Dimensionality of Supervisory Role on Employees Performance in Manufacturing Organisations in Nigeria

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Abstract—This paper focused on three variables investigating interactions with the dependent variable of level of supervisory duty experience of workers.

The extent to which business organizations empower their managers is encapsulated in the manner in which the supervisor’s roles are designed and structured. Supervisory role logically derived from supervision is described as a term from the world of formal management and hierarchical systems.

Index Terms—business organizations, Employees Performance.

I. INTRODUCTION

Supervisors are the agents of the organization (Bhate, 2013). As such, they are responsible for monitoring the performance of their subordinates, conducting periodic assessments of their subordinates’ work, and giving feedback to enhance their subordinates’ contributions and commitment to the organization (Bhate, 2013). Given recent transformations within work organizations, supervisory roles in the workplace are expected to assume even greater importance for worker careers paths and progression over time (Hiscott, 2008). Accepting one or more supervisory duties in the workplace may potentially reduce negative consequences for workers associated with “career blockage”, or may reduce the risk of reaching a “professional plateau” in the course of a career, as new responsibilities would help workers to develop additional skills to remain employable, marketable and current in their occupations or professions (Foot and Venne, 1990, Rothman, 1998, Lee, 2002). Therefore, it is natural for employees to interpret their interactions with their supervisors as indicators of the organization’s judgment of their work and career promise.

Bhate (2013) defined supervisor support as the extent to which leaders value their employees’ contributions and care about their well-being. The managerial responsibilities of the supervisors is dictated by the organizational structure to appropriately work the employees, help them to do well and to help them enjoy doing well. The extent to which business organizations empower their managers is encapsulated in the manner in which the supervisor’s roles are designed and structured. Supervisory role logically derived from supervision is described as a term from the world of formal management and hierarchical systems.

Supervisors assume some types of authority based on the ability to influence rewards and punishments (Miner &Luchsinger, 1985). Supervisory roles embody activities that reflect standards, norms, competencies, skills, performance and productivity (Lee, 2002). There it is impossible to discuss new processes or strategies without first erecting a strong functional relationship that directs the various tiers that make up the management hierarchy.

A. Statement of Problem

Today’s organizations are complex. Some of the complexity is due in part to a more culturally diverse workforce than ever before; molding a productive team out of a mix of full-timers, part-timers, “temps,” and contract workers; and implementation of quality and productivity programs such as: ISO certification and six sigma, JIT and lean manufacturing, and organizing work using self-directed teams. To meet all the challenges inherent in the complexity of modern organizations, the role of the front-line supervisor has changed dramatically.

It has been found that supervisors face a lot of hurdles while trying to implement the company policies. These include interpersonal relationship, workforce diversity, role definition in the management process and workforce low morale. There is no clear-cut outcome about the impact of these variables on the quality of supervision in the organization. Dealing with these variables in a less arbitrary expression tends to depict an environment of work that is characterized with varied forms of dimensionality.

II. LITERATURE REVIEW

Supervision of system is one of the several techniques employed in achieving organisations’ objectives, Nwaogu (1980) defined supervision of instruction as a process or an activity by which an individual or a group or team of individuals, by means of advising and stimulating interest in employees, help to improve working situations and performance in manufacturing organisations. According to Harris (1995), supervision is directed towards both maintaining and improving the performance of employees at workplace. In the words of Rettig (2000), supervision is an organised behaviour system, which has the function of interacting with the working behavior system for the purpose of improving the productive situation of workers. Adewumi (2000) remarked that behaviour of supervisor is assumed to be related to the improvement of workers’ performance. In Nigeria, there has been a critical analysis on what supervisory roles should be. Omorogie (2002) saw supervision
in organisation as an internal process (micro-inspection). He opines that micro-inspection concerns itself with regular resources utilization and processes in an organisation and the maintenance of lines of action that promote productivity.

A. Concept of Supervision and Motivation in Organisations

The supervision means instructing, guiding, monitoring and observing the employees while they are performing jobs in the organization (Samiksha, 2011). The word supervision is the combination of two words, i.e., supervision where super means over and above and vision means seeing. So, supervision means seeing the activities of employees from over and above. According to Samiksha (2011) Supervisor play two important roles which are the role of mediator or linking pin and role of a guide. Samiksha (2011) explained that supervisor plays the role of linking pin as he communicates the plans, policies, decisions and strategies of management to subordinates and complaints, grievances and suggestions of subordinates to management. Further he pointed that whenever subordinates are in doubt and need help the supervisor guides them to come out from their problematic situations.

Cliff (2008) pointed that developing and maintaining effectiveness as a supervisor is foundational to becoming a leader. It is impossible to be a good leader without being a good supervisor or manager. Those who become leaders without first becoming supervisors must ultimately learn management skills such as setting priorities, learning to delegate, and applying other principles and techniques (Cliff, 2008). They must do these things to free themselves to lead. Many supervisors become bogged down with administrative details that they do not have time to put more leadership into their management styles, denying themselves the opportunity to move up the ladder to higher management/leadership positions. The better you are as a supervisor, the more freedom you will have to lead. Cliff (2008) reiterated that although most people are in middle- or upper-management positions before they have had the opportunity to stretch their leadership “wings,” it can all start at the supervisory level. It is the combination of management and leadership that usually creates upward mobility.

Human motivation is a complex phenomenon. Management expects employees to be motivated towards increased production by providing incentives. Berelson (1964) defines motivation as inner state that energizes, activate a person and direct his behaviours towards goals. Beach (1975) defines it as the willingness to expend energy to achieve a goal or reward. In providing a more descriptive definition of motivation, Robbins (1982) asserts that the term motivation is the willingness to do something and it is conditioned by those action and ability to satisfy some needs for the individual. An unsatisfied need creates tension which stimulates desire within the individual. These drives generate search behaviour to find particular goals that if attained, satisfy the need and lead to the reduction of tension. Unmotivated employees are in a state of tension. In order to relieve this tension, they engage in activity.

B. Dimension of Workplace Supervisory Roles: Experiences of Nigeria Workers

Recent transformations across a wide range of contemporary work organizations are evident in flattened hierarchies with fewer levels of graded authority, reduced ranks of middle managers and smaller core workforces (Foot and Venne, 1990; Leicht, 1998; McBrier and Wilson, 2004). Given such transformations, it is reasonable to expect an increasing proportion of regular full-time workers to assume supervisory roles in the workplace, as evolving organizational demography dictates revised divisions of labour with many such responsibilities being assigned to non-managers. Accordingly, the specific form/content and span of control of supervisory responsibilities will likely become even more important for the career development and progress of large numbers of workers. An analysis of specific dimensions of supervisory duties is essential since position or job titles may not accurately reflect the actual supervisory roles of workers (Pergamit and Veum, 1999; Rosenfeld, Van Buren and Kalleberg, 1998; Rothstein, 2001). Beyond this, the four dimensions were combined into a basic supervisory duty experience scale to distinguish broad levels of experience (from none to high). Significant bivariate and trivariate interaction effects were also explored through percentage tables to reveal the complexity of these associations.

C. Supervisory Roles in the Contemporary Workplace

Previous empirical research has documented considerable numbers and proportions of workers assuming supervisory roles in the workplace, especially in terms of supervising the work of others (Jacobs, 1992; Rothstein, 2001; Pergamit and Veum, 1999, Rosenfeld, Van Buren and Kalleberg, 1998, Maume, 2006). While employee-oriented supervision may represent only one of many possible skill dimensions associated with management work, supervising other workers represents a common and important dimension of supervisory responsibilities in the modern workplace (Schippman, Prien and Hughes, 1991). Yet this form of duty is often distinct from managerial or true decision-making authority within the workplace (Rosenfeld, Van Buren and Kalleberg, 1998; Rothstein, 2001; Smith, 2002). Rothstein (2001) found large percentages of workers reported supervising the work of others, but much lower proportions of these same workers indicated that they had full responsibility for setting pay or determining promotions of subordinate workers, leading him to conclude that control over pay and promotions likely represents “…a higher grade of responsibility than control over their job tasks, and may be associated with a higher rung on the job ladder.” Beyond supervising other workers, this research explores three other supervisory duty dimensions, including influencing budget and staffing, influencing pay and promotions, and deciding work for others. Together, these four dimensions of supervisory responsibility represent useful indicators of the scope of supervisory experiences of workers in the modern workplace.

Assuming supervisory roles in the workplace is consistent with the emergence of the “boundaryless career”, which highlights individual worker accountability for career
development and progress in an era of downsized organizations and flattened hierarchies (Arthur, Khatova and Wilderom, 2005). It is also consistent with emerging “spiral career trajectories” entailing multiplicative changes and fewer upward moves within flattened work organizations, supplanting traditional linear career paths of upward status mobility via formal promotions in the workplace. Assuming supervisory responsibilities may alter workers’ subjective assessment of “career plateau” reflected in their perceived prospects for advancement within an organization (Nachbagger and Riedl, 2002). Further, numerous authors affirmed that taking on supervisory duties in the workplace may reduce the destruction of individual worker “human capital” (experience within a given occupation or industry) ensuing from high levels of occupational/industrial mobility and may reduce the negative economic consequences associated with high external mobility overtime (Dwyer, 2004; Le Grand and Tåhlin, 2002; Kambourov and Manovskii, 2004).

D. Factors Influencing Supervisory Responsibility Experiences

This analysis focused on three important factors expected to influence the supervisory responsibility experiences of Nigerian workers – gender, attainment of university-level education, and initial occupational sector of employment. Beginning with gender effects, previous research has documented that female workers are less likely to assume supervisory duties relative to their male counterparts, and also less likely to attain higher levels of supervisory responsibility (Jacobs, 1992; Rothstein, 2001; Smith, 2002; Maume, 2006). Despite the trend of growing female employment in a range of traditional male-dominated professional and managerial occupations, there remains a high degree of gender occupational segregation in post-industrial labour markets which limit career advancement opportunities for females to positions of authority in the workplace (Hughes, 1995; Cooke-Reynolds and Zukewich, 2004). “Glass ceiling” effects continue to limit female workers’ success in terms of workplace authority level, with relatively few women attaining senior management positions (Jacobs, 1992; Smith, 2002). Smith (2002) identified gender differences in workplace authority as a significant source of gender inequality, arguing that “the relative location of men and women within the structure of the economy, and their proportional representation within such structures, account for more of the gender gap in authority than the human capital attributes of workers”.

Hypotheses I

It is hypothesized this paper that female workers would be more likely to report no supervisory duty experience in the workplace over years relative to their male counterparts. Conversely, male workers are hypothesized to exhibit “high” levels of supervisory duty experience (significantly at least some experience on all four duty dimensions over time), relative to female workers.

According to Banjoko (2006) the human capital model is a useful perspective for interpreting and understanding supervisory responsibility experiences of workers over time. Personal investments in human capital (such as university education) impact employment outcomes (such as occupational sector), which in turn can influence the likelihood of attaining supervisory roles in the workplace. Canary and Canary (2006) found that within personal career narratives of supervisors, most interviewees identified individual-level determinants of educational training as contributing to their career development and impacting one or more career moves over time. Smith (2002); Metz and Tharenou (2001) previous researches have demonstrated that personal investments in different forms of human capital (including education, training and development, career tenure, and hours of work) enhances prospects for attaining supervisory authority in the workplace.

Hypotheses II

For the present paper, it was hypothesized that workers with any university-level education would be more likely to report ‘high’ levels of supervisory duty experience, while those without any university education would be more likely to have no supervisory duty experience over the years.

Occupational sector of employment was used in this analysis as a basic indicator of occupational status within the labour force, broadly distinguishing management, professional, white collar and blue collar occupations. Previous empirical research has not specifically explored the relationship between occupational sector and supervisory duty experience in the workplace, although hypotheses were articulated drawing on an understanding of the content of each of these broad sectors.

Hypotheses III

For this paper, it was hypothesized that workers initially employed in the management or occupational sector would be most likely to exhibit ‘high’ levels of supervisory duty experience over time, given the obvious linkage between managerial authority and supervisory roles in the workplace. Second, workers initially employed in professional occupational sectors (such as natural and applied sciences, social sciences and related, and health occupations sector) were hypothesized to be more likely to report ‘high’ levels of supervisory duty experience. Third, workers from white collar (sales and service) and blue collar occupational sectors were hypothesized to be most likely to have no supervisory duty experience over time. While there are many other factors which may influence or impact supervisory responsibility experiences over time.

III. RESEARCH METHODS

The research methodology employed was analysis of longitudinal survey data from the manufacturing labour force in Nigeria. This is a national survey collected 5 manufacturing organizations in Nigeria. Statistics Nigeria, designed and stratified to be broadly representative of the Nigerian manufacturing labour force.

This paper concentrated on these three variables investigating interactions with the dependent variable of level
of supervisory duty experience of workers. Beyond testing hypothesized relationships between each of these three influencing factors (gender, university education and occupational sector) and the level of supervisory duty experience of workers over time, trivariate interactions involving pairs of factors and the dependent variable of supervisory duty experience were also explored. Although formal hypotheses were not specified for trivariate interactions, it was generally expected that the nature and strength of associations between gender and supervisory duties, and university education and supervisory duties, would be mediated by occupational sector. Multivariate log-linear modelling techniques were applied to statistically prioritize relationships, accompanied with interpretation of specific associations found within both bivariate and trivariate percentage tables.

A. Data Analysis

Given sample size limitations, it was not practical to examine each of the 64 distinct permutations representing stability and mobility in supervisory duty experiences, so permutations were collapsed into a smaller set of logically-coherent categories reflecting broader patterns. The collapsed supervisory experience scales were anchored by two stable end categories of no experience and continuous experience over time. Intermediate scale categories represented different forms of mobility including being promoted to the duty, demoted from the duty, and a residual category for various forms of irregular or mixed mobility. The constructed supervisory duty experiencescale represents a continuum of the form and extent of supervisory experience on each of these four dimensions, depicting both stability and mobility inexperience, and trends over time (promotion, demotion and irregular patterns). The supervisory duty experiencescales are presented in result of the study for each of the four duty dimensions.

IV. RESULT OF ANALYSIS

Conversely, only about a third of the population had experience with influencing budget and staffing or pay and promotions, duties which are typically associated with more senior managerial occupations. At the other end of the continuum, continuous supervisory experience over the six-year period ranged from about one in 31 workers influencing budget and staffing, to about one tenth workers supervising others.

Table 1: Summary of Pearson Product Moment Correlation Coefficient of Female workers Supervisory Duty Experience and Male Workers Supervisory Duty Experience

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>r-cal</th>
<th>r-crit</th>
<th>Sig</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female workers supervisory duty experience</td>
<td>400</td>
<td>35.92</td>
<td>3.45</td>
<td>132</td>
<td>0.68</td>
<td>0.312</td>
<td>0.05</td>
<td>H&lt;sub&gt;0&lt;/sub&gt; Rejected</td>
</tr>
<tr>
<td>Male workers supervisory duty experience</td>
<td>400</td>
<td>38.34</td>
<td>3.57</td>
<td></td>
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<td></td>
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</tbody>
</table>

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 1 shows that a calculated r-value of 0.68 resulted as the relationship between Female workers supervisory duty experience and male workers supervisory duty experience. This calculated r-value of 0.68 is significant since it is greater than the critical r-value of 0.31 given 132 degrees of freedom at 0.05 level of significance. Null hypothesis is rejected; hence, male workers exhibit ‘high’ levels of supervisory duty experience (signified by at least some experience on all four duty dimensions over time), relative to female workers.

These two end categories of no experience and continuous experience represent true stability on these supervisory duty dimensions (no change over time). In total, these two categories accounted for between half of workers (51.8 percent) for supervising others, to over two thirds (71.1 percent) for influencing pay and promotions.

Table 2: Summary of Pearson Product Moment Correlation Coefficient of Workers with university-level education and levels of supervisory duty experience

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>r-cal</th>
<th>r-crit</th>
<th>Sig</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers with University Level Education</td>
<td>400</td>
<td>51.84</td>
<td>3.11</td>
<td>146</td>
<td>0.78</td>
<td>0.402</td>
<td>0.05</td>
<td>H&lt;sub&gt;0&lt;/sub&gt; Rejected</td>
</tr>
<tr>
<td>Levels of Supervisory Duty Experience</td>
<td>400</td>
<td>60.21</td>
<td>2.73</td>
<td></td>
<td></td>
<td></td>
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</table>

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 2 shows that a calculated r-value of 0.78 resulted as the relationship between workers with university-level education and levels of supervisory duty experience. This calculated r-value of 0.78 is significant since it is higher than the critical r-value of 0.40 and 146 degrees of freedom at 0.05 level of significance. This led to the rejection of null hypothesis which implies that Workers without any
university education would be more likely to have no supervisory duty experience over years.

Conversely, between 28.9 and 48.2 percent of all workers exhibited at least some degree of mobility or change over time across these four dimensions of supervisory duties. There is a relatively tight range in promotion percentages, from almost one in thirteen for influencing pay and promotions, to one in nine for supervising others. ‘Promoted to duty’ signified that workers did not hold the duty at the beginning of the survey panel (1996), but assumed the role sometime after and continued to hold the duty to 2010. Demotions from duties ranged from about one in twenty-four workers for influencing pay and promotions, to about one in twelve for supervising others. ‘Demoted from duty’ indicated that workers held the duty initially in 1996, but dropped them some time after that, and did not resume the duty. Unfortunately, demotions could not be broken down further to distinguish voluntary or involuntary demotions—whether the decision to give up a supervisory role was that of the worker or his/her employer. Nigerian workers were more likely to be promoted to a supervisory role from a given duty, with a difference of about three percentage points across the four dimensions. This implies a net gain or increase in experience on each of these duty dimensions overtime.

Table 3: Summary of Pearson Product Moment Correlation Coefficient of Linkage between managerial authority and supervisory roles

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>DF</th>
<th>r-cal</th>
<th>r-crit</th>
<th>Sig</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial authority</td>
<td>400</td>
<td>92.48</td>
<td>4.21</td>
<td>158</td>
<td>0.88</td>
<td>0.224</td>
<td>0.05</td>
<td>H_o, Rejected</td>
</tr>
<tr>
<td>Supervisory roles</td>
<td>400</td>
<td>87.34</td>
<td>4.82</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</table>

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 3 shows that a calculated r-value of 0.88 resulted as the relationship between managerial authority and supervisory roles in the workplace. This calculated r-value of 0.88 is not significant since it is lower than the critical r-value of 0.22 and 158 degrees of freedom at 0.05 level of significance. This led to the acceptance of alternative hypothesis that there is obvious linkage between managerial authority and supervisory roles in the workplace.

When Nigerian workers are mobile with respect to these supervisory duties, they are less likely to follow a standard path (either promotion or demotion), and more likely to exhibit an irregular form of mobility. Mixed mobility refers very broadly to all forms of irregular mobility in relation to given roles, and in total exceeds the combined percentage for the more pure forms of mobility—promoted to and demoted from duty. Between about one in six and one-over-four of workers exhibited mixed mobility across these four dimensions. Within the residual mixed mobility category, the most common occurrence was short-term limited experience (Out-In-Out) with each of these four roles. Nigerian workers were more likely to test or try out a Out pattern, than to have a temporary interruption from a given duty (the reverse In-Out-In path). All other irregular mobility (involving multiple promotions to and demotions from a given duty over six years) accounted for about one in ten workers at most. Hiscott (2008) revealed both stability and mobility, and complex patterns of experience with respect to these four supervisory duty dimensions.

V. DISCUSSION AND CONCLUSIONS

Over three in five Nigerian workers reported at least some supervisory duty experience between 2010 and 2015, with more than half deciding work for, and supervising other workers, and about a third influencing budget and staffing, and pay and promotions in the workplace. Beyond the prevalence of supervisory responsibilities revealed by the aggregate profile, the multivariate log-linear modelling results and analysis of percentage tables provided support for each of the bivariate hypotheses stated above. Specifically, male workers, workers with any university education, and workers from management (especially) and certain professional occupational sectors exhibited markedly higher profiles of supervisory duty experience over the six-year time frame.

Conversely, female workers, those without any university education, and workers from both blue and white collar occupational sectors were more likely to report no supervisory duty experience over time. Based on the cumulative R2 analog statistic from the optimal bivariate stage model (Table 4), log-linear modelling confirmed that approximately 90 percent of variation found in the 120-cell, four-variable data array could be accounted for through the inclusion of these three bivariate interaction terms (of gender, university education, and occupational sector, each by supervisory duty experience of workers).

University-educated workers from natural sciences and related occupations also exhibited a ‘high’ supervisory experience profile (42.7 percent), along with male workers from business, finance and administrative occupations, and social sciences and related occupations (33.7 and 33.4 percent, respectively). Conversely, workers without any university education from the health occupations sector were the least likely to report a ‘high’ level of supervisory experience over time (5.8 percent), as well as female workers from blue collar occupational sectors (ranging from 6.2 to 11.4 percent across the three sectors).

From the other end of the scale, female workers from each of the three blue collar occupational sectors were most likely to report no supervisory duty experience (ranging from 51.7 to 67.6 percent across sectors), along with female workers from white collar sales and services occupations (50.4 percent). As well, workers without university education from blue collar sectors of processing, manufacturing and utilities occupations, and trades, transport and equipment operator occupations.
were most likely to have no supervisory duty experience over time (at 51.9 and 46.2 percent, respectively). This analysis focused on four distinct dimensions of supervisory responsibilities in the workplace (influencing budget and staffing, pay and promotions, deciding work for others, and supervising others). While these four dimensions are clearly important in defining workplace supervisory roles, they are certainly not exhaustive.

There are other facets of supervisory responsibilities in the workplace—these would include the number of subordinates supervised, relative position within the organizational hierarchy, the scope or extent of decision-making responsibilities within organizations, and whether decision-making authority is exclusive or shared. The primary purpose of this analysis was to explore complex interactive effects with supervisory duty experience. This was accomplished through the application of log-linear modeling techniques to a limited set of variables, supplemented by assessing and interpreting identified interaction effects within percentage tables.

Future research could explore these and other dimensions of workplace supervisory roles to better appreciate the full scope and context of such duties. Despite limitations to the measurement of supervisory duty experiences, the data did reflect the prevalence of such experiences among Nigerian workers, and also exposed the dynamic and evolving nature of such duties over even a relatively brief time span in the careers of workers. Hiscott (2008) recommends future research could explore other factors or determinants which may influence or impact supervisory responsibility experiences over time, going beyond the gender, university education and occupational sector effects investigated here. Differences in work time arrangements (employment status, working hours, weeks worked) between male and female workers may impact supervisory duty experiences in the workplace, with consequences for career progression and mobility.

Among workers with some post-secondary education, the field or discipline of study or possession of specific educational credentials may directly influence subsequent supervisory responsibility experiences in the workplace. Other career-related factors such as tenure with a given organization, occupational and industrial mobility, as well as career interruptions may alter supervisory duty experiences. As well, individual-level socio-demographic attributes such as age, race or ethnicity (and gender interactions with these characteristics) may also have some bearing on the likelihood of assuming supervisory duties in the workplace. Future research investigating these and other factors or determinants is important given the prevalence of supervisory roles among workers, and the consequences for longer-term career development and progress for workers.

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