

Moderated-mediation Effect of Individual Psychological Differences on Audit Task Performance: From the Perspective of Social Cognitive Theory

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SUMMARY

The objective of this study is to examine the effects of goal orientation and self-efficacy on audit judgment performance using two different levels of task complexity. This study uses a quasi-experimental design on 154 auditors from small-sized and medium-sized audit firms. Participants are required to perform an internal control audit task and to complete a set of questionnaire. This study uses a hierarchical regression analysis to test the hypotheses. Consistent with previous research, learning goal orientation is positively related to audit judgment performance. However, the relationships between performance-approach and performance-avoidance goal orientations are not significantly related to audit judgment performance. A further analysis shows that self-efficacy mediates the relationship between learning goal orientation and audit judgment performance. High levels of learning goal orientation among auditors increase their self-efficacy that, in turn, leads to better audit judgment performance. Results of a further analysis using moderated-mediation effect suggest that self-efficacy mediates stronger for less complex than high complex tasks. The results highlight the importance of psychological factors that influence audit judgment and the unique contributions of these factors to explain the varying audit judgment performance under different levels of task complexity.

Keywords: Individual psychological differences, Goal orientation, Self-efficacy, Task complexity, Audit judgment performance

INTRODUCTION

In an audit setting, judgment problems may be due to cognitive problems experienced by individual characteristics and by inherent aspects of the task (Libby & Luft, 1993). Many

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past studies in audit judgment have examined the effect of individual characteristics and task complexity on audit judgment performance (Chang et al., 1997; Chung & Monroe, 2000; Chung & Monroe, 2001; Tan et al., 2002). Results have shown inconsistency and variations in the level of quality of audit judgment. These variations may be due to some factors such as individual psychological differences (another component of individual characteristics) which have not been addressed yet. Only a few studies have given attention on the importance of individual psychological differences in audit judgment performance (e.g. Gul, 1984; Pincus, 1990; Iskandar & Iselin, 1999; Abdolmohammadi, Searfoss & Shanteau, 2004).

This study has identified two individual psychological differences, goal orientation and self-efficacy, which both factors have been well researched in the applied psychology and management fields (DeShon, R.P. & Gillespie, J.Z., 2005; Payne et al., 2007; Judge et al., 2007). It is evident that these factors have a significant influence on the performance of individuals on various tasks and conditions (Steele-Johnson, Beauregard, Hoover & Schmidt, 2000). The degree of task complexity could be an important condition for the effects of goal orientation and self-efficacy on audit judgment performance. A greater consideration on the individual psychological differences affecting information processing may be able to explain the variations in the level of quality of audit judgment (Pincus, 1990; Iskandar & Iselin, 1999). It is essential to understand to what extent a motivational factor such as self-efficacy can be changed when auditors have different types of goal orientation that in turn, increase the audit judgment performance. Hence, the objective of this study is to examine the influence of self-efficacy

as a process factor in explaining the relationships between goal orientation and task complexity on audit judgment performance.

This study contributes to the audit research field by testing the proposed variables simultaneously in an audit judgment model using a moderated mediation approach. The development of the conceptual framework of this study considers both the direct and the indirect effects of the variables on audit judgment performance. The results of this study demonstrate the importance of considering individual psychological differences including goal orientation and self-efficacy as determinants of audit judgment performance.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Audit judgment and decision-making research

Judgment and decision-making (JDM) research in auditing is part of a larger area of the psychological research called 'behavioural decision theory' (Trotman, 1998). There has been a significant body of literature in this type of research for the last 30 years (see Trotman, 1998; Bonner, 1999; Solomon & Trotman, 2003 for review). In addition, judgment studies are the major focus of auditing research due to their perceived potential for improving professional practice (Trotman, 1998).

Libby and Luft (1993) provide extensive reviews of performance model in accounting settings. According to Libby and Luft (1993), the determinants of audit judgment performance are individual, environmental and motivational factors. The individual factor consists of several aspects which are ability, knowledge and experience (Bonner & Lewis, 1990; Bonner & Pennington, 1991; Libby & Tan, 1994). The main

issues in this area of studies include the extent of individual factors will be acquired, and the processes through which the individual factors will be brought to bear the tasks (Libby & Luft, 1993). Libby and Luft (1993) argue that an individual factor tends to interact with environmental and motivational factors which in turn influence judgment performance. The interactions may change either the direct effect of individual factors on audit judgment performance or the indirect effect of efforts or motivations on audit judgment performance that auditors are willing to employ in performing the tasks.

This study proposes a conceptual framework on audit judgment performance which is based on past conceptual reviews in audit judgment and decision-making and social psychology literature (Libby & Luft, 1993; Bonner, 1994; Bandura, 1986, 1997; Gist & Mitchell, 1992; Stevens & Gist, 1997; Dweck, 1986; Dweck & Legget, 1989; Vandewalle, 2001). Figure 1 shows the proposed conceptual framework of this study.

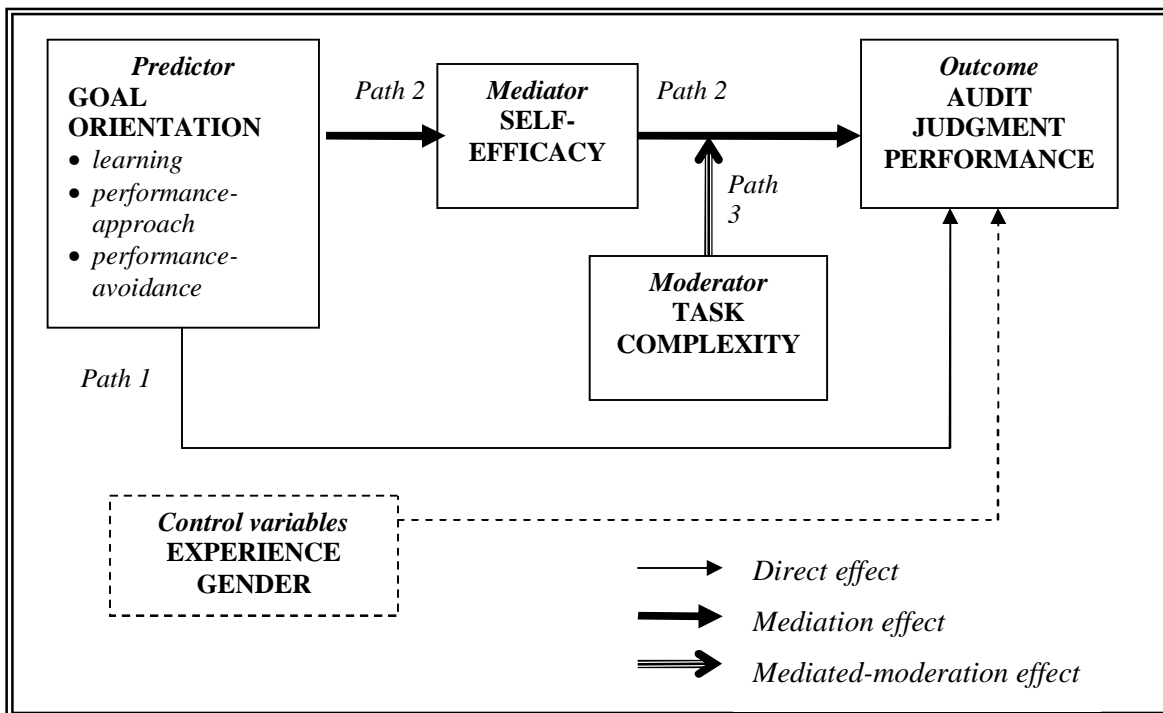


FIGURE 1
Proposed Conceptual Framework

Goal Orientation

The concept of goal orientation has emerged in the 1980s (Dweck, 1986; Dweck & Leggett, 1988). Since then, goal orientation has become one of the significant topics in educational and training research literature (DeShon & Gillespie, 2005; Payne et al., 2007). Goal orientation is defined as the type of orientation adopted at the outset of an activity that creates a framework of how individuals interpret, evaluate, and act on achievement-relevant information and situations (Dweck, 1986; Dweck & Leggett, 1988; Elliot & Harackiewicz, 1996).

There have been extensive studies on the effects of goal orientation with several outcomes. Most of these studies in the context of continual learning have been centred around academic performance (Dweck & Leggett, 1988; Button et al., 1996), task performance (Ford et al., 1998) and training (Ford et al., 1998; Phillips & Guly, 1997). There are three different types of goal orientation, learning goal orientation, performance-approach goal orientation and performance-avoidance goal orientation. Individuals with high learning goal orientation are motivated to perform tasks for the sake of developing competence (Dweck & Leggett, 1988). However, individuals with high performance-approach goal orientation are motivated to perform tasks because they want to demonstrate their competence to others or gain favourable judgments from others. Individuals with high performance-avoidance goal orientation perform tasks because they want to avoid negative judgments (Vande Walle, 1997; Vande Walle et al., 2001). As a consequence, goal orientation is useful in the field of organizational behaviour such as work motivation and job performance.

Goal orientation and audit judgment performance

The learning goal orientation provides a preference to develop one's competence by acquiring new skills and mastering new situations (Dweck & Legget,, 1988). When a task is approached from a learning goal orientation, individuals correspond to an adaptive response pattern in learning something new to develop their ability (VandeWalle, 2001). In other words, individuals with a learning goal orientation would strive to increase their level of competence in a given activity through greater learning efforts or better strategies (Dweck, 1986; Dweck & Leggett, 1988). They tend to escalate efforts or search for more effective strategies when faced with difficulties (Dweck, 1986). It is expected that auditors with a high level of learning orientation would be more likely to emphasize the development of knowledge and acquisition of new skills. Any audit task should be of interest to them because it can provide a challenging opportunity that lead to personal growth. Performing these tasks is viewed as opportunities to develop abilities and acquire new skills (Coad, 1999) in order to master the task.

Performance-approach goal orientation is focused on attaining competence (Elliot & Harackiewicz, 1996). Individuals with high performance-approach goal orientation perceived the achievement setting as a challenge. Unlike learning goal oriented individuals who are interested in gaining task mastery, individuals with high performance-approach goal orientation would be interested in a positive judgment ability (Radosevich et al., 2004). They tend to focus on performance in order to show that their ability is better than others. Past evidence supports the notion that performance-approach goal orientation has a positive relationship with exam performance (Elliot & McGregor, 1999), task performance (VandeWalle et al., 2001) and sales performance (Porath &

Bateman, 2006). Although this empirical evidence does not relate to audit task, it can be expected that auditors with high performance-approach goal orientation may have a similar pattern in performing audit tasks. Performance-approach goal orientation motivates individual cognitive process that facilitates optimal task engagement (Elliot & Harackiewicz, 1996).

Performance-avoidance goal orientation is rooted in the fear of failure, such that individuals who are performance-avoidance goal oriented are likely to avoid information that signals failure (Schmidt & Ford, 2003). They want to minimize failure which results in a sacrifice of valuable learning opportunities (Dweck & Leggett, 1988). These individuals prefer to avoid demonstrating incompetence and negative judgments. Past empirical evidence provides consistent results that performance-avoidance goal orientation has a negative relationship with performance (Elliot & McGregor, 1999; Vandewalle et al., 2001; Porath & Bateman, 2006). It is posited that auditors with high performance-avoidance goal orientation are likely to avoid challenges, uncertainties and relatively high risks of failure in decision processes (Coad, 1999). The lack of effort exerted in performing audit tasks would cause the auditor to have low audit judgment performance. Hence, the following hypothesis is proposed:

H1a: Learning goal orientation affects audit judgment performance positively.

H1b: Performance-approach goal orientation affects audit judgment performance positively.

H1c: Performance-avoidance goal orientation affects audit judgment performance negatively.

Social Cognitive Theory

Using a behavioral and social learning framework, Bandura (1986) has introduced a new theory called the social cognitive theory which acknowledges both the social and cognitive aspects of judgments. It combines the social origins of human thought and action (what individuals learn by being part of a society) and the cognitive processes to human motivation, attitudes and action (what individuals recognize as the influential contribution of thought processes) (Stajkovic & Luthans, 1998b). An important assumption of the social cognitive theory is that people possess certain cognitive capabilities that allow them to be active processors of information (Bandura, 1986).

Under the social cognitive theory, individual behaviour can be expected to perform not only on the basis of contingent rewards (environment factors) but also on the basis of personal self-efficacy. Their actions are based on their self-efficacy to follow the expected behaviour necessary to bear the consequences (Stajkovic & Luthans, 1998b). Based on the social cognitive theory, perceived self-efficacy would operate as a central factor in self-regulatory mechanisms governing human motivation and action (Bandura, 1986).

Self-efficacy refers to an individual's belief in his or her capability to organize and execute courses of action required to produce given attainments (Bandura, 1997). Self-efficacy is a motivational construct that has been shown to influence an individual's choice of activities, goal levels, persistence, and performance in a range of contexts (Zhao, Seibert & Hills, 2005). Individuals who perceive themselves as highly efficacious tend to activate sufficient effort which, when well executed, produces successful outcomes (Stajkovic & Luthans, 1998b). A meta-analysis by Stajkovic and Luthans

(1998a) supported the claim that self-efficacy has a strong significant positive correlation with performance.

The mediating effect of self-efficacy on audit judgment performance

Specifically, in the current study, it is expected that auditors with high self-efficacy put extra efforts in identifying proper cues in given audit tasks. As an illustration, an auditor is examining the internal control system of a large company, where many features of internal control are in place. The auditor with high self-efficacy would be more confident in searching for more audit evidence to test the internal control system. The auditor would put sufficient efforts to convince himself on the adequacy and sufficiency of evidence used to reach a judgment of certain misstatements. As a result, the auditor would produce a higher quality of audit judgment. On the other hand, low self-efficacy auditors are likely to cease their efforts prematurely and fail to complete the task.

Self-efficacy is expected to mediate the effect of goal orientation on audit judgment performance. As argued by VandeWalle (2001), individuals with high learning goal orientation often engage in more productive pattern of self-regulatory procedures to enhance work-related performance. A number of studies have developed frameworks to explain the relationships between goal orientation and task performance using self-efficacy (e.g., Phillips & Gully, 1997; Steele-Johnson et al., 2000; VandeWalle et al., 2001; Seijts et al., 2004). The willingness of individuals to develop their skills and to learn new knowledge would increase their self-efficacy in performing certain tasks.

Evidence shows that learning goal orientation is positively related to self-efficacy in an academic task (Phillips & Gully, 1997) and a simulation task (Kozlowski et al., 2001; Bell & Kozlowski, 2002). The stronger auditors' learning goal orientation, the more they believe that ability and skill can be increased to achieve success. It is expected that auditors with high learning goal orientation seek greater challenges and more confident in themselves. Similarly, auditors with high levels of performance-approach goal orientation also would be more likely to expand their effort in performing audit tasks to demonstrate their ability to others. They would have high confidence in performing audit tasks which in turn would improve their audit judgment performance. High self-efficacy individuals are more likely to engage in on-task effort, and eventually to succeed on that task (Phillips & Gully, 1997). On the contrary, auditors with high performance-avoidance goal orientation avoid performing audit tasks that may unveil their weaknesses or incompetence. High performance-avoidance orientation individuals focus on avoiding incompetence and fear of failure (Dweck & Leggett, 1988). Specifically, in a performance-avoidance goal orientation, highly avoidant individuals are unlikely to exert more efforts. They would view that exerting substantial efforts is ineffective because ability is perceived as an innate attribute that is difficult to change (Schmidt & Ford, 2003).

On the basis of theoretical and empirical ground discussed above, it can be expected that self-efficacy would mediate the relationships between each dimension of goal orientation and audit judgment performance. The following hypotheses are proposed:

H2a: High learning goal orientation increases the level of self-efficacy, which in turn leads to high audit judgment performance.

H2b: High performance-approach goal orientation increases the level of self-efficacy, which in turn leads to high audit judgment performance.

H2c: Low performance-avoidance goal orientation increases the level of self-efficacy, which in turn leads to high audit judgment performance.

Task Complexity

One of the main environmental factors that have been examined in audit JDM studies is task complexity. Past studies have enriched our understanding of the task complexity in audit settings (Trotman, 1998). Understanding audit task complexity and its effects on audit judgment performance is vital because certain task characteristics could have major impacts on auditors' performance (Bonner, 1994). In other words, performance should not be a function of task components alone, but of both the task and the characteristics of the decision maker. In this study, the complexity of audit tasks represents an environmental factor of audit work. The effects of task complexity on audit judgment can be detrimental (Bonner, 1994). High levels of task complexity are often related to low levels audit judgment performance (Abdolmohammadi & Wright, 1987; Chang et al., 1997; Tan et al., 2002).

Task complexity as a moderator

According to the meta-analysis by Stajkovic and Luthans (1998a), the impact of self-efficacy on performance was moderated by the complexity of the task. Generally,

individuals with high self-efficacy are more likely to engage in goal-directed behaviour (such as seeking task-relevant information) compared to individuals with low self-efficacy (Seijts et al., 2004). Individuals who perceive themselves as efficacious exert a lot of effort more than those with lower self-efficacy in order to successfully complete the task (Krishnan et al., 2002). Hence, under low task complexity, auditors with high self-efficacy would have better audit judgment performance than those with low self-efficacy.

When faced with difficult tasks, individuals with a low level of self-efficacy would become self-preoccupied with evaluative concerns (Bandura & Wood, 1989). Low self-efficacy individuals tend to avoid tasks and situations they believe exceed their capabilities but would undertake and perform assuredly activities they judge themselves capable of handling (Bandura, 1986, p.393). They are more likely to cease their effort prematurely and fail at their given task (Bandura, 1986). Similarly, high level of self-efficacy may not produce better performance in complex tasks environment because the tasks require high cognitive processing activities (Wood et al., 2000). This study proposes the following hypothesis:

H3a: The positive influence of self-efficacy on audit judgment performance is stronger in simple tasks than in complex tasks.

The moderated-mediation effect

The potential effect of self-efficacy as a mediator and task complexity as a moderator on audit judgment performance may take place simultaneously. This joint effect is referred to as moderated-mediation (Muller et al., 2005; Baron & Kenny, 1986).

High learning goal orientation, high performance-approach goal orientation and low performance-avoidance goal orientation are expected to increase self-efficacy, which in turn lead to high audit judgment performance. However, the influence of self-efficacy on audit judgment performance is expected to vary according to the level of task complexity. Past evidence supporting for the moderated-mediation effect of variables is very limited. A related study by Chen et al. (2001) has focused on self-efficacy as a mediator under a moderated-mediation analysis. Chen et al. (2001) found that self-efficacy mediates the cognitive ability-performance and the conscientiousness-performance relationships in a simple task environment, but not for complex tasks. It is also expected that self-efficacy interacts with task complexity in this current study. The positive influence of self-efficacy on audit judgment performance is expected to be stronger for simple tasks than for complex tasks.

Hence, the interactive effect of each dimension of goal orientation and task complexity on audit judgment performance is through the motivational process of self-efficacy. The following hypothesis is developed:

H3b: The increase in learning goal orientation leads to higher self-efficacy, but high self-efficacy is positively stronger related to audit judgment performance for a simple task than for a complex task.

H3c: The increase in performance-approach goal orientation leads to higher self-efficacy, but high self-efficacy is positively stronger related to audit judgment performance for a simple task than for a complex task.

H3d: The increase in performance-avoidance goal orientation leads to lower self-efficacy, but low self-efficacy is negatively stronger related to audit judgment performance for a complex task than for a simple task.

METHODOLOGY

This study uses a quasi experimental design in which not all of the interested variables are being controlled or manipulated. Although this type of experiment suffers from problems such as difficulties in controlling extraneous variables or no guarantee of individuals working independently, this method increases the chances of gaining audit firm participation, as well as taking away some of the artificiality of a laboratory setting (Trotman, 1996).

Data collection

About 100 audit firms located in the Klang Valley are selected randomly from the Malaysian Institute of Accountant (MIA) list. These firms are contacted through phone calls to get permission to allow questionnaires be sent to their audit staff. Firms which express an interest to participate are given four to ten copies of the research booklets. A cover letter and research booklets are sent via mail to the contact person or audit manager/ partner of the selected audit firms. The instruments are then distributed to individual auditors. In order to increase the internal validity, participants are advised not to discuss the questions and answers with their colleagues. They are also requested to return the completed research instrument in a self-addressed and pre-stamped envelope to

the researcher. They are assured of confidentiality. A reminder letter is sent about two weeks later requesting for their participation.

The research instrument comprises a cover letter and a research booklet. The booklet includes questions on the measurement of two variables, learning goal orientation and self-efficacy, the audit case for the experiment and the descriptive information of the participants. This study develops two audit tasks concerning internal controls evaluation on the identification of test of control or substantive test for transactions of sales and cash receipts and substantive tests for misstatements of cash receipts (see Appendix A). The tasks have been developed based on exercises and cases used in some audit text books (Messier & Boh, 2004; Arens et al., 2006).

Of the 600 research instruments sent out, one hundred and fifty four (154) of the research instruments were usable, representing a 26 percent response rate. This response rate is consistent with the Smith, Omar, Sayd-Idris and Baharuddin (2005) study of auditors in Malaysia which received a 24 percent response rate. Seventy three respondents are considered late response because their research instruments are received one month after the due date. A comparison of responses from the early and late respondents suggests that non-response bias would not be an issue in this study.

Operationalisation of variables

This study examines one dependent variable (audit judgment performance), three independent variables (goal orientation, self-efficacy and task complexity) and two control variables (gender and experience). This section discusses the operationalisation of each variables.

Audit Judgment Performance. Audit judgment performance is measured by the percentage of correct responses to the audit tasks. The pre-determined answers of both tasks have been developed after a series of discussions with senior faculty members and auditors. Participants receive scores for the percentage of correct responses either from low level of complexity (Task 1) or high level of complexity (Task 2).

Goal orientation. Goal orientation is measured using an instrument developed by VandeWalle (1997; 2001). The instrument contains 12 question items for the three dimensions of goal orientation. Each dimension of goal orientation is measured based on four items. The learning goal orientation dimension is concerned with whether participants are willing to take challenges, develop ability and acquire new skills. The second dimension, performance-approach goal orientation is to evaluate the ability of an individual to gain positive judgments from others. The third dimension, performance-avoidance goal orientation relates to an avoidance of negative judgments from others. Respondents are requested to give their response on a 7-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (7). This measure has been used in the Seijts et al. (2004) study which examined the effects of goal orientation on task performance under complex tasks.

Self-efficacy. Self-efficacy is measured by subjects’ belief in performing successfully certain specific tasks. The four items are adapted from Kowlozski et al. (2001) and Bell and Kowlozski (2002). The contents of the items focus on the ability to cope with the information, decisions, and challenges of the task. Responses are required to express to reponse on a 7-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (7).

Task complexity. Task complexity is manipulated as a between-subject variable. The low complexity task requires a relatively simple thinking with few factors to evaluate and direct criteria to employ (Bonner, 1994). The task asks participants to state the audit objective of internal controls on cash collections audit procedures. The high complexity task, on the other hand, requires participants to identify the appropriate audit procedures for misstatements of financial information. The task also requires participants to examine various cues and would expect participants to exert more cognitive efforts in applying the actual scenario of misstatements with specific audit procedures. Task complexity is measured as a dichotomous variable in whereby low complexity task is coded 0 and high complexity task is coded 1.

Control Variables. Control variables of this study are gender and experience. Past studies show that these two variables are significantly related to audit judgment performance. Females perform better than males in high-complexity tasks than in low-complexity tasks (Chung & Monroe, 2001). Prior research also shows that more experienced auditors perform better than less experienced auditors in audit judgments (Abdolmohammadi & Wright, 1987; Libby & Frederick, 1990; Chung & Monroe, 2000). Gender is coded as a dichotomous variable and experience is measured by the number of years of working as auditors.

Manipulation check

The manipulation check on task complexity is measured using three different questions. These items were adapted from Maynard and Hakel (1997). Upon completion of the task, subjects are requested to rate the questions on a 7-point Likert-scale (e.g. 1 =

strongly disagree; 7 = strongly agree). A manipulation check on task complexity is done by requesting auditors to answer three questions regarding the level of task complexity. All items of the relevant constructs are tested using a reliability test and also a factor analysis.

ANALYSIS

Demography of Participants

Participants include 50 males and 104 females. Sixty-seven of the respondents are Malays and most of the auditors hold bachelors degree qualification. About 57 percent of participants are audit assistants. The average age of participants is 25.76 year-old and the average working experience of participants is slightly below three years (2.76 years).

Descriptive Statistics

Table 1 presents the descriptive statistics of the variables under study.

TABLE 1
Descriptive statistics

Variables	Group I: N=77 (Simple task)		Group II: N=77 (Complex task)		t	Overall N = 154	
	Mean	Std. Dev.	Mean	Std. Dev.		Mean	Std. Dev.
Audit Judgment Performance	57.63	15.60	50.00	13.52	3.24*	53.81	15.04
Learning GO	6.17	0.78	6.16	0.72	0.08	6.16	0.74
Performance-approach GO	5.15	1.25	5.11	1.20	0.23	5.13	1.22
Performance-avoidance GO	3.58	1.12	3.30	1.28	1.42	3.44	1.21
Self-efficacy	5.45	0.96	5.38	0.95	0.46	5.41	0.95

Note: GO – goal orientation; * $p < 0.01$ (2-tailed).

The mean value of audit judgment performance of Group I is 58 percent (std. dev. = 15.6). On the other hand, the mean value of audit judgment of Group II is only 50

percent (std. dev. = 13.5). Results show that the audit judgment performance of Group I is significantly higher than Group II ($p < 0.01$).

The mean values of the three dimensions of goal orientation and self-efficacy are obtained by averaging the respective scores of question items. Scores for these variables range from “1” (strongly disagree) to “7” (strongly agree). Overall, the mean values of the three dimensions of goal orientation and self-efficacy for Group I are not significantly different from Group II. For the overall sample, on average, the respondents have high levels of learning goal orientation, moderate levels of performance-approach goal orientation and low levels of performance-avoidance goal orientation. Also, self-efficacy of the respondents is quite high with a mean value of 5.41.

Correlation Analysis

Table 2 depicts the analysis of Pearson correlation between variables.

TABLE 2
Correlation analysis (N=154)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Audit judgment performance	-	--	--	--	--	--	--
2. Gender ^a	0.18*	-	--	--	--	--	--
3. Experience	0.19*	0.08	-	--	--	--	--
4. Learning GO	0.25**	0.08	0.14	(0.82)	--	--	--
5. Performance-approach GO	0.14	-0.06	0.11	0.25**	(0.88)	--	--
6. Performance-avoidance GO	-0.10	0.04	-0.04	-0.16*	0.23**	(0.76)	--
7. Self-efficacy	0.34**	0.14	0.20*	0.49**	0.39**	-0.11	(0.95)
8. Task complexity ^b	0.25**	0.03	-0.02	-0.01	-0.02	-0.12	-0.04

^a coded as 0 = female, 1 = male; ^b coded as -1 = simple task, 1 = complex task.

** $p < 0.01$ (2-tailed), * $p < 0.05$ (2-tailed).

Note: Number in parentheses are the Cronbach's Alpha for reliability coefficients

The two control variables, gender and experience are positively associated with audit judgment performance. The result shows that there are positive bivariate relationships between learning goal orientation, self-efficacy and audit judgment performance. Task complexity is also significantly related to audit judgment performance. The table also shows that the relationships among independent variables are relatively low. The multicollinearity issue is not the main concern here.

Except for the modest reliability for the performance-avoidance goal orientation measure, these coefficients compare favourably with the recommended alpha (i.e. greater than 0.80) (Nunnally 1978). This indicates that each dimension of goal orientation and self-efficacy has sufficient internal consistency.

Manipulation Check

In order to determine whether task complexity is successfully manipulated, three different questions regarding the complexity of the audit task are examined. Results of the comparison analysis are presented in Table 3. The negative t-test value indicates that the level of complexity for Group I is statistically lower than that for Group II. The overall mean of the three items of manipulation check also indicates that the task for Group II is perceived more complex than the task for Group I. Hence, the manipulation of task complexity is successful.

TABLE 3
Manipulation check: t-test

	Group I - simple (N = 77)	Group II - complex (N = 77)		
Task Complexity Item	Mean (Std.Dev.)	Mean (Std.Dev.)	t-test	Sig. (2-tailed)
The task required me to coordinate many different things at the same time.	4.52 (1.22)	5.26 (1.23)	-3.75	0.00

I found this to be a complex task.	4.35 (1.28)	4.78 (1.08)	-2.24	0.03
This task was mentally demanding.	4.45 (1.33)	4.97 (1.17)	-2.57	0.01
Overall (Average)	4.44 (1.22)	5.00 (1.08)	-3.02	0.00

Hypotheses Testing

The hypotheses of the study have been tested by using the hierarchical regression analysis. This analysis is suitable for testing the mediation and moderation simultaneously (Frazier et al., 2004; Muller et al., 2006). Table 4 (Step 1) show that only learning goal orientation significantly predicts audit judgment performance ($b = 3.64, p < 0.05$) after controlling for gender and experience. However, both performance-approach and performance-avoidance goal orientations are not significantly related to audit judgment performance. Thus, H1a is supported while H1b and H1c are not supported.

This study also examines the influence of the three dimensions of goal orientation on self-efficacy. As expected, results in the last column of Table 4 (dependent variable is self-efficacy) show that learning goal orientation and performance-approach goal orientation have positive relationships with self-efficacy, both at $p < 0.01$ ($b = 0.49; b = 0.25$ respectively). Results suggest that both high learning goal orientation and performance-approach goal orientation lead to high self-efficacy. On the other hand, performance-avoidance goal orientation is negatively related to self-efficacy ($b = 0.11, p < 0.05$). Hence, H2a, H2b and H2c are all supported.

Following the procedures recommended in Baron and Kenny (1986) and Muller et al. (2005), the analysis on moderated-mediation involves two conditions. In the first condition, the mediation of self-efficacy on the relationship between the three dimensions

of goal orientation and audit judgment performance must be established. Results in Table 4 (Step 2) show that self-efficacy is significantly related to audit judgment performance at $p < 0.05$. The positive coefficient ($b = 3.05$) indicates that auditors with high self-efficacy would tend to perform well. Summarizing all the results especially on the direct relationships of the three dimensions of goal orientation and self-efficacy on audit judgment performance and goal orientation on self-efficacy, self-efficacy only mediates the positive relationship between learning goal orientation and audit judgment performance.

In the second condition, the interaction between self-efficacy and task complexity on audit judgment performance will be examined. Table 4 (Step 3) demonstrates that the effect of the interaction between self-efficacy and task complexity on audit judgment performance is significant at $p < 0.05$. The negative sign of the standardized beta coefficient ($b = -2.95$) for the self-efficacy and task complexity interaction term indicates that under complex tasks, high self-efficacy does not lead to high audit judgment performance as strongly as under simple tasks. H3a is also supported.

In summary, both conditions (*First condition* and *Second condition*) have supported H3b for the moderated-mediation relationship among learning goal orientation, self-efficacy, task complexity and audit judgment performance. However, the results demonstrate that H3c and H3d are not supported due to the insignificant results in the first condition.

TABLE 4
Hierarchical regression analyses on audit judgment performance

	DV: AJP (Step 1)		DV: AJP (Step 2)		DV: AJP (Step 3)		DV: Self-efficacy	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Constant	50.87**	1.52	51.25**	1.52	50.94**	1.51	-0.13	0.09
Control variables								
Gender ^a	5.64*	2.39	4.87*	2.39	5.25*	2.37	0.25 [†]	0.14
Experience	1.86	1.23	1.64	1.23	1.75	1.21	0.07	0.07
Main variables								
Learning GO	3.64*	1.62	2.16	1.75	3.06 [†]	1.78	0.49**	0.09
Perf.-approach GO	1.37	0.99	0.61	1.04	0.55	1.03	0.25**	0.06
Perf.-avoidance GO	-1.50	1.00	-1.15	1.00	-1.19	0.99	-0.11*	0.06
Task complexity (TC) ^b	-4.00**	1.11	-3.87**	1.10	-3.89**	1.09	-0.05	0.06
Interaction								
Learning GO x TC	0.79	1.64	0.16	1.65	1.75	1.80	0.21*	0.09
Perf.-approach GO x TC	-1.92*	0.99	-1.74 [†]	0.98	-1.05	1.03	-0.06	0.06
Perf.-avoidance GO x TC	0.22	1.01	0.23	1.00	-0.10	1.00	0.00	0.06
Mediator								
Self-efficacy			3.05*	1.46	2.56 [†]	1.46		
Interaction								
Self-efficacy x TC					-2.95*	1.44		
R ²	0.22		0.25		0.27		0.38	
Adjusted R ²	0.17		0.19		0.21		0.34	
F-statistics change	1.29		4.391		4.210		--	
Sig. F-statistics change	0.28		0.038*		0.042*		--	
Sig. F-statistics (overall model)	0.00		0.000**		0.000**		0.000***	
Degree of freedom	144,9		143,10		142,11		144,9	

^a coded as 0 = female, 1 = male; ^b coded as -1 = simple task, 1 = complex task.

Note. AJP = Audit judgment performance; GO= Goal orientation; [†] $p < 0.10$ (2-tailed), * $p < 0.05$ (2-tailed), ** $p < 0.01$ (2-tailed).

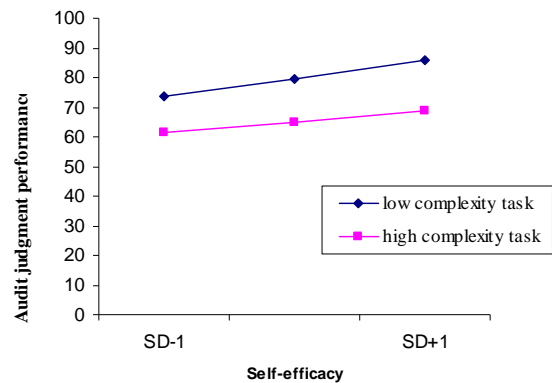


FIGURE 2
Graphical representation of the moderating effect of task complexity on the relationship between self-efficacy and audit judgment performance

Figure 2 clarifies the moderating effect of task complexity on the relationship between self-efficacy and audit judgment performance. At a low level of task complexity, self-efficacy and audit judgment performance has a positive relationship. However, at a high level of task complexity, the relationship between self-efficacy and audit judgment performance becomes flatter. This analysis would indicate that under high task complexity, highly self-efficacious auditors might not be able to improve the audit judgment performance.

CONCLUSION

The objective of this study is to examine the influence of goal orientation and self-efficacy on the audit judgment performance for different levels of task complexity. Results show that auditors with high learning goal orientation (personality towards learning and development of new skills and knowledge) perform better in their tasks than those with low learning goal orientation. These findings are consistent with past studies

such as Ford et al. (1998), Chen et al. (2000), VandeWalle et al. (2001) and Bell and Kozlowski (2002). Results show that only high learning goal orientation among auditors increases self-efficacy which in turn leads to a better in audit judgment performance. In addition, the positive relationship between self-efficacy and audit judgment performance is stronger in simple tasks than in complex tasks. A similar result is also demonstrated in the Stajkovic and Luthan (1998a) study using a meta-analytical analysis on self-efficacy.

Overall, the results suggest that different dimensions of goal orientation affect audit judgment performance differently. Auditors who develop high self-efficacy may be more likely to perform well in audit judgments. The findings indicate that the degree of task complexity may moderate the effects of self-efficacy on audit judgment performance. Future studies on these relationships are necessary to further understand how goal orientation and self-efficacy perceptions operate in complex audit task environments so that performance can be optimized.

This study contributes to the audit research field by testing the proposed variables simultaneously in an audit judgment model using a moderated-mediation approach. Most of past studies in audit judgment literature test the effect of interaction and the effect of mediation separately. Hence, this study provides a broader and more complete picture of how personality and motivational factors influence audit judgment performance. The present study also provides implications for audit managers with an understanding of the importance of goal orientation and self-efficacy in auditors' performance. Firms could utilize this knowledge to improve their individual hiring and training decisions as well as performance evaluation and retention/ promotion decisions. Identification of individual psychological factors is important since the failure to select, train, or promote those who

will be successful at later career stages can reduce overall organizational effectiveness (Tan & Libby, 1997).

The present study has several limitations that may potentially influence the interpretation of the results. These limitations should be considered when interpreting the results or when applying the method of this study in other research settings. First, the use of audit cases in an experimental design limits the internal validity of the study. This limitation has been acknowledged in other studies which also use internal controls audit cases for audit judgment (Bonner & Lewis, 1990; Tan et al., 2002; Mohd-Sanusi & Iskandar, 2007). Second, the use of a quasi experimental design may make it difficult to explicitly manipulate the independent variables. The randomization of participants into high and low task complexity may not have been as thorough as that of the laboratory experiment. However, this study tries to overcome this limitation by instructing the manager or partner who distributed the research instruments to the relevant auditors.

The empirical results discussed in this study also provide the basis for future research in developing a more comprehensive theoretical framework for audit judgment. The incorporation of individual psychological differences as explanatory variables in audit judgment studies may lead to a better understanding into the auditor's decision making processes. Further investigation is necessary to find out how self-efficacy or other self-perception factors mediate (intervene) the relationships between individual characteristics such as ability, knowledge and experience on audit judgment performance. Future research in audit judgments needs to address mediating effects of the above variables.

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Appendix A

Task 1 Low task complexity: Identification of audit objectives for sales and cash transaction audit procedures

PANEL A Audit objectives:

Accuracy, Existence, Completeness, Classification, Authorisation, Posting and summarization

PANEL B Audit procedure

(Test of control or Substantive test of transactions)

- Compare the quantity and description of items on duplicate sale invoices with related shipping documents.
 - Trace a sample of duplicate sale invoices to related shipping documents filed in the shipping department to make sure a shipment was made.
 - Examine duplicate sale invoices for an indication that unit-selling prices were compared with the approved price list.
 - Perform a proof of cash receipts.
 - Examine duplicate sale invoices to determine whether the account classification for sales has been included on the document.
 - Trace a sample of remittance advices or prelisting of cash to cash receipts journal.
 - Examine the sales journal for notes receivable and other unusual items.
 - Examine a sample of remittance advices for approval of cash discounts.
-

Task 2 High task complexity: Identification of substantive tests for misstatements of cash receipts

PANEL A Substantive Test of Transaction

- Compare dates of deposits with dates in the cash receipts journal and prelisting of cash receipts.
 - Trace from the cash receipts journal to the bank statement.
 - Trace selected entries from the cash receipts journal to entries in the accounts receivable master file.
 - Examine documents supporting cash receipts for proper classification.
 - Trace remittance advices or a prelisting of cash to the cash receipts journal.
 - Trace selected credits from the accounts receivable master file to the cash receipts journal.
 - Compare the prelisting of cash receipts with the duplicate deposit slip.
 - Examine remittance advices and sales invoice to determine whether discounts allowed are consistent with company policy.
-

PANEL B Misstatements

- Cash receipt was wrongly added by RM1,500 due to a key entry mistake.
 - Cash received on accounts receivable that had been prelisted by the secretary was stolen by the bookkeeper who records cash receipts and accounts receivable. The bookkeeper did not record the transactions.
 - The data processing clerk made a transposition error (recorded a cash receipt as RM4,621 rather than RM6,421).
 - Cash was prelisted and correctly input to the computerized accounting records, but the bank credited the wrong amount to the company's bank account.
 - One of the customers was given cash discount higher than the approved discount rate.
 - The receptionist unintentionally failed to give the accountant two remittance advices for which the cash had been prelisted.
 - The accountant recorded the cash received at the correct amount, but credited the wrong customer's account.
 - Cash received from the sales of fixed assets was credited to the sales of manufacturing products.
-