

Impact of Role Ambiguity on Job Satisfaction of Software Product Managers in Nepal

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Abstract

Role ambiguity is a multidimensional construct with diverse manifestations that negatively influences the job satisfaction of software product managers in Nepal. This study examines the relationship between different manifestations of role-based ambiguities and their subsequent impact on levels of job satisfaction for software product managers in Nepal. This study has applied a cross-sectional survey research design together with descriptive statistics and multiple-regression analysis to analyze and evaluate the relationships between task-based, responsibility-based, procedural, and authority-based role ambiguities and their negative effects on job satisfaction. This study finds that among different dimensions of role ambiguities, procedural and task-based role ambiguities significantly and negatively affect the job satisfaction of software product managers. Besides, negative effects of both types of task-based and procedural-based ambiguity underline critical areas for organizational interventions. This study has an originality value, as it is the first of its kind of research that examined the impact of different dimensions of role ambiguities on job satisfaction of software product managers recognizing their job design, specifications, and specializations.

Keywords—Role ambiguities, job satisfaction, software product managers.

INTRODUCTION

Role ambiguity is an experience of confusion, emotional exhaustion and stress caused by uncertain expectations, conflicting priorities and unclear description of roles and responsibilities while performing a particular job position in an organizational context (Bauer & Simmons, 2000; Fisher, 2001). Besides, role ambiguity occurs when a software product manager lacks a clear

understanding of their job description, specializations, performance objectives and the breakdown of responsibilities associated with their position (Bauer & Simmons, 2000; Ebert & Brinkkemper, 2014) More importantly, this study argues based on Eys and Carron (2001) that role ambiguity is multidimensional construct with diverse manifestation that negatively influences

job satisfactions of software product managers in Nepal.

As a result, a software manager in a software development company or start-up experiences confusion regarding how effectively and efficiently they need to fulfill their duties, and this confusion leads to their negative influences on their job satisfaction. More significantly, role ambiguity arises when senior managers, consumers, relevant stakeholders and department heads do not provide adequate information to a software product manager within the reference of organization structure, hierarchy, and work division, as well as when software managers are not so sure about performance evaluation procedures opportunities for advancement, and scope of authority, control, and responsibility (Bauer & Simmons, 2000).

Moreover, role ambiguity also includes non-specific expectations, conflicting expectations from stakeholders and incomplete or contradictory information about consumer needs and market realities from different departments as a result a software production manager is unable to decide exactly what to do, what to exclude and include in product development and which functions and features of software product to prioritize (van Slooten et al., 2024). In the absence of full disclosure about their roles, responsibilities and not knowing exactly what to do, experiences of role ambiguity occur among software product managers in software development companies and start-ups. Conflicting priorities and competing demands from various project leads, functional heads, customers, and executive directors within the company or start-up culminate in experiences of role ambiguity (Palomino & Frezatti, 2016). Besides, with reference to Job Demands–

Resources (JD-R) theory, this study argues that in the context of software product managers in Nepal, role ambiguities, characterized by unclear expectations, responsibilities, and performance criteria as a job demand negatively impacts their job satisfaction (Bakker & Demerouti, 2017).

Similarly new realities of work and the emerging matrix organizational structure of software development, along with technical improvements, the dynamic nature of work, hyper-connectivity, outsourcing modalities, and constantly changing workplace expectations have dramatically changed the character of work at software development businesses and start-ups (Ebert & Brinkkemper, 2014; Burton et al., 2015) Software development businesses and start-up in Nepalese context based on global practices and modalities have adopted matrix organizational structures together with shifting work realities, remotized working and hyper connected networked workstations and these dynamic changes have also contributed towards prevalence of role ambiguities among software product managers (Burton et al., 2015).

As organizations adopt new technologies and methodologies, the skill sets required for effective product management are also evolving. This evolution leads to uncertainty about what competencies are essential for success in their role, resulting into experiences of role ambiguity for software product managers (Joshi, 1989). After all, a software product managers in their organizational context have to constantly interact with engineering teams, marketing departments, sales personnel, and executive leadership, with each group having their own expectations about the product's direction and features. Hence, these ambiguous job demands generates experiences of role ambiguity for software product managers,

which eventually results into decrease in job satisfactions (Palomino & Frezatti, 2016; Rovithis et al., 2017)

RESEARCH OBJECTIVE

The main purpose of this paper is to examine different dimensions of role ambiguities prevalent among software product manager working in various software development companies and start-ups in Nepal and also evaluate to what extent these various dimensions of role ambiguity negatively impact job satisfaction levels of product managers. The study aims at identifying the antecedents and consequences of role ambiguity in software development sector by examining the different dimensions of role ambiguity that germinates from job demand and results into decrease in job satisfaction among software product managers.

Moreover, there exists a notable ambiguity surrounding the specific responsibilities and expectations of software product managers. This ambiguity leads to confusion regarding their roles, which may significantly impact their job satisfaction (Tang & Chang, 2010). Despite the importance of this position in driving product success and organizational performance, there is no empirical research that explicitly examines how role ambiguities affects job satisfaction among software product managers. Moreover, negative influence of role ambiguity on job satisfactions of employees in associated with various job positions, specializations and multiple organizational context have been examined and the negative relationships between these factors have been indicated (Rizzo et al., 1970; Palomino & Frezatti, 2016; Rovithis et al., 2017; van Slooten et al., 2024.)

However, there is a research gap regarding negative influence of different dimensions of role ambiguity such as task-based, responsibilities based, procedural and authority based role ambiguities on the job satisfaction of software product managers working software development businesses and start-up in any research context. Hence, this study examines the effect of role ambiguity on job satisfaction levels among software product managers in Nepal with specific reference to emerging software businesses and start-ups. This study also provides practical recommendations for software development companies, where clarity in roles is crucial for project success and team dynamics to reduce ambiguities through clear communication, defined roles, and supportive management practices that enhance job satisfaction of product managers.

REVIEW OF LITERATURE

Theoretical Reference

This part of the study analyzes and illustrates previous literature on role ambiguity, the negative impact of role ambiguity on job satisfaction, and theoretical references of this study. The Job Demands-Resources (JD-R) model has been applied in this study as a theoretical reference, and this model indicates how various job characteristics and organizational environment factors influence employees' job satisfaction, motivation levels, and organizational performance. Job demands refer to the physical, psychological, social, or organizational aspects of a job that require sustained effort and are associated with certain physiological and psychological costs (Bakker & Demerouti, 2017). For software production, a manager needs to engage with various stakeholders, including

developers, designers, marketing teams, and customers. Each group has different expectations and priorities, which can lead to conflicting requirements and unclear responsibility. Following this model, with reference to job demand, this study argues that software product managers experience significant role ambiguities because of their multifaceted set of responsibilities (Ebert & Brinkkemper, 2014).

As product managers have a role to act as associates between various stakeholders, including developers, marketing teams, customers, and upper management, when dealing with multiple sources of directions and conflicting commands, it leads to unclear expectations about their roles. For software product managers, it could be the nebulous demarcation of roles between the product vision and tactical implementation or confusion about the trade-offs that should be made between customer needs and what is technically feasible (Joshi, 1989). Hence, job demands result in role ambiguity for software managers due to the unclear expectations or not knowing how to execute responsibilities effectively or which direction to prioritize. The consequences of role ambiguity for software product managers are frustration and dissatisfaction with their work. (Abdou et al., 2024).

Moreover, job demands, requiring sustained effort, encompass role overload, conflict, and ambiguity, straining employees and yielding adverse outcomes such as a decrease in job satisfaction (Rizzo et al., 1970). The JD-R model provides a valuable framework in this study for understanding how job demands result in role ambiguities when there is a lack of balancing appropriate resources with constant job demands (Bakker & Demerouti, 2017). The Job Demands-

Resources (JD-R) Model proposes that high job demands and low job resources lead to dissatisfaction among employees, while positive job attributes can mitigate the effects of high demands and nurture motivation and engagement. Hence, based on this theory, this study argues that conflicting and contradictory demands on software product managers are a consequence of the occurrences of role ambiguities in their organizational context and these ambiguities negatively impact job satisfaction level of software product managers (Bakker & Demerouti, 2017; Abdou et al., 2024).

Empirical Review

Software product managers are important success factors for software products, but they also need to make sure that their product incorporates a technical, consumer, and business perspective, according to a study by Ebert and Brinkkemper (2014) that reviews the literature on the role ambiguities of software product managers and job satisfaction. Therefore, throughout the life cycle, software product managers must interact with numerous stakeholders and business processes to identify solutions for how to improve overall business and complete all of this. How can we increase our sales? with assistance from the marketing division and software development teams (Ebert & Brinkkemper, 2014).

Hence, based on Ebert and Brinkkemper (2014), this study also argues that for software product managers, role ambiguity arises when interfacing with both software development teams that focus on technical feasibility and product functionality and marketing departments that prioritize customer needs and market trends; hence, product managers, positioned at the intersection of these two critical functions, receive conflicting inputs

and unclear directives, resulting in role ambiguities.

Furthermore, regarding the negative impact of role ambiguity on job satisfaction in the seminal research by Kahn et al. (1964), examining the relations between role ambiguity and job satisfaction indicated a negative correlation between role conflict and job satisfaction. Likewise, Fisher (2001) also finds that role ambiguity is negatively related to job satisfaction. Similarly, in a study, Chang and Hancock (2003) find that role ambiguity is the most salient feature of role-related stress experienced by employees, and more importantly, job satisfaction both significantly and negatively correlates with role ambiguity and role stress. Likewise, in their study, Cengiz et al. (2021) also indicate that the consequences of role ambiguity in an organizational setting include increased stress, lack of organizational commitment, job dissatisfaction, burnout, and increased employee turnover intention. Purnomo et al. (2021), in their study, find that role ambiguity arises when employees do not have information or knowledge that is clear enough to carry out an assignment or task and that role ambiguity has both negative and significant effects on employee performance.

Moreover, Üngüren and Arslan (2021), in their study, indicate that role ambiguity is among the major stress factors for employees that causes low levels of satisfaction and performance and high levels of turnover and that job satisfaction mediated the relationship between role ambiguity and job performance. Hence, this study, based on Üngüren and Arslan (2021), argues that it is necessary for software development companies and start-ups to understand to what extent the presence of role ambiguity among their software developers impacts their job satisfaction. After

all, as indicated by Üngüren and Arslan (2021), low job satisfaction also results in lower levels of employee performance. In addition, Maden-Eyiusta (2021) also suggests that role ambiguity also results in a negative impact on individual innovation through job engagement when there is low flexible role orientation. Furthermore, Chiara et al. (2019). examine the process that leads from a hindrance demand, like role ambiguity, to exhaustion and job satisfaction.

In a study Tabancali and Su (2021) found that among different dimensions of role ambiguity, employees experience role ambiguity mostly due to organizational ambiguity. In another study, Rovithis et al. (2017) indicate that role ambiguity has a positive and significant association with emotional exhaustion and declining and negative consequences such as experiencing dissatisfaction in the workplace, Furthermore, van Slooten et al. (2024) indicate that less role ambiguity occurs for employees with a strong business partner orientation, and in the context of multiple role senders, where there is a lack of a role template or clarity, the prevalence of role ambiguity and its negative consequences increases. Besides, Tang and Chang (2010), in their study, demonstrate that perceived role ambiguity has a negative, direct impact on employee creativity.

RESEARCH GAP

Role ambiguity is the uncertainty a software manager has about his or her job responsibilities, expectations, and the scope of their roles and responsibilities (Cengiz et al., 2021) Understanding to what extent role ambiguity affects job satisfaction of software product managers is very important, as the roles and responsibilities of these product managers often overlap and evolve rapidly due to rapid

technological changes, consumer expectations, and market demands (Shastri et al., 2021). More importantly, even as software product managers have a crucial role in driving innovation and success within software development companies. Although previous studies have found that lack of role clarification results into a decline in job satisfaction in different professional context and working environment, there is no research as such examining this link between different dimensions of role ambiguities and job satisfaction (Kahn et al., 1964; Rizzo et al., 1970; Tang & Chang, 2010; Palomino & Frezatti, 2016).

As specific research with reference to software industries focusing on the special challenges faced by software product managers has not been conducted before, this empirical research gaps leaves a research gap in the understanding of how role ambiguity uniquely impacts their job satisfaction. Besides, software product managers are at the juncture of technology, business strategy, and user experience (Shastri et al., 2021). Their jobs often involve intense interaction with different teams, such as engineering, marketing, sales, and customer support. (Ebert & Brinkkemper, 2014) While there are such unique challenges, there is still empirical knowledge regarding the extent to which these ambiguities affect the level of job satisfaction among these software product professionals.

CONCEPTUAL FRAMEWORK AND HYPOTHESIS

In this study, a conceptual framework has been developed with references to previous studies that have examined the relationship between role ambiguity and job satisfaction among employees, managers, controllers, and supervisors in different professional and organizational contexts such as

financial institutions, the healthcare sector, the manufacturing industry, marketing agencies, and service industries. Hence, for conceptualizing the relationship between variables, operational definitions, and hypothesis development, this study has taken references from studies such as Kahn et al. (1964), Tang and Chang (2010), Palomino and Frezatti (2016) Tabancali & Su (2021) and van Slooten et al. (2024).

For operational definition, this study assimilates with Robbins and Judge (2015) that role ambiguity occurs when employees lack clear expectations or information needed to perform their roles, while role conflict arises when individuals face conflicting expectations from different roles. Hence, the operational definition of role ambiguity in this study illustrates a situation where a software product manager is not clearly aware of his or her job responsibilities, expectations, and scope within the organization (Cengiz et al., 2021).

More importantly, this study argues that this lack of clarity manifests in various forms and possesses specific attributes for software product managers that can be measured in their working environment. This study further operationalizes different dimensions of role ambiguity, such as insufficient details about job tasks, performance metrics, or organizational goals that are essential for fulfilling responsibilities effectively in the organizational context. Likewise, vague job descriptions, unclear reporting relationships, and ambiguous instructions from supervisors that leave software product managers unsure about how to prioritize their work (van Slooten et al., 2024) Similarly, the unpredictability dimension that results into temporal instability of role expectations where a software product manager experiences changing demands or shifting

priorities without clear communication from management, thus confusing them on how to adjust to these changes (Ebert & Brinkkemper, 2014; Cengiz et al., 2021; Shastri et al., 2021).

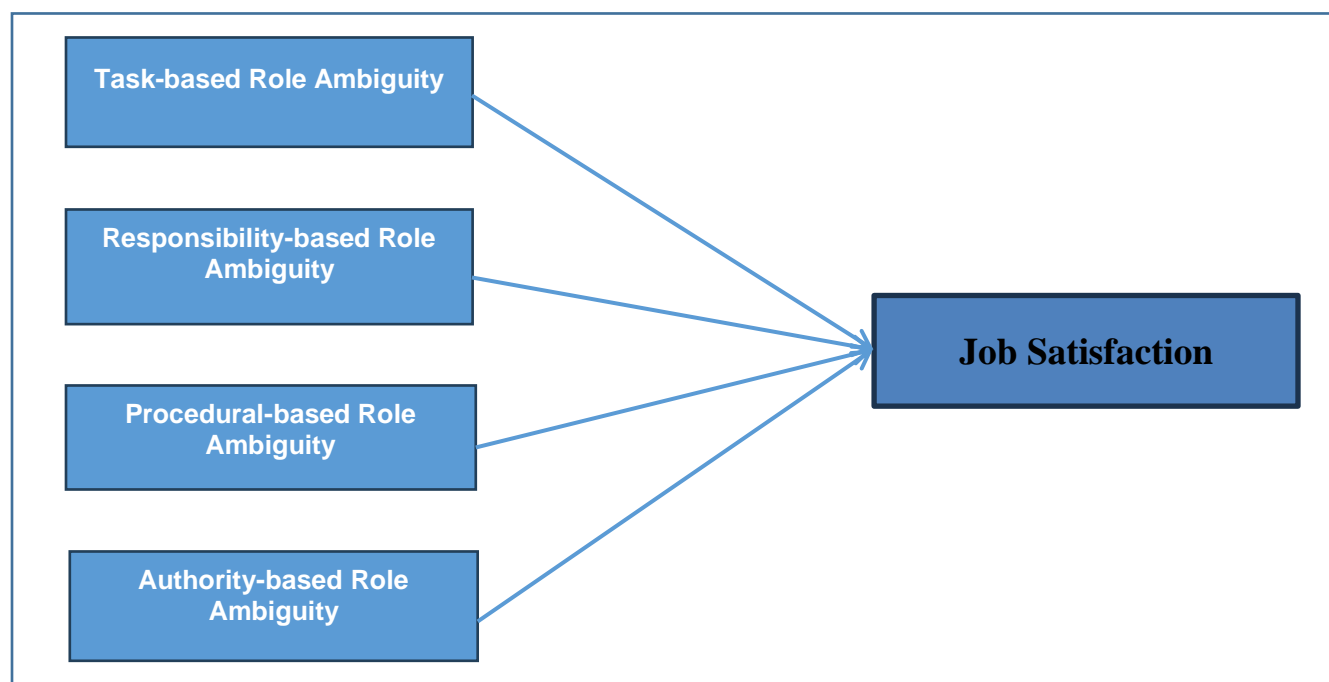
Based on operational definitions, this study conceptualizes different dimensions of role ambiguity as (i) Task ambiguity: This type occurs when employees are unclear about the specific tasks they are expected to perform. This may include uncertainty about what constitutes their primary duties, how to prioritize tasks, or what methods should be used to complete them. (Palomino & Frezatti, 2016) (ii) Responsibility Ambiguity: Employees may experience confusion regarding their responsibilities, particularly when it comes to decision-making authority and accountability for outcomes (Üngüren & Arslan, 2021) This can happen when job descriptions are vague or when there is overlap between roles in a team setting, leading to uncertainty about who is responsible for product design, development and finalization (Bauer & Simmons, 2000) (iii) Procedural Ambiguity: Uncertainty about the processes and methodologies to follow, such as which project management framework to use or how to prioritize tasks (Singh, 1993) (iv) Authority Ambiguity: Confusion about decision-making authority, such as whether they have the authority to approve changes to the product roadmap or allocate resources (Singh, 1993; Bauer & Simmons, 2000; Tabancali & Su, 2021).

In the domain of software development task-based and procedural role ambiguities have significantly impacted software product managers more than other manifestations of role ambiguity because of the multifaceted nature of their role-based responsibilities, which include strategic planning, stakeholder communication, and cross-

functional collaboration (Schuler, 1977; Tidd et al., 2004). As compared to other job roles in software companies that have more defined boundaries or singular focus areas, software product managers have multidimensional responsibilities where they need to integrate diverse inputs from marketing, sales, customer feedback, and technical teams while also managing timelines and resource allocations (Ebert & Brinkkemper, 2014; Shastri et al., 2021). Hence, this study has hypothesized whether specific roles of software product managers generate variation regarding task-based, responsibility-based, authority and procedural role ambiguities.

Moreover, job satisfaction in this study refers to the emotional response an employee has towards their job. Here, job satisfaction results among software product managers due favorable conditions created by an organization, which allow executives to achieve optimal performance at the same time as allowing them to achieve their personal well-being (Tang & Chang, 2010). Besides, relationships between variables in this study have been conceptualized based on previous research that has examined the relationship between role ambiguity and job satisfaction and has found a negative correlation and consequence between these variables (Kahn et al., 1964; Rizzo et al., 1970; Singh, 1993; Bauer & Simmons, 2000; Palomino & Frezatti, 2016).

Fig 1. *Conceptual Framework Illustrating Relationship between Different Dimensions of Role Ambiguity and Job Satisfaction*



Hypothesis (H1): There is a negative and significant effect of task ambiguity experienced by software product managers on their job satisfaction

Hypothesis (H2): There is a negative and significant effect of responsibility ambiguity experienced by software product managers on their job satisfaction

Hypothesis (H3): There is a negative and significant effect of procedural ambiguity experienced by software product managers on their job satisfaction

Hypothesis (H4): There is a negative and significant effect of authority ambiguity experienced by software product managers on their job satisfaction

Hypothesis (H5): There significant difference in task based, authority-based, responsibility-based

and procedural based dimensions of role ambiguity among different roles of software product managers in software development companies and start-ups in Kathmandu valley.

RESEARCH METHODS

In this study, a quantitative descriptive research approach has been applied together with a cross-sectional survey design as its research design. This study has also utilized an online structured questionnaire for the purpose of data collection. Here, cross-sectional research design is an observational study that analyzes data from a population at a specific point in time. This design is particularly useful for examining the impact of various manifestations of role ambiguities on job satisfaction without manipulating any variables or the formation of experimental groups. In the context of studying the negative impact of different dimensions of role ambiguities, such as

task-based, responsibility-based, procedural, and authority-based ambiguities, on the job satisfaction of software product managers in Nepal, this approach allows researchers to gather insights into the various degrees and extents to which these dimensions of role ambiguities affect the job satisfaction of these professionals.

Participants and Procedures: In this study, convenience sampling has been employed for selecting software development managers, and for the purpose of sampling twenty-eight (28) software development companies and start-ups have been selected with reference to Tech-Behemoths, a web-based tech magazine with ninety-four (94) featured companies, ranked for their outstanding services and market expansion by the tech-magazine. The software companies and start-ups selected in this study are located inside three districts of Kathmandu valley and in Pokhara metropolitan city. Likewise, for the selection of respondents, in this study, profiles of 102 software product managers on LinkedIn have been accessed, and through the LinkedIn platform, an invitation was sent to these software managers with specific intention for their participation in this survey. However, among 122 product managers, only 104 of them participated in this survey. Hence the sample size for this study remains at n=104 software product manager with more than two year of work experience.

Acknowledging the job characteristics of software product managers, the data collected was from 104 software product managers working in 28 software companies and start-ups with the help of an online questionnaire survey, which was disseminated through LinkedIn messaging. Here Google Forms were used to create an online questionnaire with demographic

profile questions and research constructs related to variables on a 5-point Likert scale.

In this study, statistical techniques such as descriptive statistics and multiple regression techniques have been applied to analyze and test the research hypotheses and examine the relationship between independent variables and dependent variables. Besides, Analysis of Variance (ANOVA) has been applied in this study determine whether there are significant differences between the means of different roles of software product Managers within software development companies as independent groups on task and procedural based role ambiguity. It assesses the impact of one or more factors by comparing the group means and analyzing the variance within and between these groups. The data from 104 completed questionnaires was entered into the statistical package for social sciences software (SPSS) version 21.0 for data analysis and evaluation.

Survey Instruments and Measurements: For the purpose of data collection in this study, a structured questionnaire divided into two sections with The first section captured the respondents' demographics, and the second section revolved around gathering information regarding various manifestations of role ambiguities and job satisfaction software product managers and the range for five-point Likert scale represents semantic difference from 1 (Strongly Disagree) to 5 (Strongly Agree). Moreover, research variable and their indicators used in the survey instrument in this study have been developed with reference to Rizzo et al. (1970), Singh (1993) Bauer and Simmons (2000), Palomino and Frezatti (2016), van Slooten et al. (2024) comprising of 3 construct each for the purpose of measuring the strength of different dimensions of role ambiguity

variables. In this study research items for independent variables have been negatively coded in relation to job satisfaction.

In this study, the research constructs have been extracted and modified to meet the context of the study area. Research constructs to measure job satisfaction consists of 4 constructs encompass various factors such as work environment, compensation, recognition, and opportunities for growth (Palomino & Frezatt, 2016). The data collection period for this study took place from November 12 to December 24, 2024. A pilot study was also conducted among 15 respondents to ensure the validity and reliability of the instruments' questions and rating scales. Based on pre-test results The internal consistency reliability is measured using Cronbach's alpha coefficient, and the coefficients range from 0.94 to 0.79, which indicates acceptable internal consistency for the reliability of the survey instrument used for data collection and satisfactory levels of internal consistency reliability.

DATA ANALYSIS AND FINDINGS

This section of study covers demographic information on software product managers associated with different software development companies and start-ups in Nepal descriptive statistics that examines their response on different manifestations of and multi-regress analysis that examine the cause relationship between selected variables in this study

Demographic Profile

This research is based on a sample size of 104 software development managers ($N = 104$), and the sample target have specific characteristics and work experiences necessary for providing insights on various dimensions of role ambiguities. In this study, only software product managers with at least 2 years of work experience have been selected as respondents

Table-1. Demographic Profile of Respondents

Respondent's Character	No. of Responses	Percentage
Software Product Managers N=104		
Gender		
Male	78	75%
Female	26	25%
Total	N=104	100%
Age (in years)		
25-30	18	17.3%
30-35	47	45.3%
35-40	34	32.6%
40-45 & Above	5	4.8%
Total	N=104	100%
Academic Qualifications		
Graduate Studies (Bachelors Level)	53	50.9%
Post-Graduate (Master's Level)	51	49.1%
Total	N=104	100%
Organizational Tenure		
2-4 years	44	42.3%
4-8 years	53	50.9%
8-10 years and above	7	6.8 %
Total	N=104	100%
Specific Roles of Software Product Managers		
Core Product Manager	62	59.6 %
Growth Product Manager	11	10.6%
Technical Product Manager	27	25.9%
Innovation Product Manager	4	3.9%
Total	N=104	100%

Note: From Researcher's Survey, 2024.

As the table above indicates majority of respondents 59.6% (n=62) are working as core software product managers within software product management companies and start-ups in Nepal. More importantly these managers are responsible for defining the product vision and strategy, prioritizing features based on customer needs and business goals, and collaborating with cross-functional teams to ensure successful product delivery. Demographic data also highlights that the gender balance in software development industry is still dominated by male tech engineers and software developers as product managers with 75% (n=78) of survey respondents identifying as male, and 25% (n=26) as female. Besides, majority of respondents are also under the age range of 30-40 (n=81) Likewise, most of the software product managers have organizational tenure of 2-8 years (n=97).

DESCRIPTIVE STATISTICS OF DIFFERENT MANIFESTATIONS OF ROLE AMBIGUITIES

The findings of descriptive in this study indicate response of respondents towards research constructs and items associated with four manifestation of role ambiguities that have selected in this study to evaluate their impact on job satisfaction in this study the research constructs and items for different dimensions of ambiguities have been extracted, modified and adopted acknowledging job designs, job characteristics and specializations of software product manager and the research context of software development companies and start-ups in Nepal.

Table-2. Response of Software Product Managers

Different Dimensions of Role Ambiguity	Mean	Std. Dev.
Task Ambiguity		
I am often unclear about what my responsibilities are in my role as a software product manager.	4.10	0.64
The projects I run often have vague objectives, making it difficult for me and my team members to understand how they are each contributing.	4.27	0.53
Inadequately specified tasks and goals make me struggle to understand what should come out of the work from my team.	4.46	0.75
Weighted MEAN(\bar{X})	4.27	
Responsibility Ambiguity		
It is often uncertain who is responsible for the decisions made in the development of software within my team.	2.73	0.67

I feel that my responsibilities have overlapped with other managers, creating confusion about who should take charge when critical situations arises	2.18	0.91
There are frequent misunderstandings about the ownership of project deliverables, which complicates our workflow.	2.25	0.83
Weighted MEAN(\underline{X})	2.38	
Procedural Ambiguity		
The processes followed for software development are not clearly outlined the company, making it difficult to ensure consistency across projects.	3.92	0.81
I regularly encounter uncertainty regarding the steps required to complete tasks, leading to delays and inefficiencies in during the product development cycle.	4.23	0.85
The lack of standardized procedures within product team results in varied interpretations of how to approach development of software	4.37	0.67
Weighted MEAN(\underline{X})	4.17	
Authority Ambiguity		
There is often confusion about who takes the final decision on project-related decisions within my team	3.12	0.69
The lines of authority within our organization are indefinite which complicates communication and decision-making processes.	2.63	0.94
I experience uncertainty regarding my level of authority in my workplace when it comes to directing team members or making critical project decisions	2.42	0.87
Weighted MEAN(\underline{X})	2.72	

Note: From Researcher's Survey, 2024.

Based on descriptive statistics presented in the above table, this study finds that software development managers have to mostly deal with task-based and procedural-based role ambiguities in their workplace with weighted mean value of

4.27 and 4.17, respectively, and these ambiguities arise when there is an absence of clearly defined responsibilities within the software production companies and start-ups for product managers. Hence, descriptive statistics indicates that it is

difficult for software products managers working in software development companies and start-ups to decide what task they need to prioritize and how they need to execute their roles when there is an ambiguous processes procedure for software product development. Moreover, both these ambiguities also manifest when the processes that

guide decision-making and task execution are not well established due to inconsistent methodologies where different teams within an organization might adopt varying methodologies without a unified approach (van Slooten et al., 2024).

Table 3. Analysis of Variance on Role Ambiguities due to Roles of Software Product Managers

Dimensions of Role Ambiguity	Different Roles of Software Product Managers	Weighted Mean	F-value	P-value
Task-based Ambiguity	Technical Product Manager	4.17	3.189	0.563
	Growth Product Manager	4.08		
	Core Product Manager	4.29		
	Innovation Product Manager	4.57		
Procedural based-ambiguity	Technical Product Manager	3.87	2.968	0.098
	Growth Product Manager	4.13		
	Core Product Manager	4.24		
	Innovation Product Manager	4.52		
Responsibility Ambiguity	Technical Product Manager	2.64	1.956	0.768
	Growth Product Manager	2.27		
	Core Product Manager	2.23		
	Innovation Product Manager	2.25		
Authority Ambiguity	Technical Product Manager	2.69	1.859	0.984
	Growth Product Manager	2.86		
	Core Product Manager	2.65		
	Innovation Product Manager	2.77		

*P Value Significant at <0.05

Analysis of Variance

In this study analysis of variance tests whether the means of software product managers based on their area of specialization are significantly different from each other with reference to task-

based, responsibility-based, authority based and procedural ambiguity. As the table above indicates the analysis of variance for the factors in relations with area of specialization of product managers have P value more than 0.05 ($p < 0.05$).

Therefore, variations in mean-value regarding different dimensions of role ambiguities are not statistically significant with reference to diversification of role among software product managers. This study indicates that variations in the area of specialization of software product

managers doesn't have statistically significant differences in terms to what extent ambiguity experienced by product managers regarding tasks, responsibility, authority and procedures. Hence in this study hypothesis-5 has been rejected.

MULTI-REGRESSION ANALYSIS

Table 4. Regression Analysis for Predicting Impact Dependent Variable of Job Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T Value	Sig.
1 (Constant)	3.04	0.236		4.07	0.027*
Task Ambiguity	-0.363	0.098	-0.329	-2.54	0.023*
Responsibility Ambiguity	-0.044	0.123	0.032	-.063	0.067
Procedural Ambiguity	-0.348	0.109	-0.302	-3.69	0.012*
Authority Ambiguity	0.028	0.153	0.105	1.35	0.277

Note: $F = 18.092$, *Significant at p value < 0.05 level, R -Square=0.417.

A multiple regression analysis was conducted to assess the negative effect of different manifestations of role ambiguity on job satisfaction. The results of regression analysis indicate a significant negative relationship between different dimensions of role ambiguity and job satisfaction. Based on the coefficient values presented in the above table, the regression coefficient for task-based role ambiguity was found to be -0.363 at a significance value of 0.023. Similarly, the regression coefficient for procedural-based role ambiguity was found to be -0.348 at a significance value of 0.012. As a result, the hypothesis related to task ambiguity and procedural ambiguity has been accepted in this study at a 95% confidence level, whereas the hypothesis related to responsibility and authority-related role ambiguity has been rejected. Here

procedural-based and task-based role ambiguity emerges as a particularly significant factor, exerting a considerable negative effect on the dependent variable, implying that the relationship between task-based and procedural-based role ambiguity and decline in job satisfaction holds considerable substantive importance.

On the other hand, the effect of responsibility and authority-based role ambiguity on job satisfaction has not been deemed statistically significant, with regression coefficients of 0.044 and 0.028, along with positive T-values. Here The hypothesized relationship yielded a p -value > 0.05 . Hence, regression analysis suggests that there is no negative relationship between authority and responsibility-based role ambiguity experienced by software managers and their job satisfaction

levels. Moreover, based on the above table, the following equation can be used to predict emotional exhaustion using the regression model applied in this study: Job satisfaction (Y) = 3.04 - 0.363 (task-based role ambiguity X1) - 0.044 (responsibility-based role ambiguity) - 0.348 (procedural-based role ambiguity) + 0.028 (authority-based role ambiguity). Based on the multiple regression, this study estimates that independent variables predict the prevalence of emotional exhaustion among non-managerial employees in boutique hotels in the Kathmandu Valley. In this study only Hypothesis 1 and 3 has been accepted. Besides, the model has been able to explain 41.7% of the variance decline in job satisfaction due to task-based and procedural-based ambiguity among software development managers.

More importantly, the overall finding of regression analysis is consistent with Rizzo et al. (1970), Chang and Hancock (2003), Palomino and Frezatti (2016) and van Slooten et al., (2024) that role ambiguity in its task and procedural dimensions significantly and negatively influences job satisfaction of employees. Besides, This study also supports the hypothesis of Schuler (1977) task based incongruences generate are associated with higher levels of role ambiguity and culminates into decline of job satisfaction among employees.

DISCUSSIONS

Role ambiguity is one of the critical factors affecting job satisfaction, and this study has examined four dimensions of role ambiguity: task ambiguity, responsibility ambiguity, procedural ambiguity, and authority ambiguity, and their impacts on the job satisfaction of software product managers in Nepal. In the case of

software product managers of Nepal, this study finds that among different dimensions of role ambiguities, procedural and task based ambiguity significantly and negatively affects the job satisfaction of software product managers in Nepal. Hence, it has been found in this study that where product managers are not clear as to what is expected from them in terms of responsibilities and deliverables, then job satisfaction for software product managers sampled in the study also declines. Such findings of this study reiterate and re-emphasize the established assertions and propositions presented by previous studies by Kahn et al. (1964), Rizzo et al. (1970), and Fisher (2001) that clear task definition enhances job satisfaction for employees in any organizational setting.

Moreover, the results of this study also confirm that procedural ambiguity negatively impacts the job satisfaction of software product managers, as such ambiguities create confusion about how tasks need to be executed effectively and efficiently. Here, this study also corroborates Eys and Carron (2001) and Cengiz et al. (2021), which show that when procedures are not well established or communicated, software product managers feel overwhelmed and less competent in their roles, which detracts from their overall job satisfaction. Besides, the findings of this study confirm with Chang and Hancock (2003) that there is a significant negative correlation between different dimensions of role ambiguity and overall job satisfaction experienced by software managers in the context of software development companies and start-ups. More importantly, this study, similar to Palomino and Frezatti (2016) also indicates that job satisfaction of the employees is negatively and significantly affected by different dimensions of role

ambiguity. In a similar vein, the results of this study also support defining attributes as illustrated by Cengiz et al. (2021) that dimensions of role ambiguity cover information deficiency, lack of clarity, and unpredictability.

Likewise, the findings of this research are similar with Kahn et al. (1964) in terms of examining manifestations of role ambiguities, such as a lack of clear information about job responsibilities and expectations concerning what should be done—the so-called task ambiguity—and how it should be performed, or procedure ambiguity (van Slooten et al., 2024). Similarly, this study also finds that when the product managers feel uncertain about their responsibilities, role ambiguities result into reduced job satisfaction whereas well-defined roles enhance employee confidence and engagement, and this study also supports the findings Rizzo et al. (1970) that role ambiguity experienced by employees, which included items related to unclear job descriptions, expectations from supervisors, and uncertainty about how to perform tasks effectively.

Furthermore, this negative impact of procedural ambiguity on job satisfaction is supported by Eys and Carron (2001) that when product managers experience procedural uncertainties, they also feel less competent in their job performance, and this feeling of incompetence reduces the overall job satisfaction of these production managers. Procedural ambiguity in the context of work refers to the ambiguities surrounding the processes or procedures and the norms in which the job is executed and the failure to specify procedures will make workflow management inefficient. Due to procedural ambiguity, this study suggests that software product managers find themselves spending excessive time clarifying processes rather than focusing on

strategic initiatives (Fisher & Gitelson, 1983). When procedures are not clearly defined or communicated, it can create confusion about how to proceed with projects or resolve issues. This confusion often causes delays in project timelines and increases the workload for the managers as they try to find their way through unclear processes (Sonnentag, 2017).

More importantly, these findings align with the JD-R model that high job demands, such as task ambiguity and procedural ambiguity, result in negative outcomes such as decreased job satisfaction (Bakker & Demerouti, 2017). Hence, the significant and negative effects of both types of task and procedural ambiguity underline critical areas for organizational interventions with practices such as regular check-ins, feedback mechanisms, management by objectives, effective procedural orientations, and open lines of communication that allow product managers to voice their concerns about their roles or processes and assimilate with their position in this organization, and such practices align with the JD-R model that emphasizes balancing demands with adequate resources to reduce experiences.

CONCLUSIONS AND IMPLICATIONS

The study examines effects of different dimensions of role ambiguity on job satisfaction among software product managers in Nepal. The findings of this study indicates that role ambiguity, characterized by uncertainty regarding job expectations, responsibilities, and performance evaluation criteria, negatively correlates with job satisfaction levels. Specifically, dimensions such as task ambiguity and procedural ambiguity have been found to contribute negatively and statistically variably to the overall dissatisfaction experienced by these

software professionals. Hence based Tessem and Maurer (2007) that has identified autonomy, variety, significance, feedback, and ability to complete a whole task are significant factors that ensures satisfaction among software managers, this study also highlights a critical area for organizational focus and interventions on these areas to reduce negative impact of role related ambiguities on job satisfaction.

After all, as this study also indicates when employees perceive ambiguity in the definition or execution of their function, their affective engagement in workplace also declines, therefore clarification of employee roles is the facilitation of the fulfillment of objectives associated with each job, which can have positive effects on job satisfactions and well-being of employees (Mañas et al, 2018) Hence, this study recommends software development companies and start-ups to reduce antecedents of role ambiguities that includes lack of clear role definitions, lack of training, communication problems, supervisory behaviors and develop resourceful and supportive workplace setting, organizational culture, enhance group cohesiveness, develop robust formalization and introduce procedural justice (Cengiz et al., 2021).

This study as suggested by Chiara et al (2019) also recommends that professional commitment appears to be a resource that can protect professionals preventing a decrease in satisfaction when dealing with role ambiguities. Professional commitment refers to the psychological attachment an individual has to their profession, Individuals who are professionally committed are more likely to seek clarity regarding their roles. They engage proactively with their teams and stakeholders to understand their responsibilities better. This proactive behavior helps reduce

ambiguity by ensuring that everyone involved has aligned expectation. Here software development can reduce role ambiguities and enhances professional commitment of software product managers by providing clear organizational charts that outline reporting relationships can help reduce confusion about roles within teams, thus minimizing role ambiguity and with inclusion of effective (van Slooten et al., 2024).

Moreover, the findings of this study reveal that both task ambiguity and procedural ambiguity have a negative and significant impact on job satisfaction among software product managers. The results indicate that as levels of these ambiguities increase, job satisfaction correspondingly decreases. This relationship underscores the importance of clear communication and structured processes within organizations, particularly in dynamic fields such as software development where roles can be fluid and expectations shift rapidly. Hence, organizations need prioritize effective communication strategies to minimize task and procedural ambiguities. Besides, by encouraging a working environment where employees are informed about their tasks and the processes they need follow, organizations can indeed enhance job satisfaction.

Similarly, job descriptions, establishing performance metrics aligned with specific tasks and utilizing project management tools that clarify individual contributions to team objectives eventually reduces negative effects of procedural role ambiguity on job satisfaction of software product managers (Fisher & Gitelson, 1983; Palomino and Frezatti, 2016). Likewise, based on the findings, for reducing task based and procedure based role ambiguities, this study recommends for the proactive practice of

procedural justice that encourages employees to perceive that procedures with organization are fair, transparent, and consistent, (Rai, 2016). Additionally, this study also recommends software production companies in Nepal to develop Standard Operating Procedures (SOPs) that covers product development cycles, stakeholder engagement, clear workflow and task completion guidelines in order to minimize confusion of software product managers regarding task performance and product expectation.

Furthermore, this study recommends, for further research that comparative studies across different sectors and departments of software development company also provides valuable insights into whether the patterns observed in this study with reference to software product manager remains evidential in other professional contexts and emerging industries as well. Similarly, this study also suggests that it necessary to investigate the role of organizational culture in shaping perceptions of role ambiguity for effectively managing employee expectations and enhancing their workplace satisfaction. Here, this study also acknowledges that it has several limitations such as small sample size, hence the results partly portray the reality of this particular sample as a result conclusions obtained in the study cannot be generalized for anything beyond the sample considered. Likewise, there various other dimensions and manifestation of role ambiguities that have not been considered in this study.

In conclusion, addressing different manifestations of role ambiguity is essential for improving job satisfaction among software product managers in Nepal. This study concludes that organizations that invest in clarifying roles and encourage open communication will observe a positive impact not

only on employee morale but also on overall organizational performance. As the tech industry continues to evolve rapidly, understanding these dynamics will be crucial for retaining talent and ensuring sustainable growth of this industry.

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