

An empirical overview of newcomer engineer socialization in the U.S. aerospace and defense industry

by

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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

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DEDICATION

I dedicate this thesis to my parents, who have taught me that the road to success is paved with hard work and perseverance. Without their love and support, I would not have been able to complete this work.

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NOMENCLATURE

A&D	Aerospace and Defense
AIC	Akaike Information Criterion
α	Cronbach's alpha reliability measure
LMRT	Lo-Mendell-Rubin adjusted likelihood ratio test
LPA	Latent Profile Analysis
VLMRT	Vuong-Lo-Mendell-Rubin likelihood ratio test

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ABSTRACT

Newly-hired engineers often counter feelings of uncertainty, confusion, shock and surprise in their first full-time employment after university graduation by engaging in socialization actions and processes. Generally, newcomers undergo socialization through two sets of socialization processes when they are hired into an organization: (1) initiating proactive behaviors and (2) participating in company-initiated actions, called organizational tactics. This thesis aims to provide a first look at the socialization environment among newcomer engineers in the U.S. aerospace and defense (A&D) industry. A comprehensive understanding is achieved by examining how newly-hired engineers at A&D organizations initiate proactive behaviors and participate in organizational tactics to adjust to their new jobs and organizations. Multiple regression analysis is used to examine the relationships that various processes have with socialization outcomes. Latent Profile Analyses (LPA) is employed to identify holistic profiles that best characterize newly hired engineers' socialization processes and whether engineers with different types of profiles present varying socialization outcomes. The findings show that newcomer engineers heavily rely on socially-oriented socialization processes, and that newcomer engineers more frequently achieve socialization through organizational tactics rather than proactive behaviors. It is also revealed that newcomer engineers in the A&D industry generally require 8 months to achieve high levels of adjustment. Implications and recommendations for newcomers, organizations, and educational programs are discussed. The content of this thesis has been accepted with modifications by the *International Journal of Engineering Education (IJEE)*.

CHAPTER 1. GENERAL INTRODUCTION

Organizational socialization research began to emerge in the 1970's and 1980's [1, 20, 31, 64], and has been continuously researched through the present day [9, 10, 14, 24]. The fundamental research that was largely conducted in the late 20th and early 21st centuries provided a basis from which future research has been conducted. This basis has generally revealed that there are two perspectives to organizational socialization processes: the perspective of the newcomer, and the perspective of the organization (e.g. human resources or management). These perspectives have a simultaneous impact on the newcomer's success with organizational socialization. Previous research suggests that both perspectives must be considered as necessary processes for organizational socialization. Traditionally, the success of newcomers who undergo socialization processes has been measured by observing their attitudes and subsequent actions. Such measures include job satisfaction, job performance, intentions to quit, and level of commitment to the organization. These measures were thought to be important because they are easily understood by the layperson and their benefits (or shortcomings) are without question. However, subsequent research in the last 20 years has revealed that the aforementioned socialization outcomes were only secondary outcomes, and that they were being mediated by more fundamental outcomes [27-29]. Thus, research has revealed that more immediate socialization outcomes of task mastery, role clarity, social or workgroup integration, and overall learning are the fundamental outcomes that then lead to secondary outcomes of job satisfaction, job performance, intentions to quit, and level of commitment to the organization.

This research thesis relies on the basis provided by previous research. That is, this thesis examines organizational socialization through the lenses of organization actions and newcomer actions and the relationship that they have with primary and secondary socialization outcomes.

The value added from this thesis study lies in the context of the socialization experiences that are examined. Organizational socialization research has examined many industries and professions. However, only a small percentage of the previous research has examined engineering socialization. Of the engineering socialization studies, none have examined newcomer engineering socialization within the exclusive context of aerospace and defense (A&D) organizations. This study aims to shed light on the seemingly neglected newcomer socialization environment of engineers working in the aerospace and defense industry. Moreover, because no comprehensive study of A&D newcomer socialization exists, the extent to which various socialization processes are used in the A&D industry is unknown. This study is likely to provide insight.

A greater understanding of organizational socialization in the A&D industry would strengthen the industry and help to expedite the dramatic change that the industry is currently experiencing. Newcomers no longer enter the A&D industry with accurate expectations [49, 50]. Rather, their outdated expectations of the Apollo era environment result in low commitment and satisfaction when proven to be untrue [24, 51, 52]. Moreover, the workforce demographics are dramatically changing. The A&D industry is experiencing a mass exodus of “baby boomer” engineers who are quickly being replaced by young, newcomer engineers [46, 53-56]. The new, younger workforce coupled with low satisfaction, commitment, and turnover requires that socialization research examine the A&D industry with the intent to understand the environment, and eventually, incite change.

This study uses quantitative data as a means to answer questions about the A&D newcomer socialization environment. Specifically, this study examines the relationships that socialization processes (organization actions and newcomer actions) have with primary and

secondary socialization outcomes. It is uncertain whether the relationships from previous socialization studies hold up in the A&D industry. Secondly, this study investigates whether there are holistic profiles of newcomer experiences that result in more desirable socialization outcomes.

Quantitative data is collected via an online questionnaire, and multiple regression analysis is used to determine relationships between socialization processes and socialization outcomes. Latent profile analysis is then used to reveal any holistic profiles of newcomers.

The data reveals that newcomer engineers in the A&D industry more frequently engage in organization-driven socialization processes rather than taking initiative on their own. In fact, the only newcomer actions that had any relationship with socialization outcomes were social actions such as building a relationship with the manager, general socializing, and networking with colleagues. This suggests that this sample of newcomer engineers heavily relies on structured socialization processes. When looking at all socialization processes, the data again shows that social processes have the most frequent and positive relationship with many different socialization outcomes. This result reveals that newcomers can strengthen their adjustment to their new job position by networking, attending events and parties, and generally interacting with their coworkers and managers.

Other than social processes, only one other socialization process had any significant relationships with socialization outcomes. The data shows that newcomers achieve several socialization outcomes when they follow a specific sequence of events that enable them to easily infer their socialization progress. This socialization process, known as content organizational tactics, is positively related to role clarity, workgroup integration, and overall newcomer learning.

As literature suggests, newcomers adjust by engaging in both organization-driven tactics and individual-driven proactive behaviors. Several instances in this study support and corroborate this claim. The proximal outcomes of role clarity, workgroup integration, and newcomer learning simultaneously have significant relationships with both organization-driven tactics and individual-driven proactive behaviors. Therefore, it can be concluded that the A&D industry agrees with other industries in this respect. However, several processes in both organization-driven tactics and individual-driven proactive behaviors. For instance, the context organization-driven tactic and the newcomer-driven proactive behaviors of feedback seeking, job change-negotiations, positive framing, and information seeking have no effect on socialization outcomes. This may have an impact on the fact that some key socialization outcomes, including task mastery, organizational commitment, intentions to quit, and job performance, have no relationship with any of the socialization processes measured in this study.

Finally, holistic profiles emerged from the data. The time at the organization and the time in the newcomer's position distinctly separated high performing newcomers from low performing newcomers. Therefore, newcomer's adjustment outcomes generally increase as a function of time. This is important to note because it reveals a key insight regarding the newcomer's expected "time to adjustment" in the A&D industry. The data reveals this "time to adjustment" variable to be equal to approximately 8 months. Therefore, newcomers A&D industry should generally be expected to achieve high levels of adjustment around 8 months after organizational entry.

These findings have several implications that will be discussed. Among them are examples of social mechanisms that should be implemented to help newcomers adjust in organization, applications for undergraduate curriculum, and applications for senior design

projects or senior capstone projects. At the time of this writing, the content in this thesis report and study have been accepted with modifications by the *International Journal of Engineering Education* (IJEE).

**CHAPTER 2. A SNAPSHOT OF THE SOCIALIZATION PROCESS:
SOCIALIZATION TACTICS, BEHAVIORS, AND OUTCOMES IN THE U.S.
AEROSPACE AND DEFENSE INDUSTRY**

James Wingerter and Benjamin Ahn

Modified from a manuscript accepted with modifications by the *International Journal of
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2.1. Abstract

Research suggests that engineers generally undergo socialization through two sets of socialization processes when they are newly hired to an organization: (1) initiating proactive behaviors and (2) participating in company-initiated actions, called organizational tactics. This study provides a first-look at socialization in the U.S. aerospace and defense (A&D) industry by examining how newly-hired engineers at A&D organizations initiate proactive behaviors and participate in organizational tactics to adjust to their new jobs and organizations. First, the relationships between two sets of socialization processes and socialization outcomes of new engineers were examined. Second, holistic profiles that best characterize newly hired engineers' socialization processes, and whether engineers with different types of profiles present varying socialization outcomes were identified. A total of 86 new engineers who had less than two years working experience in their A&D organizations were included in this study. Multiple regression and Latent Profile Analyses (LPA) were employed. Study findings show that newly-hired engineers in A&D industry frequently rely on social interactions to adjust to their job position and organization, and they often participate in organizational tactics more than proactive socialization behaviors. Implications of these findings in the context of A&D workplaces and aerospace engineering education settings are discussed.

2.2. Introduction

When newly-hired engineers with little or no professional working experience enter the workplace for the first time after graduating from college, they often encounter uncertainty about the organization and their new job position. To overcome these uncertainties, new engineers and their organizations often use socialization processes during the transition period from college to the workplace. The term “socialization processes” refers to the use of various mechanisms and actions to help newcomers manage the uncertainty and facilitate the transition from an unexperienced, new engineer to becoming a contributing, organizational insider [1-3]. In other words, newcomers adjust to their new job positions by going through socialization processes. A newcomer is said to have successfully adjusted when he or she has achieved socialization outcomes of role clarity, task mastery, workgroup integration, and newcomer learning [1, 4-10].

Many research studies suggest that socialization processes have a significant relationship with newcomers’ socialization outcomes [11-14]. In the past, socialization processes in the engineering context have been studied through various lenses such as organizational tactics, proactive behaviors, supports and barriers, social exchange processes, and social capital [8, 10, 14-18]. Despite the exhaustive and progressive nature of this research area, several disciplines have been omitted from the socialization literature. Only a fraction of socialization research has studied engineers, and an even smaller percentage of studies has examined the socialization of engineers in the aerospace and defense (A&D) industry jointly with other engineering industries [16, 19]. To our knowledge, no study has examined the socialization of new engineers in the exclusive context of A&D organizations. This study defines A&D organizations as those that research, develop, design, manufacture, maintain, or operate components on aircraft or spacecraft. It is important to examine the socialization of engineers in the A&D industry due to their impact on the U.S. economy, the characteristics of new generations of aerospace engineers,

the growth of employment opportunities in the A&D industry coupled with a growing workforce, and the need to complement aerospace engineering education.

The purpose of this study is to explore socialization processes and outcomes of newly-hired engineers in the A&D industry. This study aims to provide a high-level overview of socialization phenomena in the context of engineers working in the A&D industry.

In order to provide a holistic, first-look at socialization in the A&D industry, the actions taken by both newcomers and organizations need to be examined [16]. It has been suggested that, at a high level, organizational tactics and newcomer proactive behaviors work in association to jointly affect newcomer adjustment [15-16]. For this reason, this study examined organizational tactics and newcomer proactive behavior simultaneously in an attempt to understand the comprehensive nature of socialization processes and outcomes in the A&D industry. Specifically, this study will examine content, context, and social aspects of the organizational tactics together with information seeking, feedback seeking, general socializing, networking, relationship building with managers, job change negotiations, and positive framing of the newcomers' proactive behaviors. These socialization processes will be examined simultaneously to determine their effects on the proximal outcomes (i.e. role clarity, task mastery, workgroup integration, and learning) and distal outcomes (i.e. organizational commitment, job satisfaction, turnover intentions, job performance). This comprehensive snapshot will serve as a benchmark from which future studies can examine socialization in the context of A&D organizations. The conclusions drawn from this benchmark will inform the field on how to improve socialization processes in A&D and educate future A&D employees in college.

2.3. Literature Review

When new employees enter an organization for the first time, they often experience confusion, shock, surprise, and anxiety [1, 20], which has often been labeled as feelings of uncertainty or loss of control [1, 21]. Uncertainty can be frustrating for new employees because it creates difficulty for them when trying to understand the organization's culture, their job expectations, and their job responsibilities [22]. Research shows that socialization processes are the mechanisms through which new employees remedy uncertainty and thereby successfully achieve various socialization outcomes and adjustment [8, 16, 23-24].

2.3.1. Socialization Outcomes

Literature suggests that successful socialization often leads to outcomes that are desirable to new employees, managers, and organizations [22]. These socialization outcomes can be categorized as either proximal outcomes (primary outcomes) or distal outcomes (secondary outcomes) [25].

Proximal socialization outcomes are outcomes that are immediately affected by socialization processes [10] and are direct representations of the successful achievement of new employee adjustment and learning [25]. Four critical proximal outcomes that have emerged from literature were examined in this study: role clarity, task mastery, workgroup integration, and newcomer learning [16, 22, 26-27]. The role clarity outcome reflects the newcomer's understanding of their roles and responsibilities. The task mastery outcome refers to a newcomer having learned and acquired the skills and information necessary to complete their job responsibilities. The workgroup integration outcome is the newcomer's acceptance into the workgroup and refers to the newcomer having developed positive relationships with coworkers

[25]. Finally, the newcomer learning outcome refers to the acquisition of knowledge that enables newcomers to become contributing members of their organization [16].

On the other hand, distal outcomes are functional and attitudinal outcomes that are mediated by the successful achievement of proximal outcomes [27-29]. The distal outcomes examined in this study include job performance, turnover intentions, organizational commitment, and job satisfaction. Job performance describes a newcomer's level of performance relative to peers. Turnover intentions are the newcomer's desire or inclination to quit his/her job. Organizational commitment refers to the newcomer's acceptance of and belief in the organization's principles, which prompts the newcomer to exert effort for the organization [30]. Job satisfaction refers to the newcomer's contentment and fulfillment in his/her role in the organization. The distal socialization outcomes are important indicators of socialization because they provide global indicators of successful achievement of newcomer adjustment outcomes [25]. Furthermore, compared to proximal outcomes, distal outcomes are more intuitive to organizational leaders, which may help to increase non-academic professionals' understanding of the benefits of engineering socialization.

2.3.2. Socialization Processes

The proximal and distal socialization outcomes have been predicted by different socialization processes [22]. One consistent finding from literature suggests that newcomer socialization processes, categorized as either organizational tactics or newcomer proactive behaviors, are significant predictors of socialization outcomes [16].

2.3.2.1. Organizational tactics

Organizational tactics are onboarding processes that organizations use to reduce uncertainty, share and clarify expectations, and stimulate learning environments [31]. This

framework was proposed by Van Maanen and Schein [31] and was later modified by Jones [20] to consist of three domains: organizational context, content, and social aspect tactics. Context tactics describe the context through which information is provided to the newcomer [20].

Content tactics describe the content or type of information that is provided to the newcomer [20].

Social aspect tactics describe the quality of social interactions between the newcomer and their workgroup [20].

Table 1. Organizational Tactics (Modified from Jones [20])

	Institutionalized Organizational Tactics: Highly structured process	Individualized Organizational Tactics: Unstructured process
Context: Context through which organizations provide information	Group learning that occurs outside of the workgroup	Individual learning that occurs simultaneously with work
Content: Content or type of information that is provided to the newcomer	Specific sequence of events that enables the newcomer to easily infer their socialization progress	Random sequence of events in which the progress of socialization is difficult to infer
Social Aspects: Quality of social interactions between newcomer and their workgroup	High quality social interactions that enable social support and positive feedback	Little opportunity to engage in high quality interactions and a lack of social support and positive feedback

The level of three organizational tactics can be described on a continuum of socialization [8, 11, 32] as presented in Table 1. On one end of the continuum, organizational tactics are described as “institutionalized” organizational tactics. These tactics are provided in a highly structured manner [20, 33]. On the opposite end of the continuum, “individualized” organizational tactics consist of organizational tactics that generate high levels of uncertainty and are often perceived as having a “sink-or-swim” or “trial-and-error” nature [16, 34]. Examples of

individualized organizational tactics include organizations that have unstructured orientation programs as well as organizations that intentionally withhold information to encourage newcomers to respond in a particular way [20].

The general consensus among existing studies is that institutional organizational tactics lead to the newcomer's achievement of all four proximal outcomes [8, 16, 22, 27, 29, 33, 35-37]. Furthermore, institutional organizational tactics lead to several positive distal outcomes including high job satisfaction, high organizational commitment, and low turnover intentions [8, 16-17, 20, 36, 38]. Conversely, however, most research agrees that individualized organizational tactics do not positively influence a newcomer's socialization because they increase ambiguity, uncertainty, and abandonment [16-17].

2.3.2.2. Proactive behaviors

In addition to the onboarding process initiated by organizations, newcomers often engage in proactive behaviors as a socialization strategy when faced with uncertainty and insufficient information [7, 15-16, 21, 39-40]. A newcomer's proactive behaviors are socialization processes that emphasize the newcomer as an active participant in the socialization process, rather than someone who passively socializes based on given institutionalized organizational tactics [15-16]. Proactive behaviors are different from individualized socialization tactics because proactive behaviors describe an unsolicited initiative taken by the newcomer, while individualized organizational tactics describe a lack of action taken by an organization (e.g., organization withholds information from a newcomer).

Ashford and Black introduced a model of proactive behavior that identifies the following seven proactive behaviors: Information seeking, feedback seeking, general socializing, networking, relationship building with managers, job-change negotiating, and positive framing [21]. These behaviors are described in Table 2.

Table 2. Newcomer Proactive Behaviors ([21])

Proactive Behaviors	Description
1. Information Seeking	Actively searching for information
2. Feedback Seeking	Actively searching for feedback
3. General Socializing	Actively interacting with co-workers and supervisors
4. Networking	Actively developing relationships with professionals external to the newcomer's workgroup
5. Relationship Building with Managers	Actively developing a high-quality relationship with the newcomer's manager
6. Job-Change Negotiating	Actively engaging in discussions to alter the newcomer's roles and responsibilities
7. Positive Framing	Actively adopting an optimistic perspective on situations

Previous research has empirically shown that proactive behaviors also result in newcomers' adjustment and distal outcomes. Generally, the proactive behaviors shown in table 2 result in achievement of all four proximal outcomes [22, 37, 40]. Similarly, these proactive behaviors have also been shown to beneficially impact the four distal outcomes [7, 16, 40].

Given the previous study findings on the importance of organizational tactics and proactive behavior on proximal and distal socialization outcomes, these two socialization processes were examined to identify their associations with socialization outcomes of newcomers in A&D organizations in this study. Figure 1 provides the overall representation and relationships between socialization processes and outcomes discussed

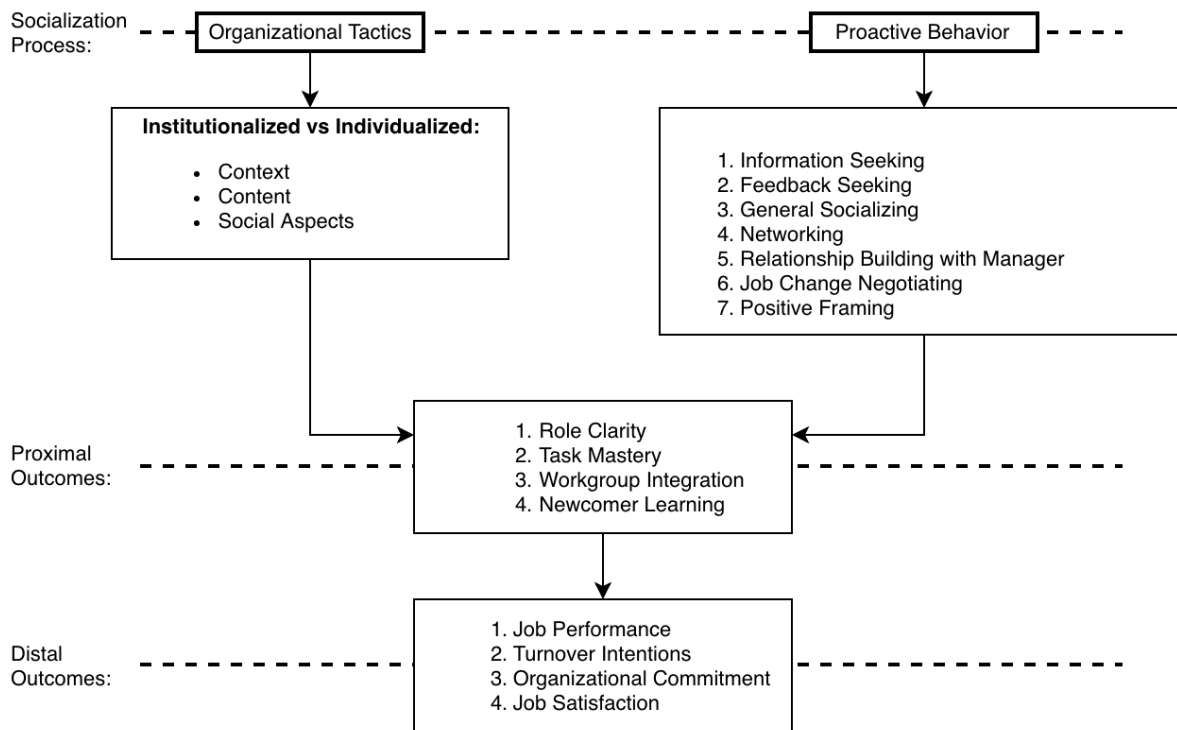


Figure 1. Framework for Socialization Processes and Socialization Outcomes.

A review of the socialization literature [22, 27] highlights several key research gaps with respect to socialization processes and socialization outcomes. Much of the socialization research has focused on distal socialization outcomes such as organizational commitment, job satisfaction, and turnover intentions [12, 22, 27]. Subsequent research has made limited attempts to examine proximal outcomes and only recently has socialization research begun to seriously investigate proximal socialization outcomes. In most of the studies that have analyzed proximal outcomes, a single proximal outcome is often examined independently of other proximal outcomes. For example, Saks, Uggerslev, and Fassina [27], Kowtha [38], and Kammeyer-Mueller, Livingston, and Liao [41] primarily focused on role clarity. Nifadkar and Bauer [42] focused on task mastery. Ashforth, Sluss, and Saks [16] only examined learning as a proximal

outcome. Chan [43] only examined workgroup integration. However, for a complete understanding to exist, all major proximal outcomes must be studied simultaneously to comprehensively understand their connection with socialization processes. This study builds upon existing literature by simultaneously examining organizational tactics and proactive behaviors and the influences that they have on all major proximal outcomes.

Finally, the time required to achieve socialization has been a continual concern and disagreement among many researchers. Although it's widely accepted that organizational socialization is a gradual, on-going process in which individuals and organizations "change over time", there is still substantial variation regarding the time-period over when socialization occurs. While many studies reference the 0 to 6 month timeframe [22], a number of other studies claim that significant socialization outcomes are realized throughout longer time-frames. For instance, some studies argue that socialization outcomes arise well into the 1-2 year range after organizational entry [24, 33, 44-45]. To reconcile these differences, this study employs latent profile analyses in the hopes that a concrete "time to adjustment" factor is revealed.

2.3.3. Aerospace and Defense Setting

There is a need to study the socialization processes and outcomes of A&D industry engineers due to (1) their effect on the U.S. economy, (2) the mismatch between newcomer expectations and industry realities, (3) the growing employment opportunities in the A&D field coupled with a growing workforce, and (4) the need to complement aerospace engineering education.

The A&D industry makes a substantial contribution to the U.S. exports [46]. Since 2010, the contribution of the A&D industry exports to total U.S. exports has increased from 7.1% in 2010 to 10.1% in 2016 [47]. During this same time period, the exports from the A&D industry

made the largest contribution to the total U.S. exports among all industries [47-48]. Logic suggests that any improvement to the socialization processes of the newly-hired A&D engineers may benefit the U.S. economy. Specifically, findings from socialization research can help newcomers more quickly adjust and learn about their roles, while reduced turnover and increased job performance outcomes would help organizations retain higher performing engineers for longer periods of time.

Additionally, there appears to be a gap between the new millennial generation's perception of the A&D industry and the actual state of the A&D industry. Many newly-hired engineers enter the A&D profession because they have dreams about the "faster, higher, farther" A&D culture [49] but are soon disappointed when their expectations do not match reality [50]. When newly-hired A&D engineers have unrealistic expectations of the industry, their socialization outcomes are hindered [24, 51-52]. For example, experienced industry experts claim to have observed newly-hired engineers leave the A&D industry after learning that the industry does not match the newcomers' expectations [50]. A study of socialization in the A&D industry serve as a tool to help mitigate the problems of high newcomer turnover and poor satisfaction that stem from disappointed engineers.

Another reason to study the socialization of new A&D industry engineers is the increase in the number of engineers needed to satisfy the demands of the A&D industry [46, 53]. The recent overwhelming retirement of baby boomer engineers in the A&D industry is vacating important positions that will need to be quickly filled with newcomer engineers [46, 53-56]. This significant transition from experienced engineers to newcomer engineers increases the necessity and importance of quickly socializing newcomer engineers in an effective way. Socialization research focused on newly-hired A&D engineers will help to maximize newcomer performance,

retain technical talent, and provide insight regarding how to quickly and effectively fill these vacating engineering positions at A&D organizations.

While the employment opportunities grow due to the retirement of “baby-boomer” engineers, so too does the overall interest in obtaining aerospace engineering educational degrees. The number of aerospace engineering bachelor’s degree recipients has grown by 220% from 2000 to 2018 [53]. According to Erdiaw-Kwasie et al. [53], the current growth is comparable to the enormous growth that characterized the “space race” era between 1960 to 1970. Naturally, A&D organizations are the most common and most desirable organizations for newly-hired aerospace engineering graduates to work at. Given the tremendous increase in the number of graduating aerospace engineers, it’s important that socialization in the A&D industry is examined so that A&D organizations and institutions are prepared for the new wave of engineers.

Furthermore, a newly-hired engineers’ uncertainty is substantially heightened when their educational program does not adequately prepare them for organizational entry [38]. It has been observed that aerospace engineering educational programs are not only insufficient and unequipped to meet the current market needs, but also offer very limited professional development opportunities [57-60]. For this reason, greater efforts must be dedicated towards improving the performance and effectiveness of newly-hired engineers once they enter A&D organizations. McMasters [46] argues that although the development of engineers begins in an academic setting, it should continue throughout the newcomer’s socialization process as the newcomer engineer enters the workforce. Therefore, onboarding of young A&D engineers at the point of organizational entry must be improved to complement the aerospace engineering

education [46]. Further research into the socialization of engineers in the A&D industry will help to meet these research needs.

2.4. Research Purpose and Research Questions

The purpose of this study was to examine associations between two types of socialization processes (i.e., organizational tactics and proactive behaviors) and the socialization outcomes of newly hired engineers working in A&D organizations. First, this study examined each domain of organizational tactics (i.e., content, context, and social aspects) and proactive behaviors (i.e., information seeking, feedback seeking, general socializing, networking, relationship building with managers, job change negotiations, and positive framing proactive behaviors) simultaneously to determine their unique effects on the socialization outcomes. Each domain of proximal socialization outcomes (i.e., role clarity, task mastery, workgroup integration, and newcomer learning) and distal socialization outcomes (i.e., job performance, turnover intentions, organizational commitment, and job satisfaction) was separately examined. Second, this study aimed to identify holistic profiles that best characterize newly hired engineers' socialization processes based on the domains of organizational tactics and proactive behaviors. The study examined whether new engineers with different types of profiles presented different levels of socialization outcomes. Profile groups of new engineers who best demonstrate successful socialization were identified. The specific research questions for this study are:

1. What types of organizational tactics and new employee's proactive behaviors predict each domain of socialization outcomes in A&D industry?
2. Do holistic profiles of organizational tactics and new employee's proactive behavior predict socialization outcomes?

- a. How many profile groups emerge that best characterize new employers' level of organizational tactics and proactive behaviors?
- b. How does the level of each socialization outcome differ across profile groups?

By examining a combination of organizational tactics and proactive behaviors on proximal and distal outcomes, the study offers a holistic and comprehensive understanding of socialization processes and their impact on socialization outcomes. Further, given that the study focuses on the A&D field, the findings from the research questions can address the opportunities and challenges encountered by organizations and engineers in the industry.

2.5. Methods

2.5.1. Data Collection

2.5.1.1. Study context and participants

Data was collected in the summer of 2018. All participants in this study met the following criteria: (1) participants had graduated from a U.S. university with an undergraduate degree in engineering, (2) participants were working at an A&D organization at the point of data collection, and (3) participants were working for 24 months or less in their first position after graduation. The 24-month time frame was selected because previous studies reveal that socialization processes and outcomes continue through the 18-24 month period [1, 14, 25, 33, 45, 61-62]. A description of the study was shared with interested individuals via email, and participants were asked to complete an online survey. The study was approved by the researchers' institutional review board and consent was received from all participants in this study.

Several methods were used to recruit participants. First, 20 different US-based aerospace engineering universities were contacted for assistance with recruiting potential participants. Of these 20 universities, 3 agreed to share the recruitment material with their engineering program alumni who graduated within 2 years of the time of data collection. Second, one of the researchers used his professional network in a large A&D organization to recruit participants. In total, 157 newly-hired engineers completed the survey during the data collection period. Of the 157 total survey responses, 47 responses were discarded due to incomplete data. Another 24 responses were discarded due to ineligible participants completing the survey (e.g., participants who did not work in A&D organizations or those who did not work in their first engineering positions after graduating from college). The final sample of participants consisted of 86 participants

Demographic information about the participants are presented in Table 3. The sample of participants in this study is representative of the U.S. A&D industry sample of engineers. The A&D industry workforce consists of 85.5% male engineers and 75.3% white engineers [63]. Comparatively, the sample of participants in this study consisted of 77.9% male engineers and 75.6% white engineers.

Table 3. Participant Demographics.

Demographics		% of Total Sample
Age	20-21	4.7%
	22-23	60.5%
	24-25	26.7%
	26-27	2.3%
	28+	5.8%
Ethnicity	African American	5.8%
	Asian	9.3%
	Hispanic	8.1%
	White	75.6%
	Other	1.2%
Gender	Male	77.9%
	Female	20.9%
	Prefer not to answer	1.2%
Education Level	Bachelor's Degree	89.5%
	Master's Degree	10.5%
Engineering Major	Aerospace	29.1%
	Chemical	2.3%
	Computer	12.8%
	Electrical	14.0%
	Industrial	4.7%
	Mechanical	25.6%
	Others	11.6%
Time at organization	0-1 months	19.8%
	2-3 months	18.6%
	4-5 months	8.1%
	6-7 months	14.0%
	8-9 months	2.3%
	10-11 months	12.8%
	12-13 months	11.6%
	14-15 months	2.3%
	16-17 months	3.5%
	18-19 months	2.3%
	22-23 months	1.2%
	24+ months	3.5%

2.5.1.2. Measures

An online survey was developed to measure two sets of socialization processes (i.e., organization tactics and proactive behaviors) and two set of socialization outcomes (i.e., proximal and distal outcomes).

2.5.1.2.1. Organizational tactics. The organization tactics were measured using Cable et al.'s survey [33], which includes 12 items intended to measure three domains of organizational tactics: (1) context (n = 4 items), (2) content (n = 4 items), and (3) social aspects (n = 4 items). Each item was rated using a 7-point scale with "1" = strongly disagree and "7" = strongly agree. Low scores on the scale indicate individualized tactics, and high scores indicate institutionalized tactics. Mean scores of each of 3 organizational tactics were used in analyses.

2.5.1.2.2. Proactive behaviors. The newcomer proactive behaviors were measured using the 24 items developed by Ashford and Black [21]. The survey measured the 7 domains of proactive behaviors including information seeking (n = 4 items), feedback seeking (n = 4 items), general socializing (n = 3 items), networking (n = 3 items), relationship building with managers (n = 3 items), job change negotiations (n = 4 items), and positive framing proactive behaviors (n = 3 items). Each item was rated using a 5-point scale with "1" = to no extent and "5" = to a great extent, with high scores indicating that newcomers initiated proactive behaviors. Mean scores of each of 7 proactive behaviors were used in analyses. The Ashford and Black [21] scale has been used in previous engineering socialization studies (e.g., [16]).

2.5.1.2.3. Socialization outcomes. The complete socialization outcome survey consisted of 74 questions. These question items were from multiple resources, capturing 4 domains of proximal socialization outcomes and 4 domains of distal socialization outcomes. Role clarity was measured using Kowtha's 6-item, 7-point Likert scale [8] modified from Rizzo, House, and Lirtzman [64]. Task mastery was measured using the 7-item, 5-point Likert scale developed by

Morrison [6]. Workgroup integration was measured using Kowtha's 4-item, 5-point Likert scale [8] variation of Morrison's workgroup integration questionnaire [6]. Newcomer learning was measured using the 40-item, 5-point Likert scale developed by Morrison [65]. Previous engineering socialization studies have used these measures [8, 16]. Job performance was measured using a 5-item scale developed by Pearce and Porter [66], which asks newcomers to rank several aspects of their job performance as a percentile (10th percentile to 100th percentile) compared to their peers. This questionnaire was originally administered to National Aeronautics and Space Administration (NASA) engineers and has been used in previous engineering socialization studies [21]. Turnover intentions were measured using the 3-item, 5-point Likert scale developed by Colarelli [67]. Organizational commitment was measured using the 8-item, 7-point Likert scale developed by Allen and Meyer [32]. Prior socialization studies have used Allen and Meyer's [32] and Colarelli's [67] measure (e.g., [68]). Job satisfaction was measured using a 1-item, 10-point Likert scale which asked, "How satisfied are you with your job?"

Table 4 shows the complete list of measures used in the survey, along with the number of items, Likert scale rating, reference, and reliability (Cronbach's alpha) calculated from the current data.

Table 4. Surveys Used to Measure Socialization Processes and Socialization Outcomes.

Measure	No. of items	Likert scale range	Reference	Reliability (Cronbach's alpha)
Socialization Process: Organization Tactics				
Context	4	1 to 7	[33]	0.68
Content	4	1 to 7		0.81
Social Aspects	4	1 to 7		0.73
Socialization Process: Proactive Behaviors				
Information Seeking	4	1 to 5	[21]	0.80
Feedback Seeking	4	1 to 5		0.90
Job Change Negotiations	4	1 to 5		0.81
Positive Framing	3	1 to 5		0.76
General socializing	3	1 to 5		0.85
Relationship Building with Managers	3	1 to 5		0.85
Networking	3	1 to 5		0.90
Socialization Outcomes: Proximal Outcomes				
Role Clarity	6	1 to 7	[8]	0.91
Task Mastery	7	1 to 5	[6]	0.75
Workgroup Integration	4	1 to 5	[8]	0.87
Newcomer Learning	40	1 to 5	[65]	0.96
Socialization Outcomes: Distal Outcomes				
Job Performance	5	10 to 100	[66]	0.90
Turnover Intentions	3	1 to 5	[67]	0.71
Organizational Commitment	8	1 to 7	[32]	0.81
Job Satisfaction	1	1 to 10	-	-

2.5.2. Data Analysis

Research Question 1 explored whether the new employees' socialization outcomes in A&D industry were predicted by their socialization processes (i.e., organizational tactics and proactive behaviors). A series of multiple regression analyses were employed using Stata 14.1 [69]. All models included control variables such as gender (male vs. female), age, ethnicity (white vs. non-white), education level (Bachelor's degree vs. higher), major (Aerospace/Mechanical Engineering vs. other Engineering disciplines), time at organization, and

time in position. Analyses were performed separately for each socialization outcome. All socialization processes were tested simultaneously in each model to identify the unique predictability of each socialization process for socialization outcomes, above and beyond potential effects of other socialization processes.

Research Question 2 explored two sets of questions. First, holistic profiles that best characterize newly hired engineers' socialization processes were identified based on 10 domains of socialization processes reflecting organization tactics (3 domains) and new engineers' proactive behaviors (7 domains; Research Question 2a). Mplus [70] was used to conduct a Latent Profile Analysis (LPA) [71]. LPA was used to classify underlying subgroups or latent profile groups based on the 10 socialization processes. Models were estimated starting from one profile and added one additional profile to the previous profile model. Then, the best fitting model was identified comparing goodness-of-fit criteria for different numbers of profile models. The following goodness-of-fit criteria were used: the Akaike Information Criterion (AIC) [72], Bayesian Information Criterion (BIC) [73], adjusted BIC [74], Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMRT) [75-76], and entropy statistic [77]. Second, once the best fitted number of profile groups had been identified, a series of multiple regression analyses were employed using Stata 14.1 [69] to examine whether the profile groups presented different levels of socialization outcomes (Research Question 2b). Analyses were performed separately for each socialization outcome. All control variables used in Research Question 1 were used for these models as well.

2.6. Results

2.6.1. Research Question 1

Research Question 1 examined whether various types of new employees' socialization processes uniquely predict their socialization outcomes. Descriptive statistics for the socialization processes are presented in Table 5, and the findings from a series of multiple regression analyses are presented in Table 6 for each socialization outcome.

Table 5. Descriptive Statistics of Socialization Processes and Socialization Outcomes.

Variable	Mean	SD	Minimum	Maximum
Organization Tactics				
Context	4.24	1.28	1	7
Content	4.60	1.28	1.5	7
Social Aspect	5.65	0.96	2.25	7
Proactive Behaviors				
Information Seeking	3.92	0.79	1.75	5
Feedback Seeking	3.63	0.99	1	5
General Socializing	3.40	1.18	1	5
Networking	3.53	1.10	1	5
Relationship Building	3.42	0.96	1	5
Job Change Negotiating	2.45	0.98	1	5
Positive Framing	4.27	0.66	2	5
Proximal Outcomes				
Role Clarity	5.19	1.19	1.33	7
Task Mastery	3.46	0.62	2	5
Workgroup Integration	4.38	0.66	2	5
Newcomer Learning	3.79	0.66	2	5
Distal Outcomes				
Organizational Commitment	4.71	0.97	2	6.75
Job Satisfaction	7.62	1.68	2	10
Turnover Intentions	1.86	0.98	1	4.33
Job Performance	73.53	16.105	26	100

Table 6. Association Between New Employees' Socialization Processes and Socialization Outcomes.

	Proximal Socialization Outcomes								Distal Socialization Outcomes							
	Role Clarity		Task Mastery		Workgroup Integration		Newcomer Learning		Organization Commitment		Job Satisfaction		Turnover Intentions		Job Performance	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Socialization Processes																
Context	0.06		0.08		-0.04		0.05		0.05		0.17		-0.07		0.85	
Content	0.19	*	-0.03		0.00		0.17	***	0.13		0.09		-0.05		0.05	
Social Aspect	0.44	***	0.13		0.29	***	0.17	**	0.11		0.60	*	-0.21		-0.42	
Feedback Seeking	-0.11		0.02		0.03		0.08		0.12		0.25		-0.02		-1.72	
Job-Change Negotiation	-0.02		-0.03		-0.08		< .00		-0.09		0.07		0.15		1.11	
Positive Framing	0.13		-0.06		0.06		0.10		0.32		-0.11		-0.17		2.81	
General Socializing	-0.08		-0.07		0.14	*	-0.02		-0.03		-0.08		0.10		0.39	
Relationship Building with Managers	0.27	*	< .00		0.00		0.08		-0.07		0.11		0.08		-1.48	
Networking	0.03		0.19		0.08		0.12	*	0.22		-0.06		-0.07		4.15	
Information Seeking	0.25		-0.03		-0.17		0.13		0.02		0.04		-0.05		0.52	
Controls																
Gender (1= male)	0.07		0.02		0.07		0.12		0.14		-0.09		0.02		5.20	
Age	-0.04		0.09		0.05		-0.04		-0.04		0.24		0.02		-2.21	
Ethnicity (1= White)	-0.69		-0.21		-0.17		0.05		0.50		< .00		-0.48		-3.95	
Education (1= BA)	0.12		-0.12		0.04		-0.08		0.34		0.24		-0.28		-5.09	
Major (1= non-Aero & Mech. Eng.)	-0.46		-0.08		0.05		-0.09		0.03		-0.08		-0.03		-3.34	
Time at organization	-0.02		-0.03		-0.03		-0.01		-0.02		-0.03		0.02		-0.54	
Time in position	0.07		0.04		0.06		0.01		-0.02		-0.03		0.06		1.21	
Intercept	0.21		2.43		2.43		0.01		0.64		1.98		4.10		58.23	
Adjusted R-square	0.51		0.01		0.30		0.65		0.11		0.06		0.05		-0.03	

Notes. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; Eng. = Engineering

Results showed that higher scores in employees' role clarity were predicted by higher scores in organizational content ($b = .19, p \leq .05$), organizational social aspect ($b = .44, p \leq .001$), and employees' relationship building with managers ($b = .27, p \leq .05$). The model explained 50.71% of the variance in role clarity. Findings from workgroup integration showed that higher scores in organizational social aspect ($b = .29, p \leq .001$) and employees' general socializing ($b = .14, p \leq .05$) were associated with higher scores in workgroup integration. The model explained 29.98% of the variance in workgroup integration. Higher scores in newcomer learning were predicted by organizational content ($b = .17, p \leq .001$), organizational social aspect ($b = .17, p \leq .05$), and employees' networking ($b = .12, p \leq .05$). The model explained 65.1% of the variance in newcomer learning. The findings for job satisfaction showed that higher scores in organizational social aspect ($b = .60, p \leq .05$) were related to higher scores in job satisfaction. Approximately 5.56% of the variance in job satisfaction was explained by the model. None of the socialization processes (i.e., organizational tactics and proactive behaviors) were found to relate to task mastery, organizational commitment, turnover intentions, and job performance socialization outcomes.

2.6.2. Research Question 2

Research Question 2 examined whether holistic profiles of new employees' organizational tactics and proactive behavior predict their socialization outcomes. First, the underlying profiles groups were classified based on new employers' level of socialization processes (i.e., organizational tactics and proactive behaviors). Models were estimated from a 1-profile solution up to a 4-profile solution. The decision about the number of profile groups was made by empirical evaluation. As reported in Table 7, three information criteria (AIC, BIC, and

adjusted BIC) showed a bigger drop in values from 1- to 2-profile groups than the drops from 2- to 3-profile groups or the drops from 3- to 4-profile groups, indicating better fit improvement from 1- to 2-profile groups than others. All profile models showed entropy statistic values above .80, which is often used as a cut-off value for a good model fit index in practice (e.g., [78]). The log-likelihood tests (VLMRT and LMRT) showed that the 2-profile had a statistically significantly better fit than the 1-profile model at the $p < .05$ level, indicating a significant improvement in fit from 1 profile to 2 profiles. The 3- and 4-profile models did not improve model fit from 2-profile model. Considering results from these fit statistics and the practically meaningful distribution of employees across profiles, the 2-profile solution was selected as the model that best fit the data (see Figure 2).

Table 7. Comparison of Goodness-of-Fit Criteria for Different Latent Profile Solutions (N = 86)

Group	Profile class solutions			
	1	2	3	4
AIC	2467.35	2355.76	2329.93	2315.06
Δ AIC	–	-111.60	-25.83	-14.87
BIC	2516.44	2431.84	2433.01	2445.14
Δ BIC		-84.60	1.17	12.13
Adjusted BIC	2453.34	2334.03	2300.50	2277.92
Δ Adjusted BIC	–	-119.30	-33.54	-22.58
VLMRT		0.01660	0.35020	0.41290
LMRT		0.01800	0.35780	0.42030
Entropy	–	0.841	0.836	0.857
% Class 1	1.00	0.46512	0.20	0.19
% Class 2		0.53488	0.19	0.45
% Class 3			0.62	0.12
% Class 4				0.24

Notes. AIC = Akaike's Information Criterion; BIC = Bayesian Information Criterion; VLMRT = Vuong-Lo-Mendell-Rubin test; LMRT = Lo-Mendell-Rubin adjusted test.

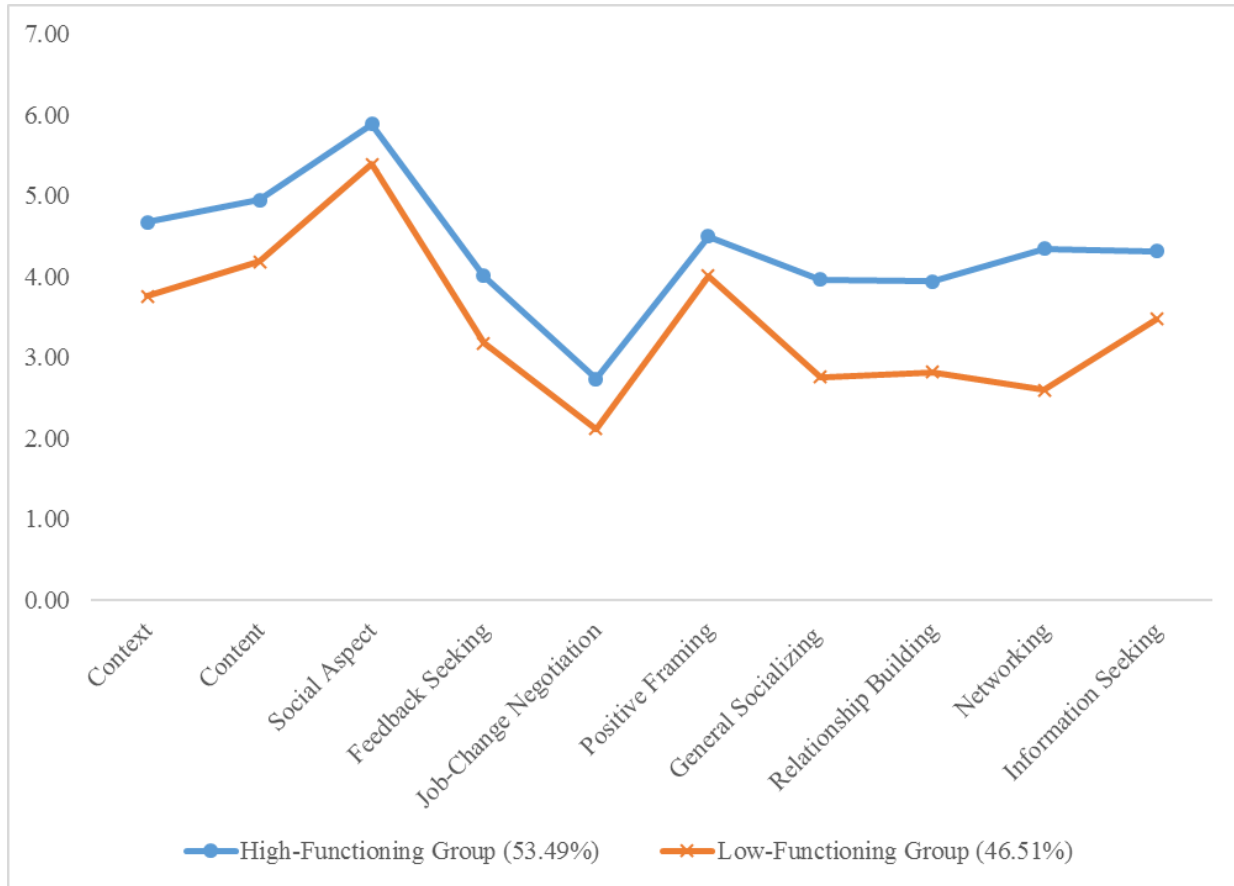


Figure 2. High-Functioning and Low-Functioning Profile Groups.

The 2-profile model classified 53.49% of participants as Profile 1, which was labelled the High Functioning Group, 46.51% of participants as Profile 2, which was labelled the Low Functioning Group. Group comparisons tests, such as chi-square tests (for categorical variables) and t-tests (for continuous variables) showed that no profile group differences were found in gender (male vs. female), ethnicity (white vs. non-white), education level (Bachelor's degree vs. higher), major (Aerospace/Mechanical Engineering vs. other Engineering degree), and age. Statistically significant group differences were found in time at organization ($p < .05$) and time in position ($p < .05$), showing higher scores on time at organization (5.20 [approximately 8 months]

vs. 3.54 [approximately 4.5 months]) and time in position (4.95 [approximately 7 months] vs. 3.54 [approximately 4.5 months]) for the High Functioning Group than the Low Functioning Group. Average employees in the High Functioning Group presented higher average scores in all socialization outcomes than did the Low Functioning Group.

After classifying profile groups, the research team employed multiple regression analyses to examine whether new employees' socialization outcomes differ between the two profile groups (i.e., High Functioning vs. Low Functioning). As shown in Table 8, the High Functioning Group scored higher in all outcomes except for two. For job satisfaction and turnover intentions, no difference was found among the two profile groups. For the remaining socialization outcomes, statistically significant differences were found between the High Functioning and Low Functioning Groups. Specifically, the High Functioning Group, relative to the Low Functioning Group, presented significantly higher scores in role clarity ($b = .83, p \leq .001$), in task mastery ($b = .36, p \leq .05$), workgroup integration ($b = .39, p \leq .01$), newcomer learning ($b = .70, p \leq .001$), organizational commitment ($b = .53, p \leq .05$), and job performance ($b = 8.80, p \leq .05$).

Table 8. Difference Socialization Outcomes Between Profile Groups of Socialization Processes.

	Proximal Socialization Outcomes								Distal Socialization Outcomes							
	Role Clarity		Task Mastery		Workgroup Integration		Newcomer Learning		Organization Commitment		Job Satisfaction		Turnover Intentions		Job Performance	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Socialization Profile group																
High functioning (ref.) vs. Low functioning	0.83	***	0.36	*	0.39	**	0.70	***	0.53	*	0.79		-0.24		8.80	*
Controls																
Gender (1= male)	0.14		0.07		0.07		0.03		0.01		-0.05		-0.01		4.88	
Age	-0.13		0.09		0.08		-0.08		0.01		0.10		0.01		-1.61	
Ethnicity (1= White)	-0.70	**	-0.20		-0.09		-0.01		0.37		0.03		-0.41		-5.28	
Education (1= BA)	-0.14		-0.08		-0.10		-0.18		0.31		-0.09		-0.20		-2.74	
Major (1= non-Aero & Mech Eng.)	-0.35		-0.04		-0.01		0.02		0.13		0.08		-0.07		-3.11	
Time at organization	-0.04		-0.02		-0.05		-0.01		-0.01		-0.05		0.03		-0.41	
Time in position	0.10		0.04		-0.09		0.02		-0.01		0.03		0.07		1.13	
Intercept	5.56		3.12		3.94		3.67		3.85		7.09		2.12		73.89	
Adjusted R-square	0.24		0.08		0.10		0.25		0.01		-0.04		0.03		0.07	

Notes. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; ref. = reference; Eng. = Engineering

2.7. Discussion

This study investigated the relationships between socialization processes (i.e., organizational tactics and proactive behaviors) and proximal and distal socialization outcomes of newcomer engineers working in the A&D industry. The study also examined whether holistic profiles of organizational tactics and new employees' proactive behaviors predict their socialization outcomes. This study contributes to the existing literature by comprehensively examining outcomes for the socialization processes of newcomers in the A&D industry.

Socially oriented processes of socialization had a frequent and significant positive relationship with many socialization outcomes. Socially oriented processes are shown to have a positive relationship with three key proximal outcomes: a newcomer's ability to socially integrate into their workgroup (i.e. workgroup integration), a newcomer's ability to understand their roles and responsibilities (i.e. role clarity), and newcomer learning. These results suggest that newcomers in the A&D industry achieve adjustment to their new job positions by frequently interacting with coworkers and managers, networking with colleagues, and developing strong, positive relationships with colleagues. Research on social mechanisms in engineering settings supports this finding by revealing that informal communication, group work, and social interactions play an important role in engineering workplace settings [79]. Furthermore, previous socialization studies corroborate the observed importance of social processes for newcomer socialization ([8, 10, 14, 16, 62, 80]. The findings from this study build upon prior research by indicating (1) that the newcomer's workgroup is the largest and most important setting for newcomer socialization in A&D organizations and (2) that a higher frequency and quality of social interactions improves the newcomer's overall adjustment in an A&D industry setting. The complexity of engineering roles in A&D organizations likely encourages the frequent use of

social mechanisms to adjust to new positions. Furthermore, newcomer engineers likely rely on social mechanisms because newcomers are accustomed to social learning mechanisms in university engineering programs [81-83].

The key proximal outcomes of role clarity, workgroup integration, and newcomer learning simultaneously have significant relationships with both organization-driven tactics and individual-driven proactive behaviors. This indicates that both the organization and the newcomer must actively exert effort to achieve socialization outcomes. For instance, workgroup integration is related to the social aspect organizational tactics as well as the proactive behaviors of general socializing. This suggests that in addition to the organization providing opportunities for social interaction and support, the newcomer must also make a proactive effort to build a relationship with coworkers through frequent interactions. It appears that newcomers also actively seek out social interactions with their coworkers, possibly because they perceive their coworkers to be a significant source of information about the requirements and responsibilities of their positions [84]. The results of this study indicate that newcomers in the A&D industry are most effectively adjusted through some combination of organizational tactics and newcomer proactive behaviors. Future research can build upon these findings by examining more precise combinations of tactics and proactive behaviors.

A newcomer's ability to discern their progress of adjustment to their new position (i.e. content tactics) is also related to two key proximal outcomes: role clarity and newcomer learning. Experiences that provide newcomers with insight regarding their adjustment progress are related to the newcomers' ability to learn and clearly understand their roles and responsibilities. Previous studies support this finding [8, 10, 85] and suggest that newcomers feel

competent regarding their role definitions when they are able to discern, understand, and interpret their progress adjusting to their job position [86].

The results of this study reveal that a newcomer's task mastery, that is, skills required for a job, is unrelated to any socialization process examined in this study. This result contradicts prior research findings [8, 35] and may provide insight into how A&D socialization differs from that in other industries. A significant collection of socialization research agrees that newcomers quickly adjust to their positions within 6 to 7 months after entry [33, 42, 87-89]. Participants in our study had been working in their positions for approximately 7 months, on average. It is possible that the participants in this study had not achieved task mastery yet, perhaps because the adjustment period for newcomers in the A&D industry lasts significantly longer than in other industries. Other studies argue that newcomers do not master their situations until they have worked for approximately 9-12 months in their positions [34, 90]. It is possible that the A&D industry context follows this timeframe of 9 months or longer. It is also possible that unforeseen factors affect task mastery more than the socialization processes examined in this study. Due to the highly technical and complex skills required for engineering positions in the A&D industry, newcomers might default to other resources, such as textbooks, tutorials, internet resources, or other traditional information sources, to accomplish task mastery. The results from this study indicate that neither organizational tactics nor newcomer proactive behaviors significantly influence task mastery. Given the importance of task mastery [6, 91], additional research is needed to explore which socialization processes develop task mastery in the context of newcomers working at A&D organizations.

Although many of the socialization outcomes measured in this study are associated with both organizational tactics and newcomer proactive behaviors, results show that newcomers'

socialization outcomes are influenced more frequently through institutionalized organizational tactics than by proactive behaviors. The literature suggests that newcomer engineers prefer a highly structured environment that will help guide them through their socialization process [44]. The results from this study indicate that this attitude may be even more prominent for newcomers in the A&D organization. Newly-hired engineers might heavily rely on institutionalized organizational tactics because organizational tactics have a recognizable similarity to the highly structured environments in engineering academic programs and higher education.

This study also shows that a newcomer's commitment to an organization (i.e., organizational commitment) and the newcomer's intention to quit (i.e., turnover intentions) were not related to any socialization processes. These results do not conform to prior research [8, 35]. The lack of association between processes and organizational commitment might be attributed to the relatively small amount of time that newcomers in this study have worked in their positions. The first 12 months of a newcomer's position are characterized by abnormally high feelings of affirmation towards the organization. Research refers to this time period as the "honeymoon phase" of newcomer socialization [92]. Recent subsequent studies [87] have further explored this phenomenon and have demonstrated that a newcomer's feelings of affirmation (such as job satisfaction and commitment to their organization) do not taper off until approximately 12 months into the newcomer's position. Because much of our sample of newcomers had been working for less than 12 months, the "honeymoon" phenomenon likely explains the lack of relationships between socialization processes and organizational commitment in the A&D industry.

It was also observed that job-change negotiations had no relationship with any socialization outcomes. According to the data from this study, newcomers in the A&D industry engaged less in job-change negotiations compared to other processes. Newcomers are more likely to negotiate their job tasks and responsibilities when they have low job satisfaction. The findings from this study showed that, on average, our sampled newcomer engineers working in A&D organizations have high satisfaction with their jobs (7.62 out of 10). Thus, newcomers in the A&D industry might not negotiate their job responsibilities because they are already content in their job positions.

Finally, Latent-Profile Analysis reveals that the duration of time that a newcomer has spent in the organization and position is related to the newcomer's overall success in socialization in the organization and job position. In particular, newcomer engineers who have worked in their positions for longer periods (approximately 8 months vs. 4.5 months) are generally more successful in their adjustment to the organizations and positions. These findings suggest that a newcomer's persistent effort in a position will likely alleviate adjustment challenges over time. These findings are consistent with previous research [19, 39], which shows associations between job tenure and socialization outcomes. Furthermore, the LPA findings show, newcomers who are in the High Functioning group generally exhibit all high socialization processes compared to newcomers who are in the Low Functioning group. This result reveals that the majority of socialization processes generally improve over time.

2.8. Implications

A newcomer engineer's understanding of his or her roles and responsibilities is likely to be improved through social mechanisms. Specifically, newcomers should be given strong,

positive social support from their coworkers and managers and should be encouraged to develop high-quality relationships with coworkers and managers. In practice, these goals could be most easily achieved through a formal mentorship program in which an experienced engineer works closely with the newcomer engineer to serve as a source for strong social support [14].

Networking events are also likely to promote the achievement of socialization outcomes.

Although individuals are typically expected to bear the responsibility of initiating networking, organizations can organize events to help facilitate the networking between newcomers and experienced professionals. Social events should occur periodically, even outside of work.

Additionally, newcomers should be encouraged to actively seek out interactions with coworkers and managers. Efforts from both the newcomer and the organization (i.e., coworkers, managers, human resources, etc.) will most effectively sustain socialization outcomes among engineering newcomers in A&D organizations.

As prior research indicates, many academic engineering programs are not sufficiently preparing engineering graduates for organizational entry [57, 93]. The skills and processes associated with organizational socialization should begin in higher education and continue throughout the newcomer's first position [46]. For these reasons, the current findings offer constructive implications in higher educational settings as well. Processes that enable students to easily infer their progress adjusting to classes (i.e. content tactics), provide positive social support to students (i.e. institutionalized social aspects), and build individual relationships with instructors (i.e. relationship building with managers) are examples of such processes that should be implemented. For instance, instructors should frequently engage students and encourage them to interact with one another both during and outside of class to develop social support systems. Mechanisms such as group projects can help engineering students to develop skills and

familiarity with social learning and to develop social relationships in the context of work [94]. Furthermore, well-structured projects can be implemented to encourage newcomers to develop skills and familiarity regarding information-seeking.

The findings from this study can also be practically applied to design projects (e.g., capstone projects or student-run, industry-sponsored projects [95]) for college engineering programs. Design projects are intended to simulate real work environments and therefore provide opportunities to expose aerospace engineering students to these socialization practices. While working closely with industry professionals, engineering students should be encouraged to network and build relationships with them. Special events such as seminars, lectures, or instructor guidance can be used to coach engineering students through this process, enabling students to develop these skills before organizational entry.

2.9. Limitations and Future Research

Several limitations of the study should be noted. The survey responses in this study were collected at only a single moment, providing a “snapshot” of socialization outcomes. Furthermore, the data in this study came from self-reports because newcomers are most apt at describing their own experiences [6]. Because this study was primarily retrospective, the results may miss some changes that occur during the initial stages of socialization [96]. Future research can address this issue by examining the socialization of newcomer engineers in the A&D industry using a longitudinal study design. The longitudinal nature of future studies will allow researchers to capture changes that occur during the initial stages of socialization.

Another limitation of this study is the relatively small sample size and the generalizability of the findings. Although significant efforts were made to collect as many responses as possible,

only 86 usable survey responses were collected in this study. Future research studies should focus on quantitatively analyzing larger samples of newcomer engineers in the A&D industry.

The findings from the study show potential areas for future research. No socialization processes examined in this study were found to predict some important socialization outcomes. The results indicate that neither organizational tactics nor newcomers' proactive behaviors have any relationship with task mastery, organizational commitment, or turnover intentions. Although the lack of relationships is a valid result, it does not help to identify which actions are related to task mastery, organizational commitment, or turnover intentions. Thus, future research will be needed to identify factors that influence task mastery, organizational commitment, and turnover intentions among newcomer engineers in the A&D industry.

This study further supports the claim that socialization outcomes are achieved through some combination of organizational tactics and proactive behaviors [16, 35, 97]. However, the optimal or most exact combination of organizational tactics and proactive behavior that achieves the highest level of newcomer adjustment remains unknown for the A&D industry. Future research is needed to examine the combination(s) of organizational tactics and newcomer proactive behaviors that result in the successful adjustment of newcomers.

2.10. Conclusions

This study sheds light on the relationships that exist between socialization processes and socialization outcomes of newcomer engineers working in A&D organizations. Newcomer engineers in the A&D industry tend to rely heavily on socially-oriented processes to adjust to their new job positions and organizations. A&D organizations should work to create cultures and environments that cultivate social interactions and relationships between the newcomer engineers

and their workgroups and managers. Latent-profile analysis has revealed that the time a newcomer has spent in their position and organization plays an important role regarding socialization processes. Moreover, the results from this study reveal that organizational tactics and proactive behaviors are simultaneously related to socialization outcomes. Thus, newcomers should also be encouraged to proactively make efforts to adjust to their positions and organizations. Academic programs can implement the findings from this study to better prepare undergraduate students for organizational entry. The results of this study reveal that task mastery, organizational commitment, and intentions to quit are not related to any socialization processes. Future research on the socialization of engineers in the A&D industry is needed to reconcile these research gaps and further build upon the socialization research in the context of the A&D industry.

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CHAPTER 3. GENERAL CONCLUSION

3.1 Implications

One implication from prior research suggests that social aspects implies that newcomers should be given strong, positive, and frequent social support from more experienced engineers in their workgroup [22, 27]. Mentorship is an example of how strong social support could be manifested in the workplace. The authors of this study suggest that mentorship from senior engineers should be formulated around the concept of organizational tactics. That is, senior engineers (or a more experienced engineer) should be assigned to a newcomer, rather than the newcomer seeking out a mentor. This senior engineer should frequently seek out the newcomer to provide support by offering to answer any work-related questions, talk the newcomer through their tasks, and generally help the newcomer with work related tasks. The senior engineer would be more involved than a regular mentor, because this mentor would exert extra effort to regularly seek out the newcomer to help whether or not the newcomer has expressed a need for assistance. The difference between this recommendation and a typical mentorship is that the newcomer does not have to be proactive about the relationship. Rather, the senior mentor frequently “checks in” on the newcomer that he/she has been assigned to. The results of this study support this recommendation because 1) organizational tactics have a more consistent effect on socialization outcomes and 2) strong social support has the most frequent positive association with adjustment outcomes.

Furthermore, it is recommended that newcomers have access to two different mentors: one mentor that exists within the workgroup to help with work related issues (as previously discussed), and another mentor that exists outside of the workgroup to assist with any other issues, such as career advice or organizational information. As the newcomer engages with both

mentors, the newcomer's mentors should be prepared to introduce the newcomer to their professional contacts who may be able to give the newcomer additional insight. It is suggested that the newcomer proactively ask his/her mentor(s) to connect them with other professionals regarding particular interests or questions. In this way, the newcomer is then able to achieve learning, workgroup integration, role clarity, and job satisfaction by engaging in social aspect tactics and networking proactive behaviors.

In addition to the mentorship of the newcomers, it is recommended that the manager go to lunch (or some other light, friendly bonding activity) with all newcomers once every 2-3 weeks during the first 3 months of each newcomer's time at the organization. The lunch between managers and a group of newcomers serves as an opportunity for face-to-face communication between newcomers and managers. This task serves the purpose of achieving two objectives: (1) newcomers are given the opportunity to proactively develop a relationship with their supervisor or manager (i.e. relationship building with manager behaviors) and (2) newcomers are given the opportunity to generally socialize among each other (i.e. general socializing behaviors). Based on the results from this study, this would help to increase role clarity and workgroup integration among the newcomers.

It is also recommended that the newcomer also focus on initiating, or at the very least, attending social gatherings with coworkers and managers. As previously mentioned, this can be done through a scheduled lunch outing, or some other activity such as dinner, "happy hour", sports activities such as soccer, kickball, etc. By proactively engaging with coworkers and management, the newcomer develops common ground from which stronger relationships can be built. As the results from this study indicate, these relationships are likely to result in stronger role clarity and learning.

The structure of the newcomer's first few months can also be designed such that role clarity is enhanced. Newcomers who enter an A&D organization for the first time have likely grown accustomed to the highly structured environments of academic settings. Thus, it is recommended that organization structure the first few (2-3) months of a newcomer's organizational entry to mimic an academic setting. Firstly, a newcomer should be given a series of tasks or a projects to complete by a predetermined deadline. The newcomer should be required to regularly meet with his or her mentor for general guidance and assistance in completing these tutorial work items. It is recommended that the tasks are actual work items that represent the newcomer's job responsibility, are tasks that need to be completed by the workgroup, and are tasks that are also manageable enough such that a newcomer is able to complete them with sufficient time and effort. During this time, newcomers should also be required to attend informational seminars, presentations, and professional development events. At the end of the 2-3 month period, the newcomer should be required to deliver a presentation to all members of their workgroup regarding their success, challenges, and takeaways from completing the assignments. This recommended process is an application of content organizational tactics. As suggested by the results from this study, a newcomer's successful completion of this process is likely to result in higher role clarity and newcomer learning.

On the other hand, undergraduate engineering educational programs can also promote good socialization practices, even before organizational entry. In many ways, undergraduate engineering students are already provided an opportunity to develop critical socialization skills. For instance, undergraduate students receive performance marks and syllabus schedules (i.e. content tactics) and many are required to participate in group projects. Students also have the opportunity to attend company information sessions (i.e. networking behaviors) and receive

personalized assistance from professors (i.e. relationship building with managers). However, it is recommended that a required seminar course be introduced that teaches senior students how to engage in socialization processes. This seminar course would ideally be coupled with a capstone course, or senior design course, so that students are required to practice various socialization processes while also working on engineering projects. Each senior design team would be paired with an advisor, who would be an engineer at an A&D organization. Thus, newcomers would be given the opportunity to practice critical socialization processes in a context that roughly represents an A&D workplace.

3.2 Future Research

In addition to the insights gained about the A&D socialization climate, the data from this study also revealed questions to be addressed by future research. For instance, it is still unclear exactly what actions newcomers take to execute various socialization processes and subsequently achieve socialization outcomes. For example, how do newcomers build strong relationships with their managers? What, specifically, do they do to develop a strong relationship with their manager? The same questions also apply to general socializing and networking. On the other side, exactly how does an organization implement content tactics and social aspect tactics? Although this thesis provides recommendations regarding how to implement these tactics, it is still unclear how various A&D companies implement them. Future research should be focused on answering these questions.

Furthermore, the latent profile analysis in this study only revealed the time difference between the two profile groups. The data could not reveal whether there are any differences in the experiences that members from these two profile groups encountered. Put simply, what are

the real differences between the experiences of the two latent profile groups? Are there other experiences that were not captured by this study that may have had an impact? The answers to these questions would provide more concrete insight into the experiences that are essential for successful newcomer adjustment. Future research should investigate these profile groups more closely in an effort to answer these questions.

Finally, newcomers from many different A&D organizations were examined in this study. However, newcomer experiences and outcomes may greatly vary between two different companies. It is recommended that future research examine newcomers from a classic A&D company (such as Lockheed Martin or Boeing) and compare these results with results from newcomers at a more progressive and disruptive organization (such as SpaceX).

3.3 Conclusion

This study examined the relationships that organizational tactics and proactive behaviors have with organizational socialization outcomes. It was found that in the A&D industry, role clarity, workgroup integration, newcomer learning, and job satisfaction are all significantly influenced by various organizational tactics and proactive behaviors. These findings have been accepted with modifications by the *International Journal of Engineering Education* (IJEE).

This study has focused on laying the groundwork for socialization research in the A&D industry. Through multiple regression analysis and latent profile cluster analysis, some initial insights and findings about the socialization of newcomer engineers in the A&D industry were revealed. Firstly, it appears that newcomer engineers in the A&D industry heavily rely on organizational support (i.e. organizational tactics) to help facilitate their adjustment. It was also found that newcomers largely achieve adjustment through social interactions with coworkers,

managers, and other industry professionals. Role clarity was the only outcome shown to be significantly influenced by a non-social socialization process (content tactics). Finally, it was found that newcomer engineers in the A&D industry typically reach high levels of adjustment after approximately 8 months. Future research will be necessary to validate these findings and continue expanding the understanding of socialization in the aerospace and defense industry.

APPENDIX A. IRB APPROVAL LETTERS

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
2420 Lincoln Way, Suite 202
Ames, Iowa 50014
515 294-4566

Date: 04/26/2018

To: James Wingerter Benjamin Ahn

From: Office for Responsible Research

Title: **Socialization Actions and Optimization In the Context of Aerospace Engineering**

IRB ID: 18-194

Submission Type: Initial Submission **Exemption Date:** 04/24/2018

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

2: Research involving use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observations of public behavior, unless (i) Information obtained is recorded in such a manner that human subjects can be identified, and (ii) Any disclosure of the human subjects' responses outside the research could reasonably place the subject at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

The determination of exemption means that:

- You do not need to submit an application for annual continuing review.**
- You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any *modifications to the research procedures* (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the *inclusion of participants from vulnerable populations*, and/or any *change that may increase the risk or discomfort to participants*. The purpose of review is to determine if the project still meets the federal criteria for exemption.

In addition, **changes to key personnel** must receive prior approval.

Detailed information about requirements for submission of modifications can be found on our [website](#). For modifications that require prior approval, an amendment to the most recent IRB application must be submitted in IRBManager. A determination of exemption or approval from the IRB must be granted **before** implementing the proposed changes.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
2420 Lincoln Way, Suite 202
Ames, Iowa 50014
515 294-4566

Date: 06/24/2019

To: Benjamin Ahn Benjamin Ahn

From: Office for Responsible Research

Title: **Engineering the Onboarding Process: Socialization Tactics, Behaviors, and Outcomes in the Aerospace Companies**

IRB ID: 18-194

Submission Type: Modification **Exemption Date:** 06/12/2019

The project referenced above has been declared exempt from most requirements of the human subject protections regulations as described in 45 CFR 46.104 or 21 CFR 56.104 because it meets the following federal requirements for exemption:

2018 - 2 (iii): Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) when the information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a LIMITED IRB REVIEW to [determine there are adequate provisions to protect the privacy of subjects and to maintain confidentiality of the data].

The determination of exemption means that:

- You do not need to submit an application for continuing review. Instead, you will receive a request for a brief status update every three years. The status update is intended to verify that the study is still ongoing.**
- You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any *modifications to the research procedures* (e.g., method of data collection, nature or scope of information to be collected, nature or duration of behavioral interventions, use of deception, etc.), any change in *privacy or confidentiality protections*, modifications that result in the *inclusion of participants from vulnerable populations*, removing plans for informing participants about the study, any *change that may increase the risk or discomfort to participants*, and/or any change such that the revised procedures do not fall into one or more of the [regulatory exemption categories](#). The purpose of review is to determine if the project still meets the federal criteria for exemption.
- All **changes to key personnel** must receive prior approval.

APPENDIX B. DATA COLLECTION QUESTIONNAIRE**Organizational Tactics**

Regarding your current job position, please rate each of the following statements on a scale from 1 to 7 (1 = strongly disagree, 7 = strongly agree)

Context Tactics

1. In the last several months, I have been extensively involved with other new recruits in common, job related activities.
2. This organization puts all newcomers through the same set of learning experiences.
3. I have been through a set of training experiences that are specifically designed to give newcomers a thorough knowledge of job related skills.
4. I did not perform any of my normal job responsibilities until I was thoroughly familiar with departmental procedures and work methods.

Content Tactics

5. There is a clear pattern in the way one role leads to another, or one job assignment leads to another, in this organization.
6. The steps in the career ladder are clearly specified in this organization.
7. I can predict my future career path in this organization by observing other people's experiences.
8. The way in which my progress through this organization will follow a fixed timetable of events has been clearly communicated to me.

Social Aspect Tactics

9. Almost all of my colleagues have been supportive of me personally.
10. My colleagues have gone out of their way to help me adjust to this organization.

11. I have received little guidance from experienced organizational members as to how I should perform my job.

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

Proactive Behaviors

On a scale from 1 to 5 regarding your current job position, to what extent have you:

(1 = to no extent, 5 = to a great extent)

Information Seeking

1. Tried to learn the (official) organizational structure?
2. Tried to learn the important policies and procedures in the organization?
3. Tried to learn the politics of the organization?
4. Tried to learn the (unofficial) structure?

Feedback Seeking

5. Sought feedback on your performance after assignments?
6. Solicited critiques from your boss?
7. Sought out feedback on your performance during assignments?
8. Asked for your boss's opinion of your work?

Job Change Negotiations

9. Negotiated with others (including your supervisor and/or coworkers) about desirable job changes?
10. Negotiated with others (including your supervisor and/or coworkers) about your task assignments?
11. Negotiated with others (including your supervisor and/or coworkers) about the demands placed on you?

12. Negotiated with others (including your supervisor and/or coworkers) about their expectations of you?

Positive Framing

13. Tried to see your situation as an opportunity rather than a threat?
14. Tried to look on the bright side of things?
15. Tried to see your situation as a challenge rather than a problem?

General Socializing

16. Participated in social office events to meet people (i.e. parties, softball team, outings, clubs, lunches)?
17. Attended company social gatherings?
18. Attended office parties?

Relationship Building with Manager

19. Tried to spend as much time as you could with your boss?
20. Tried to form a good relationship with your boss?
21. Worked hard to get to know your boss?

Networking

22. Started conversations with people from different segments of the company?
23. Tried to socialize with people who are not in your department?
24. Tried to get to know as many people as possible in other sections of the company on a personal basis?

Role Clarity

Regarding your current job position, rate each of the following statements on a scale from 1 to 7 (1 = strongly disagree, 7 = strongly agree):

1. I feel certain about how much authority I have.
2. I have clear, planned goals and objectives for my job.
3. I know that I have divided my time properly.
4. I know what my responsibilities are.
5. I know exactly what is expected of me.
6. Explanation is clear of what has to be done.

Task Mastery

Regarding your current job position, rate each of the following statements on a scale from 1 to 5 (1 = strongly disagree, 5 = strongly agree):

1. I am confident about the adequacy of my job skills and abilities.
2. I feel competent conducting my job assignments.
3. It seems to take me longer than planned to complete my job assignments. (-)
4. I rarely make mistakes when conducting my job assignments.
5. I have learned how to successfully perform my job in an efficient manner.
6. I have mastered the required tasks for my job.
7. I have not yet fully developed the appropriate skills and abilities to successfully perform my job. (-)

Workgroup Integration

Regarding your current job position, rate each of the following statements on a scale from 1 to 5 (1 = strongly disagree, 5 = strongly agree):

1. I feel comfortable around my co-workers.

2. My co-workers seem to accept me as one of them.
3. I get along with the people I work with very well.
4. Within my work group, I would easily be identified as 'one of the gang.'

Learning

Please rate each of the following items regarding the extent to which you have learned in these areas at your job. Rate each item on a scale from 1 to 5 (1 = to a very little extent, 5 = to a very large extent):

Technical Information

1. How to perform specific aspects of your job.
2. How to perform your job efficiently and effectively.
3. How to balance the demands of your job.
4. Definitions and technical terms related to your job.
5. Where to obtain needed supplies and information.

Referent Information

6. Performance standards associated with your position.
7. How much authority you have in your job position.
8. The responsibilities associated with your job position.
9. Reward criteria associated with your job position.
10. The goals and objectives for your job position.
11. What is expected of individuals in your job position.

Social Information

12. How to get along with people in the organization.
13. The behaviors and personalities of persons with whom you work.

14. How to deal with politics at work.
15. Who to trust and who not to trust.
16. How well you are fitting in.
17. The appropriateness of your social behaviors.
18. How well you are getting along with co-workers.

Appraisal Information

19. Feedback on the adequacy on your job skills and abilities.
20. Feedback on how well you are performing your job.
21. Feedback identifying problems in your job performance.
22. Feedback on how others are evaluating your work.
23. Feedback on your potential for advancement.

Normative Information

24. The history of the organization.
25. The company's philosophy and goals.
26. Promotion criteria in the organization.
27. The organization's customs and rituals.
28. Appropriate ways to behave and interact in the organization.
29. What it takes to succeed in the organization.
30. The behaviors and attitudes the organization expects.

Organizational Information

31. Organizational policies and procedures.
32. The structure of the organization.
33. The financial position and/or the performance of the organization.

34. Information on services or products provided by the organization.
35. Where individuals and departments are located.
36. Benefits provided by the organization.

Political Information

37. Who makes the important decisions in the organization.
38. Who controls critical resources in the organization.
39. Who has authority over whom in the organization.
40. Who's who in the organization.

Organizational Commitment

Regarding your current job, please rate each of the following statements on a scale from 1 to 7 (1 = strongly disagree, 7 = strongly agree):

1. I would be very happy to spend the rest of my career with this organization.
2. I enjoy discussing my organization with people outside it.
3. I really feel as if this organization's problems are my own
4. I think that I could easily become as attached to another organization as I am to this one.
- (-)
5. I do not feel like 'part of the family' at my organization. (-)
6. I do not feel 'emotionally attached' to this organization. (-)
7. This organization has a great deal of personal meaning to me.
8. I do not feel a strong sense of belonging to my organization. (-)

Job Satisfaction

On a scale of 1 to 10, how satisfied are you with your job? (1 = very dissatisfied, 10 = very satisfied)

Turnover Intentions

For the following statements, please rate each statement on a scale from 1 to 5 regarding your current job (1 = strongly disagree, 5 = strongly agree):

1. "If I have my own way, I will be working for my current organization one year from now" (-)
2. "I frequently think of quitting my job"
3. "I am planning to search for a new job during the next 12 months"

Job Performance

For each of the following statements regarding your current job, please rate how well you perform at each task relative to how well your peers perform. Please rate your performance as a percentile of your peers' performance

10th percentile indicates that you perform better than 10% of your peers, 90th percentile indicates that you perform better than 90% of your peers

For example: If you indicate that you are in the 70th percentile, then compared to 100 of your peers, you would perform better than 70 of them, and 30 of your peers would perform better than you.

1. Overall individual performance.
2. Ability to get along with others.

3. Ability to get the task done well on time.
4. Quality of my overall performance.
5. Achievement of work goals.