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DOT/FAA/AM-90/2

Office of Aviation Medicine
Washington, D.C. 20591

Management Assessment: Implications for Development and Training

AD-A219 178

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January 1990

Final Report

MAR 03 1990
OFFICE OF AVIATION MEDICINE
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C.

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1. Report No. DOT/FAA/AM-90/2		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle MANAGEMENT ASSESSMENT: IMPLICATIONS FOR DEVELOPMENT AND TRAINING		5. Report Date January 1990		6. Performing Organization Issue	
7. Author(s) Jennifer G. Myers, Ph.D.		8. Performing Organization Report No.		9. Contract or Grant No.	
10. Performing Organization Name and Address FAA Civil Aeromedical Institute P. O. Box 25082 Oklahoma City, OK 73125		11. Work Unit No. (TRIS)		12. Type of Report and Period Covered	
13. Sponsoring Agency Name and Address Office of Aviation Medicine Federal Aviation Administration 800 Independence Avenue, S. W. Washington, D. C. 20591		14. Sponsoring Agency Code		15. Supplementary Notes This work was performed under tasks AM-C-89-HRR-101 and AM-C-89-HRR-102.	
16. Abstract Training needs of first level, middle level, and upper level managers within the Federal Aviation Administration (FAA) were assessed through the analysis of two current agency surveys: the biennial Job Satisfaction Survey and the new, annual Survey-Feedback-Action Program. Areas of analysis included the identification of areas of strong and weak performance among managers, comparisons of perceptions of management at different levels within an organization, supervisory skills among managers, differences between ratings of male and female managers, and the relationship between responses to job context and management items. Results of the analyses indicated that the relative weak areas of performance among FAA management were in communication and performance management. Differences in perceptions of management among employees at different organizational levels suggested a need for additional study of potentially dysfunctional communication patterns in large facilities to enhance development of training in communication skills. Integration of these results with the study of mid-level managerial functions and competencies is also necessary for application to training. The job satisfaction surveys served to provide a first step toward improved systematization of management development and training in the FAA.					
17. Key Words Management, training, needs assessment			18. Distribution Statement Document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 13	
22. Price					

MANAGEMENT ASSESSMENT: IMPLICATIONS FOR DEVELOPMENT AND TRAINING

INTRODUCTION

A recent survey of United States corporations found that only 27% of those companies responding conducted training needs assessments for their managers, and that the large majority of the companies focused their needs assessment at the first level supervisor (Saari, Johnson, McLaughlin, & Zimmerle, 1988). Even without the benefit of a systematic assessment of training and development needs, almost all of the companies reported that some type of management training program was being used. Like many of the companies that were surveyed in the Saari et al. (1988) study, the Federal Aviation Administration (FAA) has developed and maintained management training programs without truly systematic data on training and development needs. Recently, however, the FAA made a long term commitment to improve management development and training beginning with 1) assessing management development and training needs, 2) examining current management development and training programs, and 3) determining the management skills needed to ensure that the FAA is ready to meet the challenges of the future National Airspace System. This paper will focus on the results of the needs assessment and the implications for management development and training.

The assessment of training and development needs can be accomplished in a number of ways. Basic methods for collecting needs assessment information include interviews, surveys, observations, focus groups, and examination of documentation on job tasks. Typically, data collection focuses on self-assessments of training needs or assessments by supervising managers. In this study, results from two surveys - one used to assess facets of job satisfaction and the other a subordinate appraisal of managers and first level supervisors - were used to identify areas of performance that could be improved through development and training programs.

Data from the FAA's biennial Job Satisfaction Survey (JSS) and the new Survey-Feedback-Action Program (SFA) served as the basis for assessing the training and development needs of managers within the FAA. The responses of 5,088 FAA employees to the 1988 administration of the JSS were used in the data analysis. These responses represented a proportionally stratified sample of occupational groups within each of nine national regions and random samples of employees from the Aeronautical Center, Technical Center, and National Headquarters. The response rate was sufficient to achieve a bound on the error of estimation of between 1% and 5% for each of the organizational groups examined.

The JSS contained 142 questions regarding attitudes toward and satisfaction with aspects of the job, such as supervision and Federal issues, with an additional 13 questions on demographic characteristics and organizational location. Overall satisfaction with the job was assessed by a single global item. Scales that depicted different aspects of organizational climate were identified by factor analysis and item analysis.

The SFA questionnaire was administered to all FAA employees in February 1989. Over 37,00 individuals returned their questionnaires from a total agency population of approximately 48,000. The questionnaire contained 37 items; eight items regarding the context in which the job is performed, six items on the manager of the employee's organization, and 23 items on the employee's immediate supervisor. The names of the manager and supervisor were printed on the questionnaire and



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distributed to the appropriate subordinates for responding. Factor analysis confirmed the existence of two scales, a Management scale and a Supervision scale. Results from the SFA were generated for the major organizational groups and field occupations.

RESULTS AND DISCUSSION

Strengths and Weaknesses. The five items with the highest percentage of positive responses (relative strengths) and the lowest percentage of positive responses (relative weaknesses) for managers in each organizational group were identified from the JSS and SFA. The SFA item, "Assures that supervisors and managers in this organization do a good job both in managing people and in getting the job done" received the lowest percentage of positive responses from employees in all organizational groups except for one. The highest percentage of positive responses for all organizational groups occurred for the SFA item, "Encourages honesty and openness at all levels."

Strengths and weaknesses were further examined using the JSS because of its greater number of items pertaining to attitudes toward management. Agency-wide, the highest percentage of positive responses occurred for the item regarding "Clearly established lines of authority and responsibility." Other management strengths included: "Authority and responsibility is appropriately shared," "Employee Participation Groups expressed concerns to management," and "Sensibly organized work activities." There were some slight deviations from this national pattern of results for several of the organizational groups. For example, "Opportunities for training" was considered a strength among agency personnel in National Headquarters and regional staff offices, but not among field personnel.

Relative weaknesses of management identified through the JSS included issues related to policies and practices that encourage hard work, perceived discrepancies in formal and informal procedures for promoting and rewarding employees, and the extent of management action in response to the results of the 1986 JSS. Approximately half of the organizational groups also identified the management of conflict as an area in need of improvement. The items included under the "Agency and Change" section on the JSS also provided clues to the weaknesses and strengths of management. In general, management received relatively few positive responses regarding 1) the degree to which they solicit employee feedback before and after organizational change and 2) the amount of information provided to employees regarding the effect of organizational change. In fact, most of the items in this factor received positive responses from less than half of the sample. The primary exceptions were "Agency successful in performing its mission" and "Agency policies and procedures are helpful" (see Table 1).

Perceptions of Management at Different Organizational Levels. Level 4 and 5 air traffic towers and en route facilities have several levels of supervision within their organizations. Ratings of management by employees in staff, first level supervision, and operational positions were compared using the SFA Management Scale. In the en route option, ratings for the facility managers were significantly different among the groups ($F=55.87$, $df=2,4378$, $p<.001$). Post hoc tests showed that operational controllers gave the lowest ratings to management ($X=3.14$). Employees in staff positions gave the highest ratings ($X=3.60$), with ratings by first level supervisors ($X=3.38$) in between these two groups. The difference between the hierarchical levels within Level 4 and 5 tower facilities was statistically significant ($F=29.24$, $df=3,5247$, $p<.001$) and showed a pattern essentially identical to that of the en route facilities (operational controller $X=3.31$, first level supervisor $X=3.54$, satellite tower manager

X=3.55, staff X=3.78). The same pattern of responding among the groups was apparent in the percentage of positive responses given to each Management item (see Table 2).

TABLE 1. - JSS MANAGEMENT FACTOR STRENGTHS AND WEAKNESSES

Management Factor - Strengths

	Positive Responses
Clearly established lines of authority and responsibility	78.6%
Employee Participation Groups expressed concerns to management	71.3%
Work activities are sensibly organized	65.9%
Organization encourages suggestions from employees	65.0%
Authority and responsibility is appropriately shared in organization	64.8%

Management Factor - Weaknesses

	Positive Responses
Management acted on 1986 survey	50.8%
Promotions are given to the best qualified	50.3%
Conflicts are managed, rather than avoided	50.2%
Rewards or recognition given for good performance	49.9%
Best qualified are selected for supervisory positions	49.9%
Policies, practices, or conditions encourage hard work	47.1%

Agency and Change Factor - Strengths

	Positive Responses
Agency successful in performing its mission	78.4%
Agency policies and procedures are helpful	76.4%
Kept informed about what is happening in the agency	57.1%
Agency changes agree with initial information received	54.6%

Agency and Change Factor - Weaknesses

	Positive Responses
Positive change toward managing people	43.7%
Agency takes into account the impact of change on employees	43.1%
Receive sufficient information on the effect of the changes	42.6%
Agency seeks feedback about proposed organizational change	35.9%
Agency seeks feedback after organizational changes	35.0%

**TABLE 2. - RESPONSES TO MANAGEMENT ITEMS
BY EMPLOYEE ORGANIZATIONAL LEVEL**

	EN ROUTE			TOWER			
	STAFF	SUPV	ATCS	MGR	STAFF	SUPV	ATCS
MANAGEMENT INDEX	62.1	55.5	44.9	59.1	70.8	62.7	49.6
SUPS/MGRS MANAGE PEOPLE/JOB	55.8	54.6	35.4	56.9	62.2	56.7	41.4
DECISIONS CONSIDER JOB/EMP	62.8	52.8	46.0	54.0	70.2	60.6	45.8
PAYS ATTENTION TO MY IDEAS	60.2	49.3	43.3	54.7	77.3	61.9	48.7
ENCOURAGES HONESTY/OPENNESS	69.7	62.3	53.0	65.8	70.4	71.6	59.5
COMMUNICATES GOALS/OBJS	63.2	62.2	50.9	59.2	72.5	64.6	53.0
EFFECTIVE COORDINATION	59.1	50.7	40.5	58.6	70.4	62.2	50.0
PERCENTAGE OF POSITIVE RESPONSES							

Satisfaction with management as measured on the JSS was compared for five different organizational levels of employees, from nonsupervisors to associate administrators. Overall, the higher the organizational level of the employee, the greater the satisfaction with the next level of management ($F=35.29$ $df=4,4914$, $p<.001$). Mean ratings of management from each organizational level were: 1) nonsupervisors $X=2.86$, 2) first line supervisors $X=3.13$, 3) second level or higher supervisor $X=3.46$, 4) branch/facility/sector manager $X=3.64$, 5) division manager or regional, service/office director and higher $X=3.90$.

Perceptions of Management by Field and Regional Office Personnel. A comparison of ratings of regional division managers on the SFA Management Scale by their subordinate office and field employees was conducted for Airway Facilities, Flight Standards, and Air Traffic organizational groups. A statistical difference was not found between field and regional office subordinate ratings of Airway Facilities regional division managers. Flight Standards field managers rated their division manager significantly lower ($X=3.51$) than did regional office employees ($X=3.69$; $F=5.03$, $df=1,574$, $p<.05$). Air traffic division managers were also rated differently by their regional office and field subordinates ($F=4.4015$, $df=4,1714$, $p<.01$). Post hoc tests demonstrated that regional office personnel gave significantly higher ratings ($X=3.88$) to division managers than did FSS/AFSS ($X=3.61$) and Level 1-3 tower personnel ($X=3.61$). No other air traffic groups were significantly different from each other. In examining the percentage of positive responses to each Management Scale item, notable differences were found between regional office and field subordinates' responses to "Pays attention to my ideas." Fewer field personnel gave positive responses to that item than did regional office employees in each of the organizational groups (see Appendix A).

Managers as Supervisors. Individuals who were rated on the supervisor items on the SFA represented a variety of levels of management. For example, those rated on supervisory skills ranged from first level supervisors with three subordinates to division managers with over 100 employees. Managers, assistant managers, and supervisors were compared on the SFA Supervisor Scale score using a one-way analysis of variance. The differences in average scores between the levels of

management were statistically significant ($F=33.17$; $df=2,34049$; $p<.001$). Duncan's Multiple Range Test showed that managers' average scores ($X=3.80$) were significantly different from those of supervisors ($X=3.69$) and assistant managers ($X=3.69$). The means of the latter two groups did not differ significantly from each other. Managers were rated positively by a higher percentage of employees on each of the supervisor items than were assistant managers or first level supervisors. However, those items receiving the lowest percentage of positive responses for each of the groups were quite similar and generally dealt with performance management issues (see Appendix B).

A one-way analysis of variance was conducted to determine differences between subordinate ratings of male and female managers. Female managers received lower ratings ($X=3.36$) on the Management Scale than did male managers ($X=3.38$; $F=3.26$, $df=1,31160$, $p<.05$). However, the *practical* difference between the ratings is insignificant. As shown in Figure 1, the percentage of positive responses to each management item is essentially the same for males and females.

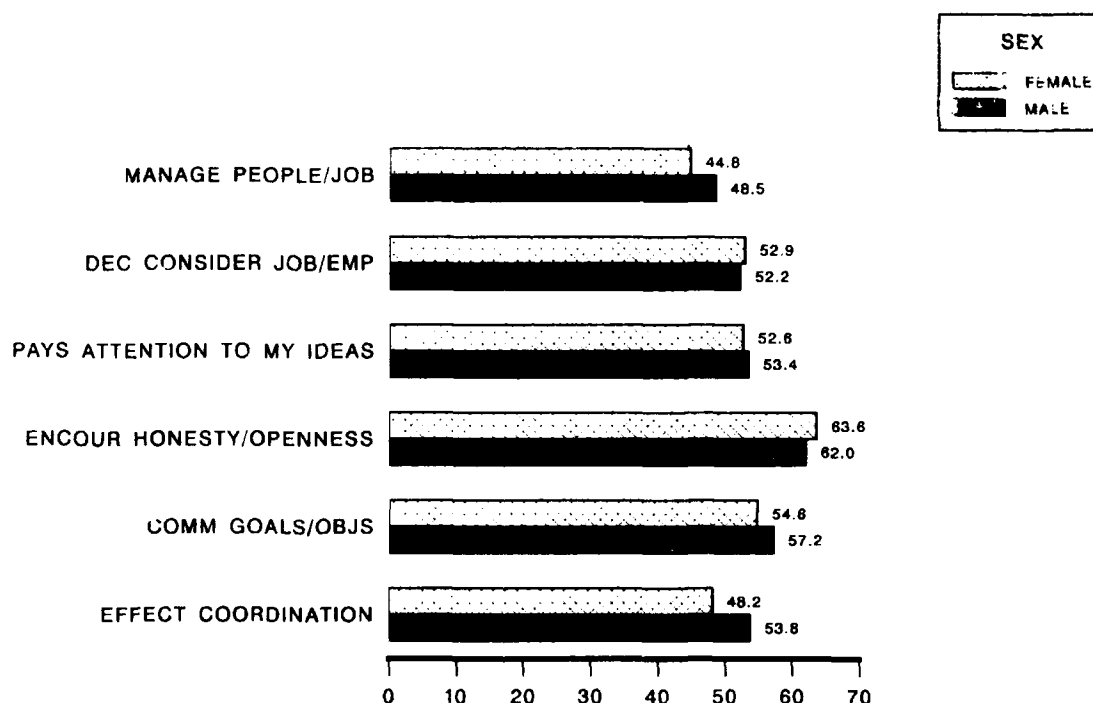


Figure 1. Percentage of Positive Responses to Management Items for Males and Females

Management Influence on the Job Context. Pearson correlations were computed between SFA items that assessed responses to the context in which the job is performed and management items. Overall, small but significant correlations were found between all the items. The largest correlations were between the management items and the perceived interference of local policies and procedures with doing the job well. The item dealing with the acceptability of the amount of overtime worked showed the smallest correlations with the management items (see Table 3).

**TABLE 3. - CORRELATIONS BETWEEN
JOB CONTEXT AND MANAGEMENT ITEMS**

	Sups/Mgrs manage people/job					
	Decisions consider job/employees					
	Pays attention to my ideas					
	Encourages honesty/openness					
	Communicates goals/objectives					
	Effective coord					
Adequate training	28	24	24	23	26	26
Work related to mission	29	27	27	27	30	29
Adequate resources	32	29	26	23	27	30
Local policies/procedures	43	41	38	37	36	38
Region/natl policies	26	24	23	21	23	26
Amount of overtime	18	18	18	17	17	18
Adequate time off	28	27	26	25	25	26
Working conditions	28	25	23	22	25	25

* all correlations statistically significant at $p < .001$

CONCLUSIONS

The differences found among organizational levels in their ratings of management in the large air traffic field facilities suggested that upward and downward communication and control of information are areas in need of improvement among FAA managers. The intra-organizational assessments afforded by the analysis of the SFA survey suggested that management needs to improve communications with different levels of their organizational constituency. Similar weaknesses in communication might also underlay the relatively few positive responses to issues in soliciting and providing feedback on organizational change identified in the JSS. In addition, the relationships between perceptions of management and the interference of local policies and procedures in accomplishing the job might be moderated by communicating the necessity for certain policies and/or reasons for instituting specific procedures. The comparison of regional office and field employees pointed to the need for division managers to acknowledge and integrate information or ideas from field personnel into their decision-making. Although a majority of employees felt the division manager encouraged honest and open communication, relatively fewer employees felt that the upward flow of information was being heeded.

The results also showed that performance management skills constitute a relative weak area for managers. Although managers were rated higher than first level supervisors on supervision skills assessed in the SFA, they were similar to supervisors in their relative strengths and weaknesses. Similarly, the JSS revealed management weaknesses in the areas of employee development, performance feedback, and human resource utilization.

RECOMMENDATIONS

The identification of communication problems in analyses of both of the surveys served to confirm the need for management training in this area. The development of training to correct deficiencies in communication skills could be further refined by additional study in several areas. Examining communication patterns in large facilities (e.g., en route centers) or large geographic areas (e.g., Airway Facilities sectors) under a single manager could help identify dysfunctional patterns that

could be corrected by onsite training. These identified "risk" areas could also be incorporated into training for new managers. Skill areas to be trained might include techniques for identifying information important to employees, methods for confirming the accuracy of receipt of information by different levels of employees, and identifying and resolving obstacles to communication flow.

The information on management development and training needs derived from the surveys should also be integrated with the study of mid-level managerial functions and competencies recently conducted for the FAA (Human Technology, Inc., 1989). The linkages between functions and competencies can help identify the content and structure of training to address needs determined by the present study. For example, Communication was an identified competency that was linked to the performance of all the managerial functions in the study conducted by Human Technology, Inc. Functions could be reviewed to determine where the types of communications problems identified by the current study might occur. Training scenarios could then be developed to address those current or potential problems. The identified need for training in performance management in the analysis of surveys could be similarly addressed by focusing on the competencies associated with performance of the Supervision and Human Resource Administration functions.

The use of the job satisfaction surveys for identification of management training and development needs provided an alternative to more traditional techniques of training needs assessment. However, the analyses described here should be supplemented with self-assessments of training needs as well as a review of operating issues that affect management effectiveness and subsequently influence job satisfaction. The combination of these assessments will provide a complete picture of the training and development needs of managers. Given the relative lack of other systematic information on management training needs, the analysis of current surveys already in use provide a first step toward improved systematization of management development and training in the FAA.

REFERENCES

- Human Technology, Inc. (1989). Refined FAA managerial performance model: Validated function/KSA linkages. Unpublished report: author.
- Saari, L.M., Johnson, T.R., McLaughlin, S.D., & Zimmerie, D.M. (1986). A survey of management training and education practices in U.S. companies. *Personnel Psychology*, 41, 731-743.

Appendix A

RATINGS OF AIRWAYS FACILITIES DIVISION MANAGERS BY REGIONAL OFFICE AND FIELD EMPLOYEES

ITEM	REG OFFICE	FIELD
MANAGEMENT INDEX	67.9	67.1
SUPS/MGRS MANAGE PEOPLE/JOB	64.3	63.8
DECISIONS CONSIDER JOB/EMP	67.7	64.1
PAYS ATTENTION TO MY IDEAS	71.3	62.9
ENCOURAGES HONESTY/OPENNESS	72.8	70.5
COMMUNICATES GOALS/OBJS	68.1	72.8
EFFECTIVE COORDINATION	64.9	65.2
PERCENTAGE OF POSITIVE RESPONSES		

RATINGS OF FLIGHT STANDARDS DIVISION MANAGERS BY REGIONAL OFFICE AND FIELD EMPLOYEES

ITEM	REG OFFICE	FIELD
MANAGEMENT INDEX	65.9	58.6
SUPS/MGRS MANAGE PEOPLE/JOB	57.9	54.3
DECISIONS CONSIDER JOB/EMP	62.6	50.8
PAYS ATTENTION TO MY IDEAS	65.8	54.4
ENCOURAGES HONESTY/OPENNESS	70.4	67.1
COMMUNICATES GOALS/OBJS	66.7	65.5
EFFECTIVE COORDINATION	68.2	55.9
PERCENTAGE OF POSITIVE RESPONSES		

RATINGS OF AIR TRAFFIC DIVISION MANAGERS BY REGIONAL OFFICE AND FIELD EMPLOYEES

ITEM	REG OFFICE	EN ROUTE	TOWER L.1-3	TOWER L.4-5	FSS
MANAGEMENT INDEX	72.8	65.0	60.6	67.1	62.8
SUPS/MGRS MANAGE PEOPLE/JOB	71.8	61.1	55.9	67.0	62.5
DECISIONS CONSIDER JOB/EMP	72.5	61.6	59.4	67.8	59.0
PAYS ATTENTION TO MY IDEAS	72.3	57.4	51.8	60.9	51.7
ENCOURAGES HONESTY/OPENNESS	75.0	75.8	64.6	74.8	67.1
COMMUNICATES GOALS/OBJS	69.3	67.9	66.9	68.3	67.0
EFFECTIVE COORDINATION	75.1	62.3	59.1	62.6	63.2
PERCENTAGE OF POSITIVE RESPONSES					

Appendix B

RELATIVE WEAK AREAS IN SUPERVISORY SKILLS

MANAGER

	POS RESPONSES
MOTIVATES ME TO DO MY BEST	57.9%
GOOD PERFORMANCE MANAGEMENT	63.5%
HELPS FIND WAYS TO DO JOB BETTER	64.1%
MAKES CLEAR, SOUND, TIMELY DECISIONS	64.7%
HELPS OVERCOME OBSTACLES TO JOB	66.0%

ASSISTANT MANAGER

	POS RESPONSES
MOTIVATES ME TO DO MY BEST	51.1%
HELPS FIND WAYS TO DO JOB BETTER	57.4%
GOOD PERFORMANCE MANAGEMENT	58.4%
MAKES CLEAR, SOUND, TIMELY DECISIONS	60.1%
HELPS OVERCOME OBSTACLES TO JOB	61.2%

FIRST LEVEL SUPERVISOR

	POS RESPONSES
MOTIVATES ME TO DO MY BEST	52.5%
HELPS FIND WAYS TO DO JOB BETTER	60.5%
GOOD PERFORMANCE MANAGEMENT	60.8%
GIVES THINKING BEHIND DECISIONS	60.8%
MAKES CLEAR, SOUND, TIMELY DECISIONS	61.6%

Appendix B (continued)

RELATIVE STRONG AREAS IN SUPERVISORY SKILLS

MANAGER

	POS RESPONSES
TREATS PEOPLE FAIRLY	81.4%
ENCOURAGES HONEST AND OPEN COMMUNICATION	78.5%
ASKS FOR/CONSIDERS MY IDEAS ABOUT WORK	76.7%
SUPPORTS SKILL DEVELOPMENT	76.1%
CLEAR EXPECTATIONS	75.7%

ASSISTANT MANAGER

	POS RESPONSES
TREATS PEOPLE FAIRLY	80.8%
ENCOURAGES OPEN AND HONEST COMMUNICATION	75.0%
ASKS FOR/CONSIDERS MY IDEAS ABOUT WORK	72.9%
SINCERELY LISTENS	72.5%
CLEAR EXPECTATIONS	69.9%

FIRST LEVEL SUPERVISOR

	POS RESPONSES
TREATS PEOPLE FAIRLY	78.4%
ENCOURAGES HONEST AND OPEN COMMUNICATION	74.3%
CLEAR EXPECTATIONS	74.1%
SINCERELY LISTENS	71.9%
DISCUSSES PERFORMANCE HONESTLY	71.8%