

The Influence of Congruence between Incentive System and Locus of Control on Team Performance: An Experiment

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Abstract—Organizations are increasingly relying upon teamwork; however, little is known about the best fit among incentive system, team composition, and group performance. To further explore this issue this study examines whether the congruence between incentive system and locus of control (LoC) affects team performance. To reconcile opposite lines of argument in literature regarding the best incentive system for a team, this paper uses the social identity perspective and person-environment (P-E) fit theory to understand behavior in a group process. A laboratory experiment with postgraduate students is conducted to test the hypotheses. One hundred and five accounting students were assigned to three-person work groups, where they completed an independent task under one of two types of incentive—individual and group incentive systems—after their LoC was measured. The findings confirm the hypothesis. Group incentive results in an enhanced team performance. Team performance is better when there is congruence between incentive system and LoC. Group incentive system combined with external LoC results in the best performance, while individual incentive system results in a better team performance when combined with internal LoC. The result suggests that a cooperative process enables ‘ordinary people’ to obtain extraordinary results.

Keywords—Incentive system, locus of control, person-environment fit, social identity perspective, team performance.

I. INTRODUCTION

THIS research aims to examine whether the congruence between incentive system and LoC affects team performance. Group incentive system is the best motivator in an organizational setting that relies on teamwork [8], [13], [28], [34], [46], [52], [57]; because it encourages the whole team to work together and share information [8], [11], [16], [28]. Meanwhile, the individual incentive system encourages competitiveness among employees and creates short-term relations among them [8]. It can be explained by organizational behavior literatures, for example social categorization theory [30] and goal interdependence theory [12].

Unlike the aforementioned researches, the agency theory sees a potential for causing conflict among team members in the group-based reward [39]. This conflict arises when the principals only receive signals from team performance and not from the realization of the performance of each member or agent of a team [8]. The agency theory describes human

conception (which is opportunistic, self-interested, and pursuing individualistic utility motivation [14], [54]), as harnessing the lack of close relation between individual performance and group reward by bringing out social loafing [1], [42].

Empirical evidence of the relation of incentive system and team performance shows inconsistent results. There are evidences that team performance is better when group incentive is applied [28], [34], [45]. However, other evidence shows that team performance is not significantly affected by the group incentive structure [39]. Meanwhile, that it is often the case that a team member refuses to collaborate and only give little effort for the team although he or she receives the same reward as others [10]. Some [23], [37] also reveal the inefficiency of group incentive.

In order to resolve the debate between theories and findings related to incentive systems and team performance, this research uses social identity perspective [15] and P-E fit theory [32]. According to P-E fit theory, this research investigates the role of personal traits at the group level [5], [33]. This is in line with the previous recommendation that in order to see the effect of the group incentive system team composition must be investigated [35]. Team composition, as one of the team member attribute configurations, both on the surface-level and deep-level attributes, is believed to be related to the occurring process within a team to achieve team’s objectives [4]. Some individuals are compatible for teamwork, but some are not.

Individual characteristics composition in a team, such as demographic, personal traits, knowledge, skills, and ability, is one of the most important issues in team member selection [22]. Personality is one of the structural parts of a team which will affect team interaction [19]. Personality even produces different perceptions over one incentive scheme. Previous research (e.g. [25], [39]) shows that the difference of team performance in a selection of contract compensation options is better explained with psychological factors.

One of the important personality traits, which is stable, well documented, and indicating fundamental individual differences, is LoC [3], [36]. LoC is one of the three most examined core traits (self-esteem, LoC, and emotional stability) in applied psychology and personality psychology [27]. This view on control affects an individual’s accomplishments [1] and managerial effectiveness [3], [5].

Teamwork is an essential element in most organizations [34], so it is increasingly important to identify an effective

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strategy to build a team [31]. Since an organization consists of cooperating individuals, it is important to acquire the knowledge about interactions among team members and their effectiveness [19]. The understanding of P-E fit is also important because it affects employees' outcomes in every phase of the organizational life cycle, including the decision to join an organization, the attitude and behavior during work, or the desire to quit and leave the organization [20]. Meanwhile, empirical findings about the ways incentive affects the exchange of information and employees' performance are still limited and varied [50]. A review on more than 200 empirical researches about work motivation concludes that little is known of the way teamwork is motivated [2]. When organizations apply more team-based systems, research about team members' composition (e.g. LoC) and motivation (e.g. incentive) become more important as well.

A laboratory experiment involving 105 participants divided into 37 teams is conducted. The statistical testing results support all of the hypothesis. Group incentive system encourages better team performance compared to individual incentive system. Empirically, it is also supported that the group incentive system could improve the performance of a team consisting of individuals with external LoC. Meanwhile, the team consisting of internal LoC individuals shows a better performance if the individual incentive system is applied.

More LoC researches explore LoC on the individual level and exhibit the superiority of internal LoC over organizational processes and outcomes than those that explore external LoC (see for example [5], [9], [17], [29], [56]). In those researches, there is little concern about context. This research considers context in seeing how employees' potentials could be optimized. Specifically, this research determines the types of incentive systems that encourage individuals with certain LoC to fit so they could make their best efforts. In other words, the best performance could be given when there is congruence between an organization (in this case, the incentive system) and the personality traits (LoC) of the employees.

The results of this research contribute to the findings related to the topics of incentive systems and team performance, which are still inconsistent. They also enrich the findings of previous researches in a relatively different way. Exploration for the matching of incentive schemes and LoC in a team to produce an optimized teamwork is rarely examined in accounting management, especially using the experimental method. Experimental method researches with a team as analysis unit is also relatively scarce. Additionally, this research fills the gap between the disparity in the explanation of the appropriate team incentive systems.

II. HYPOTHESIS DEVELOPMENT

A. The Influence of Incentive System on Team Performance

Empirical studies have shown inconsistent results regarding the influence of the incentive system on performance. While agency theory and social cognitive theory support the application of the individual incentive system to improve team performance [39], [42], social categorization theory [30] and

goals interdependence theory [12] strongly support group incentive system. To connect both poles, this research relates the incentive system with team performance based on the social identity perspective.

Social identity perspective focuses on conditions that determine self-definitions differently, which show the process of individual and group interaction in determining work motivation [15]. 'The self' can be determined in different ways. In most situations, individual consideration has an important role, but in other situations, individuals would be motivated to behave in certain ways that express or support the social identity they shared with others in their working environment. Individuals are not only encouraged by their personal considerations, but also projected, directed, and adapted by their needs, goals, expectations, or the team or organization reward at work. This perspective does not discern which one is more important or valid as source of motivation, but rather discern a more proper condition as source of motivation.

In the social identity framework theory, teamwork is a condition faced by team members to show 'the self' in a collective meaning. The group incentive scheme is a system that encourages employees to show their identities as part of a collective. Group-based performance report will urge the employees to adopt a group frame [48]. The group frame encourages individuals to be more attentive of other individuals' outcomes and to build trust between them, while the individual frame encourages individuals to be self-centered. The individual-based incentive could lessen the information exchange between employees although economic incentive is given for the action [28].

Empirical evidence shows that group-based incentive is effective for organizations as it is mutually accountable, in which the members work for the same purpose as co-workers; in addition to the ease in measurement and evaluation [1], [8], [34], [45]. Team-based performance report also will urge the employees to adopt a group frame [48]. The group frame encourages individuals to be more attentive of other individuals' outcomes and to build trust between them. Group incentive also encourages team members to share information [16], [28]. In turn, social contingencies within the team will support the betterment of performance [24].

In contrast, the individual incentive, which serves as individual performance compensation, can bring out 'selfish' behavior, such as the tendency to conceal information [55], focus on personal goals and ignore other parties' goals, and deter team activity such as information sharing and discussion although economic incentive is given for the action [28]. Therefore, the group incentive system could motivate team members to coordinate and cooperate with each other to produce a much better team performance. Based on these arguments the first hypothesis is proposed.

H1. Group incentive system encourages better team performance compared to individual incentive system.

B. The Congruence between Incentive System and LoC to Improve Team Performance

The influence of group incentive system on team performance is not entirely and consistently supported by numerous of previous empirical studies. Some studies suggest the application of the group incentive system (e.g. [28], [34], [45]), whereas others reveal evidence suggesting the insignificant relation between these two variables [39]. Meanwhile, some other studies explain the negative effects of the group incentive system towards team performance [23], [37]. The meta-analysis shows the inconclusive results regarding the influence of incentive plans on performance [21].

Failure to reach a definitive conclusion from the aforementioned researches indicates that the main effect comparison is not adequate and that the possibility of mediation variable or moderator variable needs to be considered [53]. There are four sets of variables related to the group-based reward effectiveness, namely the reward system characteristics, organizational characteristics, team characteristics, and individual characteristics [11]. This research analyzes one moderator variable between the incentive system and team performance, which is LoC as one of the personality dimensions of team members.

Personality is a part of the team structure serving as team interaction inputs [19]. It is one of the internal factors supporting behaviors. Personality is psychological characteristics (namely character, traits, and temperament) that determine and reflect how an individual responds to their environment. Personality, which tends to be consistent and unchangeable, is the essence of individual differences [49]. Personality is important in the way an individual works with other individuals in a team [43]. Personality test could determine who works most effectively in stressful tasks, who responds better in emergency conditions, who has the potential to be a leader, who tends to work better in participatory environments, etc.

LoC is one of an important personality character; the fundamental inter-individual differentiator, well-documented [3], and stable [36]. LoC is one of the three most examined core human traits (self-esteem, LoC, and emotional stability) in applied and personality psychology researches [27]. The meta-analysis shows that four human characters (self-esteem, generalized self-efficacy, LoC, emotional stability) are highly correlated to one another and that these four characters have a similar correlation with work satisfaction and performance [27].

LoC is an individual perception on his or her ability to control fate, including work and success. LoC is divided into two, namely the internal LoC and external LoC. The internal LoC states that things happen to an individual because of his or her own behavior or characteristic, which is relatively permanent. On the other hand, external LoC believes that things happen to an individual as a result of luck, chance, fate controlled by other forces, or that they are simply unpredictable because of the complexity of the forces around them [47].

The match between employees and their environment is one of the commonly examined topics of research in organizational behavior. P-E fit is generally defined as the match between individual and the working environment, which occur when both have similar characteristics [32]. The individual-situation interaction is the focus of P-E fit research [18]. For each individual there is an environment which more or less matches his or her personality characteristic. The congruence or “best-fit” of an individual and the working environment can be seen from the good working performance, satisfaction, and the low level of stress in a system while the lack of fit causes bad performances, dissatisfaction, and stress in the system.

Congruence between incentive system and LoC presumably affects the team performance. Internal LoC individuals perceive a strong relation between their actions and the goals and the expected outcomes [47]. Therefore, the internal LoC characteristics will fit in an environment applying the individual incentive system rather than the group incentive. In the individual incentive system, there is a tight relation between individual performance and the received reward [23]. Additionally, this system also possesses a strong control of the individual over their performance [37]. On the other hand, the group incentive system will match external LoC individuals. The group incentive scheme is designed to stimulate the collaboration between team members and the synergy within the team. Cooperation is assumed more attainable by external LoC individuals because they believe the chance and forces outside them affect success [47], in this case including the team, which becomes their closest working environment. Internal LoC individuals tend to be more independent and less appreciative of teamwork, while external LoC individuals tend to behave in contrast to internal LoC [43].

The congruence between incentive system and LoC is presumed to be positively responded by individuals. When congruence or P-E fit condition is attained, individuals will feel more comfortable and competent [7]. Additionally, P-E fit fulfills the fundamental needs of belonging and self-actualization, which in turn produces positive attitude and behavior [6]. These arguments give rise to the following hypothesis:

H2. Incentive system interacts with LoC, such that internal LoC teams perform at higher levels at individual incentive than at group incentive, and external LoC teams perform at higher levels at group incentive than at individual incentive.

III. METHOD

To analyze the hypotheses, a laboratory experiment is conducted with a 2 x 2 design at a large university (Diponegoro University) in Indonesia. The participants were 105 accounting postgraduate students divided into 37 teams. All participants are students of the first semester (75.2%) who have interacted with each other for at least four months and of the third semester (24.8%) who have interacted for at least 18 months, so it is very likely for participants to cooperate as a team. Participants consist of 50.5% women and 49.5% men,

with the average age of 30.97 and 82.9% of participants have worked.

Team performance (dependent variable) is measured by the number of tasks precisely completed by all of member of the team. The incentive system (independent variable) is categorized into two, the individual incentive system and group incentive system. The individual incentive uses the equity norm basis, while group incentive uses equality norm. LoC measured by the instrument consists of 29-items [47]. This measure is forced-choice test including six filler items intended to make more ambiguous the purpose of the test.

Standard Progressive Matrices (SPM) as the experimental task has a moderate difficulty level [44], so the tasks do not require particular skills or working experience to complete. This is confirmed by the answers that mostly state that the difficulty level of the questionnaire was moderate (57.1%). The majority of the participants also state that the experimental task is not boring (91.4%). The average value of team performance in finishing SPM is 8.54 with a minimum score of 4.33 and a maximum score of 10.

SPM effectively evaluates cognitive abilities despite language or cultural background [44]. Aside from being commonly used in published researches, SPM is chosen because it also examines the problem solving served in the picture and the abstract design that can be conducted individually or collectively. Besides that, this task is employed in this research since it is a pencil and paper task, which secures privacy. This means that the subjects are not able to simply increase their performance by observing the other group's behavior.

The experiment is conducted in the following steps:

- 1) Measuring participants' LoC. The variable measurement is conducted before experimenting, so each team has the exact match in the experiment. The average LoC team score is 13.83, with a minimum score of 8.50 and a maximum score of 19.67. The standard deviation of the LoC team is 2.96. According to their answers in this questionnaire, the participants were divided into four groups based on the median value. These groups received different designs in different classes. The design includes individual the incentive system for internal LoC individuals, the individual incentive system for external LoC individuals, the group incentive system for internal LoC individuals, and the group incentive system for external LoC individuals.
- 2) The participants are gathered at the same hour in different classes with different experiment conditions to prevent the internal validity threat of history, diffusion, and regression. The participants are divided into incentive system groups randomly, to overcome the selection threat, with three members in every group. To prevent reactivity and experimenter effects, the instruction is written in word-by-word detail, and is to be read by the research assistant. To confirm that the participants understand their roles and tasks in the experiment, they are asked to answer four questions.

- 3) Participants work on the experimental task Raven's (2014) SPM as instructed in 10 minutes. This short duration of time is an effort to prevent the internal validity threat of maturation. The task chosen has a moderate difficulty level to prevent the internal validity threat of mortality.
- 4) Participants received a questionnaire-sheet after experiment as manipulation check. This questionnaire uses Likert scale questions of five points (1 = strongly disagree, 5 = strongly agree). At first, there had been 107 participants, but two of them did not pass the manipulation check.
- 5) Incentive distribution. Participants received their incentive based on their performance on their group, whether using equality or equity norm as a basis of the incentive.

The hypotheses are tested by analysis of variance (ANOVA). As an additional test, to ensure that there is no accompanying factors that affect team performance apart from the independent variable manipulated and measured in this variable, analysis of covariates are employed. Those covariates are the mean of grade-point average and the mean of team member's age.

IV. RESULTS

The Cronbach's alpha scale of the manipulation check is 0.75, meaning that this scale is reliable [41]. Additionally, the result of the Pearson correlation test shows that the questionnaire is a valid instrument for manipulation check. The mean of individual incentive condition ($n=18$) is 3.38 (SD 0.86) and the mean of group incentive condition ($n=19$) is 4.19 (SD 0.63), which signifies that manipulation design have effects as expected.

According to Table I, the primary effect of group incentive system on performance (mean = 8.8772) is bigger than the individual incentive system (mean = 8.1852). The internal LoC team in the individual incentive system (mean = 8.5926) is not too different from internal LoC team within the group incentive system (mean = 8.5455). Meanwhile the external LoC team performs much better in the group incentive system (mean = 9.3333) compared to the individual incentive system (mean = 7.7778).

In obtaining reassurance on the effects of the incentive system and LoC on team performance, an analysis of variance (ANOVA) was conducted with the test result displayed in Table II. This test is conducted after ANOVA's assumptions are fulfilled, i.e. homogeneous variance, random sampling, and normality. To assure that team performance is not affected by accompanying factors such as subject demographic characteristics, an analysis of covariate (ANCOVA) test was also conducted (Table III).

The results in Table II support the first hypothesis that the group incentive system encourages better team performance compared to the individual incentive system ($F = 4.242$, $p < 0.05$). The results also indicate support for the second hypothesis that incentive system interacts with LoC, such that internal LoC teams perform at higher levels at individual

incentive than at group incentive, and external LoC teams perform at higher levels at group incentive than at individual incentive ($F = 4.789, p < 0.05$). The interaction between incentive system and LoC in affecting team performance can be seen on Fig. 1. Table III shows that team performance is not affected by either GPA ($F = 1.618, p \text{ value} = 0.213 > 0.05$) nor the age of participants ($F = 0.767, p \text{ value} = 0.388 > 0.05$).

TABLE I
 DESCRIPTIVE STATISTICS

LoC	Mean and Standard Deviation of Team Performance		
	Individual Incentive System	Group Incentive System	Overall
Internal LoC	8.5926	8.5455	8.5667
(Standard Deviation)	(1.07726)	(0.83030)	(0.92306)
	n = 9	n = 11	n = 20
External LoC	7.7778	9.3333	8.5098
(Standard Deviation)	(1.61589)	(0.69007)	(1.46779)
	n = 9	n = 8	n = 17
Overall	8.1852	8.8772	8.5405
(Standard Deviation)	(1.39665)	(0.85318)	(1.18661)
	n = 18	n = 19	n = 37

TABLE II
 ANOVA RESULT (DEPENDENT VARIABLE: TEAM PERFORMANCE)

	Mean Square	df	F	Sig.
Incentive System	5.193	1	4.242	0.047
LoC	0.002	1	0.001	0.971
Incentive*LoC	5.863	1	4.789	0.036
Error	1.224	33		

R Squared = 0,203
 (Adj. R Squared = 0,131)

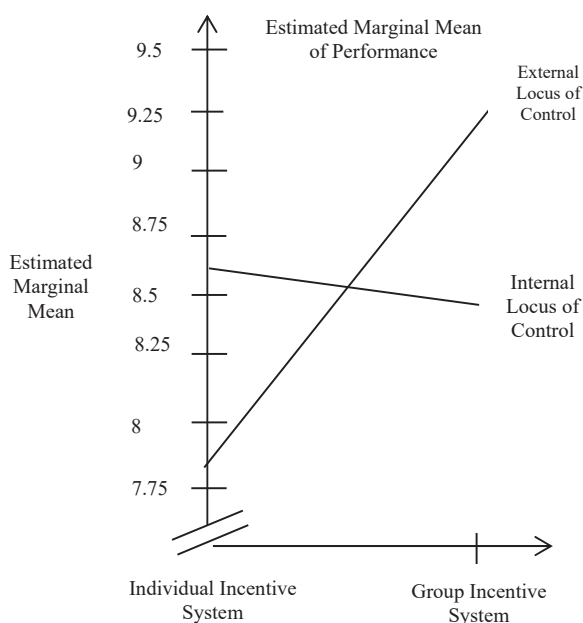


Fig. 1 Interaction Between Incentive System and LoC in Affecting Team Performance

TABLE III

ANCOVA RESULT (DEPENDENT VARIABLE: TEAM PERFORMANCE)				
	Mean Square	df	F	Sig.
Covariate Variables:				
GPA	1,982	1	1,618	0,213
Ages	0,940	1	0,767	0,388

V. DISCUSSION

This research aims to examine whether the congruence between incentive system and LoC affects team performance. The results support the proposed hypothesis. Findings related to the first hypothesis, that the group incentive system encourages a better team performance compared to the individual incentive system, is consistent with previous research (for example [8], [28], [34], [45]). According to the social identity perspective, when an individual is in a work environment applying the teamwork system, the conception of self in a collective context is more emphasized by team members compared to the conception of self in an individual context. The group incentive system, designed to improve cooperation among members, is the source of motivation for team members to behave as a team. Therefore, the group incentive system could direct team members to obtain collective results. Team members in this context support their social identities as part of a collective.

The empirical finding supporting the second hypothesis is consistent with the P-E fit theory, in which the best performance is obtained by the best-fit. In accordance to the personality traits, internal LoC individuals could show a better performance in the individual incentive system. In the individual incentive system, there is a strong relation between performance and the received reward. Therefore, an internal LoC individual who is able to work independently has strong control over the condition in the incentive system. When internal LoC individuals gathered in a team with the group incentive system, an effective team attribute of interdependence would be relatively difficult to obtain. Interdependence could be formed when team members are not entirely self-directed or not entirely independent [51]. The internal LoC team does not easily fulfill this attribute.

The small difference of internal LoC teams' performances in both incentive systems could be explained by the LoC characteristic, which perceive themselves as active agents. Internal LoC individuals perceive themselves as competent individuals in maintaining the control over their lives, and they generally have a great need for self-determination and competence [40]. Meanwhile, the improvement of performance in external LoC individuals is bigger than internal LoC in the incentive system shifting. External LoC individuals believe that outcomes are the result of chance or forces outside of themselves. When external LoC individuals are put in a team, they optimized other team members in collaboration, thus creating social interdependence. Compared to when they are placed in the individual incentive system, external LoC individuals could perform best in the group incentive system. When external LoC individuals cooperate they could synergize and perform better than they do

individually, because the inter-person interaction could decrease negative effects (especially fear and stress) [42]. Such a condition is consistent with the definition of teamwork as a cooperative process, which enables ordinary people to obtain extraordinary results [51]. These findings regarding external LoC individuals supplement the previous empirical findings that shows the superiority of internal LoC individuals (see [5], [9], [17], [29], [56]). These empirical findings give additional evidence that external LoC individuals could also produce a superior performance as long as they are placed in a system compatible with their personal traits. The best performance is achieved when congruence occurs between the people and their environment. In a different context, this research is consistent with previous research that congruence between people and environment is required to attain the best performance [26].

The findings of this research also contribute in resolving the debate between the agency theory and the social cognitive theory versus the social categorization theory and the goals interdependency theory related to the choice of incentive system to encourage a better team performance. The social identity theory used in this research states that in a work environment, the conception of self could be realized in both the individual and collective contexts depending on the circumstances. When the work environment applies the teamwork system, the conception of self as a collective is more emphasized. In such a condition, the group incentive, as one of the group's expectations and goals, becomes the source of motivation for the group.

From the managerial point of view, this research affirms the importance of team composition design and its compatibility with the incentive system. The required attributes to form an effective team are commitment to the team's success and collective goals, interdependence, interpersonal skills, open communication and positive feedback, appropriate team composition, and commitment to the team's process, leadership, and accountability [51]. In this case, team composition must consider the personalities of team members. Managers must position the right person on the right place. Every person and every team can exhibit their best performance when there is congruence between the traits of the people/team with the applicable system. This research affirms the supplementary fit in order to obtain organizational goals [38].

This research has its limitations regarding external validation. Therefore, future researches could examine the same materials in different settings; moreover, because this research is an exploratory study. Additionally, this research did not take into consideration the characteristics of the tasks, which might alter internal LoC and external LoC reactions. When a task requires a high level of information processing, the processes within the group, including open communication and performance strategy discussion, become more complex [19]. Thus, future researches should consider this as a situational variable.

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