

*GENDER, MIDDLE MANAGER MANAGEMENT,  
AND PERFORMANCE: EVIDENCE FROM INDONE-  
SIAN PUBLIC SCHOOLS*

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# **GENDER, MIDDLE MANAGER MANAGEMENT, AND PERFORMANCE: EVIDENCE FROM INDONESIAN PUBLIC SCHOOLS**

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## **Abstract**

By applying Moore (1995) concept of distinctive managerial functions – managing upward, downward, and outward –, this study attempts to understand the impacts of middle-level management functions on organizational performance; and tries to investigate gender impacts on the middle-level management and performance linkages. This study employs Indonesian Family Life Survey 4 (IFLS4) cross-sectional data and applies Weighted Least Squares (WLS) method to analyze some hypotheses constructed. The results indicate the significant impacts of managing downward negatively and managing outward positively on organization performance. Meanwhile, managing upward does not give the significant impact on organization performance. On the other hand, gendered managing outward effects on organization performance are strongly positive significant for female managers and strongly negative significant for males. For both male and female managers, managing downward gives significant positive impacts on organization performance, but males' effect is much greater than females. Lastly, the gendered managing upward effect is not significant related with organization performance. Therefore, it can be concluded that public managers need to give more efforts on managing outward by creating more networking to increase the organization performance. In contrast, the principals may need to modify their strategy to manage their subordinates because current managing downward strategy gives negative impacts on the organization performance.

Keywords: managing upward; managing downward; managing outward; management; gender; performance; school; Indonesia

## 1. INTRODUCTION

Public organizations are surrounded by performance matters, such as red-tape and inefficiency; whereas private firms are viewed as having more efficient and effective performance (Rainey, 2009, p.420). Management of performance has been implemented as a tool to reach accountability and to develop the government efficiency and effectiveness and increase the government's responsiveness as well (OECD, 2005; as cited in Walker & Wu, 2010). This is in line with the New Public Management objective which is to develop the more customer-oriented and skillful bureaucrats (Foster, 2006; as cited in Walker & Wu, 2010). Therefore, according to Rainey (2009), public management and public agencies performance can be improved by learning the literature on organizational behavior, organization theory, and general management; and then employing it to government organizations actions. Many literatures discuss about organization development, which attracts on several components of social science and organizational behavior, like leadership, motivation theories, and systems; and techniques as well, like survey research (Rainey, 2009).

In terms of gender, many literatures has established about whether and how gender stands for the manner and effectiveness of the public management and public program performance (Meier, O'Toole, and Goerdel, 2006). It is implicitly defines that women managers still be viewed as less appreciated and unworthy management capital in the network-based public management system (Meier et al., 2006), thus, females are connoted for contributing the lower organizational outcomes than males. However, Eagly & Johnson (1990) wrote that irrespective to the setting, females were categorized by a more participative or democratic style, whereas males were more

directive or autocratic, in which female's leadership style is a slightly higher attention for both interpersonal relations and task accomplishment (as cited in Brewer, Socha, & Potter, 1996). This personal approach leads to higher levels of behavior-control application from female managers than males (Piercy et al., 2001). Hence, the distinctive characteristics of different gender might improve organizational performance or even lessen the performance.

Given the knowledge that public organization performance is determined by several public management components, specifically the leadership and networks factor; this study attempts to understand the impacts of middle-level management, both internally and externally, on organizational performance. In addition, due to the big discrepancy between the numbers of female and male school principals in Indonesia, this study also tries to investigate gender impacts on the middle-management and performance linkages.

## **2. LITERATURE REVIEW**

### **2.1. Management: Managing Upward, Downward, and Outward**

#### **2.1.1. Components of Management**

Rainey (2009) wrote that traditional theorists had described the managerial functions as “planning, organizing, staffing, directing, coordinating, reporting, and budgeting” (PODSCORB), for which required standards of what managers have to perform for their successive job.

On the other hand, O'Toole and Meier (1999) claim that an organizational performance is best predicted by previous organizational performance, but this autoregressive relationship is mediated by organizational stability and organizational internal management. Organization stability, in fact, consists of structure, procedure,

mission, personnel, and production stability. Organization performance is also determined by their environment in which this environment can manage their external management. Therefore, the components of management of O'Toole and Meier are organization stability, internal management, and external management (as cited in O'Toole & Meier, 2011).

Facing the difficulties of measuring the effect of network-based managerial functions on organization performance, Moore (1995) proposed three concepts of strategic management functions and efforts, namely managing upward, downward, and outward (as cited in O'Toole et.al, 2005). Moore (1995) stated that managing upward means the bureaucracy provides information to the structural or political superiors. Managing downward, which is a central element of public management, means the hierarchical interactions between managers and their subordinates or other lower levels within an organization (Moore, 1995). Finally, managing outward refers to interactions with other stakeholders outside their organization (Moore, 1995 as cited in O'Toole et al., 2005).

### **2.1.2. Impact of Managing Upward to Organization Performance**

O'Toole et al. (2005) investigated Texas School District and examined superintendent managing upward which is measured by asking how often the district superintendents interacted with the elected school board members (ranging from 0 to 6) and at what level of support from the school board in the superintendents' district (ranging from inadequate to excellent), and they found that the correlation between management upward and student performance is always negative.

O'Toole et al. (2005) enlightened two logical theories to define this finding. Firstly, superintendent's political suggestion might disrupt managers from their

fundamental management duties or raise the chase of additional or conflicting objectives, thus the managers could not concentrate on organizational goals due to the numerous instructions by political leaders with opposing agendas (O'Toole et al. 2005). Therefore, these competing political agendas engender negative relationship with the manager's job performance (O'Toole et al. 2005). On the other hand, this negative impact might be reduced or eradicated by developing more supportive operational interactions between managers and their superintendents, in this case is political leaders (O'Toole et al., 2005, p.60).

O'Toole et al. (2005) suggested that managing upward in a positive and supportive setting will not harm performance, whereas managing upward in a contradictive relationship might have a harmful impact. This insight leads this study to the following hypothesis:

Hypothesis 1: Managing upward may affect the performance in positively or negatively relationship.

### **2.1.3. Impact of Managing Downward to Organization Performance**

O'Toole et al. (2005) investigated Texas School District and examined superintendent managing downward which is measured by asking how frequently the district superintendents interacted with the school principals (ranging from 0 to 6), and they found that interactions between superintendents and school principals (managing downward) are not clearly identified. Sometimes managing downward has positive impacts on student performance, sometimes it gives negative influence. Overall, it represents no significant effects. They mentioned that mixed results might be caused by highlighting or disregarding certain objectives; whereas accomplishment of one aim may result in the expense of other goals (O'Toole et al., 2005, p.62).

Assuming that too much interference of managers to their subordinates will harm the operating level employees, this study formulates a hypothesis as follows:

Hypothesis 2 : Managing downward is related negatively with performance.

#### **2.1.4. Impact of Managing Outward to Organization Performance**

O'Toole et al. (2005) investigated Texas School District and examined superintendent managing outward which is measured by asking how frequently the district superintendents cooperated with the four actors of organization's environment, namely state legislators, superintendents from other school, the Texas Education Agency, and local business leaders (ranging from 0 to 6), and they found that managerial networking outward has positive relationship with performance. This is in line with the opinion that attainment of support from environmental participants is fundamental element of organizational successful performance (Carpenter, 2001; Rourke, 1978; as cited in Melton et al., 2010, p.137). Carpenter (2001) considers that "a bureaucracy and its autonomy are premised on its organizational reputation and the networks that support it." (as cited in Melton et al., 2010, p.137-138). Thus, the governmental legitimacy is based on the multiple contingencies and a public manager should be able to classify perilous decision makers in the environment and develop good interactions with them to attain the organizational accomplishment (Melton et al., 2010, p.137-138). Therefore, one hypothesis can be formulated as:

Hypothesis 3: Managing outward has a positive influence on organizational performance.

## **2.2. Gender and Management Tasks**

Talmud and Izraeli (1999) stated that in popular discourse men are associated with the public sphere, while women are connoted with the private sphere. This

gender bias can be exemplified in Bilimoria and Piderit (1994) findings that even after directing for executives characteristics based on experience, female directors were less signified on the more authoritative board committees than males (as cited in Talmud & Izraeli, 1999, p.463). This implies that female still encounter gender occupational separation and discrimination in public sector employment with resultant human resource inefficiencies for public organizations (Miller & McTavish, 2011).

However, as Comer, Machleit, and Lagace (1995) suggested that female managers are more tend to apply transformational leadership (as cited in Piercy, Cravens, and Lane, 2001); Piercy et al. (2001) examines manager gender distinctions related with behavior-based methods to sales management control, and the impacts on salesperson behaviors, job stress, and work outcomes. They found that female managers apply significant greater ranks of behavior control than men so that teams led by women show significant better in job participation and job satisfaction, and also lesser points of role vagueness, job discomfort, and exhaustion (Piercy et al. 2001). Moreover, their teams show larger work outcomes in organizational commitment (Piercy et al. 2001). Female managers apply control approaches of a more behavior-based coordination than males, thus female managers' teams indicate more appropriate manners, minor stress appearances, and more positive job performance (Piercy et al. 2001).

Meanwhile, Jacobson, Palus, and Bowling (2009) examine whether female leaders manage distinctively than male and whether these different behaviors shape the organization performance. As a result, they found that more networks with political leaders, citizens, and clientele groups has a positive influence on the implementing a public program. On the contrary, the internal management is



negatively related to the organizational outcomes; thus, they suggest to categorize the interaction between internal management and performance as nonlinear in nature (Jacobson et al., 2009). They also specify that “gender does play a role at the state administrator level” (Jacobson et al., 2009, p.499). Male administrators who manage networks greater develop the success in implementing a public program, while females managing wider network harm their official works (Jacobson et al., 2009).

Another research finds team performance differences contingent on manager’s gender. For instance, Meier et al. (2006) had differentiated the three managerial functions offered by Moore (1995) combined with the manager’s gender. They found that female managers can exchange the managing upward effects from negative to positive on some indicators of organizational performance. On the other hand, female managers mostly acquire lower outcomes than male from managing downward and managing outward (Meier et al., 2006, p.33). They suggest that woman managers might be noticed as underestimated and underrated management capital within an organization (Jacobson, Palus, and Bowling 2009; Meier et al., 2006).

Therefore, it is necessary to more explore about the connections between gender and their outcomes to provide extensive results about gender to the conceptual and empirical research in public management (Jacobson et al., 2009, p.480).

### **2.2.1. Gendered Managing Upward and Organization Performance**

Meier et al. (2006) investigated Texas district school and has examined how the interaction between gender and management strategies of Moore concept determines organizational performance, and found that female managers are able to shift the negative effects of managing upward into positive impacts on particular indicators of organization performance. They argue that gender might require

management capital, but neither women nor male managers have domination on particular contributions (Meier et al., 2006).

Furthermore, Lunneborg (1990) and Rosener (1990) wrote that female managers in organizations are less hierarchical and more participative, supple, and interactional (as cited in Meier et al., 2006, p.26). Thus, the management styles of females are mostly non-confrontational, in which might hinder conflict with superintendents when they are managing upward, so that they can lead to a success for their organization (Meier et al., 2006). Given this point of view, one hypothesis can be derived as follows:

Hypothesis 4: In managing upward toward superiors – structural and political – female managers are expected to gain positive result in their organizational performance.

### **2.2.2. Gendered Managing Downward and Organization Performance**

Managing downward develops organizational competencies for attaining organization's expected objectives (Melton et al., 2010, p.139). In addition, Rainey (2003, p.157) shows that lower-level organization members may become professionals on key tasks. Middle managers and "street level bureaucrats" (Lipsky 1980) are in direct contact with the organization's clientele (as cited in Melton et al., 2010, p.139). Their proximity to the clients make them more understand their clients' definite requirements and can give recommendation and help to the higher-level managers (Melton et al., 2010, p.139)

However, female managers are facing deconstruction of gender images in public administration (Meier et al., 2006). For instance, Strivers (2002) claims that images of "leadership" are strongly related with white professional males; when those

with distinctive characters, such as female and Latino, achieve managerial positions, they come at a persistent struggle to handle the discrepancy between the people's expectancy of leaders and also their outlook of leaders attached to their characteristics such as their gender (as cited in Meier et al., 2006, p.27). Therefore, it will be challenging for female, as minority leaders, to shape authority and credibility with organizational members who overlook managerial positions in an organization in masculine terms (Meier et al., 2006, p.27). This condition might hinder female managers to improve achievement of their organization. Thus, the next hypothesis can be offered:

Hypothesis 5: Female managers managing downward might have less performance effects than men.

### **2.2.3. Gendered Managing Outward and Organization Performance**

A research in understanding networks (Milward & Provan 1995; O'Toole, 1996) and emphasizing broader cooperation and the effects of intra-organizational and inter-organizational struggles (Milward & Provan 2000; Thomson & Perry 2006) has persistently found that networking are positively correlated with outcomes of organizations (as cited in Jacobson et al., 2009).

However, it is expected that the correlation between managing outward through the organization network and organizational performance can be determined by gender (Meier et al., 2006). Powell (1993) wrote that contradictions among feminism contend that male's and female's networks are possibly distinctive although they obtain and propagate information through networking (as cited in Meier et al., 2006, p.27). For decades, males have conservatively been noticed as merit from colloquial "good old boy" bondings (Meier et al., 2006, p.27). Thus, by expanding

and maintaining this kind of links, managers might lead to organizational success (Bacharah & Lawler 1980, as cited in Meier et al., 2006, p.27). In contrast, females have little opportunities to participate in this type of critical networking, but they have been found to form more official networks with other females within their organization (Guy & Duke, 1992; as cited in Meier et al., 2006, p.27).

On the other hand, Jacobson et al. (2009, p.479) wrote that females provide substantial emotional effort to an organization (Bellas 1999; Guy and Newman 2004; Meier, Mastracci, and Wilson 2006); have distinct motivations for work in the public sector (DeHart-Davis, Marlowe, and Pandey 2006); are more democratic (Bass and Avolio 1993); and are more participative, interactive, less hierarchical, supple, and multifaceted (Meier et al., 2006, p.25). Furthermore, in a study of female versus male accountants, Burke and Collins (2000) disclosed that women employ interactive style in reporting their work to the management, thus their instruction, progress, and communication were more effective (as cited in Jacobson, 2009, p.479). Therefore, this literature can establish the following hypothesis:

Hypothesis 6: Female managers are expected to produce positive organizational performance through managing outward toward networks.

### **3. DATA, VARIABLES, AND METHODOLOGY**

#### **3.1. Data**

<sup>1</sup>Based on the National Education System Law No. 20/2003, the formal school system in Indonesia consists of five level of formal education system, in which begins with two years of kindergarten and followed by the three basic education. The three

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<sup>1</sup> The information of the following paragraph is derived from working paper in Economics and Development Studies of Fahmi, M. (2009) about school choice and earnings (a case of Indonesia). Retrieved from <http://www.lp3e-unpad.org>

basic levels are primary, junior or lower secondary and senior or upper secondary education. Total levels of primary and secondary levels are 12 grades which are divided into 6 grades of primary level, 3 grades of junior high school level, and 3 grades of senior high school level.

In terms of public manager in education system in Indonesia, the number of male's school principals is much higher than females. According to data of Ministry of Education, in 2009/2010 total number of female principals in elementary school, junior high school, and senior high school is less than one third of males. Total number of female principals is 53,822 (29.62%), whereas total number of males is 127,894 (70.38%). In other words, female principals occupies less one sixth of the total number in each school level.

In addition, from 1713 public schools in Indonesian Family Life Survey 4 (IFLS4) data, the number of female school principals is much lower than males, both in urban and rural areas. In urban area, from 1164 public schools surveyed, the total number of female principal is only almost one third (365 principals), while males are 799 (68.64%). On the other hand, from 549 public schools in rural area, the number of female principals is less than one fifth (only 108 female principals). In other words, it is 441 principals or above 80% of total public school principals in rural area dominated by male principals.

At the end of the primary, junior and high school, students have to take the national examination test or called the EB-TANAS (in the past) or UAN (currently). Public schools and some of the elite private schools set some minimum level as the entry requirement. This test is used to measure the performance of students. Passing this test is required to entrance higher level education. UAN is designed by the

Ministry of National Education which giving the test on three subjects: Bahasa Indonesia, English, and mathematics/economics.

<sup>2</sup> This research examines the student performance of elementary and secondary in public schools in Indonesia by using cross sectional data from the Indonesian Family Life Survey 4 in 13 of the 27 provinces in the country. The IFLS data were collected by using a multistage random cluster method which had generated a sample of about 83% of the Indonesian population and contains over 30,000 individuals living in 13 of the 27 provinces in the country.

This survey was conducted in 2007/2008 by Research and Development Corporation (RAND), the center for Population and Policy Studies (CPPS) of the University of Gadjah Mada and Survey METRE. The unit analysis of this study is school and the samples are 821 public elementary schools, 619 public junior high schools, and 273 public senior high schools in 321 communities from those provinces that were surveyed.

## **3.2. Variables**

### **3.2.1. Dependent Variable<sup>3</sup>**

Dependent variable in this study is student performance which will be measured by the Grade Point Average (GPA) of the graduating class for the school in the academic year of 2006/2007. GPA is a crucial measure of a school performance because it is achieved from the average score of National Final Examination or *Ujian Akhir Nasional* (UAN) in the academic year of 2006/2007. Based on the Regulation of Education Minister of the Republic of Indonesia Number 20 of year 2007 about

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<sup>2</sup> The information of the following paragraph is derived from The RAND Corporation. The Indonesian Family Life Survey (IFLS): IFLS4 in public release. Retrieved from <http://www.rand.org/labor/FLS/IFLS/ifls4.html>

<sup>3</sup> The information of the following subsection is derived from National Standards Agency of Education (BSNP). 2007. Retrieved from <http://akhmadsudrajat.files.wordpress.com>

Educational Assessment Standard, this exam is a national standard system for elementary and secondary schools in Indonesia in order to control the quality of national education evaluation as a form of accountability of education providers to the parties concerned with education. Assessment instruments used by the Government in the form of UAN meet requirements of substance, construction, language; have a validity of empirical evidence; and produce scores that can be compared across schools, between regions, and across years. This exam is conducted by the National Standards Agency of Education, Ministry of National Education of Indonesia and evaluated by independent institution continually. Based on the Regulation of Minister of Education and Culture of Republic of Indonesia number 3 of year 2013 about criteria for graduation of students from the unit of education and exams management of school / madrasah / equivalent education and national examinations, the cut off score of GPA is 5.5. The GPA itself was taken from math and language scores due to these subjects being the core subjects for the graduation requirement. The mean of this variable is 7.197872 with standard deviation 0.796982.

### **3.2.2. Independent Variables**

Explanatory variables in this study are three measures of public management, such as managing upward, managing downward, and managing outward. All of these measures are calculated from the types of activities that the school principal's engage as their managerial functions. Firstly, managing upward is measured by whether the principal do discussing school planning with the Regional Office or Foundation. If a principal discusses it, it is assigned a value of 1. Otherwise, it is assigned a value of 0. The mean of this variable is 0.944591 with standard deviation 0.228878.

Another independent variable is managing downward, which is measured from several types of activities, namely supervising teachers in class preparation, supervising the teaching process in class, guiding the teachers regarding course material, and conducting teachers meetings. All of these assessment points are also calculated by dummy variable. The measure of managing downward is summation of these four assessment indicators which ranging from 0 and 4. The mean of this variable is 3.967458 with standard deviation 0.324737.

Finally, managing outward, as the networking behavior of school principals with their environment, will be formed from these actions: organizing meetings with their students' parents, attending seminars and meetings, conducting the meeting with the school committee, and following the meeting with teacher and principal from the other school. Each of these activities is counted as dummy variable. The measure of managing outward is summation of these four assessment indicators which ranging from 0 and 4. The mean of this variable is 3.948109 with standard deviation 0.343371.

In addition, this study also employs the interaction terms between these three managerial functions and the principal's gender to see if there is a different impact of these management factors if the principal is male or female. Principal's gender is also measured by dummy variable. It is denoted as 1 if the school principal is female and 0 if the principal is male. The mean of gender variable is 0.2814424 with standard deviation 0.449901.

### **3.2.3. Control Variables**

It is necessary to assess some factors that control both the principal's demography information and the resources available to the organization. The measure of principal's demography information is gained from principal's salary, principal's



length of tenure, and principal's education level. Due to large number of principal's salary, it is measured by the logged of salary. Principal's tenure is the number of years a principal's has been in that position. Principal's education is counted as 1 if the principal graduated from bachelor degree, 0 is otherwise.

On the other hand, the organization resources are divided into monetary resources, human resources, and other organization factors. Monetary resources are measured by logged school expenditure in the academic year of 2006/2007 and financial authority, which is the authority of the principal to reallocate between posts of expenditure without approval from the Regional Agency or any other parties. The measures of human resources are obtained from the number of certified teachers and the accountability of principal.

Lastly, other organization factors are previous student performance, organization size, organization age, environmental shock, and school types. Previous student performance is measured by GPA of the students in academic year 2005/2006. Organization size is measured by the number of student enrollment in the academic year 2006/2007. Meanwhile, organization age is measured by the number of years the school has been established. It is achieved by subtracting the year the school was founded from 2008 (the year of the survey was conducted). Environmental shock is measured as dummy variable, whether the school ever closed down for at least a week in 2006/2007 school year (not including regularly scheduled holidays or vacations) or not. It is denoted as 1 if the school closure happened, 0 otherwise. The school types are divided into elementary school, junior high school, and senior high school.

### 3.3. Econometric Model

This study uses O'Toole-Meier compendious model of public management (1999) as follows:

$$\mathbf{O}_t = \beta_1 (\mathbf{S} + \mathbf{M}_1) \mathbf{O}_{t-1} + \beta_2 \left( \frac{\mathbf{X}_t}{\mathbf{S}} \right) \left( \frac{\mathbf{M}_3}{\mathbf{M}_4} \right) + \varepsilon_t \quad (1)$$

where :

$\mathbf{O}_t$  = measure of outcome at time t (i.e.: current student performance),

$\mathbf{O}_{t-1}$  = lagged dependent variable (i.e.: previous student performance),

$\mathbf{S}$  = stability measure (indicating structure, procedure, mission, personnel, and production stability),

$\mathbf{M}$  = management, which can be derived into three measures:

- $\mathbf{M}_1$  management's contribution to organizational stability through additions to hierarchy or structure and regular operations,
- $\mathbf{M}_3$  management's efforts to exploit the environment,
- $\mathbf{M}_4$  management's effort to buffer environmental shocks,

$\mathbf{X}_t$  = a vector of environmental forces at time t,

$\varepsilon_t$  = an error term,

$\beta_1$  and  $\beta_2$  are estimable parameters.

Meier et.al (2006) has modified this model by combining the two terms dealt with managing the environment as  $\mathbf{M}_2 = \mathbf{M}_3/\mathbf{M}_4$ . Thus, this public management model

can be symbolized as: 
$$\mathbf{O}_t = \beta_1 (\mathbf{S} + \mathbf{M}_1) \mathbf{O}_{t-1} + \beta_2 \left( \frac{\mathbf{X}_t}{\mathbf{S}} \right) (\mathbf{M}_2) + \varepsilon_t \quad (2)$$

Since this study's interests are focused on management functions in affecting organization performance, it adopted the Meier et.al (2006) model which is adapted from the general O'Toole-Meier (1999) model. As a form of interaction with the

network, managing upward is obviously symbolized by  $M_2$ . Meanwhile, managing upward and managing downward held on the relationship between principal and agent within the organization circumstance and “super-ordinate layer of control” (Meier et.al., 2006, p.28), the managing upward variable is counted as internal management, thus managing upward and managing downward is denoted by  $M_1$ . Even though they represent the same symbol, managing upward and managing downward are expected to have distinctive impacts to performance since they stands for different kind of principal-agent interaction.

By emphasizing those three different managerial functions in this study, it replicates Meier et.al (2006) modification of the model. By holding stability constant, it is dropped from the model and resulting following model:

$$O_t = \beta_1 (M_1) O_{t-1} + \beta_2 (X_t)(M_2) + \varepsilon_t \quad (3)$$

Furthermore, by integrating the interaction terms between those three different managerial functions – managing upward, managing downward and managing outward – with the role of gender, it derives new model. Principal’s gender is coded as 1 if female and 0 as male. This new model represents as:

$$\begin{aligned} O_t = & \beta_0 + \beta_1 \cdot O_{t-1} + \beta_2 \cdot (M_{up}) + \beta_3 \cdot (M_{down}) + \beta_4 \cdot (M_{out}) + \beta_5 \cdot (G \cdot M_{up}) + \beta_6 \cdot (G \cdot M_{down}) + \\ & \beta_7 \cdot (G \cdot M_{out}) + \beta_8 \cdot (author) + \beta_9 \cdot (orgage) + \beta_{10} \cdot \ln(enroll) + \beta_{11} \cdot \ln(salary) + \\ & \beta_{12} \cdot (princtenure) + \beta_{13} \cdot (princeduc) + \beta_{14} \cdot (certteach) + \beta_{15} \cdot \ln(exp) + \beta_{16} \cdot (accfnd) + \\ & \beta_{17} \cdot (accdo) + \beta_{18} \cdot (accmay) + \beta_{19} \cdot (accram) + \beta_{20} \cdot (elmnt) + \beta_{21} \cdot (js) + \beta_{22} \cdot (hs) + \\ & \beta_{23} \cdot (envshock) + \varepsilon_t \end{aligned} \quad (4)$$

where :

$O_t$  = current student performance (GPA 2006/2007),

$O_{t-1}$  = previous student performance (GPA 2005/2006),

$M_{up}$  = managing upward,

$M_{down}$  = managing downward,

$M_{out}$  = managing outward,

$G.M_{up}$  = interaction term between principal's gender and managing upward,

$G.M_{down}$  = interaction term between principal's gender and managing downward,

$G.M_{out}$  = interaction term between principal' gender and managing outward,

Author = principal's authority,

Orgage = organization age,

$\ln(\text{enrol})$  = the amount of student enrolment (logged),

$\ln(\text{salary})$  = principal's salary (logged),

princtenure = principal's tenure,

princeduc = principal's education,

certteach = the amount of certified teachers,

$\ln(\text{exp})$  = school expenditure (logged),

acc = accountability of principal's appointment is divided into:

- accfnd = appointed by Foundation,
- accdo = appointed by Education District Officer,
- accmay = appointed by Mayor,
- accram = appointed by Religious Affairs Ministry,

The type of school is divided into:

- elmnt = elementary school,
- js = junior high school,
- hs = senior high school,

envshock = environmental shock (school closure for at least a week, not including regularly scheduled holidays or vacations).

### **3.4. Methodology**

The dependent variable of this study is a continuous variable, thus it employs Ordinary Least Squares (OLS) method which is a method to estimate the slope and intercept parameters in the population model (Wooldridge, 2005, p.63). To test whether the OLS estimators are unbiased or not, it is checked by Gauss-Markov assumptions of Simple Linear Regression (SLR). Those assumptions are: (1) Linear in Parameters, (2) Random Sampling, (3) Sample Variation in the Explanatory Variable, (4) Zero Conditional Mean, and (5) Homoskedasticity (Wooldridge, 2005, p.63-64). Since there is a heteroskedasticity problem, this study employs Weighted Least Squares (WLS).

## **4. RESULTS**

### **4.1. Results**

Table 4.1 illustrates the regression analysis result using GPA 2006/2007 to symbolize the student performance as the dependent variable. The regression is conducted on two models. The first model shows the impact of three managerial functions – managing upward, managing downward and managing outward – on the student performance. Meanwhile the second model represents the effect of interactions terms between those three managerial functions with the principal's gender on the student performance.

**Table 4.1.**  
**GPA 2006/2007**

VARIABLES	(Model 1) Beta Coefficient	(Model 2) Beta Coefficient
Previous Year's GPA	0.782*** (0.017)	0.739*** (0.017)
Managing Upward	0.042 (0.076)	-0.106 (0.090)
Female x Managing Upward		0.196 (0.138)
Managing Downward	-0.132** (0.052)	0.220*** (0.064)
Female x Managing Downward		-0.189* (0.098)
Managing Outward	0.122** (0.054)	-0.208*** (0.058)
Female x Managing Outward		0.266*** (0.086)
Authority	-0.086** (0.036)	-0.069** (0.035)
Organization Age	0.004*** (0.001)	0.004*** (0.001)
Enrollment (Logged)	-0.052*** (0.019)	0.081*** (0.024)
Principal's Salary (Logged)	0.240*** (0.061)	0.193*** (0.060)
Principal's Tenure	0.001 (0.004)	0.002 (0.004)
Female Principal	-0.057* (0.033)	-0.457** (0.208)
Principal's Education (BA)	0.073** (0.029)	0.078*** (0.028)
# Certified Teachers	0.007** (0.003)	0.005* (0.003)
Expenditure (Logged)	-0.005 (0.014)	-0.034** (0.013)
Appointed by Foundation	0.042 (0.146)	0.040 (0.143)
Appointed by Education Agency	-0.025 (0.073)	-0.029 (0.070)
Appointed by Mayor	-0.043 (0.077)	-0.036 (0.075)
Junior High School	-0.026	-0.007

	(0.048)	(0.047)
Senior High School	0.054	0.096
	(0.064)	(0.062)
School Closure	-0.114	-0.091
	(0.159)	(0.153)
Constant	-1.500*	-0.754
	(0.899)	(0.893)
Observations	1,138	1,137
R-squared	0.746	0.832

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In the first model, it can be seen that by giving the 5 percent significance level, managing downward and managing outward are strongly related to student performance in contrast direction. Managing downward negatively affects the student performance by 0.132 points. It means that by giving the 5% significance level, when a principal increases in managing downward by 1 unit, the student performance decreases by 0.132 of GPA. In contrast, managing outward gives positively influence the student performance at point 0.122. This means when a principal increases in managing outward by 1 unit, the student performance also increases by 0.122 of GPA. Meanwhile, managing upward does not give significant impact to the student performance, although it gives a positive impact. This might be because there is only one indicator to measure the variable of managing upward, whereas there are four indicators to measure managing downward and managing outward.

On the other hand, model 2 shows the interaction terms between the managerial functions – managing upward, managing downward and managing outward – and the role of principal's gender. From the table, it can be seen that all interaction terms between management functions and female gives positive impacts to

the student performance, even though it is not significant for the managing upward function (as same with model 1).

For managing outward, females represent strongly significant positive effect to the student performance by 0.058 point, whereas males give negative impacts on the student performance by -0.208 point. This means that at 1% significance level, when a female principal increases in managing outward by 1 unit, the student performance increases by 0.0582 of GPA; while when a male principal increases in managing downward by 1 unit, the student performance decreases by 0.208 of GPA.

In managing downward both males and females determine positively to the student performance by 0.031 point for females and 0.220 point for males. This means that at 10% significance level, when a female principal increases in managing downward by 1 unit, the student performance increases by 0.031 of GPA; while at 1% significance level, when a male principal increases in managing downward by 1 unit, the student performance increases by 0.220 of GPA. (Note: the impact of the interaction terms between managerial functions and principal's gender will be explained in the following subsection (subchapter 4.2)).

For principal's demography information, principal's salary and principal's education significantly give positive impacts on student performance, while principal's tenure does not significantly affect student performance. At 1% significance level, when principal's salary increases by 1 percent, student performance increases by 0.240 point of GPA (in model 1) and 0.193 of GPA (in model 2). Furthermore, when a principal graduated from Bachelor's degree, student performance increases by 0.073 point of GPA (at 5% significance level in model 1) and 0.078 point of GPA (at 1% significance level in model 2).



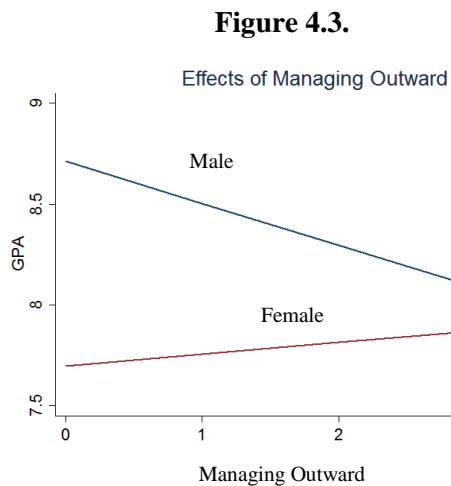
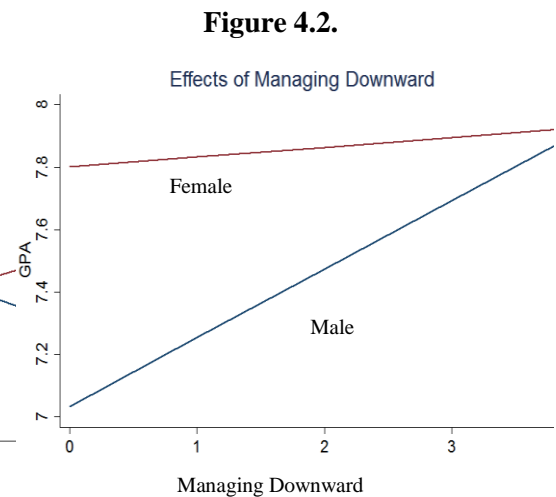
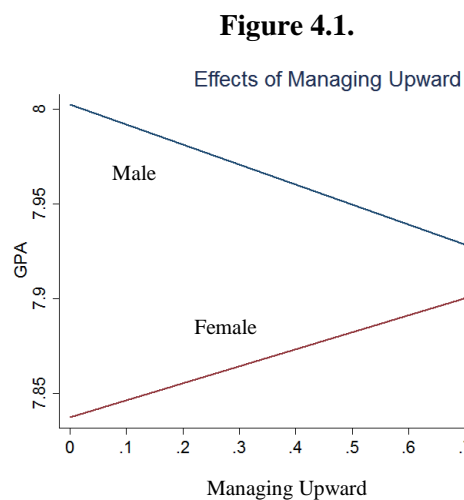
For monetary resources, the principal's authority negatively affects the student performance in both models, while school expenditure gives negative impact only for model 2. Table 4.1 shows that at 5% significance level, when a principal has financial authority, the student performance decreases by 0.086 point of GPA (in model 1) and 0.069 point (in model 2). It has a different direction with the expected result. This might be because a principal may allocate the budget for inappropriate way concerning on student performance improvement if the principal reallocates the expenditure posts without approval from the Regional Agency. Meanwhile, at 5% significance level, when school expenditure increases by 1 percent, the student performance decreases by 0.034 point of GPA (in model 2).

For human resources, the number of certified teachers affects positively on student performance, whereas the accountability of principal's appointment does not give significant effect. When the number of certified teachers increases by 1 unit, student performance increases by 0.007 point of GPA (in model 1) and 0.005 point of GPA (in model 2).

For other organization factors, previous student performance, number of organization age, and student enrollment give significant impact on current student performance; whereas environmental shock and school types do not significantly determine current student performance. The lagged dependent variable strongly positively determines the current student performance in both models. It gives slightly different point in influencing the current student performance by 0.782 point for model 1 and 0.739 point for model 2. It means that at 1% significance level, when GPA 2005/2006 increases by 1 unit, the current student performance (GPA 2006/2007) increases by 0.782 point (in model 1) and 0.739 (in model 2).

In addition, organization age gives strongly positive impact on the student performance at the same point for both models. At 1% significance level, when organization age increases by 1 unit, the student performance increases by 0.004 of GPA (for both models). On the other hand, number of student enrollment strongly significantly gives different effects between model 1 and model 2. At 1% significance level, when number of student enrollment increases by 1 percent, student performance decreases by 0.052 point of GPA (in model 1), but student performance increases by 0.081 point of GPA (in model 2).

#### 4.2. Graphical Result



As mentioned before that male and female principals give different managing upward effect to the student performance, the effects of managing upward on student performance can be seen clearly in the following graph (Figure 4.1). The impact of male's managing upward is higher than females, but as females give more effort to managing upward, the gap gets closer and at a certain point (between 0.8 and 0.9 of managing upward) the sign flips. Thus, female's managing upward impact becomes higher than males.

Figure 4.2 illustrates different result from the previous figure. Both male and female managing downward activities lead to the increasing student performance although in different slope. Male's managing downward activities give a steeper positive slope to the student performance than female does. It means that the impact of managing downward on student performance for female principals is higher than males. However, as male managers give more effort on managing downward, the discrepancy gets lower, but females still have higher impacts than males.

Lastly, similar with figure 4.1, the impact of interaction terms between gender and managing outward activities gives the inverse result in shaping the student performance. As it can be seen from figure 4.3, male's managing outward activities give the negative slope to the student performance, in contrast, women managing outward activities lead to the better student performance. The effects of male's managing outward is greater than females, yet as females give more effort to managing outward, the difference gets lower and at a certain point (between 3 and 4 of managing outward) the sign reverse. Therefore, female's managing outward impact becomes higher than males.

## 5. CONCLUSION

Based on the result, the Indonesian government quite successfully raises the student performance by the slightly increasing of the average GPA by 0.14 point from academic year 2005/2006 to 2006/2007. In terms of the effects of management functions on the performance, this study has a significant positive impact of managing outward activities of the principal on the student performance. This finding supports the hypothesis 3. The relationship between principal and students' parents, school committee, and other teachers and principals in different school might give principal new inputs in improving the organization performance. In contrast, it is significant negatively managing downward effect on the student performance, which supports hypothesis 2. It is not in line with the result of the previous study of O'Toole et.al.(2005) which results in no significant effect on this type of managerial function. It could be because of different culture between Indonesia and America. By supervising the teaching process in class, it might give the constraints to the teachers, such as they cannot concentrate well in delivering the subjects to the students while the principal is supervising in the same classroom. Lastly, it has no significant influence of managing upward on the student performance. It might be because the interaction between the principal and the superintendents, in this study is discussing the school planning with the Regional Office, is not directly contacted with the students, thus managing upward did not give the significant impact to the student performance. Another reason is it might because the lack of indicators in measuring this type of management functions, since it is only one indicator to measure managing upward impact on the student performance in this study.

On the other hand, in terms of the impact of the interaction terms between those three managerial functions and the role of principal's gender, this study gives the reversed results with the previous study as mentioned in the literature. The most important part of this study result is that all of managerial functions type shows the positive impact on the student performance for the female principal, although it is not significant for the managing upward activities. Furthermore, the interaction terms of managing outward and principal's gender are strongly significant related to the student performance, but in different direction between male and female principals. The female's principal network influence is positively significant related to the student performance, while it is negative for the males. This finding supports hypothesis 6. As Meier et al., (2006, p.25) claims that female are less hierarchical and more participative, interactive, supple, and multifaceted'' (cited in Jacobson et al. (2009, p.479), thus female's networks might provide influential support for them in improving their job performance.

Other significant result of this study is the positive impact of managing downward on the student performance for both male and female principals, but in different value. Males have greater influence of managing downward activities on the student performance than females. This finding supports hypothesis 5. It might because female were categorized by a more participative or democratic style, whereas men were more directive or autocratic (Eagly & Johnson, 1990). Therefore, males can give more clear and straightforward direction to their subordinates which can boost the organization performance. Meanwhile, for the insignificant impact of managing upward on the student performance might be because of the school principal as the middle-level manager who supervised by Regional Education Agency and indirectly

under direction of Mayor or Regent (elected by political party). Therefore, it is slightly ambiguous to measure this type of managerial function.

This study has several limitations that can be investigated for future research. Firstly, this study derives three different management functions from the secondary data. Since this study expects to improve better management of managing upward, managing downward, and managing outward, it is suggested that future research may develop more elaborate measures of those kinds of variables. In addition, this study employs only one dependent variable, thus it might be better to generate more extensive measure of organizational performance. Lastly, this study focuses on a school, which has very distinctive characteristics as compared to other public organizations. Therefore, it is recommended to test organization performance in different context and different public organization samples.

Given the findings of this study, that managing outward gives positive impacts, it can be concluded that public managers need to give more efforts on managing outward by creating more networking to increase the organization performance. In contrast, managing downward gives negative effects. This result may be because managing downward strategy which has been applied by the managers is less important to the subordinates. Therefore, the principals may need to modify their strategy to manage their subordinates because current managing downward strategy gives negative impacts on the organization performance.

Furthermore, in these network-based management activities, female managerial functions show positive impacts on the organization performance. Therefore, it is necessary to consider female in the leadership term as there are significant distinctions between the genders concerning emotional intelligence

(Mandell and Pherwani 2003, as cited in Jacobson, 2009, p.479). It can be suggested that in implementation of public program, women managers can be more involved in the networking development, to gain greater outcomes.

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