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# The effect of sunk cost, framing effect, and educational background on the escalation of commitment

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## Abstract

The purpose of this study is to examine whether negative framing and sunk costs affecting the escalation of commitments with an educational background as moderating variable. The study uses an experimental study approach with 2 x 2 x 2 within-subjects design. There were 39 managers from a state-owned enterprise who participated in this experiment. The result indicates that sunk costs and negative framing effect the escalation of commitment. In contrast, the educational background did not moderate the relationship between sunk cost and negative framing to the escalation of commitment.

## Introduction

On an everyday basis, even in the workplace, people tend to rely too heavily on experience, impulses, gut feelings, and convenient rules of thumb. However, relying on those also might trigger common bias such as the escalation of commitment. Staw (1981) described escalation as a common event on how people tend to throw good money after bad or commit new resources to a losing course of action since they are locked into a commitment. In other words, escalation of commitment is where people tend to stay with their decision even though there is clear evidence that it is wrong (Robbins & Judge, 2015).

Sharp and Salter (1997) have found that escalation of commitment has been a crucial matter in Western countries since many organizations suffered from managers who escalate their commitment. Roth et al. (2015) explained the development of the supersonic plane Concorde. In the early development stages, the plane was already more expensive than expected. At the end of the day, it had cost the British Government an irrecoverable £350 million. After a big loss, the project was not stopped. The project was supposed to be stopped since Concorde just establish a little money for its manufacturers and less valuable, if any, who will buy the airline. By seeing the future benefits, which would not cover manufacturing costs, the supersonic plan project was supposed to be stopped. However, considering how much costs had been spent, new funds were allocated to finish the plane on the grounds. It cost them at least £475 million more, with £392 million present value. The United Kingdom's total liability was approximately £550 million, excluding the written-off £350 million mentioned above.

From a microeconomic perspective, people's decisions should be based on current and future benefits and costs Roth et al. (2015). Hence, past benefits and costs which are irrecoverable should not affect current or future decisions. Nevertheless, decision-makers tend to deviate from this basic principle of microeconomic theory and take the sunk costs into account since sunk costs are difficult to ignore (Feldman & Wong, 2018). Decision-makers tend to try to recover the initial investment by escalating their commitment, which often results in decisions to persist with a failing course of action. Hence this phenomenon leads to a research gap on how decision-makers are supposed to decide based on current and future benefits and costs.

Hereby, the factors determined escalation of commitment existed even though it operated in different times and ways with previous studies. Moreover, escalation of commitment might tend to put the company in losses such explained. Nevertheless, each different phase of the change process contributed positively to enlarging the escalation of commitment. Lofquist and Lines (2017) explained how top leaders established a personal sense of responsibility to carried the decision as planned especially taking the amount that had been spent into account. They also described unexpected effects which arose from unintended consequences of deliberate choices that inadvertently contribute to shaping organizational circumstances, escalation of commitment, which is hard to be theorizing.

Decision-makers tend to try to recover the initial investment by escalating their commitment which often results in decisions to persist with a failing course of action, as Concorde and Take-Off 05 failed their project. On the other hand, Desai and Chulkov (2009) explained the reason why people tend to escalate their commitment. A person who has high personal responsibility for something is more likely to escalate after getting negative feedback about their decision. This escalation is due to the need of justifying their original decision in order for him or her to appear capable or competent in their field.

In line with this theory, escalating the project was a form of promise between the leaders of the Avantor board of directors and the stakeholders on the Take-Off 05 project (Lofquist & Lines, 2017). Despite the negative feedbacks, supposed leaders terminate the project then it meant that they breaking the trust toward the employees and any party involved who invested in the project. Hence, the leaders decided to escalate the commitment.

Another reason for a decision-maker to escalate commitment was explained by Nelson and McKenzie (2009) about confirmation bias. Confirmation bias is the tendency for people to search for or interpret information in a manner that favors their current beliefs. Thus, decision-makers tend to notice and overweight their decisions rather than consider the evidence that does not support their decisions. Furthermore, they will continue to invest in a project which showing higher risk (negative framing).

Thus, negative framing tends to lead managers to escalate their commitment. When the same problem is framed in different ways, psychological principles that rule the perception of decision problems and the evaluation of probabilities and outcomes produce predictable shifts of preference. The framing effect itself consists of choices, either positive and/or negative, resented to and seen by a decision-maker (Kotler & Keller, 2015). Sharp and Salter (1997) stated that the framing effect in an escalation of commitment arises because individuals over-weight losses (relatively to a purely economic rationale valuation) when described as certain, in contrast to situations where their likelihood is described as being uncertain.

Meanwhile, aside from the framing effect and sunk cost, the educational background also affects the escalation of commitment. As a decision-maker, managers want to present financial statements in a favorable image of the company's economic reality, while still complying with all the accounting principles as stated in the accounting standards (Amelia, 2014). The accounting department provides lessons from basic until advanced knowledge of accounting and other economic areas. Since the escalation of commitment is part of management accounting, therefore managers who graduated from the accounting department tend to avoid escalation of commitment because they are capable to give professional judgment on making a decision (Amelia, 2014). Hence, this

research appends educational background (accounting and non-accounting) as a moderating variable to determine the strength influence between independent and dependent variables.

## Literature Review

### Prospect Theory

Many economic decisions involve transactions in which one pays money in exchange for a desirable prospect (Tversky & Kahneman, 1981). When the value is appointed to gains and losses rather than to final assets and when the probabilities are replaced by decision weights, the value function is generally steeper for losses than for gains. Subsequently, decision weights are generally lower than the corresponding probabilities, except in the range of low probabilities. People may contribute to the attractiveness of both insurance and gambling by overweighting low probabilities.

On the other hand, Sharp and Salter (1997) explained prospect theory as a range of irrational individual choices and preferences to conduct risk. Prospect theory showed how decision makers would take action on gains and losses. In other words, managers tend to make decisions based on the status quo from which future events are judged in terms of gains and losses.

Werf (2013) explained prospect theory by showing situations whether managers accept gamble that offers 10% chance to win \$95 and 90% to lose \$5 or pay \$5 in gambling that offers 10% of winning \$100 and 90% chance to win nothing. Both situations are framed differently. However, those choices will result in the same of being \$95 richer or \$5 poorer.

A rational manager would be indifferent to those choices. Meanwhile, irrational managers, choose a certain alternative perceived as a gain rather than for a risky alternative of equal expected value, while the converse will hold for perceived losses. Hence, they will see the second choice to be more appealing. Thus, prospect theory suggests that negative framing magnifies the perceived value of losses in terms of value at risk.

### Sunk Cost Effect

A sunk cost is an irrecoverable cost and known to be a certain loss to managers (Roth et al., 2015). From an economic view, sunk costs should be irrelevant for future decisions because decision-makers are supposed to continue favorable projects, not unfavorable ones (Amelia, 2014). The fact that a project gives negative feedback brings on several possibilities, either because of gains and irrecoverable costs that had been spent or uncertain future benefits and costs (Sari & Wirakusuma, 2016). Hereby, sunk cost is the determinant of an unfavorable project since it is irrecoverable and will not bring future benefits.

Feldman and Wong (2018) described that despite the duty of managers to calculate maximum future benefits and costs, sunk costs are difficult to ignore since negative feedback tends to draw managers in expecting that action will be taken (escalate) to avoid additional losses. Negative framing likewise affects managers to choose higher-risk conditions on how it aims to escalate commitment (Sari & Wirakusuma, 2016). Thus, situations involving sunk cost (seen as risk) eventually result in a failing course of action and even escalate that commitment further in the expectance of recovering initial investment.

A study by Juliusson (2003) shows that decision-makers tend to escalate commitment when they are faced with higher sunk cost and ambiguity append decision-maker's decision to escalate the project. Hence, situations involving sunk cost eventually result in a failing course of action and even escalate when faced with higher sunk cost.

**H1:** Sunk cost positively affect escalation of commitment

### Framing Effect

Framing is related to one reference point which is used for benchmarking comparisons (Sari & Wirakusuma, 2016). Hereby, the framing effect shows some situations that are framed as success

(positive framing) and failure (negative framing). Staw (1981) explains that the difference in information processing between dealing with success and failure will lead to a difference in the degree of commitment to a policy decision. Juliusson (2003) described the framing effect divided into the various probability of success from a high to a medium-high probability (positive framing) or from a low to a medium-high probability (negative framing).

Prospect theory explains that negative framing increases the perceived value of losses on how value itself is seen at risk (Sharp & Salter, 1997). Hence, when managers received negative feedback on a project they are likely to take risks of continuing the project (escalate) to avoid certain loss outcomes than when the same outcome is described in terms of a gain (positive framing).

Another research was conducted by Amelia (2014) regarding framing where the researcher used ANOVA factorial 2 x 2 with framing and educational background (accounting and non-accounting majors) as between-subject variables and the decision to escalate the project as a dependent variable. The researcher chose educational background as a variable to study whether educational background which accounting major would affect escalation decisions negatively.

Thus, the researcher obtained 100 volunteered participants from undergraduate students and divided them into two groups majoring in accounting and law where each group consisted of 50 participants. The result of the test shows that subjects tend to escalate the project when they were facing negative framing. Overall the tendency to escalate the commitment on negative framing is higher than positive framing. Hence, decision makers tend to escalate their commitment, even higher, when their situation is framed negatively.

**H2:** Negative framing positively affect escalation of commitment

### **Commitment and Escalation**

Commitment is when someone is dedicated to a cause, either in goods and/or bad causes. It also applies to everyday basic commitments such as relationships, college, work, etc. Meanwhile, escalation of commitment is an individual decision to continue a cause or a project even though when the prospect in the expected economic conditions indicates that the project must be stopped.

One of the significant factors that influence the decision-making process is increased commitment (Juliusson et al., 2010; Urumsah & Ramadhansyah, 2019). Managers, as decision-makers in an entity, tend to escalate commitment when they are taking a decision because of risk aversion or risk-seeking (risk taker) personality, depending on each situation. Risk aversion and risk-seeking personality were explained by previous researchers Feldman and Wong (2018) and Drummond (2014). Feldman and Wong (2018) explained managers are likely to escalate commitment when they are facing negative feedback to avoid uncertainty (risk aversion). The uncertainty here is the probability of risk that might occur if managers are terminating the project.

Feldman and Wong (2018) conducted research using t-test by giving scenarios to their samples of 166 American Mechanical Turk (MTurk) that were recruited online and randomly assigned. Participants were given a scenario where they were supposed to decide on a project which already consumed a lot of costs. However, in the scenario, supposed that another firm already launched a product similar to participants where it takes up less space and is much easier to operate than participants' design.

The general result of all experiments showed participants in the escalation-as-action condition rated a higher tendency to escalate on how in the escalation-as-action and de-escalation-as-action conditions, participants showed the tendency as action oriented, with a stronger preference for action over inaction. Hence, the result was positively showed that the participants had a higher tendency to escalate and were action oriented in the given test.

On the other hand, Drummond (2014) describes that managers tend to escalate commitment even though the projects have already given negative feedback because of their risk-seeking personality. In order to avoid a potential loss after terminating a project, managers tend to continue the project despite certain losses obtained. The researcher explains as the projects are

nearly finished, the objectives of perceived value can increase while alternatives are undervalued. Researchers described how managers believe the projects are most vulnerable until managers choose wrong abandonment even though indeed the project is big enough to matter, however, not as big as to cause catastrophic losses if it's terminated.

### **Irrational Escalation Factors**

In the irrational escalation model, escalation of commitment is unfavorable for the manager or company since the project's continuations a failing course (Desai & Chulkov, 2009). Irrational escalation often happens when two competing brands are attempting to increase market share. They ended up spending money to increase market share in a significant manner. The most commonly cited situation is a commercial application of the Red Queen Effect (RQE), also known as the Red Queen Hypothesis, for Nokia and iPhone. RQE explained how organizations facing competition when they will try to gain a competitive advantage by developing new ways of doing things or innovate products to stand out in market place (Delacour & Liarte, 2012).

Kotler and Keller (2016) explained about Nokia and iPhone cases, where Nokia has dominated market sales for 14 years before iPhone from Apple became successful. After a successful result, Nokia failed to innovate and stay relevant, meanwhile, iPhone keeps innovate by market testing to know and then fulfill customer shifting demands. Customers viewed mobile phones not only for communication purposes but also as fashion accessories. Apple released iPhones in 2007 where their phones provide an advanced operating system which is the graphic user interface (GUI) similar to GUI in a personal computer and making it possible to run general-purpose applications. Moreover, iPhone has an aesthetic design with its touch screen.

In Nokia's case, they believed iPhone was too expensive to produce and was not up to its product standards. The standard here is the drop test, where a phone is dropped concretely from five feet high at different angles. In the drop test, iPhone reportedly failed Nokia. Hence, Nokia chose to make irrational decisions by choosing to escalate with their current spec and design rather than invest their devices to current market demand. Ever since, Nokia began to lose its market power, which was shifted to iPhone that keeps up to date with customers' demands.

### **Rational Escalation Factors**

Some escalations, in the essence of continuation of a project following the negative feedback, are in the best interest of an organization Desai and Chulkov (2009). Previous researchers, Desai and Chulkov (2009), gave the argument that stated escalation is rational if it is justified by the value that the firm receives from investigating the project further. They believed some escalation cases could be rational for the firm. The real options theory and the bandit theory provide examples on how project continuation is justified by the value of information and the value of flexibility that the firm receives from continuing the project.

Under real options theory, escalating a project has value for the firm due to various real options which are associated with the project. In the real option value when there is uncertainty about the project, it may generate new information or provide information that is engaged with the project for future growth opportunities by continuing the project. Thus, it suggests a decision logic emphasizing the value of small initial investments that provide the opportunity to make additional investments after uncertainty is resolved. Hence, even though these cases may be labeled as escalation, the continuation of these projects is rational once the real option value is incorporated in the decision making and utilizes the opportunity even though it is not obligated.

On the other hand, the bandit theory explained how the bandit problem provides the incentive to invest in risky projects first even though they received negative feedback since going for the safer options first will leave the high-risk and high-reward projects unexplored. High-risk projects are identically associated with negative feedback and eventually will lead to escalation.

However, it depends on the design of the bandit problem in which the firm chooses between several alternative ways of resolving problems under uncertain conditions. Previous researchers had found that escalating commitment is irrational since it is limited by two alternative ways to terminate and escalate. Several alternative ways also involve escalation. Hence, by resolving uncertainty about these high-risk projects with alternative ways, this theory believes that it is rational for the firm to escalate the commitment.

### **Educational Background**

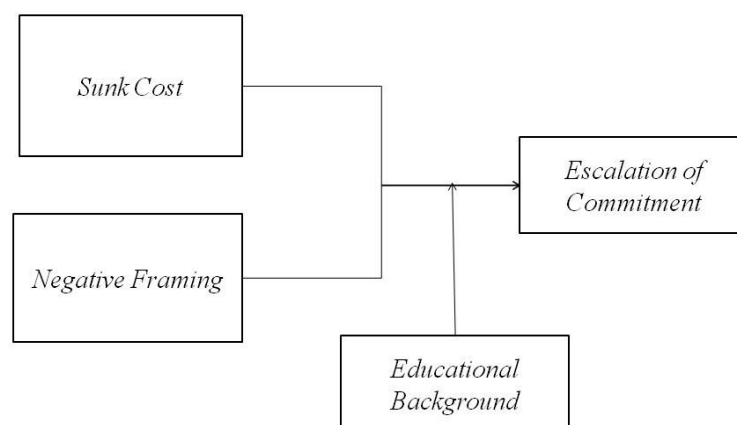
Professionalism can be formed not only in the workplace but also through education. Professionalism influences audit quality and auditor quality which affects the auditor's performance as an employee (Wardayati et al., 2019). Fatmawati et al. (2018) study showed that throughout education, it affects enhancing bachelor's understanding of professional skepticism and audit judgment. Professional skepticism here is initial judgments regarding fraud or errors, within the undergraduate accounting and professional programs circumstances. Subsequently, a professional accounting program is a continuation of accounting education such as undergraduate programs designated for students who wish to pursue their careers as professional accountants. Laksmi and Al Hafis (2019) demonstrated that professional training positively influences the interests of accounting students to become a public accountant in Indonesia.

The professional accounting program curriculum has been aligned with the Certified Public Accountant (CPA) 's modules. Students who graduated from this program can waive more than 80% of the CPA exam modules and be certified as an accountant and in line with audit purposes whereas auditors must have professional skepticism to audit a firm. Hence, people with higher formal education levels, such as professional accounting programs, have higher levels of trait skepticism than participants with a lower level of formal education, such as an undergraduate program. Thus, in line with the result of Amelia (2014) previous research, managers who are graduated from the accounting department will not escalate projects that will not give benefits to the organization since their professional judgment has been built from college.

**H3:** Accounting educational background negatively moderates the influence of sunk cost on the escalation of commitment.

**H4:** Accounting educational background negatively moderates the influence of negative framing on the escalation of commitment.

Figure 1 shows the research model for analyzing the relationship of each variable and how their relationship is. The arrows indicate the factors that influence the dependent variable, such as moderating variable that influence the relationship between independent variables and dependent variable.



**Figure 1.** Research Model

## Research Method

The research was conducted in Pertamina Hulu Energi (PHE), Jakarta. I chose PHE since it represents one of the biggest governance corporations in Indonesia. As a big corporation, the human resources are indeed having professional judgment and having a real working experience where they have validity to deal with big projects, which increase the validity value in my experiment. Managers are selected with high competency as well as have many experiences to support their professionalism. Thus, managers have experienced framing effect in their decision making process therefore it is expected to support the validity of the result. Hence, it supported our research.

This experimental study conducted in PHE, Jakarta, where I obtained the data from several departments' managers in PHE and its subsidiaries, which consist of 15 entities such as Pertamina EP (PEP), Pertamina EP CEPU, Pertamina Hulu Indonesia Mahakam, Geothermal Energy, ELNUSA, Pertamina Drilling Service, etc. I chose managers and assistant managers since they were related to this topic and have a responsibility to make decisions, therefore subjects might support the research of escalation of commitment tendency.

We employed an experimental design intending to discover the tendency of managers as decision makers for escalating their commitment. We used three-way ANOVA (ANOVA 2 X 2 X 2 factorial) with a within-subject design to analyze the result. Within-subject design is where all participants are exposed to every treatment.

Treatment here is when there are varying levels of independent variables, participants are supposed to have experienced all of the conditions of the independent variables. Thus, instead of breaking down participants into two treatments, we conducted the test at the same time where the participants have experienced those two treatments. The primary data obtained is the result from the participant's answer to several cases instrument. An instrument is a tool used by the researcher for collecting quantitative data on a researched variables. In this research, the instrument in the form of cases for sunk cost and framing effect variables along with an open-ended question for educational background variable.

The instrument that used for framing effect, sunk cost, and escalation of commitment variables in this research referred to the relevant instrument that has been made by previous researchers are Feldman and Wong (2018) and Amelia (2014). We use Likert scales of 1 to 10, with the range of strongly agree to terminate the project until strongly agree to continue the project to determine the manager's tendency for escalating commitment. From referred instrument, we give some modifications that are needed such as diverge investment projects based on the department's job desk and indeed the firm name. The educational background variable in this research is determined by an open-ended question where the instrument is adopted from Amelia (2014) previous research.

This research also used manipulation test questions to know whether the participants understand clearly the situation and condition. Even though participants are experienced and are believed to have professional judgment, however manipulation test is needed to minimize the bias of misunderstanding of the provided cases. The manipulation test question is referred to Feldman and Wong (2018) and Amelia (2014) previous researches.

As the research is conducted in primary data, this research uses a validity test for measuring the instruments is valid. Sugiyono (2014) explained validity means that the instrument can measure what needed to be measured. In this validity test, we use face validity to conduct the research.

Instead of having a test tool for measuring the validity of the instrument, face validity (or also called logical validity) is not showing their measurement criteria but the "face" of measurement tools. In another word, face validity uses skim surfaces to form measurement categories. Hence, face validity is the least precise and simplest method of determining validity which relies entirely on the familiarity and expertise of the previous researchers in line with the research's subject (Mohajan, 2017).



Face validity ensures that the measure is assessing the intended construct for the research. Subsequently, face validity describes the appearance of validity without empirical testing. Hence, face validity is considered to be the weakest form of validity. However, since we referred to the instruments from Feldman and Wong (2018) and Amelia (2014) previous researches, the validity had been proven.

In this study, we analyze the factors that influence the decision-making process on how managers escalate their commitment. Therefore the component of measurement tools are managers as the decision-maker and understand the decision making process. As the participants obtained are from managers of several departments of PHE and other subsidiaries, hence participants indeed have experiences in decision making. Moreover, we discussed the instruments with the Training Department's representative to approach the perspective of PHE's employees for optimizing the better understanding of instruments. Thereby, our instrument might measures what is supposed to be measured.

We obtained the result of experimental research on managers of Pertamina Hulu Energi (PHE), Jakarta, from various departments. We used manipulation test questions to know whether the participants understand clearly the situation and condition described in the scenario. Even though participants are experienced and are believed to have professional judgment, however manipulation test is needed to minimize the bias of misunderstanding of the provided cases. Each case had 2 manipulation questions. Table 1 shown the demographic data of participants obtained.

**Table 1.** Participants' Demographic

Age	<40 years old	6
	40-50 years old	21
	>50 years old	12
Length of work	<10 years	17
	>10 years	22
Gender	Male	32
	Female	7

Out of 39 participants, 15 the participants are graduated from the accounting department (38.46%) and 24 participants are from the non-accounting department (61.54%).

### **Descriptive Analysis**

There are four variables in this research which are an escalation of commitment, sunk cost, framing effect, and educational background whereas the educational background is divided into two groups that are graduated from accounting majors and non-accounting majors. Despite the degree/s (either it was or were bachelor, magister, doctor, and/or professor) taken, as long as there is an accounting major in their graduated degree/s, we included the participants into accounting group of educational background.

The variables were described by measuring the mean, significance level, and standard deviation. We used SPSS to measure the variables.

**Table 2.** Descriptive Statistics Results of Escalation of Commitment

	Education	Mean	Std. Deviation	N
Sunk Cost	Non-accounting	8.25	1.595	24
	Accounting	3.60	2.473	15
	Total	6.46	3.007	39
Negative Framing	Non-accounting	7.67	2.200	24
	Accounting	2.40	1.298	15
	Total	5.64	3.208	39

Table 2 represent the descriptive statistic of escalation of commitment where all the data is significance  $F(10,4110) = 3.469, p < 0.001$ . In sunk cost, participants who graduated from the non-accounting department tend to take sunk cost into consideration hence the mean = 8.25. In contrast, participants who graduated from the accounting department are not excessively affected with sunk cost therefore mean = 3.60.

In line with sunk cost, the educational background has an impact on negative framing. Participants who graduated from the non-accounting department tend to escalate commitment when they faced sunk cost hence mean = 7.67. In contrast, participants who graduated from the accounting department are indifferent with framing therefore mean = 2.40.

### Assumption Test

Table 3 shows the results of Mauchly's Test of Sphericity for linearity test. Its shows the variances of differences of vary of conditions being equal. However, when there are two levels of each variable, there is only one set of differences therefore there is none to compare this variance against with (Field, 2017). Thus, SPSS leaves the column blank since it can not be tested. The book explained the main effect of treatment has two levels so the assumption of linearity is not an issue and there is no need to correct its  $F$ -ratio.

**Table 3.** Mauchly's Test of Sphericity

Within Subjects Effect	Mauchly's W	Approx. Chi- Square	df	Sig.	Epsilon
					Greenhouse-Geisser
SunkCostEffect	1.000	.000	0	.	1.000
FramingEffect	1.000	.000	0	.	1.000
SunkCostEffect *	1.000	.000	0	.	1.000
FramingEffect					

**Table 4.** Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
Sunk Cost	0.708	1	37	0.405
Negative Framing	1.486	1	37	0.231

Table 4 shows the Levene's test indicates that variances are homogeneous for all levels since all the significance value is higher than 0.05 (5%).

### Hypothesis Test

We employed three ways ANOVA to test the interaction among variables. H1 and H2 tests were conducted to analyze when the information shows sunk cost and negative framing, managers tend to escalate commitment of projects which has the prospect of failure. However, H3 and H4 tests were conducted to analyze accounting educational background negatively moderates the influence of sunk cost and negative framing to escalate commitment.

The interaction between the sunk cost to the escalation of commitment can be seen in Table 5. It shows a significant main effect of sunk cost and negative framing to the escalation of commitment for  $F(1, 37) = 5.70, p = 0.022$ . Hence, H0 is rejected and Ha is accepted. Thereafter, it can be concluded that sunk cost positively affects the escalation of commitment. Hence, H1 is accepted. Table 5 shows significant main effect of negative framing to escalation of commitment for  $F(1, 37) = 8.203, p = 0.007$ . Thus, H0 is rejected and Ha is accepted. Thereafter, it can be concluded that negative framing positively affects the escalation of commitment. Hence, H2 is accepted.

**Table 5.** Within-Subject Effects Results

	Type III Sum of Squares	df	Mean Square	F	Sig.
Sunk Cost	9.463	1	9.463	5.696	.022
Sunk Cost * Education	.027	1	.027	.016	.899
Framing	27.600	1	27.600	8.203	.007
Framing * Education	.677	1	.677	.201	.656

The test result showed none significant differences when educational background added as moderating variables  $F(1, 37) = 0.16, p = 0.899$ . Hence,  $H_0$  is accepted and  $H_a$  is rejected. Thereafter, it can be concluded that accounting educational background does not negatively moderate the influence of sunk cost on the escalation of commitment. Hence,  $H_3$  is rejected. On the other hand, when accounting graduated managers faced negative framing also showed no significant differences on how the result shows  $F(1, 37) = 0.21, p = 0.656$  where it is much lower than 7.96. Hence,  $H_0$  is accepted and  $H_a$  is rejected. Thereafter, it can be concluded that accounting educational background does not negatively moderate the influence of negative framing on the escalation of commitment. Hence,  $H_4$  is rejected.

## Result and Discussion

### Sunk Cost and Escalation of Commitment

The result was in line with prospect theory which explains a range of apparently irrational individual choices and preference reversals (Sharp & Salter, 1997). The presence of a sunk cost in a decision context may predispose decision-makers to take risks. As also predicted by Feldman and Wong (2018), sunk costs are difficult to ignore therefore sunk costs might affect negative outcomes' perception whereas the larger sunk costs strengthening the importance of negative outcomes and normative expectance to justify their action for escalating.

The result for analyzing whether sunk cost affects managers' decision to escalate commitment in a failing course of projects shows the significant influence. This result indicates sunk cost influence the decision-making by managers to escalate their commitment on how in this experiment, it was measured by a project that has the prospect of failure.

This finding also lends support to Drummond (2014) despite the expectance of managers to re-evaluate the project and persist in line with economic sense, however, managers may be reluctant to ignore since they have too much invested to quit. On how, in the economic sense, managers are supposed to exclude sunk cost as negative feedback from the past and continue the favorable project, not the unfavorable one (Amelia, 2014).

Likewise, this finding lends support to Roth et al. (2015) whereas the positive of sunk cost effect in utilization decisions. Utilization decision here stands when decision-makers confronted with the choice between two equally attractive alternatives which are when the decision-makers purchase a good or service with sunk cost but before actually consuming the good or service, the decision-makers are confronted with an additional but similar attractive alternative that is offered at lower or no cost. In this finding, with the different results of framing, decision makers tend to choose sunk cost overutilization decision.

### Framing Effect and Escalation of Commitment

The result for analyzing whether negative framing affects managers' decision to escalate commitment in a failing course of projects shows the significant influence. The result indicates that when the situation is framed negatively, it can influence the decision-making by managers to escalate their commitment whereas, in this experiment, it was measured by a project that has the prospect of failure.

Hence, this finding lends support to Feldman and Wong (2018) on how in their research they found that when the information framed negatively it may lead managers to escalate and take action of unwise risks to avoid losses since they refuse to accept the loss that has occurred (loss aversion). This finding also lends support to prospect theory which was developed by Tversky and Kahneman (1981) that can be explained how the framing effect can affect managers' decisions.

Hereby, framing has hefty effects on managers' decisions. Thus, instead of framing the feedback of a project negatively and increase the tendency of escalation of commitment, preferably to frame the feedback positively. Sharp and Salter (1997) stated that framing systematically affects decision makers' decisions. They explained that decision makers tend to take risks to avoid certain loss outcomes than when the same outcome is framed positively which is described in terms of again. We also found positive feedback (framing) had a negative relationship to the escalation of commitment.

### **Educational Background and Escalation of Commitment**

The result for analyzing whether educational background affects the influence of sunk cost and negative framing to the escalation of commitment in a failing course of projects shows no significant influence affecting the relationship between sunk cost to the escalation of commitment and framing. The result indicates that escalation of commitment cannot moderate the effect of sunk cost and negative framing to the escalation of commitment.

Educational background was not a positively moderate escalation of commitment because there is quite a different amount of accounting graduated managers and non-accounting graduated managers. Aside from that, other factors enhance managers' knowledge and awareness about the escalation of commitment. Professional judgment for managers is built using the education, knowledge, and experience within the framework of accounting standards and ethical standards while making decisions based on the information about sunk cost and facing negative feedback as the steps to be taken by the situations present. Hence, aside from education, there is knowledge obtain within work such as training and presentation over economics including accounting. In PHE, there is training for approximately 4 months based on the department's job desk such as Tax Certification A and B, CHRP, PSAK, etc. Aside from training, there is regular sharing knowledge each month consisting of knowledge of each department's job desk such as sharing knowledge about Financial Statement Flows and others sharing knowledge presented by an expert.

With training, decision makers will increase their comprehension of escalation of commitment. Thus, managers can decide on the escalation of commitment. Experience as a manager also has a contribution to decision-making upon escalation of commitment. It is of utmost importance for decision-makers to have general information about the sector in which the organization operates, the system that is used to prepare the financial information, and the economy. Overall, the educational background was not the mere factor of managers' decision making process.

### **Conclusion**

One of the aims of this research was to find out the influence of framing effect on the escalation of commitment. The results suggest that sunk cost positively affects the escalation of commitment when the participants tend to escalate their commitment over the exceeded costs needed indicating the failing course. Another finding of this study suggests that negative framing positively affects the escalation of commitment. We found it significant that the participants tend to escalate their commitment.

Moreover, accounting educational background does not negatively moderate the influence of sunk cost on the escalation of commitment. The same outcome also goes to accounting educational background which not negatively moderates the influence of negative framing on the escalation of commitment.

The implication of this study suggests that sunk cost has a hefty effect on a manager's decision, especially those without education on which decision beneficial for the company. Hence, factors that constraining sunk cost should be analyzed further. There might be any consequences for decision-makers, their organizations, and the environment that can be quite costly, especially in the progress of decision making where sunk costs may encourage escalation tendencies. Thus, identifying the constraining factors can help organizations specifically owners in implementing institutional barriers to prevent escalation of commitment that might lead to catastrophic.

We also found that positive framing affects managers' decision to de-escalate their commitment with the result of negative framing. Hereby, there is a need for further research on the diverge implication effect of positive framing over negative framing. Subsequently how it affects managers either they escalate or de-escalate their commitment to a project. We found that educational background was not negatively moderated the relationship of sunk cost to the escalation of commitment and negative framing to the escalation of commitment. Hence, it requires further research on another factor aside from educational background that moderates the relationship between sunk cost to the escalation of commitment and either negative or positive framing.

Since our participants comprise real managers, we find it quite challenging to match their busy schedules. Therefore it was hard for us to gather each department manager for conducting the research. Hence, there were not many volunteers for the experiments. Preferably there are more participants to have a range of results. The other limitations are even though the instruments were different based on the core department, the amount of sunk cost was the same in each instrument. Hence it might not represent the real case for some departments.

This research might apply differently in other organizations since each organization has its conditions, circumstances, and cultures built. Hence the result might differ depending on the cultures or companies' size. Further research is needed regarding other escalation of commitment factors in Indonesia. More comprehensive research with broader respondents vary of instruments, and other potential theories related to cultural views might give deeper analysis for escalation of commitment.

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