Cognitive Orientation and Incentive System on Team Performance: Experimental Studies in Accounting Decision Making

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Abstract: At this time the organization has adopted a group or team-based structure in operation and coordination in order to improve performance (Libby and Thorne, 2009; Chenhall, 2008). However, team-based structures are not necessarily able to improve performance. Economic literature states that working in a team can decrease performance due to potential conflicts between individuals within the team and group incentives. Instead, organizational literature shows that working in a team can improve performance through collectivist cognitive orientation. The study aims to analyze how the incentive system and cognitive orientation (individualized or collectivist) influence team performance. This research uses experimental design to accounting students and using 2x2 factorial design scenarios. The results showed that the collectivist orientation team had higher performance than the individualist cognitive oriented team without considering the type of incentive scheme provided. The results of this study also indicate that the variation of incentive schemes has little effect on the performance of collectivist groups compared to individualist groups.

Keywords: cognitive orientation, incentive system, teamwork, performance

1. Introduction

In developing and maintaining competitive advantage, many companies have shifted their structure from being individual-based to team (group) based (Katzenbach and Smith, 1994; Chenhall, 2008). In general, team-based structures offer cooperation and coordination in processes and actions in relation to making organizations more flexible (Mohrman et.al. 1995; Towry, 2003), and with a desire to improve organizational performance. However, the development of this structure does not automatically improve organizational performance. This is even more so when the team may have poor performance and conflicts occur in the decision-making process of team members and there are team members' negligence (Finkelstein and Hambrick, 1996; Denison et al. 1996).

The next question is how the performance of a team can continue and improve (Young et al. 2001; Merchant et al. 2003). Designing incentives can motivate performance and reduce the potential for negligence of team members (Mohrman et al. 1995; Kelly 2010). Traditionally, individual incentive systems have been thought to encourage competition and conflict among employees instead of encouraging the collaborative behavior required in a team environment (Abernethy and Lillis 1995; Parker et al. 2009). Thus, in an effort to achieve an effective performance measurement system for the team, which in carrying out its duties requires interaction and cooperation between team members, it is necessary to consider the motivational factors that will influence the behavior of workers in the team (Towry, 2003).

This study does to reconcile conflicting lines of argument in the two literatures between economics and organizational behavior. The economic literature shows that group-based incentives prevent team members from carrying out their duties responsibly. This is due to the opinion that the productivity of each worker will be lower if the incentives are given based on group incentives rather than based on individual incentives. However, the organizational behavior literature suggests that group-based incentives can increase the motivation and effectiveness of team members because they are more suitable for team-based structures.

Narnjo-Gill et al. (2012) argues that in a group setting, some sensitivity to the dynamics of interpersonal interactions can inform the design of performance evaluation and reward systems. The study of the influence of
social motivation and value on the design and use of managerial accounting information is an important avenue for managerial accounting research. This study combines input from the organizational behavior literature on individualist and collectivist cognitive orientation and the economic literature on incentive system design, to explore how cognitive orientation moderates the relationship between incentive systems and team performance.

2. Literature Review And Hypothesis

2.1. Conceptual Review

Cognitive Orientation: Individual vs Collectivist

Hofstede (1980) states that human cognitive orientation can be categorized into individualists and collectivists. Individualists/collectivists explain cultural differences in social behavior. Individualist societies emphasize a sense of autonomy, emotional independence, individual initiative, the right to privacy, the search for satisfaction, financial security, special friendship needs, and universalism. In contrast, collectivist societies emphasize collective identity, emotional dependence, group solidarity, sharing, rights and duties, common needs, group decisions, and particularism. This is also stated by Bohner and Hesketh (1994), that individualism/collectivism refers to the relationship between individuals and the collectivity in community groups. Collectivists have non-formal contact with co-workers, are able to understand staff better, and tend to work in teams. Previous research has found that different individualist/collectivist components have a relationship with culture. Chen and West (2008) did a meta-analysis whose results indicated that there were differences in the culture of students who came from Japan and the United States. Specifically, the results of these studies conclude that competitiveness and uniqueness affect the level of global individualism in different objectives. Anderson et al. (2018) suggest that cognitive orientation offers a viable approach in a group format.

Incentive System

Naranjo-Gil et al. (2012) summarizes the definition of an incentive system as all the practices or techniques used by companies to ensure appropriate behavior from employees, with the purpose of increasing employee productivity in particular, and organizational performance in general. Incentives are one of the factors that encourage increased morale in order to achieve company goals by building expectations so that employees can produce a better level of achievement than determined. Previous research related to the relationship between incentives and performance has been carried out by Erbasi and Arat (2012) and it was found that there is a significant relationship between financial and non-financial incentives and employee job satisfaction, where the influence of financial incentives has a stronger effect on job satisfaction than non-financial incentives. Meanwhile, Hoffman and Rogelberg (1998) reviewed the literature related to incentives and concluded several main categories in group incentive practices.

Today, many organizations are moving towards more flexible, collaborative, and interdependent production environments, where self-managed work teams produce a variety of customized products and workers perform many different tasks (Ellemers et al. 2004; Chenhall, 2008). Like teams can make decisions more quickly and more effectively in the face of global competitive tensions (Dunphy and Bryant 1996); also, collaborative efforts are considered the most effective way to develop diversity in knowledge and competencies.

The potential benefits of teamwork can increase efficiency in organizational processes, integrate different competencies and perspectives to generate innovation, and improve inter-faith relations (Stock and Tatikonda 2004). In practice, however, different companies have very different experiences when they implement new collaborative work arrangements. One reason may be the lack of a suitable incentive system to coordinate, motivate, and commit workers to team performance (Abernethy and Lillis 1995; Che and Yoo, 2001).

There are two theories used in the research of Naranjo-Gil et al., (2012) related to one’s orientation in behavior, especially towards something that can lead to individual motivation in doing their work, namely collectivism and individualism. The theory of individualism-collectivism distinguishes two main behaviors based on the types of tendencies in humans. Collectivism is an orientation towards personal-group relationships, where these relationships are seen as permanent relationships, whereas individualism refers to conditions where an individual puts his personal interests ahead of group interests (Triandis and Gelfand, 1998; Wagner, 1995).
Incentive systems can be defined as all practices or techniques used by organizations to ensure appropriate worker behavior, with the aim of increasing employee productivity in particular, and organizational performance in general (Chow et al. 1996; Chenhall 2003). Incentive systems have been used to reward or punish certain behaviors (Young et al. 1988; Kelly 2010). Traditionally, they have focused on individual incentives and are designed to be sensitive to the motivational factors influencing individual actions; also, traditionally, they encourage competition among workers (Dickinson and Gillette 1993; Abernethy and Lillis 1995). However, accounting research has highlighted that incentive systems are more effective when they are suitable for an organizational environment (Young and Selto 1991). The current, more cooperative environment demands new incentive systems to promote coordination, participation, and interactive behavior (Towry 2003; Libby and Thorne, 2009).

2.2. Research Development

Not everyone perceives incentives the same way, and the personality of team members is one of the most important factors in determining team productivity and performance (Driskell et al. 1987; King and Anderson 1990). Individualism-collectivism theory distinguishes two main behavioral types or tendencies in people (Chow et al. 2001; Ilies et al. 2007). Individualism refers to conditions in which self-interest is considered more important than group needs (Triandis and Gelfand 1998; Wagner 1995, 153). Individualists are independent, seeing themselves as separate and distinct from the teams with which they are associated. In contrast, collectivists perceive themselves as part of the team with which they feel connected (Kim et al. 1994; Wagner 1995). Collectivism is an orientation toward person-group relationships, in which the relationship is seen as much more permanent and central (Wagner 1995, 155; Eby and Dobbins 1997).

The collectivist orientation differs from traditional group attraction constructs, such as cohesiveness, in that collectivism is context-free (Eby and Dobbins 1997, 276). Thus, the nature of the task and/or the incentive system does not encourage a more collectivist or individualist orientation (Wagner and Moch 1986; Eby and Dobbins 1997). Because of the different cognitive orientations and motivation of team members to work in teams, a continuum is expected between the two types of teams, and it is hoped that different teams require different incentive systems (Ilies et al. 2007; Parker et al. 2009). When people are unwilling to work to benefit the team, they usually compete both with team members and with other teams (Kim et al. 1994; Chow et al. 2001).

In contrast, teams formed by people with a collectivist orientation lack internal competition, because the members focus on cooperation and their main work is to benefit the team (Ilies et al. 2007). They have strong collective interests (Tyler and Blader 2000). Moreover they emphasize the needs of the team higher than their own individual needs when it is necessary to meet team goals (Triandis and Gelfand 1998; Ilies et al. 2007). Like wise, it has been shown that the 'level of social laziness' among collectivist team members is significantly lower than that of individualist team members (Chen et al. 1998; Karau and Williams 1993). Teams formed by mostly individualists perform worse when work requires interaction and cooperation between team members, because individualists are less cooperative than collectivists in teams (Cox et al. 1991; Gundlach et al. 2006; Kirkman and Shapiro 2001). Teams with higher levels of collectivism cooperate more and perform better than teams with lower levels of collectivism (DeMatteo et al. 1998; Eby and Dobbins, 1997; Wagner 1995), because they share responsibilities, collaborate more effectively, and share common goals (Earley and Gibson 1998; Sosik and Jung 2002). Thus, this study proposes the following hypothesis.

H1: Team performance is higher for collectivist teams than for individualist teams

Some researchers argue that workers are more receptive and committed to achieving team goals when incentive systems are aligned with their cognitive orientation (Young and Selto 1991; Finkelstein and Hambrick 1996; Chenhall 2003). Analyzing these combined effects requires combining economic and cognitive theoretical perspectives (Merchant et al. 2003). The results of Earley's (1989) experimental research show that collectivists perform better in a collectivist environment, whereas individualists perform better in an individualistic environment. This is consistent with Kim et al (1994) who showed that individualists demand individual incentives because they feel separate and different from the team.

Collectivists place a higher value on group achievement than individual performance, and prefer group goals and incentives (Kim et al. 1994). Erez and Somech (1996) argue that the best team performance should be obtained by
collectivist teams under the conditions of group goals and group-based incentives. Therefore the individualist cognitive orientation competes with all other organizational members. As a result, individualists value achievement more and individuals prefer incentives based on individual performance, whereas collectivists are more likely to prefer group-based incentive systems (Bento and Ferreira, 1992).

Organizations may be want to set individual incentives and hold individuals accountable for results. However, the collectivist tendency to act in the best interests of the team implies a more effective possibility for management to provide group-based incentives (Cable and Judge 1994; Ramamoorthy and Carroll 1998). Papamarcos et al. (2007) argue that maintaining this as long as the incentive system is in line with the individualistic or collectivistic orientation of the worker, productivity optimization can be achieved. Thus, this study formulates the following hypothesis:

H2a: The performance of the collectivist cognitive orientation group is higher than the individualist cognitive orientation group when given incentives using the team-based structure model?

H2b: The performance of the individualist cognitive orientation group is higher than the collectivist cognitive orientation group when given incentives using the individual-based structure model?

### 3. Research Method

The subjects in this study were students in Accounting Department. The demographic variables asked were age, gender, and work experience. Accounting students are selected with the consideration that even though they have not all worked directly, they have get an understanding of work in the accounting field through the various courses that have been taken. Students in accounting department selected as respondents are students who have taken and passed the class of (1) Introduction of Accounting; (2) Cost Accounting; (3) Management Accounting; and (4) Behavioral Accounting.

Participants were formed into four treatment conditions. Each participant received two treatment conditions. The assignment of experimental assignments was randomly assigned (randomly assigned) to two treatment conditions, namely the composition of the pair from the cognitive orientation (individual; collectivist) and the incentive scheme (individual; group). To form participants into groups, participants are asked to first fill out a questionnaire that can assess the cognitive orientation of each individual using the multitrait-multimethod approach indicator recommended by Triandis et al. (1998).

The test combines three instruments to capture the multidimensionality of individualism and collectivism: social context, behavioral content, which is an adaptation of the collectivism scale of Kim et al. (1994) and Yamaguchi (1994). This study uses an experimental design to investigate the proposed hypothesis. The research experiment was designed with a two by two (2x2) factorial design and between-subject. The team's task in the experimental scenario was to go through experimental production arrangements as in the management accounting literature (Chow et al. 2001). Each participant is assigned to the assembly on a specialty of four chips. Thus, each group has four members with different color specialties. This study examined the average difference in performance of groups with different cognitive orientations (individualist and collectivist) and incentive systems (individual and group). Thus, researchers used two way ANOVA analysis techniques.

### 4. Result dan Discussion

#### Descriptive Statistics and Demographics

In this study, the data obtained through experimental methods were used with student participants in Accounting department who were proxied by employees of production. The time needed to work on the entire series of instruments is 90 minutes. The initial number of participants who collected was 120 people. When doing the experimental task there were 17 people who did not understand the experimental task and 3 people who did not complete the task perfectly. Thus there are 100 data that can be processed for hypothesis testing. Table 1 Shows the results of cognitive style testing for all participants.
Table 1 Results of Testing for Individual and Collectivist Cognitive Styles

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>N=100</th>
<th>Individual</th>
<th>Collectivist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Range</td>
<td>0 – 12.5</td>
<td>12.5 - 25</td>
<td></td>
</tr>
<tr>
<td>Actual Range</td>
<td>6 – 12</td>
<td>14 - 25</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.82</td>
<td>19.18</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.67</td>
<td>2.13</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Processed (2020)

Table 1 shows that from 100 participants involved, the individual cognitive style obtained an average score of 9.82 (SD 1.67) while the collectivist cognitive style obtained an average score of 19.18 (SD 2.13).

The demographic characteristics of the participants consisted of age, gender, semester taken and 4 subjects relevant to the study. The mean age of the participants was 18.89 years. Male participants were 33 (33%) while female participants were 67 (67%). The introduction of accounting courses, cost accounting and management accounting have been taken by all participants (100%), while behavioral accounting courses are only taken by 20 people (14.3%).

Hypothesis Testing Results

Hypothesis one (H1) which states that team performance is higher for collectivist teams than for individualist teams. The test results can be seen in table 2.

Table 2. Result of Testing for Performance Difference Hypothesis

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>N</th>
<th>Descriptive</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>50</td>
<td>6.62</td>
<td>1,81704</td>
</tr>
<tr>
<td>Collectivist</td>
<td>50</td>
<td>7.82</td>
<td>1,24031</td>
</tr>
</tbody>
</table>

Table 2 shows that based on the difference in cognitive orientation shows that the performance between the individual group and the collectivist group is significantly different. This result can be seen from the significance value of 0.000 (sig <0.05). This shows that the performance of the collectivist group (7.82, SD 1.24) was higher than the individual group (6.60, SD 1.82) which can be seen from the mean value. Thus hypothesis 1 is supported.

Hypothesis two A (H2a) which states that the performance of the collectivist cognitive orientation group is higher than the individualist cognitive orientation group when given incentives with the team-based structure model. While Hypothesis 2 B (H2b) states that the performance of the group with individualist cognitive orientation is higher than the collectivist cognitive orientation group when given incentives with an individualist-based structure model. The test results can be seen in table 3.

Table 3. Result of Testing for Performance Based on Incentive Schemes Hypothesis

Panel A: Team Based Incentive

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>N</th>
<th>Descriptive</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>25</td>
<td>5.84</td>
<td>1.95107</td>
</tr>
<tr>
<td>Collectivist</td>
<td>25</td>
<td>7.96</td>
<td>1.17189</td>
</tr>
</tbody>
</table>
Panel B: Individual Based Incentive

<table>
<thead>
<tr>
<th>Incentive Scheme</th>
<th>N</th>
<th>Mean</th>
<th>Dev. Std</th>
<th>Sig</th>
<th>St. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>25</td>
<td>7.40</td>
<td>1.29099</td>
<td>0.890</td>
<td>0.36842</td>
</tr>
<tr>
<td>Collectivist</td>
<td>25</td>
<td>7.68</td>
<td>1.31403</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significance at the level 0.05

Panel A of table 3 shows that under the time-based incentive scheme, the performance between the individual group and the collectivist group is significantly different. This result can be seen from the significance value of 0.006 (sig <0.05). This shows that the performance of the collectivist group (7.96, SD 1.17189) is higher than the individual group (5.84, SD 1.95107) which can be seen from the mean value. Thus hypothesis 2a is supported. While panel B shows that based on the individual based incentive scheme, the performance between the individual group and the collectivist group is not significantly different. This result can be seen from the significance value of 0.890 (sig> 0.05). This shows that the performance of the collectivist group (7.68, SD 1.31403) is not significantly higher than the individual group (7.40, SD 1.29099) which can be seen from the mean value. Thus hypothesis 2b is not supported.

5. Discussion

The results showed that the collectivist orientation team had higher performance than the individualist cognitive oriented team without considering the type of incentive scheme provided. These results are consistent with previous studies and show that differences in cognitive styles will affect decision making (Yusnaini et al., 2020) and performance (Yusnaini et al., 2018). The results of this study also indicate that the variation of incentive schemes has little effect on the performance of collectivist groups compared to individualist groups. These results are in line with the studies of Erez and Somech (1996) and Triandis (1998) which show that collectivists can perceive group goals as their own, performance-centered, independent of the type of incentive scheme. Young et al. (1993) suggest that group incentives can result in performance when the collaborative process can increase benefits. This study seeks to see the effect of the interaction between cognitive styles and incentive schemes. Incentive schemes can provide information and will influence team productivity among team members (Fisher et al. 2008 & Che and Yoo 2001).

6. Recommendations

The experimental task in this study was designed to see the benefits of the interaction between cognitive styles and incentive schemes. The task is designed to be completed without requiring group interaction. Thus, the participants can be seen whether they interact so that it can show that one group is performing better than other groups. The results of this study indicate that cognitive orientation is an important psychological factor for producing performance. These results can also be helpful for business entities to develop production systems taking into account teamwork and collaboration. The implication of this research is to reinforce the importance of team design. Managers can use the results of this study to inform incentive design. Organizations with collectivist individuals appear to demand group-based incentives more than individual incentives. This study had limitations, the experimental design raises the potential for instrumentation effects and non-representative sampling, there are problems with the sample size and the length of the treatment conditions. Future research may focus on the social characteristics of the team and their association with different incentive schemes.

References

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