five items each from the Jones study. For the serial versus disjunctive measure, one item (SD5) was dropped after a factor analysis. Two items were dropped from the measure of fixed versus variable tactics (FV4 and FV5) because their loadings were less than 0.50.¹ Cronbach's alpha for the scales ranged from 0.77 to 0.88. These results are shown in Table 2.

Role Orientation

Role orientation was measured on a five-item Likert-type scale using a 1–7 response format ranging from “strongly disagree” to “strongly agree.” These items were developed by Jones [37] and are shown in appendix A. A high score on role orientation indicated an innovative role orientation; a low score, a passive, custodial role orientation (Cronbach's alpha = 0.82).

Role Ambiguity and Role Conflict

Role ambiguity and conflict were measured using a modified version of the scale developed by Rizzo, House, and Lirtzman [62]. The original scales for these constructs contained an eight-item measure of role conflict and a six-item measure of role ambiguity. However, these scales have been criticized on the grounds of the confounding effects of scale wordings [73] and attributional bias [70]. Smith et al. [70] also recommend dropping some of the items from both scales. They also encourage further experimentation with scale items based on “theoretical, not empirical considerations.” For this study, we examined the original set of thirty items that were factor analyzed by Rizzo et al. and used to develop the eight- and six-item scales. We selected five items from the role conflict group to represent conflict between several roles. Five items were selected from the role ambiguity group to best represent properties suggested by Breugh and Calihan [11]—work method ambiguity, scheduling ambiguity, and performance criteria ambiguity. These items are shown in appendix B.

A factor analysis of these items suggests the presence of two constructs. Factor loadings are shown in Table 3. Interitem reliabilities for the role conflict scale are 0.77, and 0.83 for the role ambiguity scale.

Results

TABLE 2 PRESENTS INTERITEM RELIABILITY (CRONBACH'S ALPHA), means, standard deviations, and correlations among the study variables. Examining the intercorrelations among socialization tactics reveals that tactics under similar dimensions demonstrate high correlations. This is not surprising since the theory does suggest that socialization tactics will be highly correlated. In all cases, interitem reliability estimates are of greater magnitude than interscale Pearson correlations. This suggests a comfortable level of discriminant validity between socialization tactics [13].

Role orientation is significantly negatively correlated with two of the institutionalized socialization tactics. This provides preliminary support for H1. Role ambiguity

Table 2. Descriptive Statistics and Intercorrelations among Variables^a

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Formal	17.74	6.53	(0.77)								
2. Collective	18.01	7.66	0.40	(0.86)							
3. Sequential	17.30	6.24	0.45	0.33	(0.83)						
4. Fixed	10.53	4.34	0.44	0.37	0.49	(0.81)					
5. Serial	19.50	6.50	0.53	0.43	0.56	0.65	(0.83)				
6. Investiture	24.40	6.56	0.28	0.18	0.51	0.32	0.40	(0.88)			
7. Role orientation	20.13	5.67	-0.09	-0.17	-0.25	-0.02	-0.05	-0.09	(0.81)		
8. Role ambiguity	16.86	5.52	-0.28	-0.21	-0.49	-0.38	-0.42	0.64	0.17	(0.83)	
9. Role conflict	18.93	5.82	-0.25	-0.15	-0.37	-0.33	-0.36	-0.44	0.33	0.49	(0.77)

^a The diagonal shows alpha values.

$N = 160$; correlation coefficients above 0.16 are significant at $p < 0.05$.

The socialization tactics are scaled so that positive correlations between tactics and any other variables are to be interpreted as the relationship between the institutional end of the continuum and the variables. Negative correlations represent relationships between the individualized version of the tactics and the variables. Thus, for interpretation purposes, role ambiguity is negatively correlated with sequential, or positively correlated with random, tactics.

and role conflict are also negatively and significantly related to all institutionalized tactics, thus supporting the second hypothesis.

To further analyze the relationship between socialization tactics and role adjustment, a canonical correlation analysis was performed. Canonical correlation analysis was considered appropriate since multiple dependent variables and multiple independent variables were involved [1, 18, 31]. Canonical correlation analysis derives a linear combination or canonical variate from each of two sets of variables to maximize the correlation between the two sets. Further, this analysis provides a more parsimonious set of results than regression analysis. Therefore, following Jones [37] and Baker [6], a canonical correlation analysis was conducted to examine the relationship between socialization tactics and role adjustment.

Three canonical functions or roots were extracted, the first two of which were statistically significant at $p < 0.01$. The absolute values of the canonical correlations are 0.71 and 0.35. Table 4 presents summary statistics of the first two functions, which are examined in detail below.

Table 4 shows the canonical weights (W) and the canonical loadings (L). Canonical weights (W) are the coefficients of each variable in the canonical variate for the criterion and predictor sets. Most loadings and cross-loadings in this study are in excess of 0.30, which, according to Lambert and Durand [44], is sufficient to draw inferences about criteria-predictor relationships. In summary, there is evidence of a multivariate relationship between socialization tactics and the output variables.

Table 3. Rotated Factor Loadings for Role Ambiguity and Role Conflict Items^a

Item	Rotated factor loadings	
	Factor 1	Factor 2
RA1	0.58	
RA2	0.90	
RA3	0.81	
RA4	0.81	
RA5	0.59	
RC1		0.72
RC2		0.66
RC3		0.60
RC4		0.71
RC5		0.71

^a Only factor loadings above 0.50 are reported.

Table 4. Results of Canonical Analysis

Canonical roots	Eigenvalues	Wilk's lambda	<i>F</i>	Canonical correlation
1	1.02	0.44	8.06**	0.71
2	0.14	0.87	2.14**	0.35
Variables	Canonical function 1		Canonical function 2	
	Standardized coefficients (<i>W</i>)	Correlation coefficients (<i>L</i>)	Standardized coefficients (<i>W</i>)	Correlation coefficients (<i>L</i>)
Criteria set				
Role orientation	0.11	-0.14	1.04	0.81
Role conflict	-0.35	-0.71	-0.47	-0.04
Role ambiguity	-0.81	-0.96	0.18	0.14
Predictor set				
Collective vs. individual	-0.04	0.28	-0.56	-0.44
Formal vs. informal	0.01	0.43	0.03	-0.09
Fixed vs. variable	0.22	0.61	0.69	0.31
Sequential vs. random	0.15	0.70	-0.87	-0.51
Serial vs. disjunctive	0.14	0.66	0.35	0.12
Investiture vs. divestiture	0.73	0.92	0.20	-0.06

** Significant at $p < 0.001$.

The standardized coefficients, or the canonical weights, are the coefficients of each variable in the canonical variate for the criterion and predictor sets. The structure correlations, or canonical loadings, represent the correlation of the canonical variates. The standardized coefficients indicate the relative importance of the variables. The structure correlations are considered more meaningful as indices of relative importance in contributing to the observed canonical relationships. Previous research [18] has shown that the structure correlations have the greatest stability, and thus they were

Table 5. Redundancy Analysis

Canonical function	Root	Variance extracted	Redundancy
Criterion set			
1	1.02	0.47	0.24
2	0.14	0.29	0.27
Predictor set			
1	1.02	0.40	0.20
2	0.14	0.10	0.21

used here for interpretative purposes. A redundancy analysis is shown in Table 5.

This analysis shows the variance extracted and the redundancy indices for the first two canonical functions in the criterion and predictor sets. These functions capture 76.8 percent of the variance in the original variables of the criterion set and 50 percent of the variance in the original variables of the predictor set. The redundancy index of 27.3 percent is the shared variance between the first two canonical variates and the criterion set. The shared variance between the canonical variates and the variables in the predictor set is 21.0 percent. Overall, the high values of the canonical correlations, canonical loadings, and redundancy indices suggest the presence of a strong multivariate relationship between socialization tactics and role orientation, role ambiguity, and role conflict.

In addition, the first canonical function represents institutionalized socialization tactics. Investiture, sequential, serial, and fixed tactics load highest on this function and in that order. Relating these results to the dependent variables shows that role conflict and role ambiguity load the highest. Role orientation is negatively related to the first function. Institutionalized tactics are thus associated with low role ambiguity and conflict, and custodial roles. The second function is representative of individualized socialization and related positively to role orientation. Individualized tactics are thus associated with innovative roles, and higher role conflict. Thus, there is adequate support for both hypotheses.

Discussion and Conclusions

THIS STUDY HAS EXAMINED THE RELATIONSHIP BETWEEN ORGANIZATIONAL socialization tactics and role adjustment for IS professionals. The findings in this study support the hypotheses that institutionalized and individualized socialization tactics have different effects on newcomers' roles and personal adjustments to their organizations.

The social dimensions of socialization—investiture and serial processes—appear to be particularly important in influencing IS professionals' role orientation. Also, the content of the information given to newcomers concerning role requirements and their future organizational progress (sequential and fixed tactics) appears to be most

effective in reducing the uncertainty surrounding the entry process and therefore leads to lower role ambiguity and conflict.

The loadings on the first canonical function indicate that social and content tactics are of greater importance to IS employee adjustment. Higher loadings are seen for both role ambiguity and conflict in the first function. Role ambiguity is highly related to these tactics, suggesting further that search for information by new employees regarding work roles is a social function. Studies such as those by Ashford [4], Ashford and Cummings [5], and Hanser and Muchinsky [32] have shown that newcomers are most likely to identify supervisors as their chief sources for determining job requirements. Social tactics, especially those incorporating the presence of a mentor, are therefore most likely to be associated with greater role clarity. This is supported by the canonical analysis.

This study began with the objective of examining the theory of socialization tactics in the context of IS personnel, and it has shown that organizations can structure their socialization practices to encourage desired responses in new employees. Clearly, the fact that institutionalized and individualized tactics are associated with different types of role orientation is of interest to IS managers in the training and development process.

When an organization practices institutionalized socialization tactics, employees tend not to “rock the boat,” not to make any major changes, and to follow in the footsteps of incumbents or their mentors. Such institutionalized efforts also result in lower conflict and role ambiguity. When an organization exercises individualized socialization tactics, new hires tend to define their situations themselves and to make major changes to the original role definition or expectations assigned to them.

Previous research related to career development of IS personnel has determined that two of the most important factors leading to dissatisfaction, lack of commitment, and turnover among employees are role stressors—namely, role ambiguity and role conflict. Igbaria and Siegal [36] demonstrated this relationship in a sample of ACM members, and Igbaria and Guimaraes [35] verified this with a sample of ninety-two information center employees. Igbaria and Siegal [36], noting the importance of reducing role stressors, state:

IS management should take concrete steps to reduce these conditions: e.g., establish clear priorities, develop two way communications systems to ensure congruence of expectations, avoid unrealistic deadlines, maintain direct reporting networks and structure tasks so they are capable of being performed within the desired dimensions of time, cost and quality. Management may also try to minimize conflicts between IS personnel and end users wherever possible, as well as being supportive of these personnel when conflict cannot be avoided. [p. 327]

This study has outlined specific strategies that organizations can design to reduce both role ambiguity and conflict—factors that have been shown to lead directly to IS employee turnover. Organizations can adopt institutionalized socialization practices (investiture, sequential, serial, and fixed) in order to provide new employees specific information and cues regarding their role in the organization. These tactics have been shown to reduce both role conflict and ambiguity. However, innovative role orientation requires the use of individualized socialization tactics. Canonical loadings on the

two functions (Table 4) show that the tactics that affect role ambiguity and role conflict are not the same as those that affect role orientation. For example, investiture, sequential, and serial tactics have the greatest impact on role ambiguity and conflict. Role orientation, however, is influenced by individual, variable, and random tactics.

There are compelling reasons for organizations to promote custodial or innovative roles. Perhaps the easiest response of a newcomer to a given role is to adopt the knowledge, strategies, and missions already associated with the role [67], thereby adopting a custodial role. This is useful because the inherited past may have much to offer in terms of the successful completion of that role. Or, in other words, "Why rock the boat?" Custodial roles also ensure a certain degree of social uniformity [59], which may be useful for more effective organizational functioning. Consistency, thus achieved, may then be used to replace explicit procedures and formal controls. As further noted by Pascale [59], "when an organization instills a strong consistent set of implicit understandings, it is effectively establishing a common law to supplement its statutory laws" (p. 34). A further argument is that organizations that conduct socialization to induce custodial roles thereby limit internal ambiguity, thus freeing up time and energy for organizational work.

On the other hand, the case for individualized socialization is that, when newcomers are entering the organization one or two at a time, it is unlikely that the organization can expend the resources to integrate them fully. Similarly, when the organization is small, or highly technical, or when a previous role definition is unavailable (e.g., a new position), socialization will generally involve individual and informal processes.

Further, a transition into new roles has been found to be a particularly suitable opportunity for organizations to encourage the adoption of innovative roles. West, Nicholson, and Rees [79] found that, in the specific case of newly created jobs, less help is given to newcomers to learn about the job since new positions tend not to be well defined. From an organization's viewpoint, these jobs present opportunities for growth, exploration, job satisfaction, and a means to gain skills previously lacking in the organization. Perhaps this is why many leading companies are empowering employee entrepreneurship and innovation.

There are some limitations in this study that merit attention. First, the sample in this study consists primarily of new hires who have been with their firms for less than two years. The current study can only enhance our understanding of the role adjustment of new employees and may not be applicable to older members of the organization. Also, the data in the study rely exclusively on self-reported measures. Although attempts were made to obtain confirmation from supervisors, such information was only used as a secondary source since the responding questionnaires were anonymous. However, care was taken to construct the measures of socialization tactics and role adjustment as objectively as possible.

This study has several important implications for research issues related to socialization. One future research direction is to study the impact of socialization tactics on personnel in advanced career stages [25]. Second, future research should examine role adjustment from the interactionist perspective. For example, Jones [37] examined how both individual differences (self-efficacy) and organizational factors (socialization

tactics) affect a newcomer's role adjustment. His findings suggest that socialization tactics produce a stronger custodial role orientation when newcomers possess low levels of self-efficacy. It is felt that variables such as self-efficacy also influence the role adjustment of professionals, and further research in this area can help identify and examine such relationships. Longitudinal studies are suggested as one possible means of achieving the above objectives since it is advisable to trace the changes in role orientation over time.

Perhaps the most important and most difficult research issue concerns the general applicability of this theory in the IS environment. More studies can be done to examine existing organizational members when a career change or shift happens. While Van Maanen and Schein [75] agree that socialization strategies have a strong impact on newcomers, they also believe that such an impact can also happen when existing members are experiencing role transitions or crossing organizational boundaries. Such an investigation in the context of IS is especially critical since IS personnel face jobs that are narrower in scope and more specialized [8, 42]. IS personnel may also face the challenge of redefining or redesigning their roles in the organization. As IS personnel transform their original roles, the effect and outcomes of the resocialization process can be critical concerns for management.

NOTE

1. The dropped items—SD5, FV4, and FV5—were dropped because, in the current study and in past studies, factor loadings on these items have been low. In the study by Jones [37], factor loadings for these items were 0.44, 0.55, and 0.56 as compared with factor loadings on the other items in the scale (0.67 and 0.66). Similarly, Black [9] previously reported that the loadings on these items were below 0.40. Because of the consistently low factor loadings, these items were dropped from further analysis. However, since the Jones [37] scale has not been independently validated, we repeated the analysis presented in this study by including the three items in their respective scales. We did not find any significant differences between the two analyses. A copy of the results tables with the alternate analysis may be requested from the authors.

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APPENDIX A: Scales Measuring Socialization Tactics [37]

RESPONSES WERE MEASURED ON 7-POINT SCALES ranging from “strongly disagree” to “strongly agree.” (R) indicates reverse scoring.

Collective versus Individual

CL1: When I was hired, I was extensively involved with other new recruits in common, job-related training activities.

CL2: Other newcomers have been instrumental in helping me to understand my job requirements.

CL3: This organization put all newcomers through the same set of learning experiences when I was hired.

CL4: Most of my orientation training has been carried out apart from other newcomers. (R)

CL5: There is a sense of “being in the same boat” amongst newcomers in this organization.

Formal versus Informal

FI1: I have been through a set of training experiences which are specifically designed to give newcomers a thorough knowledge of job-related skills.

FI2: During my training for this job, I was normally physically apart from regular organizational members.

FI3: I did not perform any of my normal job responsibilities until I was thoroughly familiar with departmental procedures and work methods.

FI4: Much of my job knowledge has been acquired informally on a trial and error basis. (R)

FI5: I was very aware that I was seen as “learning the ropes” in this organization when I was hired.

Investiture versus Divestiture

ID1: I have been made to feel that my skills and abilities are very important in this organization.

ID2: Almost all of my colleagues have been supportive of me personally.

ID3: I have had to change my attitudes and values to be accepted in this organization. (R)

ID4: I feel that experienced organizational members have held me at a distance until I conform to their expectations. (R)

Sequential versus Random

SR1: There is a clear pattern in the way one role leads to another or one job assignment leads to another in this organization.

SR2: Each stage of the training process has, and will build upon, the job knowledge gained during the preceding stages of the process.

SR3: The movement from role to role and function to function to build up experience and a track record is very apparent in this organization.

SR4: This organization does not put newcomers through an identifiable sequence of learning experiences. (R)

SR5: The steps in the career ladder are clearly specified in this organization.

Serial versus Disjunctive

SD1: Experienced organizational members see advising or training newcomers as one of their main job responsibilities in this organization.

SD2: I am gaining a clear understanding of my role in this organization from observing my senior colleagues.

SD3: I have received little guidance from experienced organizational members as to how I should perform my job. (R)

SD4: I have little or no access to people who have previously performed my role in this organization. (R)

SD5: I have generally been left alone to discover what my role should be in this organization. (R)

Fixed versus Variable

- FV1: I can predict my future career path in this organization by observing others' experiences.
- FV2: I have a good knowledge of the time it will take me to go through the various stages of the training process in this organization.
- FV3: The way in which my progress through this organization will follow a fixed timetable of events has been clearly communicated to me.
- FV4: I have little idea when to expect a new job assignment or training exercise in this organization. (R)
- FV5: Most of my knowledge of what may happen to me in the future comes informally, through the grapevine, rather than through regular organizational channels. (R)

Scale Measuring Role Orientation [37]

- RO1: I have made an attempt to redefine my role and change what I am required to do.
- RO2: While I am satisfied with my overall job responsibilities, I have altered the procedures for doing my job.
- RO3: I have changed the mission or purpose of my role.
- RO4: The procedures for performing my job are generally appropriate in my view. (R)
- RO5: I have tried to change the procedure for doing my job and to institute new work goals.

APPENDIX B: Items Used to Measure Role Ambiguity and Role Conflict (based on [62])

Role Ambiguity Items

- RA1: I feel certain about how much authority I have on my job.
- RA2: I know what my responsibilities are.
- RA3: I know what is exactly expected of me.
- RA4: Job explanation is clear concerning what is to be done.
- RA5: I perform work that suits my values.

Role Conflict Items

- RC1: I have to do things that should be done differently.
- RC2: I work under incompatible policies and guidelines.
- RC3: I work with two or more groups who operate quite differently.
- RC4: I receive incompatible requests from two or more people.
- RC5: I work on many unnecessary assignments.