

**Performance Management in a Virtual Work Environment:
A Focus on Managers in Higher Education**

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ACKNOWLEDGEMENTS & DEDICATION

I dedicate this project, the culmination of the past 3 years, to my family and friends. To my son, you can't read or write yet, but you earned 1/3 of this degree with me. I dedicate this achievement to my grandmother, Harriet Dressler.

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EXECUTIVE SUMMARY

Stevens Institute of Technology is a private research university in Hoboken, NJ that offers undergraduate and graduate degrees in science, engineering, technology, and business. During the COVID-19 pandemic, Stevens transitioned nearly all of campus operations to a virtual environment. This was the first time many of these operations were virtual and it was a significant adjustment to the staff of the University; however, the university has since determined that some operations will remain remote. This research examined the virtual work environment experiences of managers and employees during the COVID-19 pandemic at Stevens Institute of Technology. The purpose was to generate data that could inform managers in developing effective performance management processes for employees working in a virtual environment.

A performance management conceptual framework was used to investigate manager and employee interactions concerning performance management within the virtual work experience. The Performance Management Systems (PMSs) framework published by Ferreira and Otley (2009) offers organizations a holistic approach to performance management. There are twelve components to the framework, but I focused on three key components that are most relevant to this capstone project: Key performance measures; performance evaluation; and information flows, systems, and networks. The focus on these three areas of performance management allowed me to examine aspects of performance management involving manager and employee interactions in the Student Affairs division of the University.

I used a mixed methods approach. The study combined quantitative methods (close-ended survey of employees) and qualitative methods (manager interviews). The survey instrument was issued to all staff within the Student Affairs division to measure the level and quality of interactions between managers and employees. The survey results, combined with the coded responses of the interviews with managers, yielded several important results.

Research Question 1: How do managers engage with performance management?

Finding 1: Outcome performance measures were in place prior to the pandemic and usage of such measures increased during the virtual work environment.

Research Question 2: With what frequency and methods do managers communicate about performance to remote employees?

Finding 2: Most managers have established weekly meetings and address performance issues continuously and as needed.

Finding 3: Feedforward conversations were more helpful in identifying areas of development and training rather than the formal annual performance appraisal.

Finding 4: The current annual performance appraisal is not perceived as an effective form of performance management. The respondents unanimously critiqued the current formal annual performance appraisal. Specifically, they were dissatisfied with the frequency and rating system.

Research Question 3: What is the nature of interactions between managers and remote workers?

Finding 5: The quality of interactions is relatively high between managers and employees.

I propose the following recommendations based upon the research findings:

Recommendation 1: Human Resources at Stevens should develop a training for managers that focuses on behaviors that promote effective performance. The goal of the training is for managers to learn effective performance management practices. The training will review the organization's key performance measures deriving from objectives, key success factors and strategies.

Recommendation 2: Human Resources at Stevens should form a working group of managers to re-design the current performance appraisal system.

Despite this capstone's focus on Stevens and the Student Affairs division, this study provides valuable insights to performance management in a virtual environment more broadly across the organization. The findings and recommendations documented here can be productive to workforce development efforts.

INTRODUCTION

The COVID-19 pandemic has prevented colleagues from physically being on the campus of Stevens Institute of Technology (Stevens). Stevens employs 790 full-time and part-time staff members. A majority of the Institute's operations were transitioned to a virtual environment in March of 2020. Despite the urgency and haste of the transition to remote work, the operations of the University seamlessly continued. This opened the door to recommendations from staff and managers that a more permanent virtual workforce might be possible, and even valuable. A committee was formed to examine and establish a flexible work arrangement (FWA) for the 2021-2022 Academic Year. The FWA enables certain employees to continue to work remotely, even when campus is open. This arrangement is expected to change the dynamic of the organization and affect performance management processes.

To explore how performance management is done with Stevens' remote workforce, I partnered with the human resources department and the school. In this study, I review the performance management process at Stevens for virtual workers to determine if those processes can be improved. Although an adaptation to the school's traditional in-person management practices will be needed, the school is uncertain what the current virtual worker performance management practices are, and what might be changed.

ORGANIZATIONAL CONTEXT

Stevens Institute of Technology was incorporated in 1870 and is one of the oldest technology-focused universities in the United States. The mechanical engineering degree was founded at Stevens. This private research university is located in Hoboken, NJ overlooking the Hudson River. One of Stevens' most attractive qualities is its location, a quick 11-minute ferry ride into the bustling city of Manhattan. This strategic location draws in 3,600 undergraduate students and 2,500 graduate students to enroll and offers promising careers upon graduation.

The Student Affairs division at Stevens has been an on-campus department that employs 40 people. The sub-divisions within Student Affairs are the Career Center, Residential and Dining Services, Stevens Technical Enrichment Programs, and Student Health, Counseling and Psychological Services.

The Student Affairs division is motivated to further the mission of Stevens Institute of Technology by advocating student learning and achievement through innovative programs and services. The division is dedicated to preparing students to become leaders and contribute positively to the global community. The division is also public about core values, which include:

- Student-centered, focused on student success
- Unity, inclusion and social justice
- Integrity, innovation and excellence

PROBLEM OF PRACTICE

During the early weeks of the COVID-19 pandemic, the majority of the Stevens' workforce was abruptly transitioned to a virtual environment. Human Resources did not have time to prepare the workforce for this transition as quick decisions were influenced by keeping the community safe as opposed to thoughtful program implementation. Despite the haste, the workforce adapted to remote work, and Stevens' leadership was pleased with the virtual operations and productivity of the staff through the year 2020. There were operational cost savings to the move and an increase in staff satisfaction. HR started to field requests to make this virtual environment more permanent post-pandemic.

Over the summer of 2021, the Flexible Work Arrangement (FWA) working committee finalized the details of the FWA policy and program. Human Resources developed information sessions to inform the workforce about the program and its intentions. However, questions regarding performance management in this environment still remained. This project was launched as a response to manager inquiries to Human Resources regarding performance management. Managers persistently asked "how do I effectively manage performance of a staff I don't physically see?"

The response to this question would affect about seventy percent of the non-faculty workforce who are either hybrid or fully-remote. If managers are effective in this new arrangement, the organization can continue to be productive and maintain this workforce benefit and its operational efficiency. The results of this project will inform Human Resources of gaps in effective performance management behaviors, identify areas of strength and inform future training and workforce development efforts.

LITERATURE REVIEW

Performance Management (PM) is widely advocated as a way to develop employees (Aguinis, 2019; Cascio, 2014). The performance management framework (Ferreira & Otley, 2009) guides this capstone project through an analysis of the Performance Management practices at Stevens Institute of Technology. The research emphasizes the importance of performance measures, frequent feedback and feedforward and relationships between the manager and employee.

Virtual Work Environments

The concept of virtual teams was first recognized in the 1990s, provoked by a trend of U.S. companies outsourcing labor abroad to access global talent and cut costs. Townsend et al. (1998) defines virtual teams as “groups of geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task” (p. 18). Shortly after this transition, companies began to respond to employee preferences for flexibility in their work, and the concept of flexible work arrangements (FWA) was born. An FWA allows an employee to vary the amount, timing or location of their work (de Menezes & Kelliher, 2011). Remote work often facilitated FWAs. This shift transformed the opportunity for virtual work from a directive by leadership to an option for individuals made in collaboration with leadership. The goal was not simply a matter of cost cutting, but rather opportunities to enable employee autonomy as well as work-family balance.

PM in Virtual Work Environments

As FWAs grew in use, so did the research on these arrangements. The research addressed managers' fears of loss of control and decreased collaboration. The literature highlights the conditions necessary for remote worker success. Success often relies on the organization's performance management practices. The research details effective components of PM that control organizational performance. Aguinis (2019) defines PM as "identifying, measuring, and developing the performance of individuals and teams and aligning performance with the strategic goals of the organization" (p. 2). More recently, the literature supports a holistic approach to PM.

Performance Management Systems

Ferreira and Otley (2009) developed a performance management system (PMS) used to detail the structure and operations of a holistic approach to PM. Three key components of the PMS framework are detailed below.

Key performance measures (KPMs) are the indicators of success in an organization. An organization should derive KPMs from its strategies and communicate the alignment to employees. This interdependent structure creates a tie between the intentions of the firm to the employee. Further, the evaluation of employee performance should be aligned to the KPMs and documented in a performance appraisal or assessment. The notion of continuous review at every level is also suggested by Ferreira and Otley (2009) who included feedforward and feedback information flows at every level.

Performance Measures

Cascio (2000) suggests that in a remote environment a results-oriented approach is beneficial. It should be noted, however, that his suggestions emerged prior to technology that allowed for more online interaction between manager and employee. This early commentary suggested that remote work was different from the traditional input measures.

However, as technology developed, managers were able to track input variables of time, attendance and activity. A results or output-oriented model focuses on an employee's productivity and quality of work (Cune & Fogelberg, 2012). Placing emphasis on the end product provides the employee with autonomy to complete their work on their own time and using their own methods. As a result, KPMs can be linked to whether expectations were met and if goals were reached (Cune & Fogelberg, 2012). This model recognizes individuality in employee productivity methods. Kossek and Hannum (2011) said it best: "[W]e think of productivity and efficiency in terms of creating structures and routines that boost output and reduce error – but individual productivity should be factored in" (p. 1).

Measurement Issues. There are many factors that make measurement of individual performance difficult. For example, variations in the amount and type of work completed and even context factors that are beyond the individual's control. An individual achieving maximum performance often reflects environmental conditions that prompt the employee to have a high level of focus and effort (DuBois et al., 1993). It can be confusing for managers to assess an individual's performance when environmental conditions impact the ability to complete tasks.

Another external issue is performance dynamics, also known as changes in the components of performance requirements. A study conducted by Stewart and Nandkeolyar (2007) showed constraints created by teammates and competition influenced objective measures of performance. In this example, performance measurement was adjusted to account for external human influence on the individual's performance. This can be encountered in business when objective indicators of individual performance cannot account for situational factors such as constraints created other people's actions. The measurement issues highlighted are no less true in a remote working environment.

Performance Appraisal

Often organizations have an annual, formal process to record an employee's performance against targets, referred to as a performance appraisal or assessment (PA). In a virtual work environment, Cascio (2000) recommends an evaluation six months after the virtual transition and ongoing regular assessment. For an organization, a formal PA requirement could be motivated by the need to provide a basis for future action. For example, legal and personnel decisions, decisions on compensation and promotions, and identification of development are often the purposes for PA (Campbell & Wiernik, 2015).

Ratings. Ratings are designed to assess behaviors, especially when outcomes are difficult to measure, are complexly related to other factors beyond the control of the individual, or are long-term. However, sometimes these behaviors can be disconnected from the outcomes designed by the organization. PA ratings are also subject to the bias of the rater. There are several types of cognitive error associated with manager ratings; two examples are an optimism bias and a positivity bias (Merkel et al., 2021). Optimism bias

refers to unrealistic views of the future (Taylor & Brown, 1988). For example, if performance targets are set above the ability of the employee a manager may inflate the rating to account for the difficulty of the task. Positivity bias is the ability to see past the bad through rose-colored glasses (Skowronski, 2011). An example is the manager ignoring an employee's bad behavior due to a personal relationship with that individual. Other biases include the recency bias, central tendency, and "halo and horns" biases. In all, managerial assessment is fraught with error associated not only with the ambiguity of the connection between behavior and outcome, but also the managers' biases.

Fairness. A PA is more likely to be accepted in an organization if employees deem the ratings fair (Harrington & Lee, 2015). The fairness component of a PA's rating system can be a judgement placed on the system's structure (procedural fairness) or based on the quality of interpersonal relationship between the rater and ratee (Giles et al., 1997).

Feedback and Feedforward

Facilitating performance includes providing the employee with resources to complete their job well; that includes technology and human capital. Feedforward controls are measures that occur before a behavior or event. Feedforward is assessment that occurs before performance begins and is often an important part of the planning process. Feedforward control provides information about the expectations of performance, designed to create positive, sustainable activities in the form of strategies and plans (Ferreira & Otley, 2009).

Feedback controls are measures that occur after a behavior or event occurs. Ferreira & Otely refer to feedback as “information used to enable the undertaking of corrective and/or adaptive courses of action” (2009, p. 273). Manager feedback is most effective and motivational to employees when it is detailed, constructive and explicit, and occurs close to the event being assessed (Latham & Locke, 2006).

Feedback Timing. Results from a 2016 study demonstrated the importance of timing feedback in virtual team (Hartenian et al., 2016) Recall, the ability to remember positive and negative feedback, played a large role in the study’s results. The researchers suggest that in order “to improve recall of effective and ineffective performance, managers should collect and provide individual performance data to each team member“ (Hartenian et al., 2016, p. 37). The research further suggests methods to prompt recall and methods to store feedback because managers will not always have the ability to observe individual behaviors in a virtual setting. This study emphasizes the importance of providing timely feedback, both positive and negative, directly to the individual.

Relationship Maintenance. Research describes relationship maintenance as a skill for managers to embody in the remote worker PM. In this context, relationship maintenance refers to the engagements between a manager and employee that promote interpersonal positive relations. The research indicates many behaviors associated with relationship management such as trust, frequent communication and coaching. Cascio (2000) highlights the importance of formal and informal communication in a virtual work environment to strengthen the relationship between the manager and the employee. Coaching is also frequently referenced in the literature. Ye (2012) summarizes the

coaching literature by advising managers to coach remote employees through work-place issues (p. 25). These issues could be interpersonal or obstacles encountered with a task. Ye (2012) further references the responsibility of the manager to detect behavioral changes in virtual employees that result from work-place issues, and advises coaching the employee before the issue grows out of control.

Performance measures, PA's, and feedback and feedforward controls are the foundation of a holistic performance management system. The framework developed by Ferreira and Otley (2009) provides a guide for organizations to build on this foundation and develop a structure to operationalize a PMS.

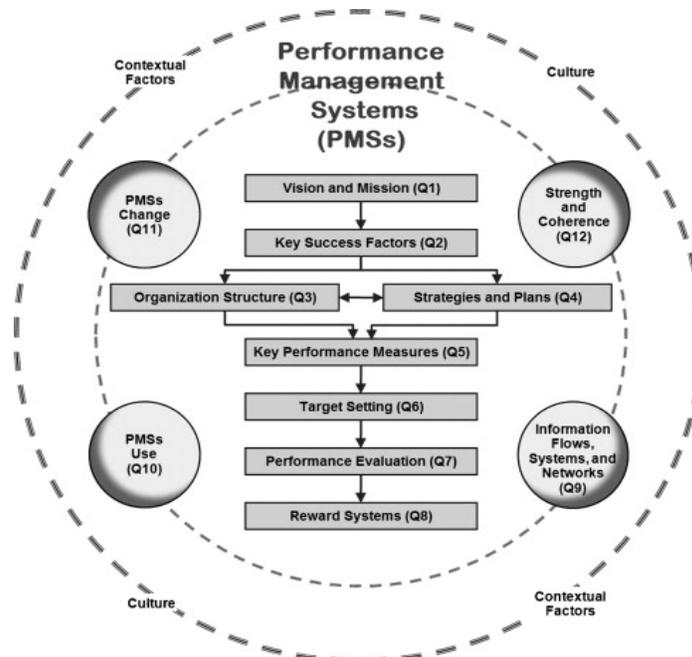
FRAMEWORK

Stevens' employs an annual traditional PA conducted through an online system. The current PA system guides the employee and manager to rate performance, based on nine core competencies that align with the organization's values. There are behavioral anchors provided that guide the assigned rating. At the end of the PA, the employee is asked to self-evaluate their overall performance for the fiscal year. The manager does the same. The final section of Stevens' annual PA is focused on goals for the future (feedforward controls).

The work of Ferreira and Otley (2009) produced a Performance Management Systems (PMSs) to guide organizations to a holistic approach to PM, and part of the model informs my research design.

Figure 1

The Performance Management Systems (PMSs) Framework



This study focused on the following elements of the PMSs framework: Key Performance Measures, Performance Evaluation, and Information Flows, Systems and Networks. These three areas were identified in the literature as the foundational elements of a performance management system in a virtual environment. Ferreira and Otley's (2009) research provide guiding questions for each component of the framework, detailed below:

“Key Performance Measures What are the organization's *key performance measures* deriving from its objectives, key success factors, and strategies and plans? How are these specified and communicated and what role do they play in performance evaluation? Are there significant omissions?” (2009, p. 271)

“Performance Evaluation What processes, if any, does the organization follow for *evaluating* individual, group, and organizational *performance*? Are performance evaluations primarily objective, subjective or mixed and how important are formal and informal information and controls in these processes?” (2009, p. 272)

“Information Flows, Systems and Networks - What specific *information flows* — feedback and feedforward —, *systems and networks* has the organization in place to support the operation of its PMSs?” (2009, p. 273)

RESEARCH QUESTIONS

The PMS framework guided this capstone project as to the important areas of PM to focus on to assess the current state at Stevens. My research was guided by the following questions:

1. How do managers engage with performance management?

The goal of the first question was to determine if managers adapted performance management practices during the virtual work environment. The first question directly relates to the Key Performance Measurement component in the PMSs framework which identified how KPMS are specified and communicated. Additionally, I was curious if performance measures were driven by organizational objectives.

2. With what frequency and methods do managers communicate about performance to remote employees?

The goal of the second question was to identify performance management communication methods and determine if there was consistency or discrepancy within the division. The second question directly relates to the performance evaluation component in the PMSs framework. The second question also assesses feedforward performance management communications, which relates to training and development and the information flows, systems and networks component in the PMSs framework. Information networks refers to formal and informal mechanisms of information flows between the manager and employee related to performance management.

3. What is the nature of interactions between managers and remote workers?

The goal of the third question was to examine the interactions between managers and their staff. The literature highlighted the importance of relationship management in remote workers and the interactions between managers and employees contribute either positively or negatively to the interpersonal relationship thus impacting performance.

STUDY DESIGN

The purpose of this capstone is to better understand the performance management processes used in the virtual work environment at Stevens. I used a mix methods approach to data collection for this capstone which included an electronic survey and interviews. The table below outlines the alignment of data collection tool, method and corresponding research question.

Table 1

Data Collection Tools

Data Collection Tool	Data Type	Research Question Addressed
Interviews of Managers in the Student Affairs Division	Qualitative	R1 and R2
Electronic Survey of all employees in the Student Affairs Division	Quantitative	R3

Data Collection

Survey

An electronic survey was distributed via email to forty employees within the Student Affairs division at Stevens. I received the list of forty employees from Human Resources based on the criteria of non-academic, full-time and regular part-time staff employed by the Student Affairs Division at Stevens. The criteria were derived from guidelines determining which employees are subject to the annual performance assessment.

The goal of the survey was to understand the nature of interactions between managers and employees. For this analysis, the work of Graen and Uhl-Bien (1995) and the Leader-Member Exchange 7 (LMX-7) model was used. The LMX-7 model is used by researchers to indicate the quality of leader-member exchanges. The model focuses on the strength and development of the manager-employee relationship by asking questions related to trust, motivation and competence. In this case, the LMX-7 model in the form of a survey was used to analyze the relationship maintenance of the employee and manager at Stevens during remote work. The LMX-7 model provides questions and quantifiable responses (Graen & Uhl-Bien, 1995). Sample questions include: "How well does your manager understand your job problems and needs?" and "How well does your manager recognize your potential?" and "Regardless of how much formal authority your manager has built into his/her/their position, what are the changes that your manager would use his/her/their power to help you solve problems in your work?" (Graen & Uhl-Bien, 1995, p. 237). Each survey participant's responses can be combined into an LMX-7 score which corresponds to a key that describes the interactions within the manager-employee relationship. The full survey can be found in Appendix C.

A recent study in Korea used the LMX-7 scale to analyze the nurse's relationships with their supervisor, as a predictor for burnout (Park, 2018). In this study, Cronbach's alpha was calculated at 0.91. A slightly older study used the LMX-7 scale to analyze coach and player relationships in a professional soccer league (Caliskan, 2015). The study calculated Cronbach's alpha and construct reliability at 0.84 and 0.85 respectively. The results showed the LMX-7 scale was reliable and valid for examining coach-player

relationships. A third study examined manager and subordinate relationships within the Biomedicine units at various Institutions in Spain (Bornay-Barrachina & Guerrero-Villegas, 2014). The LMX-7 scale was used and Cronbach’s alpha was reported at 0.89. All three of these studies demonstrated good reliability in the LMX-7 scale.

The survey was distributed in early July 2021, followed by two reminders. A total of 14 responses were collected. Because one employee was on medical leave the response rate calculated was 36%. Additional details about the survey respondents’ management status, virtual work status and tenure can be found in the tables below.

Table 2

Survey Respondents: Management and Virtual Work Status

Management Status	Virtual Work Status	
	Remote	Non-remote
Managers	7	2
Non-Managers	5	0

Table 3

Survey Respondents: Tenure at the Organization

Tenure	Individuals
have worked 5 years or less	8
have worked between 6-15 years	2
have worked 16 years and up	4

Manager Interviews

Interviews were conducted to better understand the current performance management process in the Student Affairs division. Interview protocols were designed around the following elements of my conceptual framework: 1) Key performance measures; 2) Performance evaluation; and 3) Information flows, systems and networks. I created a script with structured questions to ensure consistency across interviews. The script can be found in Appendix B.

Human Resources provided a list of thirteen managers in the Student Affairs division. A manager was defined as an employee that manages at least one non-academic full-time or one regular part-time staff member. The criteria are the same as those used to determine which managers conduct performance evaluation at Stevens.

To identify potential interviewees, I emailed all thirteen managers in the Student Affairs division. Of the thirteen individuals contacted, six individuals responded to schedule interviews. Interviews were conducted online with one manager at a time over Zoom. The interviews ranged from twenty to forty-five minutes in length. Interviewees were not provided with questions ahead of time. Ultimately, all six interviews were completed representing 46% of the Student Affairs managers.

The interviews were digitally recorded through Zoom and transcribed using the software Otter.ai. The table below summarizes the interview participants.

Table 4***Interview Participants***

Division	Title
Career Center	Executive Director
	Associate Director, Employer Engagement and Operations
Residential and Dining Services	Director of Residential Education
	Associate Director of Residence Life
Stevens Technical Enrichment Programs	Director
Student Health, Counseling and Psychological Services	Dean of Students

Data Analysis***Survey Analysis***

The first step of the survey analysis was to export the survey responses from the Google Form into Excel. All survey questions were closed-ended and therefore coding involved numericizing the raw data. Likert scale items were converted from words to a five-point scale with one corresponding to unfavorable responses or that indicate weak ties with managers and five corresponding to favorable responses that indicate strong ties with managers. Additional data points were collected to identify the tenure and virtual work status of the individual at the university. The LMX-7 model key in Table 5 will be used to code the engagements.

Table 5***LMX-7 Model Key***

	Very High	High	Moderate	Low	Very Low
LMX-7 Score	30-35	25-29	20-24	15-19	7-14

I first calculated the LMX-7 score of each survey respondent by adding the Likert values of their responses to the seven LMX-7 model survey questions. The possible range for each respondent's total score was between seven and thirty-five. Table 6 displays pertinent statistical data of the survey responses.

Table 6

Statistics of All Survey Responses

	Value
Survey Respondents	14
Mean	26
Range	16-34
Standard Deviation	5.87

I next calculated statistics for each LMX-7 question to identify which aspect of the relationship was strong versus weak. Table 7 displays the results.

Table 7

Statistics of All Survey Responses: By Question

LMX-7 Question	Mean	Range	Standard Deviation
Q1 Do you know where you stand with your manager [and] do you usually know how satisfied your manager is with what you do?	4	3-5	0.95
Q2 How well does your manager understand your job problems and needs?	4	2-5	0.91
Q3 How well does your manager recognize your potential?	4	2-5	0.97
Q4 Regardless of how much formal authority your manager has built into his/her/their position, what are the changes that your manager would use his/her/their power to help you solve problems in your work?	4	2-5	1.10

Q5 Regardless of the amount of formal authority your manager has, what are the chances that he/she/they would “bail you out” at his/her/their expense?	3	1-4	0.96
Q6 How well does your manager recognize your potential?	4	2-5	0.89
Q7 How would you characterize your working relationship with your manager?	4	3-5	0.92

Next, I conducted a t-test to determine if the differences in responses to each question were statistically significant. I first compared the survey responses of the managers to the non-managers. The p-value is higher than 5% and therefore the differences between the responses were not significant.

Figure 2

T-test Managers vs. Non-managers

t-Test: Paired Two Sample for Means		
	4.444444444	3.6
Mean	3.703703704	3.633333333
Variance	0.09218107	0.19866667
Observations	6	6
Pearson Correlation	0.842953421	
Hypothesized Mean Difference	0	
df	5	
t Stat	0.688387724	
P(T<=t) one-tail	0.260919241	26%
t Critical one-tail	2.015048373	
P(T<=t) two-tail	0.521838483	52%
t Critical two-tail	2.570581836	

I then compared the survey responses of the remote workers to the non-remote workers. The p-value is higher than 5% and therefore the differences between the responses were not significant.

Figure 3

T-test Remote Worker vs. Non-Remote Workers

t-Test: Paired Two Sample for Means		
	4.1666667	4
Mean	3.65277778	3.83333333
Variance	0.13449074	0.06666667
Observations	6	6
Pearson Correlation	0.67472185	
Hypothesized Mean Difference	0	
df	5	
t Stat	-1.6326712	
P(T<=t) one-tail	0.08173326	8%
t Critical one-tail	2.01504837	
P(T<=t) two-tail	0.16346651	16%
t Critical two-tail	2.57058184	

Next, I searched for any patterns in responses and demographics of survey respondent such as remote status, manager status and tenure at the organization. See table 8, 9 and 10 for the results.

Table 8

Statistics of Survey Responses: Remote/Non-Remote

	Remote	Non-Remote
Survey Respondents	12	2
Mean	26	27
Range	16-34	20-34
Standard Deviation	5.63	9.90

Table 9***Statistics of Survey Responses: Manager/Non-manager***

	Manager	Non-manager
Survey Respondents	9	5
Mean	27	25
Range	20-34	16-34
Standard Deviation	5.34	7.33

Table 10***Statistics of Survey Responses: Tenure***

	0-5 years	6-15 years	16 years and up
Survey Respondents	8	2	4
Mean	27	21	28
Range	16-34	20-21	23-34
Standard Deviation	6.61	0.71	4.65

Interview Analysis

A total of six interviews were conducted with Student Affairs managerial staff. Each of the four sub-divisions within Student Affairs was represented. All of the interviews were conducted on Zoom so audio and visual recordings were accessible for the analysis.

Analysis began with a review of the conversation transcripts of the Zoom interviews. Otter.AI technology automatically transcribed the Zoom interview conversations, which were then accessible on the cloud. As the owner of the recordings, I had the ability to watch recordings and edit the transcripts in real time when an error was

identified. An error occurred if the transcript mis-represented the audio from the recording. As a result, all interview transcript errors were edited during the first review of the recordings.

The second review of the recordings aimed to update any field notes previously taken during the interviews with an overarching view of connected themes. I was curious to identify any common complaints, suggestions or tensions. This second review influenced the coding process the most.

The third and final review of the recordings aimed to identify any potential bias or perceptions to note. There was one interviewee who shared a lot of information about past performance evaluation processes where the individual was rated poorly. This person had many complaints about their manager's own performance evaluation process that the person believed hindered their promotion. This person also discussed personal reasons that may have impacted job performance and believed that personal life should be incorporated into the process. Since these responses were so nuanced and appeared to be specific to the history of prior inter-personal relationships, many of those responses will be excluded from the reporting findings.

Draft codes were developed based on components from the PMSs framework. The goal was to identify which elements of the framework were addressed. Once the draft codes were determined, I downloaded the transcripts from the cloud in a vtt file extension format. I converted the vtt file text into an Excel spreadsheet for further coding and analysis. The content of each interview was copied and pasted into a separate tab within one Excel file. After listening to each interview an additional two times, I updated field

notes to inform my code development. Additional themes began to develop across the interviews, which determined the final nine thematic codes. This resulted in the following coding scheme shown in Table 11.

Table 11

Coding Scheme

Code	PMS Framework Category	PMS Framework Context	Sample Statements from Interviews
Communication	Key Performance Measure	How are key performance measures communicated?	“People achieve a lot more when you give them clarity about what your expectations are and then deadlines”
Organization	Key Performance Measure	What are the organizations key performance measures deriving from objectives, strategies and plans?	“What is the goal organization wide for this and maybe it’s great for the department, but what does the individual get out of this?”
Inputs	Key Performance Measure	How are key performance measures specified?	“Did you show up on time...were you there 9 to 5”
Outputs	Key Performance Measure	How are key performance measures specified?	“A lot of my goals will be focused on process improvement and setting timeframes. I am very deadline driven”
Positive or Negative	Performance Evaluation	What process does the organization follow for evaluation performance?	“Performance reviews shouldn’t bring fear and anxiety to a staff member so you could say something is off with that process”
Informal or formal	Performance Evaluation	Are performance evaluations formal or informal?	“Once a month I have 1 on 1 meetings with staff where we get down to the nitty gritty”

Feedforward	Information Flows, Systems and Networks	What information flows support operations of PMSs?	“We are finalizing our training schedule for my professional staff”
Feedback	Information Flows, Systems and Networks	What information flows support operations of PMSs?	“I give feedback regularly and that’s just from being a supervisor for many years”
Systems	Information Flows, Systems and Networks	What specific feedback and feedforward systems are in place?	“The current system, you can’t get rid of goals, even though they’re completed, they still show up”

The codes helped identify the frequency of certain topics during the interviews.

The most common discussed topic was communication and output measures. It was clear this group was in close communication with their staff, regardless of the virtual work environment. Also, output measures were discussed often. Figure 4 below demonstrates the results of the coded transcripts.

Figure 4

Frequency of Codes in Interviews Using Conceptual Framework

Participant Number	Key Performance Measures				Performance Evaluation		Information Flows, Systems and Networks		
	communication	organization	inputs	outputs	positive or negative	informal or formal	feedforward	feedback	systems
Participant 1	12	6	3	6	3	6	5	6	6
Participant 2	11	6	5	2	6	3	6	6	8
Participant 3	6	7	1	10	6	5	5	3	2
Participant 4	4	2	4	9	1	4	3	1	2
Participant 5	2	3	4	7	4	2	3	3	4
Participant 6	4	1	2	3	3	4	9	2	2

FINDINGS

Research Question 1: How do managers engage with performance management?

Finding 1: Outcome performance measures were in place prior to the pandemic and usage of such measures increased during the virtual work environment.

The first finding emerged from the interviews conducted with managers in the Student Affairs division. The managers frequently referenced performance measures of their staff as it aligned with the organization's goals. One manager stated, "When I think about overall goals...how it helps the Career Center and the University goals, keeps us all moving forward". A theme emerged from the interviews of using metrics to tie the individual's contributions to the overall organization's goals for growth, outreach and student success.

Each manager cited their increased reliance on outcome driven performance measures during the virtual environment. One interviewee stated bluntly, "Evidence to me is purely outcomes." She supported her statement by providing details of the outcome measure and that it was communicated to her staff, "I had a long discussion with them about deadlines and how important they are to me." Another interviewee stated: "As a supervisor, you have to let go of expectations of seeing them 9 to 5 in the office and having trust and respect that they are professionals. And then they have to get work done and as long as the work is done at the end of the day, end of the week, year, that's really the goal."

Numerous examples of outcome driven performance measures were provided throughout the interviews. The managers stated measurable work products such as number of events developed by the residence life staff or number of employers signed up for the career fairs as evidence of the productivity of the career development staff. Managers also mentioned effective use of time as a performance measure and used whether deadlines were met as an outcome of work productivity.

It appeared as if these outcome driven performance measures were in place before the transition to the virtual work environment; however, once the transition occurred, greater emphasis was placed on these measures due to the lack of physical presence. Figure 4 demonstrated inputs and outputs discussed in the interviews, a total of fifty-six times. The managers understood that they needed to rely on input and output metrics more than ever, and there wasn't any apparent tension about that expressed in their responses.

Research Question 2: With what frequency and methods do managers communicate about performance to remote employees?

Finding 2: Most managers have established weekly meetings and address performance issues continuously and as needed.

This second finding emerged from nearly every interview. Each manager had weekly check-in meetings with staff to review projects, provide feedback and casually converse. Many managers mentioned the necessity of these meetings to stay on track but also to reinforce the relationship building that is missed in the virtual work environment. The managers were religious about keeping appointments and in cases of rescheduling,

made certain to do so at a different time within the same week (so as not to miss a check-in for that week). The only time meetings did not occur was when the individual was on vacation. In some instances, extra meetings were scheduled when an employee returned from vacation in order to make up for lost time.

I found this particularly interesting because the goals of the weekly meetings were to stay on task and check in on mental health. Feedback on negative performance was conducted ad-hoc or in the moment. Managers often didn't wait for the weekly meeting to address poor performance. One interviewee said: "I've learned that if you nip it in the bud it's a smaller thing and we can address it. If you wait, it becomes bigger and it festers." Another interviewee stated: "before it becomes a problem, and the only thing that can be done is if it's ongoing feedback and conversation, and it doesn't have to be structured."

Finding 3: Feedforward conversations were more helpful in identifying areas of development and training rather than the formal annual performance appraisal.

The third finding also came from the interview feedback. Training needs were identified through manager observations and both formal and informal conversations about performance management with the employee. Two managers mentioned a direct report's series of questions as an indication for a need of additional training. Judgement was based on the type and frequency of staff questions. The managers further stated that when an employee is asking about a process that they are expected to know about already, that is an indication the employee needs training.

The last identified training opportunity was when a manager observed an external trend or environmental condition that would affect the division and wanted staff to be educated and ready for the change. One manager stated, “We’re talking about emotional intelligence and being mindful about how to read a situation and what people are saying or not saying. [We need] to train graduate staff and professional staff to see that.” The virtual work environment created a need for many employees to improve their virtual engagement skills. The environment demanded new technology uses, new forms of communication and new conduct with colleagues.

Finding 4: The current annual performance appraisal is not perceived as an effective form of performance management.

The fourth finding emerged from the respondents’ unanimous critique of the current formal annual performance evaluation process. The managers all expressed dissatisfaction with the yearly schedule and met with staff more frequently to provide performance feedback, set goals and identify areas of growth.

A few of the interviewees expressed dissatisfaction in the rating system of the performance evaluation. A rating of two equates to “Does not meet expectation.” The managers stated that due to organization policy, an employee rated a two needs to be put on a performance plan. The managers suggest that the ratings system does not allow for notation of a work in progress and instead enforces quick, extreme action. They perceived that the policy does not allow for managers to have autonomy in coaching and developing staff who are underperforming. Performance plans can be threatening and can introduce bias for the rater to avoid being forced to actions dictated by the policy.

Many interview participants agreed that the comments - feedback in writing - were more important than the numerical rating. Since the Stevens performance review process is not tied to merit, bonus or any monetary reward, the purpose is solely to provide feedback and record it for HR for legal reasons. Therefore, the annual process became a formality, and the weekly meetings emerged as the source of the positive employer and employee relationships and solid work performance.

Research Question 3: What is the nature of interactions between managers and remote workers?

Finding 5: The quality of interactions is relatively high between managers and employees.

The survey results were coded into numerical representations in order to conduct analysis. Each of the seven LMX questions were calculated to produce an overall score for each employee and the perception of the strength of their relationship with their manager. As demonstrated in Table 6, the average score among the fourteen employees was twenty-six with a standard deviation of 5.87. According to the LMX-7 Model key in Table 5, the average quality of interactions of the respondents would be represented as high. Table 12 below demonstrates the breakdown of the strength of survey respondents' quality of manager relationships.

Table 12***Survey Respondents: Very High to Very Low***

LMX-7 Score	Respondent Count
very high	5
high	3
moderate	5
low	1
very low	0

Table 13 represents the breakdown of relationship strength based on the survey respondent's tenure at the organization. It became clear that the widest range of strength of relationships was across the "new hires", defined as individuals who have been at the organization less than five years. If the managers focus on developing strong relationships with new hires, it can deliver value to an organization.

Table 13***Statistics of Survey Responses: LMX-7 Score by Tenure***

	0-5 years	6-15 years	16 years and up
Survey Respondents	8	2	4
Mean	high	moderate	high
Range	low – very high	moderate	moderate – very high
Standard Deviation	6.61	0.71	4.65

RECOMMENDATIONS

The following are recommendations through which the HR department at Stevens can better support performance management efforts in a virtual work environment.

Recommendation 1: Human Resources at Stevens should develop a training for managers that focuses on behaviors that promote effective performance.

The goal of the training is for managers to learn behaviors that will improve the performance of their staff. The training will review the organization's key performance measures deriving from objectives, key success factors and strategies. The organization is finalizing their strategic plan which will guide the efforts of the organization moving forward. The training can gather goals from the Strategic Plan to align performance management tactics of the managers.

Recommendation 2: Human Resources at Stevens should form a working group of managers to re-design the current performance appraisal system.

There is an opportunity for the organization to redesign the performance appraisal system with manager buy-in. Successful implementation of a PMS requires leadership support and employee buy-in (Rodgers, Hunter, & Rodgers, 1993). This study highlighted flaws in the rating system, the frequency of appraisals and system glitches that prevented the managers from documenting performance measures. Alongside the internal stakeholders, the HR department can redesign a system that captures the best practices of the Student Affairs division and removes doubt of the employees at the organization of the appraisal purpose.

LIMITATIONS

There are several noteworthy limitations to this study. The data collection was conducted over the summer, which is a quiet time for college campuses. The response rate to both the electronic survey and the interviews may have been improved if conducted during the semester. Another limitation to this study was the amount of managers that responded to the electronic survey. The survey was sent to the entire division except for the Vice President of Student Affairs. The individuals that responded to the survey remained anonymous and therefore it was not disclosed if the nine managers were similar to the managers that participated in the interviews.

CONCLUSION

The experiences of employees within the Stevens are not unlike the experiences of many other university employees during the pandemic. As college campuses across the United States transitioned operations online, many college campus staff had to learn new ways of conducting business. The Student Affairs division was impacted tremendously as dining services were cancelled, housing was evacuated and the number of students needing psychological services increased. Staff members also felt the impact of the pandemic in their personal lives. These are issues managers grappled with, without clear answers. How were they to manage and measure performance in an unprecedented year? How do you add humanity back into managing performance when people's personal lives may have taken priority?

The findings from this study demonstrate the strength of the Student Affairs division at Stevens. The answer is: they figure it out. The managers set their own pace, their own performance measures and operated with their best efforts. Student Affairs at Stevens serves as a great example for the rest of Stevens campus. Perhaps other divisions did the same, perhaps they struggled. The scale of this project could be expanded to other high-touch student divisions to understand the possibilities of effective remote performance management. The training suggested in the recommendations will set a baseline of performance management expectations and outline behaviors that impact performance. The re-design of the performance appraisal will improve operations at Stevens as the organization prepares for a long-term transition to a hybrid workforce environment.

REFERENCES

- Aguinis, H. (2019). *Performance management for dummies*. John Wiley & Sons, Inc.
- Bornay-Barrachina, M., & Guerrero-Villegas, J. (2014). *Diversity role on LMX relationships* [Working paper]. Department of Business Administration, Universidad Pablo de Olavide de Sevilla. <http://www.upo.es/serv/bib/wpboam/wpboam1402.pdf>
- Caliskan, G. (2015). An examination of coach and player relationships according to the adapted LMX 7 scale: A validity and reliability study. *Measurement in Physical Education and Exercise Science*, 19(1), 22–33.
<https://doi.org/10.1080/1091367X.2014.977996>
- Campbell, J. P., & Wiernik, B. M. (2015). The modeling and assessment of work performance. *Annual Review of Organizational Psychology & Organizational Behavior*, 2(1), 47–74. <https://doi.org/10.1146/annurev-orgpsych-032414-111427>
- Cascio, W. F. (2000). Managing a virtual workplace. *The Academy of Management Executive*, 14(3), 81–90. <https://doi.org/10.5465/ame.2000.4468068>
- Cascio, W. F. (2014). Leveraging employer branding, performance management and human resource development to enhance employee retention. *Human Resource Development International*, 17(2), 121–128.
<https://doi.org/10.1080/13678868.2014.886443>
- Cune, B. S., & Fogelberg, F. (2012, February 10). *Managing performance remotely*. Nomadic international business psychology. <https://nomadicibp.com/wp-content/uploads/2020/05/Managing-Performance-Remotely.pdf>
- de Menezes, L., & Kelliher, C. (2011). Flexible working and performance: A systematic review of the evidence for a business case. *International Journal of Management Reviews*, 13(4), 452–474. <https://doi.org/10.1111/j.1468-2370.2011.00301.x>
- DuBois, C. L., Sackett, P. R., Zedeck, S., & Fogli, L. (1993). Further exploration of typical and maximum performance criteria: Definitional issues, prediction, and white-black differences. *Journal of Applied Psychology*, 78(2), 205–211.
<https://doi.org/10.1037/0021-9010.78.2.205>

- Ferreira, A., & Otley, D. (2009). The design and use of performance management systems: An extended framework for analysis. *Management Accounting Research*, 20(4), 263–282. <https://doi.org/10.1016/j.mar.2009.07.003>
- Giles, W. F., Findley, H. M., & Feild, H. S. (1997). Procedural fairness in performance appraisal: Beyond the review session. *Journal of Business and Psychology*, 11(4), 493–506. <https://doi.org/10.1007%2FBF02195894>
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, 6(2), 219–247. [https://doi.org/10.1016/1048-9843\(95\)90036-5](https://doi.org/10.1016/1048-9843(95)90036-5)
- Harrington, J. R., & Lee, J. H. (2015). What drives perceived fairness of performance appraisal?: Exploring the effects of psychological contract fulfillment on employees' perceived fairness of performance appraisal in U.S. federal agencies. *Public Personnel Management*, 44(2), 214–238. <https://doi.org/10.1177/0091026014564071>
- Hartenian, L. S., Koppes, L. L., & Hartman, E. A. (2016). Performance feedback in a virtual team setting. *Journal of Behavioral and Applied Management*, 4(1), 10–59. <https://jbam.scholasticahq.com/article/1059.pdf>
- Kossek E. E., & Hannum K. (2011, June 29). *How flexibility can boost employee productivity*. Forbes. <https://www.forbes.com/sites/ccl/2011/06/29/flexibility-can-boost-employee-productivity/?sh=3180d543c08a>
- Latham, G. P., & Locke, E. A. (2006). Enhancing the benefits and overcoming the pitfalls of goal setting. *Organizational Dynamics*, 35, 332–340. <https://doi.org/10.1016/j.orgdyn.2006.08.008>
- Merkel, S., Chan, H. F., Schmidt, S. L., & Torgler, B. (2021). Optimism and positivity biases in performance appraisal ratings: Empirical evidence from professional soccer. *Applied Psychology*, 70(3), 1100–1127. <https://doi.org/10.1111/apps.12266>

- Park, J. H. (2018). Influence of patient-related stressor and the relationship with supervisor on burnout in hospital nurses. *International Journal of Pure and Applied Mathematics*, 118(19), 2549–2561.
<https://www.acadpubl.eu/jsi/2018-118-19/articles/19b/69.pdf>
- Rodgers, R., Hunter, J. E., & Rogers, D. L. (1993). Influence of top management commitment on management program success. *Journal of Applied Psychology*, 78(1), 151–155. <https://doi.org/10.1037/0021-9010.78.1.151>
- Skowronski, J.J. (2011). *The positivity bias and the fading affect bias in autobiographical memory: A self-motives perspective*. (Alicke, M. D., & Sedikides C., Eds.). *Handbook of self enhancement and self-protection* (pp.211-233). Guilford Press.
- Stewart, G. L., & Nandkeolyar, A. K. (2007). Exploring how constraints created by other people influence intraindividual variation in objective performance measures. *Journal of Applied Psychology*, 92(4), 1149–1158.
<https://doi.org/10.1037/0021-9010.92.4.1149>
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193–210.
<https://doi.org/10.1037/0033-2909.103.2.193>
- Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual teams: Technology and the workplace of the future. *Academy of Management Executive*, 12(3), 17–29. <https://doi.org/10.5465/ame.1998.1109047>
- Ye, L. R. (2012). Telecommuting: Implementation for success. *International Journal of Business and Social Science*, 3(15), 20–29.
http://www.ijbssnet.com/journals/Vol_3_No_15_August_2012/4.pdf

APPENDICES

Appendix A: Recruitment Language Interviews

Manager Interviews – Informed consent for Participation in Research Activities

Due to your manager position at Stevens Institute of Technology, you are invited to participate in a research project about Performance Management in support of my role as a doctoral student at Vanderbilt University. You may have already received an email about an online survey.

This email is to request an interview that should take about 20-40 minutes to complete. If you are available to participate, please let me know your availability July 7 – July 16.

Thank you for your time supporting this study.
Nicole Malantchouk

Participation is voluntary, and responses will be kept anonymous to the degree permitted by the technology being used. You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with Stevens Institute of Technology. Confirmation to schedule an interview will be interpreted as your informed consent to participate and that you affirm you are at least 18 years of age.

If you have any questions about the research, please contact me, the Principal Investigator, via email at nicole.p.malantchouk@vanderbilt.edu or the faculty advisor, Dr. Christine Quinn Trank at chris.quinn.trank@vanderbilt.edu. If you have any questions regarding your rights as a research subject, contact the Vanderbilt Institutional Review Board (IRB) at (615) 322-2918

Appendix B: Interview Script

[First Name], Thank you for your participation in this research project about Performance Management.

Disclosures: Today's session will be recorded for purposes of transcribing the conversation. Your responses will be kept anonymous to the degree permitted by the technology being used. You have the option to not respond to any questions you choose. Your participation will not impact your relationship with Stevens. By attending today's session it will be interpreted as your informed consent.

A little bit about the research.... This capstone project seeks to understand the performance management practices at Stevens Institute of Technology and adaptations that need to be made for managers as campus adopts a flexible work arrangement. Basically "how do we help manager's assess performance of employees they cannot physically see?"

This project is a quality improvement assessment and is part of my culminating capstone project, the final step to my doctorate.

Any questions before we begin?

Manager Interview Questions

1. It's about that time of year again for the annual performance reviews, what are your goals as the manager?
2. What do you rely on as evidence that goals are achieved? And how about not achieved?
3. Tell me about your process in providing feedback to staff on goals achieved? Is that different from when goals are not achieved?
4. Tell me about how you think performance should be evaluated?
5. Do you have adequate information to make an assessment virtually?
6. What are indicators for additional training needs?

Appendix C: Recruitment Language Survey

Performance Management Survey

You are invited to participate in a research project about Performance Management. This electronic survey is 11 questions and should take less than 3 minutes to complete.

Participation is voluntary and responses will be kept anonymous to the degree permitted by the technology being used. You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with Stevens Institute of Technology. Submission of the survey will be interpreted as your informed consent to participate and that you affirm you are at least 18 years of age.

If you have any questions about the research, please contact the Principal Investigator, Nicole Malantchouk, via email at nicole.p.malantchouk@vanderbilt.edu or the faculty advisor, Dr. Christine Quinn Trank at chris.quinn.trank@vanderbilt.edu. If you have any questions regarding your rights as a research subject, contact the Vanderbilt Institutional Review Board (IRB) at (615) 322-2918.

Appendix D: Survey Instrument

Q1 Do you currently work remotely or on-campus?

Response should be based on majority of days per week. For example, if you work 3 days from home but are on-campus 2 days per week, select remote.

Remote

On-Campus

Q2 Do you expect to continue to work remotely or on-campus for Fall 2021 term?

Response should be based on majority of days per week. For example, if you work 3 days from home but are on-campus 2 days per week, select remote.

Remote

On-Campus

Q3 How many years have you worked for STEVENS?

0-5 years

6-10 years

11-15 years

16 years and up

Q4 Do you currently manage non-student staff?

Yes

No

Q5 Do you know where you stand with your manager [and] do you usually know how satisfied your manager is with what you do?

Rarely

Occasionally

Sometimes

Fairly often

Very often

Q6 How well does your manager understand your job problems and needs?

- Not a bit
- A little
- A fair amount
- Quite a bit
- Fully

Q7 How well does your manager recognize your potential?

- Not at all
- A little
- Moderately
- Mostly
- Fully

Q8 Regardless of how much formal authority your manager has built into his/her/their position, what are the changes that your manager would use his/her/their power to help you solve problems in your work?

- None
- Small
- Moderate
- High
- Very high

Q9 Regardless of the amount of formal authority your manager has, what are the chances that he/she/they would “bail you out” at his/her/their expense?

- None
- Small
- Moderate
- High
- Very high

Q10 How well does your manager recognize your potential?

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

Q11 How would you characterize your working relationship with your manager?

Extremely ineffective

Worse than average

Average

Better than average

Extremely effective