

Cognitive Style and Personality in Fraud Detection_Experimental Study on Government Internal Auditors

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**Cognitive Style and Personality in Fraud
Detection: Experimental Study on
Government Internal Auditors**

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ABSTRACT

This study aims to examine the perception of responsibility for detecting fraud in government internal auditors. This research is important to know the intrinsic factor of the auditor in his responsibility to detect fraud. These factors are the cognitive style and personality of the auditor. Personality is the novelty of this research based on the triangle model of responsibility. This study used an experimental design on 75 internal auditors of the South Sumatra provincial government. The results of this study are expected to be useful for scientific development in the field of accounting, especially public sector auditing. The results showed that the internal auditor with the field independent cognitive style had a higher level of perceived responsibility than the field dependent style in detecting fraud. Meanwhile, either a tolerant or intolerant of ambiguity of personality does not show a significant difference in detecting fraud for auditors. The benefit of the research results is that it can increase the preference for internal auditors in increasing competence in the task of detecting fraud.

Keywords:

Fraud Detection, Cognitive Style, Personality, Perceived Responsibility

Introduction

Government Internal Supervisory Apparatus (APIP) has the role of supervising government affairs or as government internal auditors in accordance with their functions and authorities. APIP's role is to eradicate corruption, collusion, and nepotism in the implementation of government activities. An effective APIP role can be realized if it is supported by professional and competent auditors with

increasingly quality internal audit results. In carrying out their duties, currently the government's internal auditors already have audit standards that must be used and adhered to when carrying out audits, namely the Indonesian Government Internal Auditors Audit Standards (SAAPI).

This study investigates the extent of perceived responsibility of internal auditors related to fraud detection in government circles in Indonesia, especially in South Sumatra. To test the perception of responsibility, this study uses the theory of The Triangle Model of Responsibility (Schlenker et al., 1994; Schlenker, 1997). The Triangle Model of Responsibility places that perception of responsibility is a direct function of the strength of the three psychological relationships between the three formative elements of responsibility prescription, event, identity.

As a development, this study examines the effect of field dependent-field independent cognitive style on the auditor's perception of responsibility in detecting fraud. A person's cognitive style refers to a person's particular way of obtaining, storing, retrieving and transforming information (Ho & Rodgers 1993; Kogan 1973). Individuals with a field dependent style understand globally, adhere to a given structure and have a social orientation. Meanwhile, individuals with a field independent style tend to be analytical, able to determine their own structure of information and have an impersonal orientation (Garger & Guild, 1984).

In addition to cognitive style, another factor that can shape the perception of the auditor's responsibility in detecting fraud that will be tested in this study is the level of personality. Research linking personality with responsibility for detecting corruption is based on the tolerance for ambiguity model (Budner, 1962). Tolerance ambiguity describes individual behavior in ambiguous situations (Stoycheva, 2003). Ambiguity occurs in a wide scope both in activities at home and in the office, in everyday situations, both in communication and interaction between individuals and socially. Communication may be ambiguous that has multiple interpretations and choice of words or inconsistencies between verbal and non-verbal expressions. This study seeks to examine the personality of government internal auditors in the responsibility of detecting fraud. Personality refers to an individual's attitude or belief, while cognitive style refers to the way or method used by a person to receive, store, process, and transmit information (Pratt, 1980).

The purpose of this study was to examine the effect of the auditor's cognitive style on the auditor's responsibility to detect fraud. Cognitive style variables are categorized into field dependent and field independent cognitive types. Measurement of cognitive style using the MBTI is an instrument that can categorize individuals related to field dependent or field independent cognitive styles. Next, examine the effect of the auditor's personality on the auditor's responsibility to detect fraud. Personality is tested at two levels, namely high, when the auditor is tolerant of ambiguity and low, when the auditor is not tolerant of ambiguity. This study uses the proxy of tolerance ambiguity to measure personality. Tolerance is measured through ambiguity tolerance on a range of individual differences in ambiguity tolerance, which indicates how well people handle ambiguous situations from avoidance to acceptance of being handled.

Theory, literature review and hypotheses

The researcher uses the triangle model of responsibility theory to explain the role of the cognitive style of government internal auditors in their responsibility to detect fraud. The explanation of the triangle model of responsibility theory on the identity-event relationship (personal control) can also be observed from the FD/FI measurement model, namely The Group Embedded Figure Test (Oltman et al., 1971). A person will be said to be independent if he is able to identify more embedded figures. Because the auditor must evaluate complex information and identify specific issues in the context of the overall environment, field independence is an important characteristic of auditing. An independent person is more efficient at drawing conclusions and better at problem solving (Bennink & Spoelstra, 1979) and decision making (Benbasat & Dexter, 1982). This is in line with the results of a study by Pincus (1990)

which found that independent auditors detected higher levels of fraud. Thus, internal auditors who have a field independent cognitive style are better able to analyze the occurrence of fraud because they are able to think and process information more comprehensively.

Previous research has shown that cognitive style influences the auditor's decision and ability to detect fraud (Pincus 1990; Ho & Rogers, 1993; Mills, 1996; Bernardi, 2003, 1994). Cognitive style influences accounting decisions (Lusk, 1973; Benbasat & Dexter, 1979; Chenhall, 2004; Emsley & Chung, 2010; Jones & Wright, 2010, 2012). Cognitive style affects the performance of accountants and auditors (Benbasat & Dexter, 1982; Vaassen et al., 1993; Cheng et al., 2003; Fuller & Kaplan, 2004; Bryant et al., 2009). Cognitive style affects the perception of internal auditors' responsibility in detecting fraud (Yusnaini et al., 2017, 2020). Cognitive style effect of investor decision making (Burhanudin et al., 2023) and effect on performance accounting decision making (Jones & Wright, 2012; Yusnaini et al., 2023).

Thus, internal auditors who have a field independent cognitive style are better able to analyze the occurrence of fraud because they are able to think and process information more comprehensively. In addition, this cognitive style has a sense of personal control over the occurrence of fraud in the government environment. The characteristics inherent in each of these cognitive styles will have an impact on how far the perceived responsibility for detecting fraud is. Thus, it can be concluded that internal auditors with field independent cognitive style tend to have a higher level of perceived responsibility in detecting fraud than the field dependent type.

Based on this framework, this study builds one hypothesis as follows:

H1: Internal auditors with field independent cognitive style have a higher level of responsibility than the field dependent style in detecting fraud.

The researcher is based on the triangle model of responsibility theory as a basis for explaining the role of government internal auditors in their responsibility to detect corruption. This can be explained through personality characteristics through a tendency to be tolerant and intolerant of ambiguity which is related to how far they perceive the ethical value of a responsibility. This can be explained through the relationship of the three elements of the triangle model of responsibility (Schlenker et al., 1994; Schlenker, 1997). For auditors with a personality that is intolerant of ambiguity, in the prescription-event relationship (task clarity), the auditor feels the lack of clarity about the rules and standards that must be met when faced with fraud cases. In contrast to the identity-event relationship (personal control), they will avoid their responsibility by feeling the inability to control an event which in this case is an event of detecting fraud. In the prescription-identity relationship (professional obligation), auditors who are intolerant of ambiguity will avoid the responsibility to detect fraud by assuming that it is not their responsibility.

Previous research has shown that individual personality and cognitive style can influence decision making (Gul, 1984). This study uses a tolerance ambiguity proxy. The tendency to view ambiguous and uncertain situations as attractive versus threatening is known as ambiguity tolerance (Budner, 1962) or uncertainty intolerance (Freeston et al., 1994). People who are more tolerant of ambiguity are thought to be happier (Bardi et al., 2009), more motivated to learn (Tapanes et al., 2009), more self-efficacious (Wolfradt et al., 1999), and are more likely to engage in cross-cultural experiences (Caligiuri & Tarique, 2012). In contrast, people who are less tolerant of ambiguity and uncertainty tend to be more worried (Buhr & Dugas, 2006; Dugas, Patrick, & Ladouceur 2001), anxious and depressed (Bardi et al., 2009; Carleton et al., 2012), obsessive-compulsive (Tolin et al., 2003), and show greater stress-related physiological responses (Greco & Roger, 2001).

For auditors with tolerance for ambiguity, auditors will feel that they must meet binding standards and rules in carrying out their function of detecting fraud (prescription-event/task clarity relationship). Auditors will try their best to carry out their duties with the perception that they are able to carry out quality procedures in an effort to detect corruption (the relationship between identity-event/personal

control). In the prescription-identity relationship (professional obligation), the auditor will carry out his function in detecting corruption by assuming that it is fully his responsibility. Thus, it can be concluded that the perceived responsibility of auditors who are tolerant of ambiguity tends to be higher than that of auditors who are intolerant of ambiguity.

Based on the basis of the literature and theory, the researchers added personality variables as variables that affect perceived responsibility for detecting fraud. Thus, it can be concluded that the perceived responsibility of auditors who are tolerant of ambiguity tends to be higher than that of auditors who are intolerant of ambiguity.

H2: Internal auditors with high personality (tolerant of ambiguity) have a higher perceived responsibility than low personality (intolerant of ambiguity) in detecting fraud.

Research method

Design

The subjects in this study were 75 internal auditors of government institutions in the province of South Sumatra. The demographic variables asked were age, gender, work experience, position, educational background. This study uses an experimental design to investigate the hypotheses. The experimental design uses three testing steps. The first step taken by the participants is to test the cognitive style of the field dependent/independent participants. The second step is that participants are tested on their personality level in an effort to detect fraud. To test the personality consists of high personality (tolerant of ambiguity) and low personality (intolerant of ambiguity). The third step is to fill in the instrument to determine the perception of responsibility for detecting fraud based on the elements of the triangle model of responsibility theory.

Variables measure

Cognitive style variables are distinguished in the independent-dependent field style. Participants who understand globally, adhere to the given structure and have a social orientation are categorized as field dependent individuals. Individuals with a field independent style tend to be analytical, able to determine their own structure of information and have an impersonal orientation. The tool that can be used to measure or test cognitive field dependence is The Group Embedded Figure Test (GEFT) developed by Witkin et al., (1971). Personality variables are conditioned on the level of tolerance for ambiguity (high) and intolerant of ambiguity (low). This study uses the proxy of tolerance ambiguity to measure personality. Tolerance is measured through ambiguity tolerance on a range of individual differences in ambiguity tolerance, which indicates how well people handle ambiguous situations from avoidance to acceptance of being handled. Tolerance for ambiguity (TFA) was measured by MacDonald's (1970) instrument, which asked respondents to state whether they agreed or disagreed with, in total, twenty statements about ambiguous situations (Lange & Houran, 1999). The perceived responsibility variable is associated with the relationships included in the triangle model of responsibility. There are two questions related to prescription-identity link (professional obligation), prescription-event link (task clarity), and identity-event link (personal control).

Result and discussion

Descriptive statistics participant

There are 75 participants whose data can be processed in this study. Participants aged between 25 to 35 years were 17 people (20.23%), ages 36 to 45 years were 45 people (53.57%).

Participants aged between 46 to 55 years were 21 people (25.00%), aged 56 to 65 years were 1 person (12%). The male participants were 53 people (63.09%) while the female participants were 31 people (36.90%). Experimental participants with undergraduate accounting education were 35 people

(45.24%) while those with non-accounting undergraduate education were 19 people (22.67%). There are 18 accounting students (21.43%) for undergraduate education, while 12 non-accounting graduates (14.29%).

Participants with the first auditor position were 38 people (45.24%), young auditors were 29 people (34.52%) while there were 17 middle auditors (20.24%) and none was predicated as main auditor. Variations in the length of work of participants less than 5 years amounted to 37 people (44.05%). The length of work from 6 to 15 years amounted to 31 people (36.90%). The length of work from 16 to 25 years is 9 people (10.71%). There were 7 people working for 26 to 35 years (8.33%) and there were none for more than 35 years.

Randomization effectiveness

To produce a good experimental design, a randomization model was used in the selection of research subjects. The randomization model in giving treatment is known as random assignment. Through this randomization, the characteristics of the individuals we choose will have the same characteristics so that the effects of the treatment given are relatively equal. The approach used by researchers in testing the effectiveness of the treatment is testing through analysis of variance (ANOVA).

In this test, the researcher conducted a comparative analysis of the test results on the perception of responsibility based on the demographic data of the participants. The basis of the comparison is the age, gender, education, position and experience of the participants involved in the experiment. In addition, because the assignment was carried out in 4 experimental classes, an analysis was also carried out to compare the test results by class. Table 1 presents the results of the Anova test on randomization based on participant profiles.

Table 1.

Randomization effectiveness test results

Participant profile	Perceived responsibility			
	Levene test		Test of between subjects	
	F	Sig	F	Sig
Age	0.360	0.728	0.418	0.741
Gender	0.266	0.607	1.960	0.165
Education	1.046	0.447	1.046	0.376
Position	0.223	0.801	3.129	0.149
Experience	1.616	0.177	1.069	0.377
Experiment class	5.405	0.002	2.248	0.088

Table 1 shows that in each participant's profile or background there is no difference in the perception of responsibility in detecting fraud. The difference in the perception of responsibility can be seen from the significance value of more than 0.05 in the data for age (0.741), gender (0.165), education (0.376), position (0.149), experience (0.377) and experimental class (0.088). The results of the test on the randomization of the participants' backgrounds can be said that the randomization was successful. Thus it can be concluded that the profile or background of the participants does not affect the treatment or treatment given in the experimental session. The results of descriptive measurements related to the average perception of responsibility for detecting fraud can be seen in table 2. Table 2 shows the average perception of responsibility for detecting fraud both as a whole and based on the type of cognitive style and personality.

Table 2.*Descriptive statistics test results of Link Triangle Model of Responsibility (tmor)*

TMoR Link	Perceived responsibility (Mean)				
	Mean	FI	FD	Tolerant of ambiguity	Intolerant of ambiguity
PO #1	80.29	89.42	72.00	86.33	68.10
PO #2	84.12	87.50	79.25	97.21	76.44
PO Mean	82.21	88.46	75.63	91.77	72.27
TC #1	78.82	84.81	69.25	86.70	70.11
TC #2	77.65	82.50	66.50	83.92	65.40
TC Mean	78.24	83.66	67.88	85.31	67.76
PC #1	75.00	75.23	70.00	95.11	69.22
PC #2	76.18	82.55	68.21	81.93	68.54
PC Mean	75.59	78.89	69.11	88.52	68.88

Source: Processed data 2021

Data normality test

The results of the normality test of the data were carried out to determine the appropriate statistical test tool in testing the hypothesis. The results of the normality test of the responsibility variable data for detecting fraud showed the K-SZ value was 0.975 with a significance level of 0.156. Thus, it can be concluded that the data on the responsibility variable for detecting fraud is normally distributed. The results of testing the responsibility data for detecting fraud based on cognitive style show that for the Field Independent (FI) cognitive style condition, K-SZ is 1.168 with a significance level of 0.217. For Field Dependent (FD) conditions, K-SZ is 0.945 with a significance level of 0.364. Thus, it can be concluded that the data on the responsibility variable for detecting fraud is based on conditions of normal distribution of cognitive style differences. The results of testing the responsibility data for detecting fraud based on personality indicate that for high personality conditions, K-SZ is 0.405 with a significance level of 0.218. For low personality conditions, K-SZ is 0.773 with a significance level of 0.736. Thus, it can be concluded that the responsibility variable data for detecting fraud is based on the condition of differences in personality levels that are normally distributed.

Hypothesis testing

Hypothesis one (H1) which states that the internal auditor with field independent cognitive style has a higher level of responsibility than the field dependent style in detecting fraud. To test the hypothesis, an independent sample t test analysis tool was used. The test results can be seen in table 3.

Table 3.*First hypothesis test results (h1)*

Cognitive Style	Descriptive			Hypothesis			
	N	Mean	Std. Dev	Levene Test		Equal Variance Assumed	
				F	Sig	T	Sig
Field Independent	39	80.64	12.832	1.876	0.175*	2.114	0.038*
Field Dependent	36	73.58	16.013				

* Significance at the level of 0.05

Table 3 shows that based on descriptive statistical data, participants with field independent cognitive style were 39 people and had an average perception of responsibility for detecting fraud of 80.64 with a

standard deviation of 12.832. There are 36 participants with field dependent cognitive style and have an average perception of responsibility for detecting fraud of 73.58 with a standard deviation of 16,013. In absolute terms the perception of responsibility for detecting fraud is different between participants with field independent and field dependent cognitive styles. To see if this difference is statistically real, further testing is carried out.

Testing the hypothesis begins by looking at the variance of the two sample groups, whether it is equal (equal variance assumed) or different (equal variance not assumed) by looking at the Levene test value. From table 3 it can be seen that the calculated F Levene test is 1.876 with a probability of 0.175. Because the probability is more than 0.05, it can be concluded that the two groups have the same variance. Thus the analysis of the t-test difference test uses the assumption of equal variance assumed. The results of the different t-test showed that the t- value at equal variance assumed was 2.114 with a significance probability of 0.038. The probability value below 0.05 indicates a significant average difference between the two test groups. Thus, it can be concluded that the average perception of responsibility for detecting fraud between the field independent and field dependent groups is significantly different.

Based on the results of these tests, it can be concluded that hypothesis one (H1) states that internal auditors with a field independent cognitive style have a higher level of perceived responsibility than the field dependent style in detecting fraud, which is statistically supported. This can be seen from the average value of the field independent participant's perception of responsibility (80.64) which is higher than the average value of the field dependent participant (73.58), also supported by a significant difference from the results of the different t-test. test (p 0.038).

Hypothesis two (H2) which states that the Internal Auditor with a high personality has a higher level of responsibility than a low personality in detecting fraud. To test the hypothesis, an independent sample t test analysis tool was used with the help of SPSS (Statistical Package for Social Sciences) software. The test results can be seen in table 4.

Table 4.
Second hypothesis test results (h2)

Personality	Descriptive			Hypothesis			
	N	Mean	Std. Dev	Levene Test		Equal Variance Assumed	
				F	Sig	T	Sig
Tolerant of Ambiguity	43	76.19	14.833	0.015	0.904	-0.723	0.472*
Intolerant of Ambiguity	32	78.69	14.820				

* Significance at the level of 0.05

Table 4 shows that based on descriptive statistical data, the participants with a high level of personality were 43 people and had an average perception of responsibility for detecting fraud of 76.19 with a standard deviation of 14,833. For participants with a low personality level, there are 32 people and have an average perception of responsibility for detecting fraud of 78.69 with a standard deviation of 14.820. In absolute terms, the perception of responsibility for detecting fraud differs between participants with high and low levels of personality. To see if this difference is statistically real, further testing is carried out.

Testing the hypothesis begins by looking at the variance of the two sample groups, whether it is equal (equal variance assumed) or different (equal variance not assumed) by looking at the Levene test value. From table 4 it can be seen that the calculated F Levene test is 0.015 with a probability of 0.904. Because the probability is more than 0.05, it can be concluded that the two groups have the same variance. Thus the analysis of the t-test difference test uses the assumption of equal variance assumed. The results

of the different t-test showed that the t-value at equal variance not assumed was -.723 with a significance probability of 0.472. The probability value above 0.05 indicates that there is no significant average difference between the two test groups. Thus, it can be concluded that the average perception of responsibility for detecting fraud between groups with high and low levels of personality is not significantly different.

Based on the results of these tests, it can be concluded that hypothesis two (H2) states that high personalities have a higher level of perceived responsibility than low personalities in detecting fraud, which is not statistically supported. This can be seen from the average value of the perception of responsibility for high personality participants (76.19) which is higher than the average value of low personality participants (78.69), with no significant difference from the results of the different t-test (p 0.472).

Check manipulation

The manipulation check in the first experiment aims to determine whether the subject understands the given scenario so that they can perceive responsibility for detecting fraud. The questions to check the manipulation of the perception of responsibility are questions related to the influence of Silpa on responsibility, the tendency to detect and change responsibilities, the level of fraud materiality, the level of understanding of the scenario, the level of reality of the case and the influence of fraud on Silpa.

In detail, the questions given are 1) How do you assess the materiality of the fraud?; 2) Is the fraud case well understood? 3) Is the fraud case realistic? 4) What is the effect of the fraud on Silpa?; 5) Does the impact of fraud on Silpa affect your responsibility in detecting fraud?; 6) What are you likely to do to detect the fraud if you do it in the normal internal auditing area?; and 7) How will your responsibility to detect fraud change if this is your second year involved in fraud detection?.

The answer choice for the first question is the response tendency from very immaterial to very material. The answer choices for the second question are response tendencies from very difficult to understand to very easy to understand. The answer choices for the third question are response tendencies from very unrealistic to very realistic. The answer choice for the fourth question is the response trend from decreasing, no effect to increasing. The answer choice for the fifth question is the response tendency from no effect to very high effect. The answer choice for the sixth question is the response tendency from no chance to detect to really want to detect. The answer choice for the seventh question is the tendency of the response of responsibility to decrease, not change and responsibility to increase. Table 5 presents a description of the participants' answers to the manipulation questions.

Table 5.

Descriptive statistics test results manipulation questions (N=75)

	Range	Mean	Std. Dev.
Materiality	8	7.47	2.030
Understandable	8	6.75	2.284
Realistic	9	8.21	1.671
More budget left (Silpa)	9	5.59	2.590
Responsibilities Detect	9	6.59	2.387
Tendency to Detect	9	7.38	1.932
Change of Responsibilities	8	7.49	1.486

Source: Processed Research Data (2021); Min=1, Max=10

From the participants' answers to 7 (seven) manipulation questions, scores above 5 (range 1 to 10). This value is higher than the mean of the given scale. Thus, it can be concluded that participants can

understand the experimental scenario given by the researcher.

Conclusion

This study attempts to analyze and provide empirical evidence regarding the perceived responsibility of the Indonesian government's internal auditors in detecting fraud. To analyze the results of this study used the theory of The Triangle Model of Responsibility (Schlenker, 1997). The theory suggests that perceptions of responsibility are a direct function of the strength of the three psychological relationships between the three formative elements of responsibility. The first is the relationship between prescription-identity (professional obligation) which refers to the extent to which certain prescriptions are seen to apply to actors. Second, the prescription-event relationship (task clarity) refers to the extent to which the prescription clarity applies to a particular event. Third, the relationship between identity-event (personal control) which refers to the extent to which a person is associated with the event itself.

There are several findings in this study. First, the test results show that the perception of responsibility for detecting fraud between the field independent and field dependent groups is significantly different. Thus, it can be concluded that the perception of responsibility for detecting fraud is higher for auditors with field independent cognitive style (FI) than auditors with field dependent cognitive style (FD). Based on the theory of the Triangle Model of Responsibility, for auditors who are field independent (FI) and field dependent (FD), the professional element of obligation is higher in explaining the perception of responsibility than task clarity and personal control. The results of this study are consistent with the findings DeZoort and Harrison (2008a & 2008b), and Yusnaini et al (2017 & 2020).

Second, the test results show that the perception of responsibility for detecting fraud between groups with a high level of personality and a low level of personality is not significantly different. Thus, it can be concluded that the perception of responsibility for detecting corruption is not significantly different in auditors with a high level of personality and a low level of personality. Based on the theory of the Triangle Model of Responsibility, for those with a high level of personality and a low level of personality, the element of professional obligation is higher in explaining the perception of responsibility than task clarity and personal control. The results of this study are consistent with the findings Burhanudin et al. (2023)

The results of this study are expected to provide an empirical contribution to the theory of responsibility The Triangle Model of Responsibility (Schlenker, 1997) which is a psychological theory that can confirm the auditor's perceived responsibility in detecting fraud. The Triangle Model of Responsibility posits that the perception of the responsibility of government internal auditors is a direct function of the strength of the three psychological relationships between the three formative elements of responsibility. The findings from the results of both hypothesis testing prove that the determining factors for a person to be responsible can be explained by elements of professional obligation, task clarity and personal control.

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