NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL PROJECT

FIGHTING FRAUD WITH EDUCATION WITHIN THE DEPARTMENT OF THE AIR FORCE

December 2023

By: **Cory R. Peterson**

Advisor: **Erik Helzer**
Co-Advisor: **Juanita M. Rendon**

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE	*Form Approved OMB No. 0704-0188*

1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** December 2023	**3. REPORT TYPE AND DATES COVERED** MBA Professional Project

4. TITLE AND SUBTITLE FIGHTING FRAUD WITH EDUCATION WITHIN THE DEPARTMENT OF THE AIR FORCE	**5. FUNDING NUMBERS**
6. AUTHOR(S) Cory R. Peterson	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.	**12b. DISTRIBUTION CODE** A

13. ABSTRACT (maximum 200 words)

The Department of the Air Force (DAF) risks losing approximately $1.1 billion to procurement fraud in Fiscal Year 2023. Research conducted by fraud examiners highlighted fraud education as a key solution to deter fraud within an organization. Currently, the DAF's Office of Special Investigation (OSI) offers fraud education to certain members of the DAF through fraud awareness briefings (FAB). Due to the importance of deterring procurement fraud within the DAF, this study looked at the OSI's FABs and applied research in human learning to improve the learning potential of the DAF. This research study tested improvements to OSI's current passive learning method (PowerPoint brief) with the recommended inclusion of active learning methods (case study method) to optimize knowledge retention and learning of procurement fraud indicators and schemes. Enhancing OSI's fraud education to the DAF will theoretically improve procurement fraud prevention and detection, save lives, decrease mission failure, prevent data intrusions, and neutralize foreign advisories' ability to exploit the DAF's weapon systems. The results could not conclude that including an active learning method resulted in better knowledge retention of fraud materials. However, it did identify other benefits for use with the DAF members. This study was provided to the OSI procurement fraud leadership to recommend that they include a case study as a beneficial education tool for the DAF.

14. SUBJECT TERMS fraud, case study method, education, active learning, passive learning, fraud detection, fraud education, fraud prevention	**15. NUMBER OF PAGES** 91
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

FIGHTING FRAUD WITH EDUCATION WITHIN THE DEPARTMENT OF THE AIR FORCE

Cory R. Peterson, Technical Sergeant, United States Air Force

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

NAVAL POSTGRADUATE SCHOOL
December 2023

Approved by: Erik Helzer
Advisor

Juanita M. Rendon
Co-Advisor

Rene G. Rendon
Academic Associate
Department of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

FIGHTING FRAUD WITH EDUCATION WITHIN THE DEPARTMENT OF THE AIR FORCE

ABSTRACT

The Department of the Air Force (DAF) risks losing approximately $1.1 billion to procurement fraud in Fiscal Year 2023. Research conducted by fraud examiners highlighted fraud education as a key solution to deter fraud within an organization. Currently, the DAF's Office of Special Investigation (OSI) offers fraud education to certain members of the DAF through fraud awareness briefings (FAB). Due to the importance of deterring procurement fraud within the DAF, this study looked at the OSI's FABs and applied research in human learning to improve the learning potential of the DAF. This research study tested improvements to OSI's current passive learning method (PowerPoint brief) with the recommended inclusion of active learning methods (case study method) to optimize knowledge retention and learning of procurement fraud indicators and schemes. Enhancing OSI's fraud education to the DAF will theoretically improve procurement fraud prevention and detection, save lives, decrease mission failure, prevent data intrusions, and neutralize foreign advisories' ability to exploit the DAF's weapon systems. The results could not conclude that including an active learning method resulted in better knowledge retention of fraud materials. However, it did identify other benefits for use with the DAF members. This study was provided to the OSI procurement fraud leadership to recommend that they include a case study as a beneficial education tool for the DAF.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

ACFE	Association of Certified Fraud Examiners
AFAA	Air Force Audit Agency
CONS	Contracting Squadron
DAF	Department of the Air Force
DBO	Director of Business Operations
DOD	Department of Defense
FWA	Fraud, Waste, and Abuse
FY	Fiscal Year
IRB	institutional review board
LTM	long-term memory
MICT	Management Internal Control Toolkit
NPS	Naval Postgraduate School
OSI	Office of Special Investigations
PBS	positive behavior support
PF	Procurement Fraud Detachments
SAF/IG	Secretary of the Air Force's Inspector General's Office
STM	short-term memory
USAF	United States Air Force
USSF	United States Space Force

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

To all who engage with this research, I extend my deepest gratitude. This endeavor stands as a testament to diligent work and the blessing of my God that made it possible.

My heartfelt appreciation goes to my unwaveringly supportive wife, who provided boundless love and encouragement throughout this journey. Her tireless dedication to our children, Dylan and Carly, especially during my writing hours, is immeasurable. To my children, your understanding and patience have been invaluable.

I am indebted to the OSI leadership for their unwavering support in facilitating my transition to NPS. Your backing has made this experience immensely rewarding, and I aim for this study to reflect our command's pride.

Dr. Erik Helzer and Dr. Juanita Rendon, your guidance and encouragement were instrumental in conquering what initially seemed an insurmountable task. Your support transformed doubts into triumphs.

Lastly, I extend profound appreciation to Alison Scharmota of the NPS Graduate Writing Center. Your unwavering assistance, insightful feedback, and meticulous edits, particularly in shaping the literature review, have brought this work to fruition.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

> "If we do not challenge the status quo, we will not be able to provide airpower anytime, anywhere."
>
> —USAF Chief of Staff, Gen CQ Brown, Jr.
> Speech to the Total Force, September 20, 2021

A. DAF HAS A PROBLEM WITH FRAUD

When people think of military procurement fraud cases, only a handful of media-level cases come to mind, such as the Navy's Fat Leonard case (Associated Press, 2023; Fox News, 2022), the recent Belfour Beatty housing case (Federal News Network, 2021), and the former Principal Deputy Undersecretary of the Air Force for Acquisition Darleen Druyun bribery case (New York Times, 2004). These cases made major headlines, but the Department of the Air Force (DAF) investigates and prosecutes hundreds of procurement fraud cases every year, and many more go unreported. The DAF's Office of Special Investigations (OSI), charged with identifying and neutralizing procurement fraud threats, could not provide the number of current ongoing procurement fraud cases within the DAF. However, as of April 10, 2023, the researcher received information on what the whole picture might look like within the DAF from the current numbers of one of the eight procurement fraud (PF) detachments within OSI. Within the last five years (2018–2023), the OSI PF Detachment investigated 117 cases. In 2021, they investigated 21 cases; in 2022, they investigated 29 cases; and as of the reported date, they had already investigated 10 cases. Extrapolating these numbers to all eight detachments, the researcher estimated OSI investigates well over 100 procurement fraud cases a year and closer to 200 when "base-level" cases are included. Procurement fraud cases are not isolated to a few egregious cases but are a persistent threat to the DAF.

As of now the DAF implements multiple resources to combat fraud. The Air Force Inspector General's Office (SAF/IG) actively attempts to combat fraud by educating on fraud, waste, and abuse (FWA) policies and recommendations (Air Force Inspector General's Office [SAF/IG], 2020). The SAF/IG's complaints resolution directorate

released a guide for commanders and other organizations to understand FWA (SAF/IG, 2014). The guide expressed the importance of implementing internal controls, reporting systems, and creating a culture of reducing FWA based on the Air Force's core values. The DAF uses internal control systems like the management internal control toolkit (MICT). Systems like MICT do not usually focus on fraud indicators but more on the unit-level programs' internal compliance items (Mueller, 2014). The DAF utilizes internal and external auditors to help with controlling internal compliance and identifying possible fraud. The DAF's primary agency charged with audits is the Air Force Audit Agency (AFAA), which conducts "timely, value-added audit services to [their] customers" (Air Force Audit Agency [AFAA], n.d.). The Air Force also mandates ethics training that incorporates fraud training within the DAF's contracting profession (Government Ethics Education, 2023). Contracting officers can receive *ACQ 0490 Procurement Fraud Indicators,* a computer-based training through the Defense Acquisition University (DAU) website (2023). Although the DAF attempts to combat fraud with multiple resources, fraud continues to threaten the DAF.

B. OSI HAS A PROBLEM WITH FRAUD AWARENESS BRIEFS

Research conducted by the Association of Certified Fraud Examiners (ACFE) highlighted fraud education as one of multiple key solutions to prevent and detect fraud within an organization (ACFE, 2022a). OSI, like the organizations mentioned in ACFE's *Fraud Awareness Training Benchmarking Report* (2022b), lacks tailored fraud training for different departments or career fields and instead teaches a generic fraud awareness training. OSI can make an impact with these briefings because of OSI's reach and ability to access a large proportion of the DAF. As of April 10, 2023, the data provided by the PF detachment indicated that over the last five years (2018–2023), OSI had provided 422 fraud awareness briefings. Extrapolating to the other eight PF detachments and "base level," the researcher approximates that OSI provided 3,000 fraud awareness briefings to the DAF in the last five years. Even though OSI may have a great reach, research conducted by the Naval Postgraduate School (NPS) indicated that contracting professionals within the Department of Defense (DOD) and OSI agents are possibly deficient in procurement fraud scheme knowledge (Rendon & Rendon, 2015; Menanno & George, 2015). NPS research

and theses have analyzed the Navy and Army contracting professionals' and OSI PF agents' comprehension of contracting knowledge, internal controls, and fraud scheme knowledge, concluding that these individuals lacked contracting knowledge and specifically lacked fraud knowledge (Menanno & George, 2015; Chang, 2013; Rendon, 2017). OSI PF agents appeared to have the best fraud knowledge, averaging 75% on their assessment (Menanno & George, 2015).

OSI has a regulation specifically for fraud investigation, titled AFOSIM 71-122, vol. 2, that details OSI's authority, common schemes, methods to investigate, common evidence, and other crucial information regarding OSI's fraud investigation methods. The regulation states, "The most important element in the fight against fraud is recognizing conditions that allow fraud to go undetected. Educating people on fraud schemes who work in and around the procurement process will yield valuable dividends" (AFOSI, 2020, p. 19). This part of the regulation highlights OSI's importance in fraud education and the dividends it will pay in fraud prevention. Additionally, the regulation states, "Fraud threat awareness and indicator briefings [are] an excellent method for agents to be invited ... to give a briefing to personnel about the threat of fraud and corruption in the AF" (AFOSI, 2020, p. 17). The only other statement of fraud awareness briefings in the regulation again mentions the importance of the brief. Even though OSI's regulations express the intent of fraud education well, the regulations fail to specify or provide any instruction on how to present a fraud awareness brief. Agents usually have to rely on experienced agents or find an example PowerPoint on a shared drive from past agents.

In conducting research for this thesis, the researcher had multiple discussions with OSI agents who currently investigate or investigated procurement fraud cases at the base-level or PF detachment level. The common theme obtained from those agents was a lack of standardized training on how a fraud awareness briefing should be accomplished, including topics and methods to brief the information. Most agents reported that they obtained their PowerPoint example from the handed-down OSI fraud drive as the basis of their briefing material and example. Agents also shared that in their initial attempts to provide fraud awareness briefings they did not feel their briefs were received well and that getting participation or any additional questions was difficult. As some agents advanced in

their skills, knowledge, and experience, they began naturally incorporating an active learning method by sharing real-world cases for each procurement fraud scheme. These agents reported gaining better success in audience attention and fraud reporting following their briefings.

There is a clear and present risk of fraud to the DAF. Although the DAF has implemented multiple resources to counter the threat, its efforts at educating the intended audience to better counter this threat may not be effective.

C. SIGNIFICANCE

1. What We Spend and Lose

According to *The Department of Defense Fiscal Year 2023 Budget Estimate: Air Force Justification Book Volume 1* (2022), the DAF requested approximately $194 billion for Fiscal Year (FY) 2023. That budget includes operations and maintenance funds, members' pay, research and development, construction, and procurement. Even though fraud is possible in many different forms throughout all budget areas, this study highlights procurement fraud. The DAF requested a procurement budget of $3.6 billion for the United States Space Force (USSF) and approximately $18.4 billion for the United States Air Force (USAF), making the total DAF procurement budget approximately $22 billion dollars (DOD Budget, 2022). To contextualize, $22 billion is approximately equal to Israel's 2022 full defense budget and more than that of Spain or Brazil (SIPRI, 2023). Taxpayers, senior leaders, and DAF members are all presumably invested in protecting $22 billion of contracted money from being misused, stolen, or thrown away.

Given that the DAF planned to spend approximately $22 billion on procurement contracts, the government could approximate a $1.1 billion loss to fraud when applying the ACFE's (2022a) average organization's 5% loss to fraud. The loss of $1.1 billion to fraud should never be acceptable. The actual amount cannot be verified because the DAF cannot identify every fraudulent act. Research conducted by OSI agents Rowe and Mclaughlin in 2019 (2020) determined that between FY15 and FY19, the DOD was estimated to have lost approximately $153.8 billion to procurement fraud and only recouped $6.2 billion in fines. As of April 10, 2023, information provided by the commander of one of the eight PF

detachments within OSI identified that his detachment alone had totaled $366,386,080.38 in losses from their current open investigations. If every PF detachment has nearly this dollar amount of loss with their active cases, then the estimation of a 5% loss is accurate to the DAF. Additional factors not included in that figure are fraud cases at the base level, meaning non-weapon system procurement cases and cases from overseas bases. Including the base-level cases and overseas bases could increase the loss to procurement fraud to over 5% per year.

2. Non-monetary Cost/Harm Resulting from Fraud

Although it is tempting to quantify the problem of fraud through cost and number of cases, the DAF should not overlook the harm that fraud can have on national security and the potential death of troops. The PF detachment that provided their information for this study reported that their most investigated fraud scheme was product substitution. Product substitution is the scheme in which a contractor will use inferior parts, defective parts, or non-compliant parts to decrease their cost and increase their profit margin (U.S. General Service Administration [GSA], 2012; NASA's Office of Investigations [NOI], n.d.). Product substitution is a crime because the culprit intentionally falsified a claim or statement certifying that they delivered or performed the contracted materials or services when they knew they did not. Nevertheless, the crime resulted in a monetary loss; the larger impact comes from the government not getting the specified material or part and making the government vulnerable to the weakness of the inferior part or service. An example is a 2012 OSI product substitution case where ATK Launch Systems Inc. (ATK) knowingly provided inferior aircraft flares that would explode if dropped. ATK's fraud placed USAF Airmen and aircraft in extreme danger and, thanks to a whistleblower, led to a $37 million settlement and the removal of the inferior flares (U.S. Department of Justice [DOJ], 2012).

An alarming trend now is product substitution within contracts involving microelectronics. The DOD has identified the vulnerability of microelectronic substitutions, especially within the supply chain, leading the DOD to forbid the use of Chinese-made telecommunication products while implementing other policies to protect from Chinese injection into our current defense supply chain coming from the Asia-Pacific

area (Federal Acquisitions Regulations [FAR] 4.21, 2023; Martinez, 2022; DOD, 2022). Recently, OSI has identified multiple procurement fraud cases of product substitution where Chinese components were substituted into manufacturing critical microelectronics of DAF's communication systems to save money. Even though the researcher could not cite current OSI investigations, an example of a prototypical case involves international traffic in arms regulations (ITAR) violations. A previous case involved Bright Lights USA Inc., who solicited the manufacturing of components needed for spare military parts from foreign suppliers (China) by exporting restricted munitions technical data to get quotes (McVey, 2017). A current OSI case may have the exact setup with the addition of the contractor then supplying those components to the DAF certified as being properly acquired per FAR 4.21. The loss of money in these cases is a factor, but the more damaging factor is what U.S. adversaries could do to DOD weapon systems with inferior or sabotaged microelectronics installed in them. Consider all the damage an adversary could cause simply by substituting one microelectronic part. Consider if a substituted part could transmit data back or cause a short circuit inside a major defensive weapon or highly classified communication system—then remember, fraud prevention is about more than just money.

D. RESEARCH STUDY PURPOSE

The researcher argues that the current default fraud awareness briefings given by OSI to the DAF personnel do not adequately promote cognitive processing of the procurement fraud knowledge needed to enhance prevention and detection of procurement fraud within the DAF. In this study, the researcher develops and pilots an active learning method—the case study method—for OSI's fraud awareness briefings. The case and materials were developed to allow for cognitive processing advancement in personnel to make them better sensors of procurement fraud indicators. Therefore, this study attempts to achieve these three educational objectives with an improved learning method: 1) The learner can explain and compare fraud schemes and indicators; 2) The learner can differentiate between fraudulent activity and other administrative failures in their work centers; 3) The learner can execute a usable and timely report to OSI regarding fraudulent activity.

The researcher compared OSI's current default passive learning method (PowerPoint Brief) to the researcher's fraud awareness briefing using an updated PowerPoint and case study addition to determine the best method to optimize knowledge retention and advance cognitive processing of procurement fraud indicators and schemes. According to Albrecht et al. (2016), an organization will improve its fraud prevention and detection by improving its fraud education. Therefore, by identifying the best educational method to improve OSI's fraud education to the DAF, this study contributes to improvements in OSI's fraud prevention and detection capabilities. In theory, by improving fraud prevention and detection, OSI could decrease overall mission failure, prevent data intrusions, neutralize foreign adversaries' ability to exploit DOD weapon systems, and save lives.

E. RESEARCH QUESTIONS

This study answers the following questions:

1. What elements of active learning might promote enhanced knowledge retention for fraud indicators and schemes?
2. Do revised briefing methods utilizing active learning (Case Study Method) promote better knowledge retention than the status quo?
3. What method of learning (active versus passive) is preferred by DAF personnel for fraud awareness briefs?

F. RESEARCH DESIGN

The research design of this study includes a literature review discussing learning theories, including Bloom's taxonomy and research on passive and active learning. Following a literature review, the researcher applied the best learning methods identified and designed a new fraud awareness briefing to compare against the status quo PowerPoint brief. The researcher then tested the two briefing methods by providing briefings at three local USAF contracting squadrons (CONS) and two groups of USAF contracting officers at NPS. The testing consisted of providing the groups with one of the two briefing methods and then issuing a knowledge assessment to collect data on participants' knowledge

retention. The researcher compared the knowledge assessment results to identify if one method showed better overall retention, better retention at a certain cognitive level, and any learner preferences between the methods. NPS's institutional review board (IRB) reviewed this study and its planned testing and research, and determined that this study did not constitute generalizable research. For further information regarding the research methodologies, see the methodology chapter.

G. RESEARCH STUDY OVERVIEW

This chapter has clearly identified and addressed the DAF's fraud problem and OSI's fraud awareness briefing problems. The following chapters constitute the research, testing, and results of this study. Chapter II reviews the literature on human learning, emphasizes the benefits and weaknesses of the different learning methods used in education, and introduces Bloom's taxonomy. Chapter III presents the methodology, describing the participants, materials, briefing design, and evaluation design. Chapter IV discusses the results and findings, consisting of the PowerPoint results, case study method results, and the opinion-based method preferences. Chapter V concludes the report with a summary of the findings, recommendations based on the results, and suggestions for future studies.

II. LITERATURE REVIEW

This research study explores whether implementing active learning methods and principles could significantly augment knowledge retention when briefing Air Force personnel about procurement fraud indicators and schemes. To appreciate why active learning may enhance knowledge retention, it is essential to first gain insight into the broader landscape of research on human learning, particularly within the realm of higher education.

In this chapter, the researcher describes the foundational theories and principles of learning, draws distinctions between passive and active learning approaches, and explores specific active learning techniques that have demonstrated efficacy in increased knowledge retention. This exploration aims to provide a solid grounding for the investigation into the application of active learning within the context of Air Force personnel training and fraud prevention.

A. FOUNDATIONS OF HUMAN LEARNING

Learning occurred in early humans through trial and error and the passing down of stories (lessons). Even though humans have been learning from the beginning, the study of human learning only began in the 1800s, with two rudimentary theories: structuralism and functionalism (Ormrod, 2020). These theories were never scientifically adopted because they were considered introspective psychology (collective thoughts and ideas on a topic). It was not until the 20th century that psychologists with the desire to empirically study principles of learning and memory laid the foundation for psychologist John B. Watson to help create the field of behaviorism (Ormrod, 2020; Watson, 1924; Mcleod, 2023).

1. Behaviorism

Behaviorism attempts to explain the basic learning process for humans and animals. Behaviorists explain learning as a conditioned behavior change to positive and negative stimuli. Similar to Pavlov's dog experiment, behaviorist Watson conducted an experiment in which babies played with different animals for the first time and displayed no fear

reaction (Watson, 1924). Watson (1924) then stimulated a loud noise every time the baby reached for the dog, creating a fear reaction in the baby. After a few rounds of loud noise conditioning, the babies would automatically show fear when seeing a dog. This and many similar experiments became the working concepts behind human conditioning in education with learning concepts like positive and negative reinforcement.

In the early 1900s, conditioning students was standard at schools, such as using physical punishment to correct bad behavior and rewards to encourage good behavior. Movies portrayed this in scenes with a nun or teacher slapping a child's hand with a ruler. In the 1980s, though, behaviorism led schools and other childcare programs to use positive behavior support or PBS (Guntern, 2009). PBS focused on fixing problem behaviors with positive reinforcement of good behaviors and discouraged the use of punishment. Even though behaviorism explains human learning in behavior change, additional theories emerged to explain how humans learn academically—gaining conceptual knowledge or problem-solving skills.

2. Social Learning Theory

During the same period as Watson, psychologists like Albert Bandura began to discuss the theory of social learning that focused on observing, modeling, and imitation (Nabavi & Bijandi, 2011). The term modeling was used for the action of someone learning through observation and repeating the actions of another (Ormrod, 2020). Modeling can be observed through apprenticeship or parent-and-child relationships. A well-known example of social learning theory is Bandura's bobo doll experiment. The experiment tested how kids learn aggression from modeled behavior from adults (Bandura et al., 1961). The critical difference from behaviorism is that humans learn new skills through observation and repetition without stimuli or external reinforcement (Nabavi & Bijandi, 2011). The social learning theory allowed scientists to understand the importance of socialization of children and adults on human learning. Also, the social learning theory became important to understanding how exposure to different content effects human behavior. Unlike behaviorism, social learning theory was interested in understanding the inner mind, but it lacked constructs to explain why certain actions were modeled while others were not (such

as explaining why a child chooses to copy their parents in some contexts but their friends in others).

3. Cognitivism

As psychologists entered the 1950s, they still lacked answers to questions about human learning, like how people learn a language and form new ideas or thoughts. To explore and better understand these learning processes, psychologists looked beyond behavior and the mind to study the brain itself, which created the cognitivism theory of learning (Jordan et al., 2008; Brieger et al., 2020; Ormrod, 2020). Cognitivism focuses on how humans process information, commonly explained using the metaphor of a computer system. The brain uses its senses to collect information, perceive or assess the type of information, decide on the attention to give it, encode or organize it, and store it in memory for future recall (Jordan et al., 2008). This meant psychologists began to study different brain regions involved in human learning in depth, including working with neuroscientists to map our brain functions and memory during learning. Much of the current research on human learning either falls under or stems from cognitivism and constructivism.

4. Constructivism

Constructivism, like cognitivism, explains human learning through the functions of processing information in the brain. However, constructivism is a form of cognitivism that views learning as a building block system or interconnected foundations using an "active process through which learners construct new meaning" (Jordan et al., 2008, p. 55). A major contribution of constructivism is the acknowledgment that learning happens as an active process, and humans need to connect new information to prior knowledge in order to retain the information. A primary educational method of constructivism is scaffolding. Scaffolding, like the construction analogy it stems from, provides a structure for the learner to lay their educational building blocks to connect like knowledge (Lee & Hannafin, 2017). Constructivism concepts, like scaffolding, are important for understanding the active learning methods discussed later. Research from the studies of cognitivism and constructivism has deepened general understanding of memory and its role in learning.

5. Memory in Human Learning

Through the lens of cognitivism and constructivism theories on how memory works, concepts like short-term and long-term memory were studied and introduced in human learning research. Short-term memory (STM) is "the reproduction, recognition, or recall of a limited amount of material after a period of about 10 to 30 seconds" (American Psychological Association [APA], n.d.). In contrast, long-term memory (LTM) is "a relatively permanent information storage system that enables one to retain, retrieve, and make use of skills and knowledge hours, weeks, or even years after they were originally learned" (APA, n.d.). As researchers better understood STM and LTM, the general public began to use these terms as well in conjunction with a general understanding that knowledge retention occurs when an individual turns STM into LTM.

The research indicates that the simplistic statement of learning being a transfer from STM to LTM is misleading and does not capture the actual cognitive depth with which an individual must process information to gain knowledge retention (Craik, 1983). Persellin and Daniels (2014) highlighted the following four strategies for achieving the deep processing needed for turning information into LTM: repeating and rehearsing new information, establishing meaningful patterns to organize learning, allowing students time to process information, and finding relevance in the learning (p. 3). These four strategies serve as functions within the discussion of active and passive learning methods. The important insight from literature is that knowledge retention success requires more than just memorizing information.

6. Bloom's Taxonomy

Since their publication in 1956, Bloom et al. have defined the classification levels for educational goals and objectives. These levels were intended to help educators define the objectives their lessons were to meet on a specific competency or cognitive skill level (Stanny, 2016; Adams, 2015). Simply, it helped an educator define their lesson from a beginner to a professional level of learning objective. This pathway can then be used to evaluate an individual's cognitive level in a specific learning area. The original educational

objective levels presented by Bloom were (from lowest to highest) knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956).

The updated variant of Bloom's original six levels by Anderson et al. (2001) uses verbs and exchanges the order of the last two levels. Figure 1 illustrates the difference. The updated version also expands the cognitive levels with subcategories to distinguish ambiguities found in Bloom's original version (Larsen et al., 2022). These updated subcategories include four types of knowledge: factual, conceptual, procedural, and metacognitive. Factual is knowledge of facts, conceptual is knowledge of theory, procedural is knowledge of steps or sequence, and metacognitive is knowledge of self-reflection (Adams, 2015). Using verbs and including knowledge types instead of Bloom's category names make it easier to apply Bloom's taxonomy to creating objectives and to use as an assessment framework.

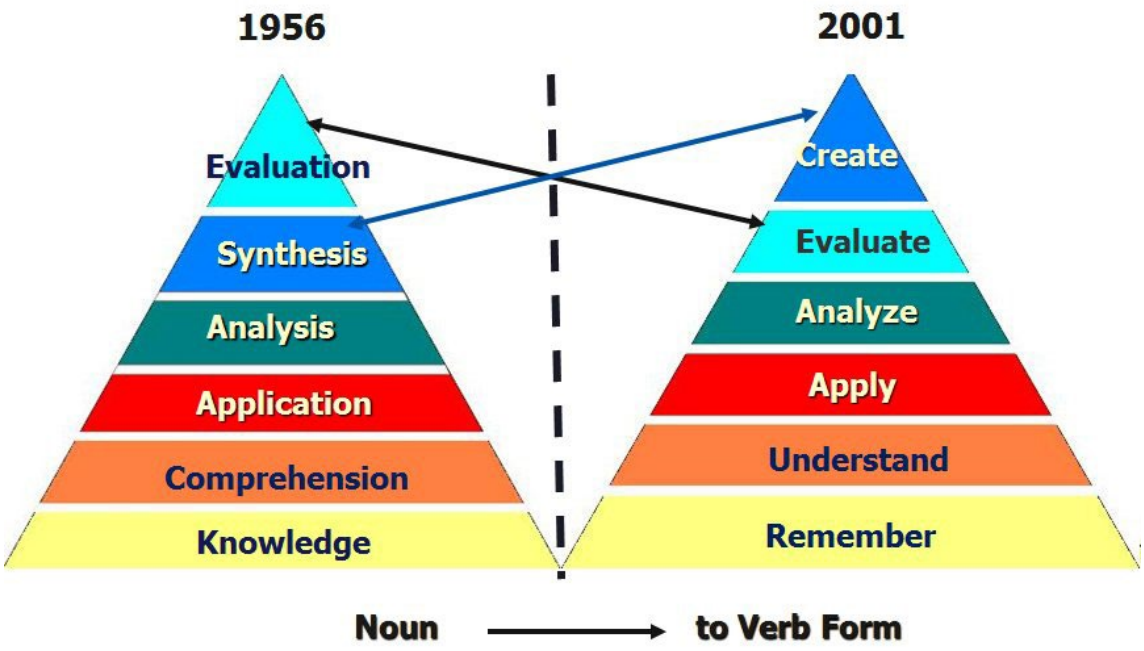


Figure 1. Comparative Table Bloom's 1956 versus Anderson and Krathwohl, 2001. Source: Wilson (2020).

The point of the updated Bloom's taxonomy framework or Taxonomy table is to make it easier to assess a learning objective and craft it to meet the intended understanding and cognitive levels, which is "the most important outcome of education" (Krathwohl, 2002, p. 216). The updated framework uses a six-level cognitive process progression defined by verbs (Krathwohl, 2002). Each of the six levels has sub-categories (such as recognizing and recalling under the category of remember) to reduce confusion between levels (Krathwohl, 2002). The four types of knowledge are cross-analyzed with the cognitive processes to make the taxonomy table, Figure 2 (Krathwohl, 2002). To use the table, the individual must analyze the cognitive process level by identifying the verb in an educational objective and analyze the knowledge type by identifying the nouns in an educational objective (Krathwohl, 2002). An example would be an educational objective that states: "The Air Force member will explain key legal elements of fraud." The verb "explain" represents the understanding level and "elements of fraud" represents factual knowledge, placing the objective in the B1 square. The researcher intends to use similar objectives that would meet the lower level of Bloom's taxonomy like the above example and also use educational objectives to reach higher-level objectives like, "The Air Force member will analyze a case to determine if procurement fraud exists and apply the proper response." This objective uses the verbs "analyze" and "apply," which correspond with their same titled level. The noun in the objective would represent conceptual knowledge, placing the objective in B3 and B4 squares.

	The Cognitive Process Dimension					
The Knowledge Dimension	1. ***Remember***	2. ***Understand***	3. ***Apply***	4. ***Analyze***	5. ***Evaluate***	6. ***Create***
A. ***Factual Knowledge***						
B. ***Conceptual Knowledge***						
C. ***Procedural Knowledge***						
D. ***Metacognitive Knowledge***						

Figure 2. Picture of the Taxonomy Table. Adapted from Krathwohl (2002).

B. ACTIVE VS. PASSIVE LEARNING

The learning theories discussed in the preceding sections are the basis for understanding the distinction between active and passive learning. Cognitivism and Constructivism theories contributed to the foundations of active learning methods, while behaviorism is attributed to passive learning (Drew, 2023; Cohen & Waite-Stupiansky, 2022). Just as each theory has its place in the foundational building blocks of human learning, so do the uses of each learning principle in reaching educational objectives.

1. Passive Learning

Passive learning is the act of learning without active engagement in the learning process, such as a classic lecture or military brief. Passive learning methods allow for quick dissemination of factual and conceptual knowledge to the learner, which makes the use of passive learning a positive choice in quickly delivering large amounts of facts and basic knowledge to a large audience (Wingfield & Black, 2005; Michel et al., 2009; Whetten & Clark, 1996). Although passive learning methods are efficient, they can come at the cost of a lack of attention by the learner and a lack of long-term knowledge retention (Michel et al., 2009; Whetten & Clark, 1996; Dorestani, 2005). Using a passive learning method meets the goal of the briefer to distill information quickly to the masses but fails to enhance cognitive processes, knowledge retention, and application of new knowledge.

Passive learning methods are usually thought of as foundational methods of learning. These methods include lectures, PowerPoint, videos, reading, and observation (Paul, 2017; Drew, 2023). Methods such as PowerPoint have a huge advantage in presenting a lot of complex information in a clear visual way while the facilitator lectures on the information. However, former Secretary of Defense Mattis warns, "PowerPoint is the scourge of critical thinking. It encourages fragmented logic by the briefer and passivity in the listener" (Mattis, 2019, p. 182). As blunt as the Secretary of Defense's statement might be, the fact remains that PowerPoint alone does not elicit feedback or any active engagement with the learner, causing PowerPoint to be a misused tool on its own for educating (Paul, 2017; Drew, 2023).

2. Active Learning

Active learning is used as a general term for applying learning methods and techniques that engage the learner, making them active participants in the learning process (Persellin & Daniels, 2014; Michel et al., 2009; Bonwell & Eison, 1991; Riley & Ward, 2017). Active learning can be used across educational disciplines, and no one active learning method is widely accepted as best practice. Rather, it is widely accepted as the best method compared to passive or traditional lecturing methods because it engages the learner and increases knowledge retention (Riley & Ward, 2017; Persellin & Daniels, 2014; Michel et al., 2009; Dorestani, 2005). However, active learning gets confused with high-activity methods—playing learning games—rather than being understood as any method that engages and makes an active participant of the learner.

A wide scope of methods and ideas make up the active learning toolbox for educators. Like a literal toolbox, the active learning toolbox has blunt or generic tools and precision or specific tools to complete a job. Active learning methods like asking questions, note-taking, and group projects fit the generic tools (Persellin & Daniels, 2014). Other methods, such as Problem-Based Learning, gamification, and concept maps, can be applied precisely to engage active learning that targets specific cognitive levels like analysis and creation (Conceição & Taylor, 2007; Persellin & Daniels, 2014; Strobel & Van Barneveld, 2009; Larrson et al., 2021; Paul, 2017).

The different methods of active learning all have different advantages and disadvantages. Concept maps are a great tool to supplement lectures when students need to learn how to connect different concepts and ideas, or they can be added to readings to engage the reader more with the information (Persellin & Daniels, 2014). Concept maps take time to create and employ and usually need a system to create the connecting boxes. Gamification is an active learning method that many learners enjoy because it is very engaging and delivers direct feedback (Larrsen et al., 2021). However, gamification can have little improvement over traditional learning, have a high cost, and have bad design (Larrsen et al., 2021).

Problem-based learning is a group-oriented method that engages learners to solve problems together by using their knowledge or identifying the needed knowledge (Persellin & Daniels, 2014). The case study method is a form of problem-based learning in which learners review a narrative about a true or fictional situation and then apply their knowledge, frameworks, and experience to analyze that case to create solutions or apply alternative solutions. The Harvard Business School heavily favors the case study to teach students how to analyze and apply business management to real or realistic scenarios (Nohria, 2021). In addition to Harvard, multiple research studies from engineering, chemistry, medical studies, and other areas of study have written on the use of the case study method to enhance knowledge retention (Young & Anderson, 2010; Joshi et. al., 2020; Campbell et al., 2016).

3. Case Study Method

The case study method has a tradition within law school and business school, which now extends to multiple disciplines. The case study method first began in Harvard Law School as a method for students to begin to understand the practice of law, rather than memorizing the concepts of law (Breslin & Buchanan, 2008; Rebeiz, 2011). The Harvard Business School, facing a similar need in practicing the concepts versus just discussing theoretical concepts, began writing their own cases for students to read and discuss, beginning with the discussion of a shoe company (Harvard University, n.d.; Breslin & Buchanan, 2008; Rebeiz, 2011). Over a hundred years later the case study method is still

bridging the gap between theory and practice in the education of students in different disciplines (Breslin & Buchanan, 2008). The fact that the case study method helps learners move from theory (or the "remember" step of Bloom's Taxonomy) to practice (a higher-level "analyze" or "apply" step) is what makes this method so valuable (Rebeiz, 2011).

The case study method has evolved over the years to have different formats for the educator to employ, but generally the method involves the same general design (Staahli, 2006). The educator will write or choose a case that provides the details and information about a real-world scenario for the learner to read. The case study might provide the information to a critical point, where the learner must take over in deciding what to do. The case study might have the problem and solution, asking the student to evaluate the problem and the real-world solution. The case study also can include other variants of similar design. No matter the design, the learner should prepare by knowing their "role" in the scenario and preparing their response to discuss during class (Harvard University, n.d.). During class, the educator acts as the facilitator for the learners to discuss and argue their response to the problem or critique the solutions. Facilitating discussion is the key to the case study method, allowing learners to expand their thinking, analysis, and application of the concepts learned in these classes.

C. COMPARISON AND APPLICATION TO FRAUD AWARENESS BRIEF

The OSI's fraud awareness briefings must be quick and convenient, making passive learning methods like a PowerPoint briefing advantageous. However, active learning methods, specifically the case study method, have proven beneficial in enhancing knowledge retention and cognitive process advancement. Therefore, based on the previously discussed literature and research, the researcher hypothesizes that the best educational method to meet OSI's best interest would be a mixture of the passive learning PowerPoint and the active learning case study. The researcher predicts the results will shift the status quo from the lower level of Bloom's taxonomy to the higher level, as depicted in Figure 3.

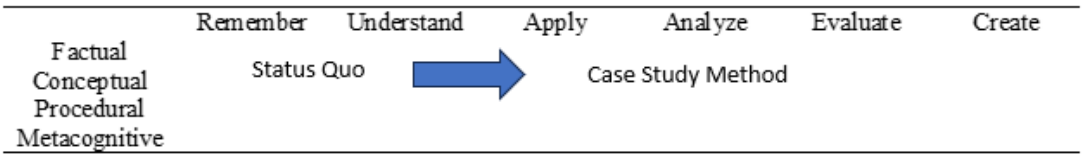


Figure 3. Shift in Bloom's Taxonomy with the Case Study Method. Adapted from Krathwohl (2002).

D. CONCLUSION

In this chapter, the researcher detailed the foundational theories and principles of learning, distinguished between passive and active learning approaches, and explored the use of the case study method in increased knowledge retention. This chapter highlighted deficits in passive learning methods, such as PowerPoint-only briefs, compared to the potential benefits of active learning methods, but emphasized the convenience that PowerPoint briefs offer in delivery and fact-dumping information. The next chapter will detail the methodologies this study used to test whether the addition of the case study method is better than the status quo in meeting the intended learning objectives.

THIS PAGE INTENTIONALLY LEFT BLANK

III. METHODOLOGY

In this chapter, the researcher describes the creation of materials that include the case study, knowledge assessment, and both PowerPoint briefs. The researcher also describes the testing of materials employed to include the implementation of the case study and knowledge assessment. The researcher designed a knowledge assessment to compare knowledge retention after receiving either the status quo briefing style of OSI or a new brief that included the recommended learning methods. The researcher designed the knowledge assessment to include ten questions assessing knowledge retention of fraud schemes, fraud indicators, fraud triangle, and other fraud topics discussed in the briefings. The knowledge assessment also included three additional opinion questions to collect data on which method is preferred through qualitative methods. The rest of the chapter will focus on explaining the personnel, execution of the two different briefings, and the intended evaluation methods for the knowledge assessment.

The researcher chose an educational method that obtains maximum knowledge retention and convenience in teaching procurement fraud schemes and indicators. As discussed within the literature, PowerPoint allows the instructor to convey a large amount of information to an audience conveniently. Because both methods to be tested will utilize the PowerPoint with only an addition of a case study, the focus will not be on convenience but rather on knowledge retention. The empirical data collected from the knowledge assessment, discussed later, includes a question allowing learners to provide feedback on the case study. The researcher acknowledges the learners could indicate that they did not prefer the case study method because of a convenience factor. If that objection to the case study is identified, the researcher intends to highlight those findings in the results.

A. PARTICIPANTS/SAMPLES

Testing of the briefing materials took place using five samples of DAF contracting personnel. Three samples from DAF CONS and two samples from NPS. The samples also experienced different briefing environments including in-person, virtual, and hybrid. The virtual and hybrid briefings were conducted through USAF Microsoft TEAMS.

The researcher reached out to the three closest CONS' leadership personnel to request permission to provide their personnel one of two fraud awareness briefings. The researcher explained to the leadership teams the importance of the research for improving fraud education to their units and that either briefing provided to their units would deliver the same informational content. Every unit agreed to participate and coordinated a date and time to conduct the briefing and knowledge assessment. Additionally, the researcher conducted two in-person briefings with ten of the Air Force contracting officers currently attending NPS.

1. Sample 1: In-person CONS

The 30th CONS, Vandenberg Space Force Base, CA, received the first briefing. The researcher provided the case study briefing to 15 civilian contracting officers, all with different experiences and time in their field. The Director of Business Operations (DBO) for 30 CONS indicated that the active-duty members were unavailable to attend because of deployment training. The researcher chose the case study method randomly and intended to alternate the briefings going forward with whatever unit came next. Due to the lack of tables in the briefing room, the researcher allowed the individuals to return to their desks or other flat surfaces to write within the room. At the conclusion of approximately 30 minutes, the researcher received 14 of the 15 knowledge assessments.

2. Samples 2 and 3: In-person NPS

USAF contracting officers at NPS were contacted on the NPS Microsoft TEAMS channel to request volunteers to sign up for one of two days the researcher could provide the briefings on campus. The request did not specify which briefing would be conducted on what day, but rather asked them to pick the most convenient day. The researcher received seven learners for the status quo brief and four learners for the case study brief. All 11 learners were active-duty contracting officers with a mix of experience and time in their fields.

3. Sample 4: Virtual CONS

The 9 CONS, Beale Air Force Base, CA, received the fourth briefing via Microsoft TEAMS. During coordination with 9 CONS, their civilian training manager indicated that they conduct their training via TEAMS because their unit is still a hybrid workplace with individuals teleworking. The researcher agreed to the TEAMS format because the researcher concluded that the PowerPoint and briefing material could remain the same. The only difference would be the physical presence of the briefer and changing the knowledge assessment from a physical paper test to an online Microsoft Form. Based on the researcher's experience, the virtual nature of the brief would not change the data results. The updated Microsoft Forms version of the knowledge assessment stayed the same with minor format changes; see Appendix A for the online form version. The 9 CONS had approximately 20 mixed active-duty and civilian personnel present on TEAMS for the status quo brief and 16 respondents to the online knowledge assessment.

4. Sample 5: Hybrid CONS

The final unit, 60 CONS, Travis Air Force Base, CA, received a hybrid format with approximately 15 active-duty personnel in-person and 10 civilians on Microsoft TEAMS for the case study brief. The discussion during the case study had only in-person participation, with one individual commenting on the TEAMS chat to answer a question. The researcher provided the ten online civilian personnel with the case study narrative via email and the online knowledge assessment link. The researcher received 11 in-person knowledge assessments and two online knowledge assessments.

B. PROCEDURE FOR STATUS QUO BRIEF

The Status Quo briefings were conducted using an OSI fraud awareness briefing PowerPoint (Appendix B) found within OSI's shared "how to fraud" CD drive that is passed to new OSI fraud agents from OSI Headquarters' base-level fraud team. The researcher maintained the original PowerPoint design and content with minor changes. The researcher deleted three slides—one specifically geared toward old OSI priorities, one with outdated information, and a summary slide. The researcher added a slide on kickback schemes, fraud psychology, and contacting OSI.

The researcher conducted the briefings both in person and virtually via Microsoft TEAMS. To the degree possible, the briefing was not altered or changed between the in-person and virtual formats. The briefing began with an introduction of the researcher as a graduate student and OSI agent conducting a study on improving OSI's educational methods to teach fraud to their community. The researcher discussed the objective of providing a standard brief and administering a knowledge assessment at the end of the brief. The researcher asked the learners only to take notes if they would normally take notes without the knowledge of a test at the end of the brief.

The researcher then began the PowerPoint presentation like a normal brief, going through the different slides and discussing the different information within the PowerPoint presentation. The researcher answered any questions that were asked throughout the briefing and asked for questions at the conclusion of the briefing. The briefings lasted approximately 40 minutes and the learners were given approximately 30 minutes to complete the knowledge assessment.

C. PROCEDURE FOR THE ACTIVE LEARNING BRIEF

The case study briefings were conducted using the researcher's designed PowerPoint (Appendix C) that covered the same content as the status quo briefing but eliminated some of the language on each slide and increased the visual appeal of the slides. The researcher intentionally only provided the titles of each scheme, a short list of indicators for each scheme, and a catching comic or photo. The researcher did this to allow for a shorter, more engaging, and concise brief that allows the learners to focus on the indicators and presenter. The researcher briefed the intended information by memory, using the materials in the notes section of the designed PowerPoint.

The researcher conducted the case study briefing in person and hybrid via Microsoft TEAMS. The briefings and discussions remained the same for all briefs. The researcher began with an introduction just like the status quo brief and discussed the objective to run through a quick PowerPoint presentation, work a case study together, and then complete a knowledge assessment at the end of the brief. The researcher added that notes can be taken if the learner would normally take notes.

The researcher conducted the PowerPoint presentation in approximately 30 minutes and then provided the case study narrative without the discussion questions to the learners. The learners were given five minutes to read through the narrative. Once the five minutes had elapsed, the researcher began discussing with the learners. The researcher asked the pre-scripted discussion questions in numerical order to the learners. The researcher used their knowledge and experience to ask simple continuation questions to draw out complete answers (such as asking, "What do you mean by that?"). The researcher also followed the notes in the discussion design to ask additional questions to lead the learners to certain paragraphs to identify certain items. The researcher continued the discussion for approximately 10–15 minutes. Following the discussion, the researcher provided the knowledge assessment to the learners. The learners received approximately 30 minutes to complete the assessment.

D. CASE STUDY NARRATIVE AND DISCUSSION QUESTION DESIGN

The case study narrative and discussion questions were designed to meet the three educational objectives: 1) The learner can explain and compare fraud schemes and indicators, 2) The learner can differentiate between fraudulent activity and administrative failures in their work centers, and 3) The learner can execute a usable and timely report to OSI regarding fraudulent activity. The three learning objectives above were plotted within Table 1. Objective 1 used verbs from the "understand" cognitive process, and the intended knowledge of fraud schemes and indicators is factual and conceptual knowledge. Therefore, objective 1 went in both the A2 and B2 squares. Objective 2 used the verb differentiate from the "analyze" cognitive process, and understanding fraudulent activity is conceptual and within one's work area, making it also metacognitive knowledge. It makes sense to plot objective 2 in the B4 and D4 squares. Finally, objective 3 used the verb execute from the "apply" cognitive process, intending the learner to apply procedural knowledge. Objective 3 fits perfectly in the C3 square.

Table 1. Research Study Educational Objectives on Taxonomy Table. Adapted from Krathwohl (2002).

	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual Knowledge		OB 1				
B. Conceptual Knowledge		OB 1		OB 2		
C. Procedual Knowledge			OB 3			
D. Metacognitive Knowledge				OB 2		

Taking the three key verbs—understand, analyze, and apply—the researcher wrote the narrative and discussion questions guiding learners through these cognitive principles. The researcher crafted the narrative based on real-world cases and experiences. The researcher chose three critical fraud schemes to discus, anti-trust, corruption, and product substitution. The researcher then discussed logical indicators that applied directly to specific schemes and general indicators to immerse them with examples to analyze. The researcher also added elements of the fraud triangle, which is the framework that explains the psychology of fraud. The case study narrative with the different schemes, indicators, and fraud triangle elements is included in Appendix D. The application and understanding of the fraud schemes, indicators, and reporting were reflected in the discussion questions (Appendix D).

The discussion questions were ordered on importance and priority. The researcher decided the priority would be to discuss indicators and connect them back to schemes if possible. The next important thing is to impart the implications of fraud to the learner as a motivation to be on guard against fraud, followed by recognizing and applying elements of the fraud triangle. Finally, the researcher prioritized the discussion on when and how a learner should report the information to OSI and others who need to know. The discussion questions were edited down to six total questions with subparts.

E. KNOWLEDGE ASSESSMENT DESIGN

The knowledge assessment provided to the learners at the end of either briefing contains ten questions assessing knowledge retention and three additional open-ended questions to gather the experience and opinion of the learners. The ten knowledge questions tested understanding of fraud schemes, fraud indicators, fraud triangle, and other fraud topics taught in both briefings. The researcher worked those fraud topics into questions that used the verbs based on the updated Bloom's taxonomy to test different squares of the taxonomy table (Krathwohl, 2002). An example being question eight, that asks the learner to, "Explain the difference between bribery, kickbacks, and illegal gratuities." The verb *explain* comes from the 'understand' level and the nouns refer to factual knowledge. Therefore, question eight was plotted in the A2 square. See Table 2 for the placement of each assessment question on the taxonomy table. See Appendix E to review the knowledge assessment and answer key. The knowledge assessment combines multiple question formats from multiple choice, fill-in-the-blank, matching, and narrative. The assessment used mostly narrative formatted questions, requiring the participants to write an answer versus picking an answer to prevent participants from making lucky guesses. The last three questions gathered general information about learners, including the number of fraud awareness briefings or training they have attended, how they compared this briefing to other fraud awareness briefings received, and, if applicable, their opinion of the case study.

Table 2. Test Questions Plotted On Taxonomy Table. Adapted from Krathwohl (2002).

	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual Knowledge	Q3/Q10	Q8		Q6		
B. Conceptual Knowledge	Q2	Q5/Q7	Q5	Q4/Q6	Q9	
C. Procedural Knowledge	Q1					
D. Metacognitive Knowledge					Q5/Q9	

F. EVALUATION

To test for differences on the learning assessment based on the learning method applied (passive vs. active), the researcher graded all the tests and determined a correct score out of ten points. Appendix E presents the answer key to the knowledge assessment. The researcher gave one point per correct answer and zero points for incorrect or blank answers. The researcher calculated the average total score for each sample and the average for each group (passive and active). Next, the researcher broke down the test by each question and determined the average correct answers for each question in each group. Finally, the researcher reviewed the responses to the two or three open-ended questions to understand how participants experienced their briefings compared to previous fraud training, as well as any other comments on the briefings. The researcher also summarized verbal comments from the learners to the researcher to capture other observations made during the facilitation of the briefings.

Due to the open-ended, qualitative nature of responses to questions five, six, eight, and nine, the researcher relied upon his subject-matter expertise (SME) to evaluate correct and incorrect answers. Evaluation was based on whether learners could articulate an answer that met the intention of the question and displayed the learning objective. Therefore, the test grading was done objectively, but the researcher recognized the possibility for subjectivity in deciding if the learner's answer fully met the learning objective.

IV. RESULTS/ANALYSIS

This chapter describes the quantitative results of the knowledge assessment to test learning and comprehension of procurement fraud knowledge. The chapter reviews the qualitative results capturing learners' preferences. The chapter will contrast active versus passive learners results and compare the results of the NPS samples against the CONS samples. Finally, the chapter will conclude with the researcher's observations.

A. DESCRIPTIVE RESULTS

1. Quantitative Results of Knowledge Assessment

The results of the 54 knowledge assessments conducted in five different samples were collected, graded, and recorded in accordance with the methods described in Chapter III. The researcher summarized the results of the ten primary fraud knowledge assessment questions in Table 3. The table displays the proportion of questions answered correctly, broken down by question number (Q1, Q2, Q…), participant sample, and learning method. The table also summarizes the proportion of questions answered correctly aggregating across all active learning samples and all passive learning samples. Table 4 summarizes general information about participants, including the amount of procurement fraud training the learners have received previously. The table is organized by sample group and five bins that include: 0–3 trainings, 4–6 trainings, 7–10 trainings, 11 or more trainings, and other. The numbers in the table represent the quantity of learners in a sample group that answered in that bin.

Table 5 details how learners compared the procurement fraud training that they just received with previous procurement fraud training. The table is organized by sample group and six bins that include: much better than previous training, slightly better, same, slightly worse, much worse, and other. The numbers in the table represent the quantity of learners in a sample group that answered in that bin.

THIS PAGE INTENTIONALLY LEFT BLANK

Table 3. Proportions of Learners with Correct Answers and Sample Average on Knowledge Assessment

Questions	Sample 1 (Active)	Sample 2 (Passive)	Sample 3 (Active)	Sample 4 (Passive)	Sample 5 (Active)	Total Passive	Total Active	Total
Q1	0.929	0.857	0.750	0.875	0.923	0.870	0.903	0.889
Q2	0.429	0.857	0.750	0.813	0.692	0.826	0.581	0.685
Q3	0.143	0.429	0.750	0.563	0.462	0.522	0.355	0.426
Q4	0.643	0.714	0.750	0.563	0.538	0.609	0.613	0.611
Q5	0.643	0.857	0.750	0.688	0.385	0.739	0.548	0.630
Q6	0.357	0.571	0.250	0.438	0.385	0.478	0.355	0.407
Q7	0.929	1.000	1.000	0.875	0.923	0.913	0.935	0.963
Q8	0.643	0.571	0.750	0.563	0.231	0.565	0.484	0.519
Q9	0.643	0.857	0.500	0.563	0.538	0.652	0.581	0.611
Q10	0.857	0.857	1.000	0.875	0.692	0.870	0.806	0.852
Total	.621	.757	.725	.681	.577	0.704	0.616	0.654

THIS PAGE INTENTIONALLY LEFT BLANK

Table 4. Amount of Previous Procurement Fraud Training

Sample	0-3 Trainings	4-6 Trainings	7-10 Training	11 or more trainings	Other	Total
Sample 1	5	0	0	0	9	14
Sample 2	1	2	2	2	0	7
Sample 3	0	0	1	3	0	4
Sample 4	8	3	2	3	0	16
Sample 5	11	2	0	0	0	13
Total	25	7	5	8	9	54

Table 5. Comparison of Procurement Fraud Training to Previous Training

Sample	Much Better	Slightly Better	Same	Slightly Worse	Much Worse	Other	Total
Sample 1 (Active)	1	5	1	0	0	7	14
Sample 2 (Passive)	1	2	4	0	0	0	7
Sample 3 (Active)	3	1	0	0	0	0	4
Sample 4 (Passive)	0	5	9	0	0	2	16
Sample 5 (Active)	10	1	1	0	0	1	13
Total	15	14	15	0	0	10	54

2. Qualitative Results of Learners' Preferences

The final question on the knowledge assessment asked learners what aspects of the case study training they believed were most and least beneficial, and why. The researcher received answers from both the active and passive method learners to this question, even though the passive learners were told this question was not applicable to them. Additionally, the researcher received qualitative data through verbal feedback provided

directly to the researcher, and observations made by the researcher during the performance of the testing.

The general response of the final question in relation to the active learning method included positive remarks and the desire to have more case study trainings. Many of the learners expressed the benefits of being able to contrast the nuances of fraud indicators to other administrative issues among their peers. Other learners expressed the benefits of seeing the indicators played out in a real-world example and challenging their day-to-day impression of fraud indicators. Some enjoyed the context the case study brought to their application of the fraud training and it "felt hands-on" to a tactile learner. One learner liked the case study addition, but thought the case study could be better, feeling it was too obvious. Another learner expressed indifference toward the method, explaining that they complete training as required. Finally, there was a general opinion that the case study portion was more engaging than the PowerPoint brief.

The passive learning samples who provided feedback to the final question expressed a desire to experience the case study method and felt discussing real cases seemed beneficial. Some learners expressed their discontent for PowerPoint, and many expressed that the briefing was informative but long, dry, and not engaging. Some learners felt the PowerPoint briefing on its own was well done and provided a lot of information quickly, which was what they desired.

The rest of the qualitative data obtained through verbal feedback and observations will be discussed further within the analysis section.

B. ANALYSIS

Across all 54 assessments, the average score on the knowledge assessment was 65% (.654). Question seven, which ranked as the most correctly answered question, with 96% (.963) of the learners answering correctly, asked learners to match the terms of the fraud triangle with an example. Question six, which received the worst percentage of correct answers, with only 40% (.407) of the learners answering correctly, was a two-part question asking learners to read a small narrative and identify the scheme and how to report the fraud to OSI. The researcher marked the answer wrong if both questions were not

present and it was typical to have only one of two answered. If partial credit was provided, then the success rate of the question increased to 60%. Additionally, most individuals were able to explain how to report the information to OSI versus answer what type of fraud scheme occurred.

1. Comparison of Active vs. Passive Learning Method

The quantitative results of the knowledge assessment indicate those who received a passive learning method generally did better, with a 70% (.704) average, than the those who received an active learning method, with a 62% (.616) test average. Put differently, on average, the passive learners answered 7 of 10 questions correctly while the active learners answered 6 of 10 correctly.

Looking at the difference on an individual question level it appears the passive learners outperformed the active learners on every question except questions one, four, and seven. Question one asked the next step after identifying multiple fraud indicators. Question four asked the learner to identify the implications of product substitution. Question seven involved asking learners to match the terms of the fraud triangle with an example. All three questions were focus areas within the case study discussion. In adding the lens of Bloom's taxonomy to the questions, question one assessed remembering procedural knowledge. Question four assessed analyzing conceptual knowledge, and question seven assessed understanding conceptual knowledge. Looking at only these three questions, active learners were able to remember procurement fraud reporting procedures and to understand and evaluate procurement fraud concepts better than the passive group. In contrast, the passive methods groups did better on questions two, three, five, six, eight, nine, and ten. The results indicated that the passive group were able to remember, understand, and evaluate, but also were able to apply and analyze procurement fraud facts and concepts at a conceptual knowledge and metacognitive level better than the active methods group. The quantitative data indicates the passive method achieved the learning objectives better than the active group. Because the data did not indicate a significant improvement to the status quo, the researcher would initially determine not to adopt the active learning method for procurement fraud briefings.

However, on the question comparing the training received to previous trainings, 57% of passive learner samples rated their training as *the same as* previous trainings, whereas 68% of active learners rated their training *better* than previous training. All learners who received previous fraud training indicated this training was *the same* or *better* than previous training. Some learners marked *other* to indicate they had never received fraud training previously.

Taken together, the data suggests that although learners perceived the active learning method as better, the passive learning method resulted in somewhat better short-term knowledge retention based on the results of the knowledge assessment.

2. Comparison of NPS Samples Versus Regular CONS Samples

One of the main outliers within the data is the results of Samples 2 and 3, the NPS students. Both samples 2 and 3 outperformed the other CONS samples by having an average test score at 76% (.757) and 73% (.725), respectively, with the closest CONS at 68% (.681) average. Although the final average score of the NPS passive group, Sample 2, outperformed the final average score of the NPS active group, Sample 3, the active group did perform better on four questions. Sample 3 also tied Sample 2 on one question. This would suggest there is mixed evidence for performance in the NPS samples.

Looking at the individual questions, Sample 3 exceeds Sample 2 on questions three, four, eight, and ten. Question four was previously discussed. Question three asked the learners to list five indicators, a topic heavily discussed within the case study discussion. Question three also evaluated the remembering of factual knowledge (fraud indicators). Question eight asked the difference between three corruption fraud schemes to evaluate the understanding of factual procurement fraud knowledge, and question ten asked the difference between fraud and mistakes to evaluate remembering a procurement fraud fact. Question eight is discussed lightly within the case study and question ten is not discussed at all. Based on this pattern, the active learner groups where able to perform better on remembering fraud indicators and analyze schemes for the possible implications and differences. Both samples tied on question seven, which, as previously stated, focused on the fraud triangle and was discussed within the case study.

3. The Researcher's Observations

During the execution of the briefings and testing, the researcher observed, heard, or identified the following items. During the passive learning briefings, the researcher never received follow-on questions nor discussions related to the briefing. In contrast, during the active learning sessions, participants raised organic questions during the researcher's briefing and during the case study discussion. Upon concluding the two active learning briefings with CONS, individuals approached the researcher to discuss specific information regarding possible fraud indicators they witnessed. These discussions produced reportable fraud case details to provide to the local OSI detachment at that base. The researcher also noticed that an individual who was looking at their phone or zoned out during the PowerPoint portion became really engaged with the case study portion. The individual answered multiple questions and was one of the individuals who stayed behind to talk over potential fraud they had knowledge of but did not know how to report until the researcher's briefing. At the conclusion of Sample 2's assessment one of the learners stated, "I just heard you give tons of indicators and I could not remember at least five for the test."

One observation that could indicate the importance of the case study was that all three samples of active learning expressed verbally that they would not consider the indicators from the case study as fraud indicators in their daily lives. The learners commented that without the lens of fraud training, the problems within the case study would have been chalked up to "performance issues," and "personnel or team dynamics issues." All three samples discussed how they would not have thought to contact OSI until the more overt indicators of fraud were present. Another good discussion from the case study led into whose job it is to identify problems, theirs or maintenance or the contracting officer representatives (COR). These statements pulled out through the case study discussion were corroborated within some learners' final assessment question expressing similar thoughts.

During the testing and analysis of the results, the researcher noticed those receiving the active learning method were more apprehensive in taking the knowledge assessment. The researcher heard verbal sighs and saw the learner's shoulders sink and the glazed look in some learners as the assessment was administered. Based on the extensive training and

experience over 100 hours of instruction, the researcher was able to identify the glazed look of students who have been cognitively overloaded. These visual and audible indicators of mental exhaustion were not observed among the passive learning samples. In addition, the researcher identified 15 out of 31 active learner participants (48%) did not attempt to answer all the questions. They usually abstained from questions five, six and nine, the primary questions evaluating higher cogitative processing of Bloom's taxonomy.

In comparison, the passive learning groups did not signal the same apprehensive behavior to take the knowledge assessment, and only 3 out of 23 passive learner participants (13%) left unanswered questions. The researcher did identify some of the answers on the online assessment for the passive group that appeared to be googled or referred to the PowerPoint verbatim. Also, two individuals from separate passive method samples indicated that they used their notes to answer the questions.

In summarizing these observations, the researcher felt that without the case study, OSI agents would never get the kind of discussion and cross-talk between individuals within their unit and OSI. The case study became a tool to flush out misunderstandings, misnomers, and bad habits relating to identifying and reporting fraud that a PowerPoint alone never facilitated during the testing or the researcher's real-world experience. In addition, the active learning methods led to two incidents of learners reporting possible fraud to the researcher that the passive learning method did not receive. However, participants in the active method were visibly fatigued, as previously mentioned, which could have caused the poor testing results. The fatigued learner could also be a concern if the learners fail to obtain any retention from cognitive overload.

V. CONCLUSION, RECOMMENDATIONS, AND FUTURE RESEARCH

A. CONCLUSION

This research study began with identifying a clear and present threat to the DAF: procurement fraud. The DAF identifies approximately 100 procurement fraud cases a year, totaling billions of dollars in losses. In addition to monetary loss, procurement fraud opens the door to loss of life, loss of national security secrets, loss of time, and loss of trust. Every contract the DAF awards increases its risk of procurement fraud. The DAF has implemented a multitude of programs, agencies, and controls to counter the procurement fraud threat. One of those countermeasures is procurement fraud education; however, according to research presented in Chapter I, DOD contracting professionals have a low comprehension of procurement fraud. Given the fact that OSI is charged with neutralizing the procurement fraud threat, it is incumbent on OSI to consistently improve its procurement fraud education to the DAF. Based on the previously stated fact, the researcher set out to answer three research questions. The researcher answered the three research questions through the literature review, testing, and analysis of the results.

1. What elements of active learning might promote enhanced knowledge retention for fraud indicators and schemes?

Based on the literature, it was determined that incorporating a case study discussion into the training would be the best method to improve OSI's fraud awareness briefings. A case study brought in the rehearsing of new information, establishing patterns, and finding relevance in the learning that are key elements to knowledge retention (Persellin & Daniels, 2014). The researcher arrived at this answer by summarizing human learning theories and providing the context behind the active learning method. Specifically, the researcher unpacked traditional human learning theories such as behaviorism and social learning theory. Although those theories are important in education, they are better for teaching procedures, rules, or items that require rote memory, rather than higher level analysis or evaluation of concepts. The researcher then addressed the current literature on cognitivism and its more detailed parts on constructivism, memory, and active versus passive learning.

Here the researcher found that people learn best when the learner becomes an active participant in the process and connects new concepts with previous knowledge.

2. Do revised briefing methods utilizing active learning (Case Study Method) promote better knowledge retention than the status quo?

To answer research question two, the researcher designed a new fraud awareness briefing, incorporating the case study method, to test against the status quo fraud awareness brief. The researcher redesigned the PowerPoint presentation to contain the bare minimum verbiage when teaching about the indicators for each procurement fraud scheme. Then the researcher designed a case study narrative that included multiple procurement fraud schemes and their indicators. The researcher followed the narrative with six discussion questions that asked participants to identify the indicators and their implications. Finally, the researcher designed a knowledge assessment that asked ten procurement fraud questions, which used specific verbiage to evaluate the learner's comprehension on different levels of Bloom's taxonomy. The researcher then tested the two methods by presenting them to five different samples, totaling 54 DAF contracting personnel.

The results of those 54 knowledge assessments answered research question number two. The revised briefing, which utilized active learning, did not promote better knowledge retention than the status quo. According to the quantitative data, the groups receiving the status quo briefing did better by a small amount, with the passive learning sample averaging 70% and the active learning sample averaging 62% on the knowledge assessment. Through informal observation, the researcher believes the active learning method may have induced cognitive overload resulting in better performance on the knowledge assessment by the passive groups, who were not cognitively overloaded. The results identified both the passive and active learning samples achieved higher level cognitive learning according to Bloom's taxonomy. Those results mean both methods will give OSI the desired results in enhancing cognitive processing of procurement fraud knowledge.

3. What method of learning (active versus passive) is preferred by DAF personnel for fraud awareness briefs?

Based on the results of the qualitative data, including answers received on the assessment, verbal comments, and the researcher's observations, the qualitative data indicated that DAF members preferred the active learning method better. Multiple participants expressed a desire for future use of the case study method in fraud awareness briefings. Individuals mostly enjoyed the discussion and ability to apply theoretical indicators to a real-world example within their career field. The researcher identified increased participant engagement from the PowerPoint portion to the case study discussion. The discussion allowed for conversations between the OSI agent and CONS personnel that normally do not occur in the status quo briefing. Conversation points included the different views on indicators versus internal personnel issues or contractor performance issues. The discussions also enabled reinforcing the importance of reporting early indicators versus waiting until blatant fraud occurs.

4. Summary

The researcher has concluded that although the quantitative data did not indicate the adoption of an active learning method would benefit enhancement of knowledge retention or increased cognitive processing over the status quo briefing, the inclusion of the case study method has merit for future inclusion. The qualitative results provide evidence there is a clear desire of DAF personnel to have real-world cases as examples. They want discussion on the topics, not just a data dump. Finally, the case study provides a valuable information gathering tool in the hands of an OSI agent.

B. RECOMMENDATIONS

1. Include Case Studies into OSI's Fraud Awareness Briefings

Based on the results of this research, it is recommended that OSI include case studies in their fraud awareness briefings. The research cannot conclude that the addition of a case study enhanced short-term learning of the DAF members, and therefore, the researcher does not recommend mandating the use of case studies. Based on the experience of the researcher and the responses from the DAF personnel, the use of the case study

presented OSI agents as more than investigators, but competent educators of their craft, giving the OSI agent more credibility and authority. Trained OSI agents can use the discussion to gather similar information as the OSI fraud questionnaire, but through the lens of education. During case study discussions, the researcher identified personnel arguing that indicators were not worthy of reporting to OSI and would only call once it was undeniably fraud. This led to their peers expressing opposing views and the OSI agent discussing the implications of waiting to report possible fraud. These discussions hopefully changed CONS' perspectives and identified possible future contacts for the agent. The researcher also had personnel provide current examples from their units, which led to further offline discussions and a referral to the local detachment.

2. Update OSI Regulations and Create a SharePoint Page of Case Studies to Use

To implement recommendation one, OSI should add verbiage into regulations, recommending the use of a case study when conducting fraud awareness briefings. Agents then should be able to pull approved case studies from the OSI SharePoint, including narratives and suggested discussion questions. The case studies should be based on different units, fraud schemes, and contractor types. Agents could provide case studies based on their real cases and change the personally identifiable information. A member of PF headquarters could scrub the submitted case studies before approval for OSI-wide use.

3. Teach Agents How To Use the Case Study Method at the OSI Academy

Finally, to make agents better at using the case studies, OSI could include briefing methods as a training item within either the basic special investigator course or during the probation continuing education. If the primary delivery of information only comes from a case study, there is a possibility the facilitator could fail to pass valuable information without proper training. This is a problem the PowerPoint method prevents with prior review of OSI leadership before being presented. The case study method should not stop at the fraud level but should be considered for use within counterintelligence's insider threat briefings and general crime's criminal behavior recognition briefings.

C. LIMITATIONS

One of the limitations of this study was the constraint of the real-world timeframe (four months) to design and conduct the briefings. The timeframe limited the number of DAF personnel available to attend the briefing and take the knowledge assessment. The study would benefit from having more time to increase the number of participants and implement a multistage knowledge assessment that includes an initial examination, followed by an additional knowledge assessment multiple months later.

Another limitation was that the researcher had to work through unknown or untested problems of the research design on the original five samples. The study would have benefited from having test runs to work through design before implementing the real assessment. For example, during the early stages, the researcher did not keep track of the clock and allowed discussion on the first couple questions to exceed available time, leading to later questions not to be discussed.

The researcher would recommend possibly having a pre-test to compare a before and after of each sample. The data that could be collected multiple months later would allow for more accuracy in determining which method allowed for enhanced knowledge retention of the information after one briefing. There is a significant chance that the knowledge assessment immediately after the brief resulted in the advantage of the passive learning samples.

D. FUTURE RESEARCH

Future research based on this research study should refine the knowledge assessment to have less fill-in, narrative answers that led to unanswered questions. The researcher recommends providing a case for the learner to read, followed by multiple choice questions analyzing and applying the concepts to the narrative. Also, future research needs to assess actual knowledge retention by putting a time gap between the lessons learned and the assessment. Another item to focus on is providing the case study before the actual briefing. Research from the case study use at Harvard identified the normal use of case studies has students review and prepare before class. Future research should test if similar methods would benefit OSI in their fraud awareness briefings.

In addition to enhancing the testing of this study, OSI could research other active learning methods, such as gamification. OSI would benefit from researching the case study method in other mission areas, especially for insider-threat briefings. To summarize, the following four items should be considered for future research.

1. Refine knowledge assessment.
2. Include a time gap.
3. Provide case study narrative before briefing.
4. Research other active learning methods for better enhancement.

APPENDIX A. ONLINE VERSION OF TEST

OSI Fraud Awareness Training Assessment

* Required

Cognitive Test Questions

1. As the CO on a service contract, your COR brings up multiple fraud indicators concerning the contractor. What should you do next? *

- ◯ Refer the information to the Contractor and contact the local PD.
- ◯ Gather as much information as possible regarding these indicators, including questioning the contractor's staff.
- ◯ Contact your local OSI detachment or Procurement Fraud team with the initial information.
- ◯ Note the information in a memo in your contract file and wait for more overt indicators or acts of fraud before contacting OSI.

2. OSI Agent's primary duties concerning fraud are? Choose all that apply. *

- ☐ Liaison, train, and work with the Air Force Audit Agency, Air Force Contracting Officers, Program Managers, Department of Justice, and other federal agencies in preventing, detecting, and investigating fraud.
- ☐ Investigate COs for making mistakes, errors, or failures in their contract awarding and administration.
- ☐ Be the investigative arm of the Department of the Air Force in relation to procurement issues that have indications of criminal intent or false statements.
- ☐ Bring dread and doom to an office when people see OSI agents enter a building.

3. List five Fraud *indicators* *

4. Identify two possible *implications* of product substitution besides the loss of money. *

5. Any time contractors are involved in the restriction of competition, they violate 15 U.S.C. 1 Sherman Antitrust Act. Please provide an example of an Antitrust Scheme that could happen to your squadron. *

6. You are the CO for a firm-fixed-priced service contract. The prime submitted its proposal that included sub-contract proposal data. During a site visit, you commented to the COR about the sub-contractor's customized sports car. The COR tells you he heard the owner joke it's his "work" vehicle and all his "overtime" paid for the custom work. Identify the possible scheme and what information you would relay to OSI during an initial report. *

7. Match the following Fraud Triangle Definitions to their examples. Stack the answers in the matching order.
A. Pressure
B. Opportunity
C. Rationalization *

- It's just an interest-free loan until I get paid.
- They inspect the first crate only, never the rest.
- Need to make at least 5% profit not to be fired.

8. Explain the difference between bribery, kickbacks, and illegal gratuities. *

9. Of all the fraud schemes discussed, which one do you believe OSI should prioritize in order to best protect the Department of the Air Force and why? *

10. The difference between an error, misunderstanding, or mistake and fraud is what? *

Data collection and Opinion Questions

11. How much Procurement Fraud training have you received? *

	0-3	4-6	7-10	11 or more	Other: Answer at end
Number of briefings or trainings	◯	◯	◯	◯	◯

12. How did this procurement fraud training compare to previous procurement fraud training? *

	Much **better** than previous training	**Slightly better** than previous training	Same as previous training	**Slightly worse** than previous training	Much **worse** than previous training	Other: Answer below
Choose one	◯	◯	◯	◯	◯	◯

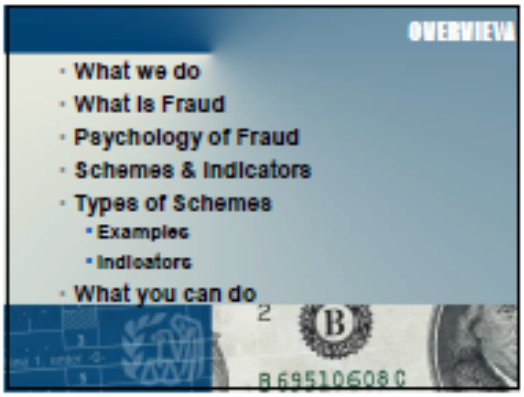
13. What aspects of this case study training do you believe were most/least beneficial and why? (If received only PowerPoint this question does not apply) *

14. Answers to the "other" questions and any additional comments or thoughts.

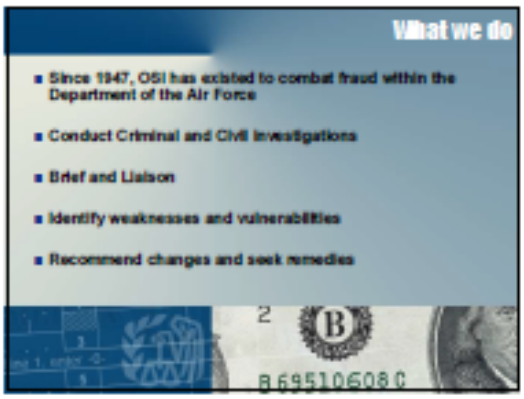
THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. STATUS QUO POWERPOINT

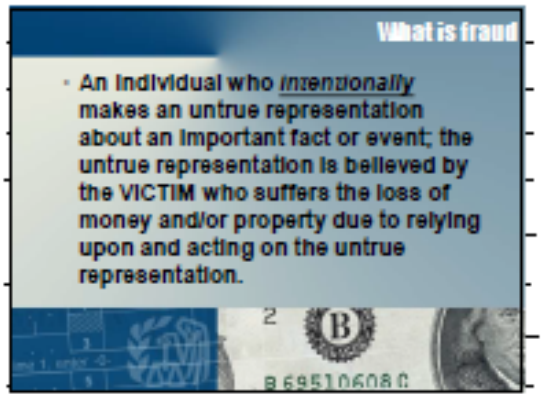
1



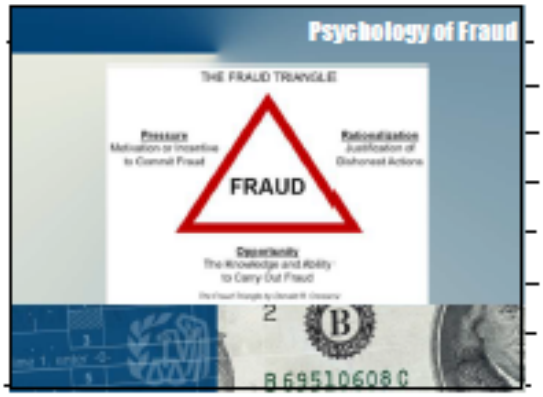
2



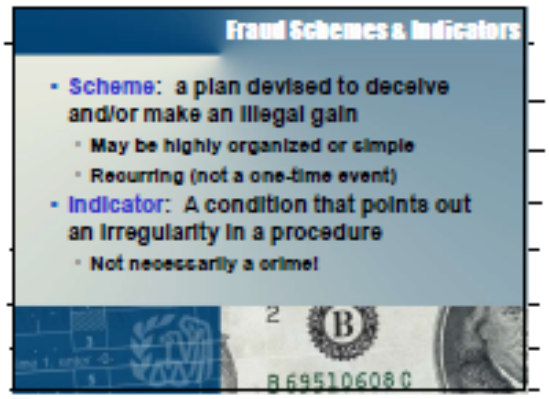
3



4

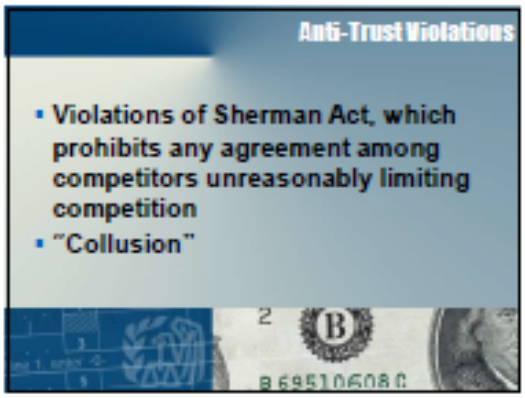


5

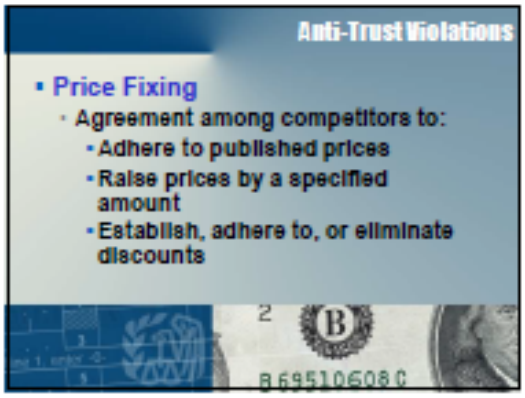


6

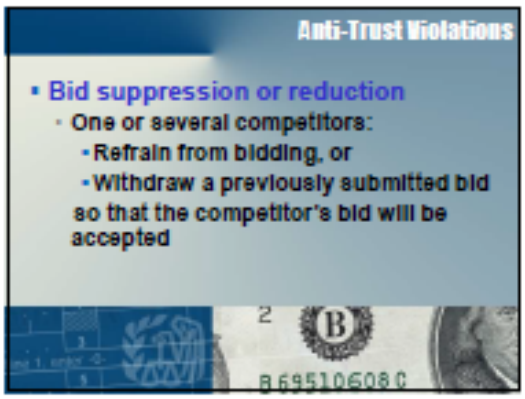
Page 1



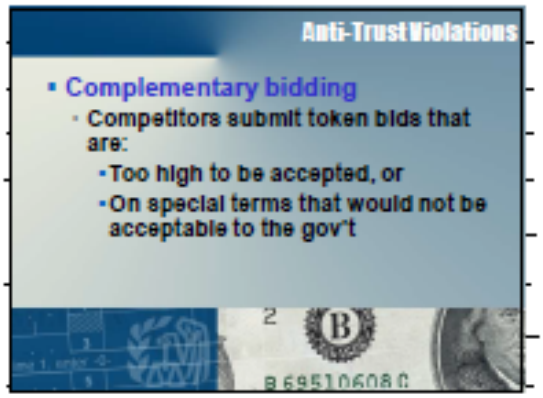
7



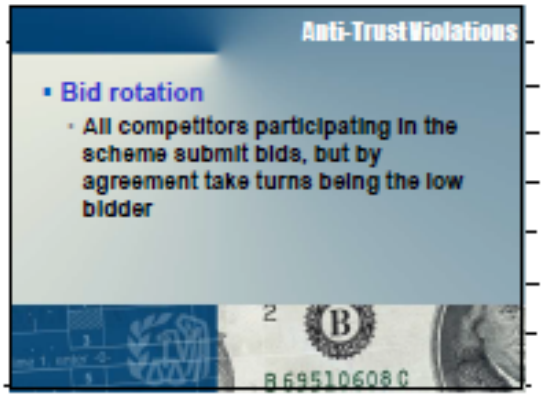
8



9



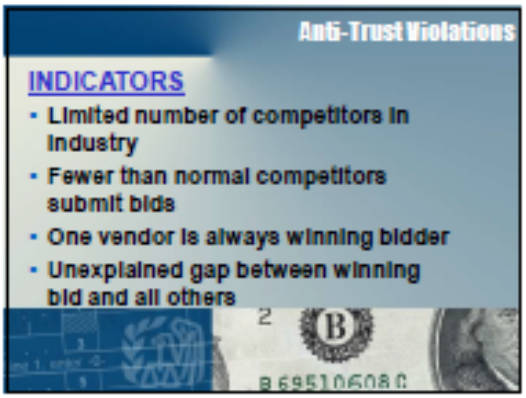
10



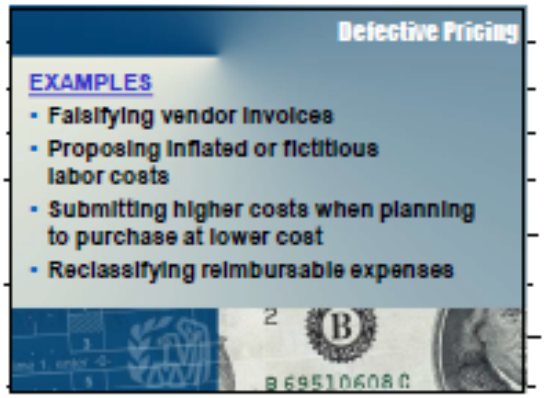
11

12

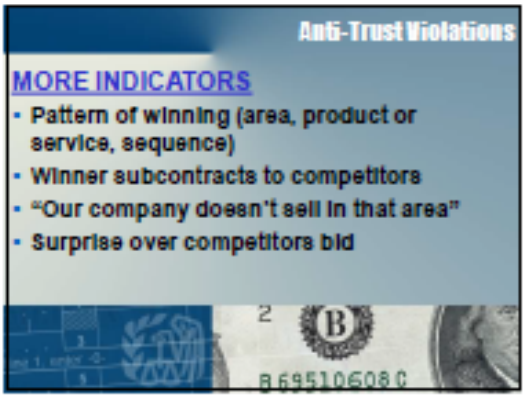
Page 2



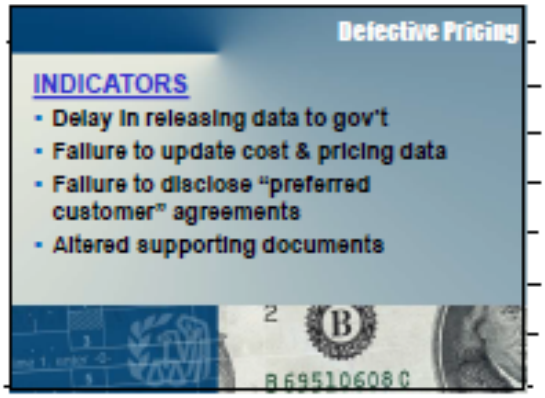
13



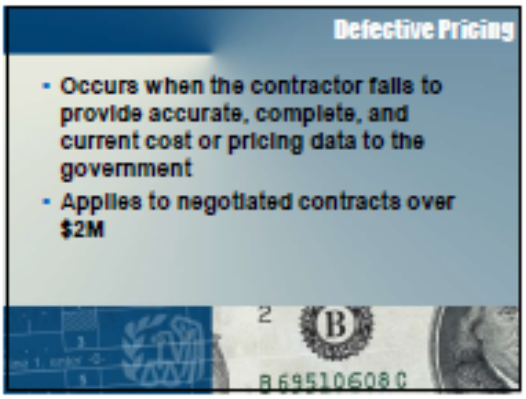
16



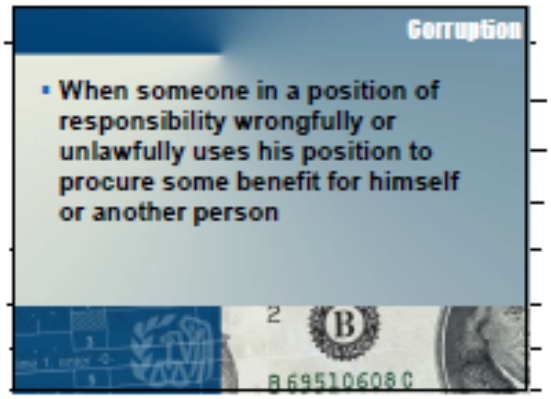
14



17

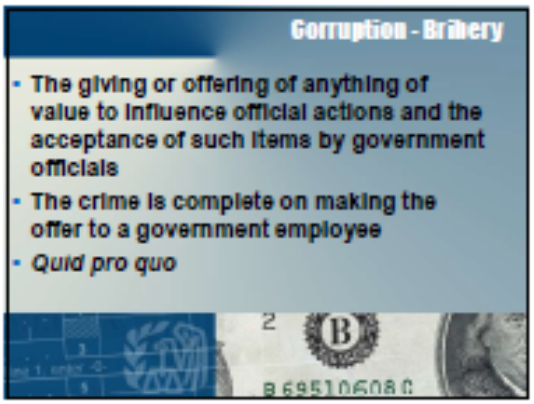


15

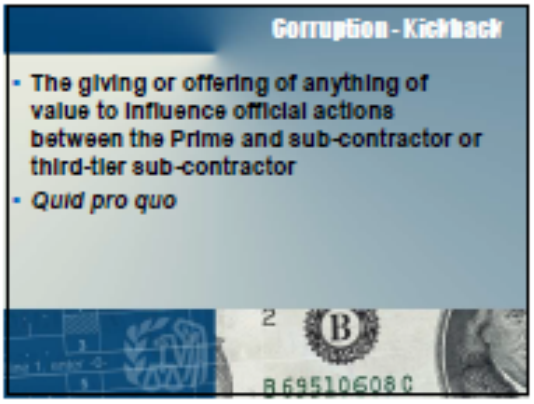


18

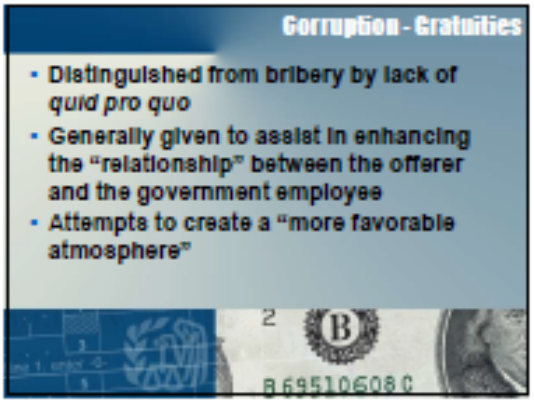
Page 3



19

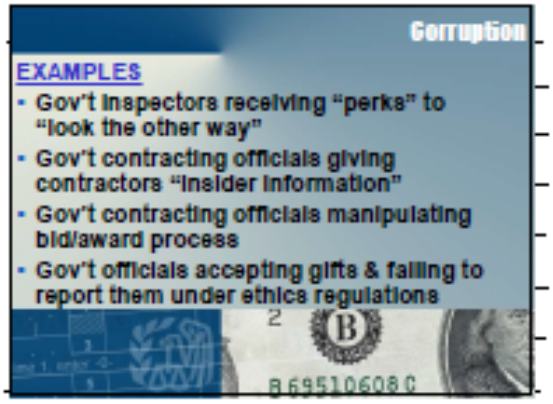


20

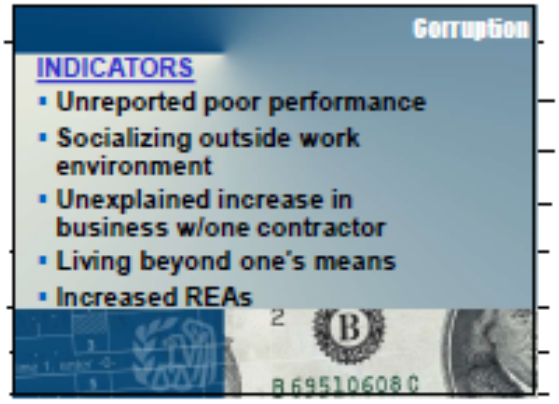


21

22

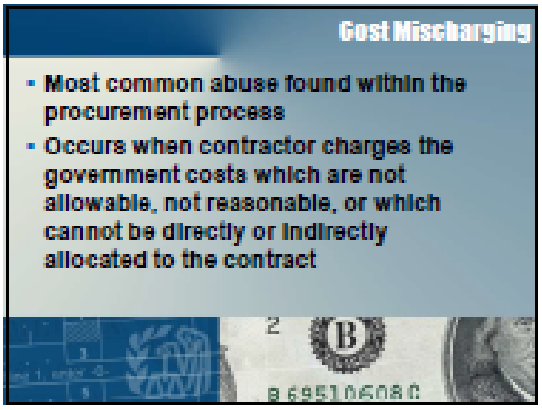


23

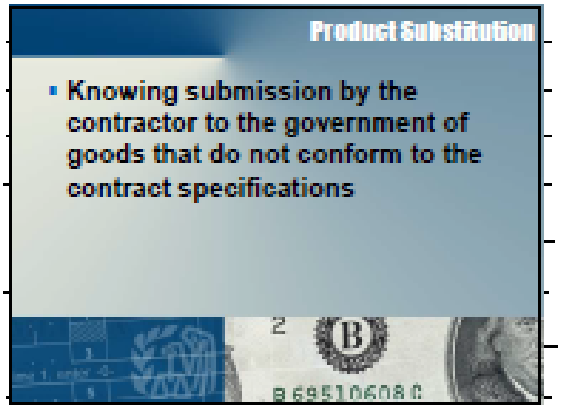


24

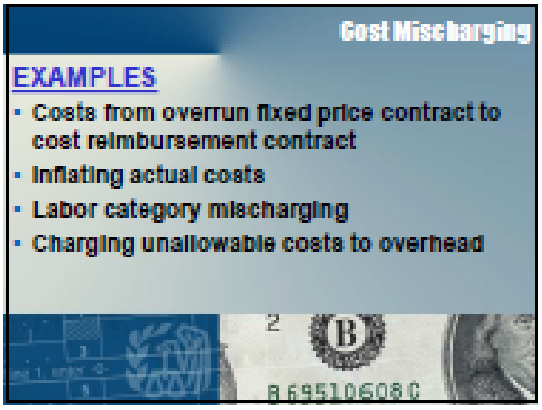
Page 4



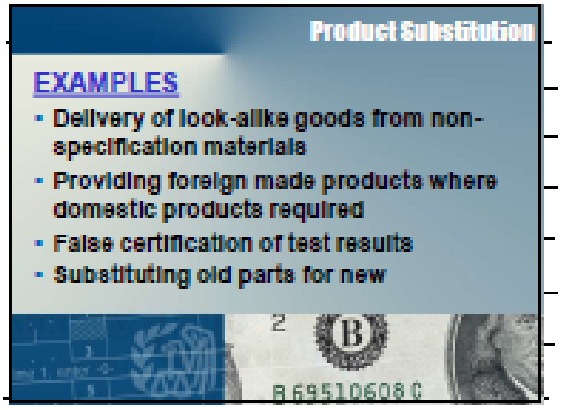
25



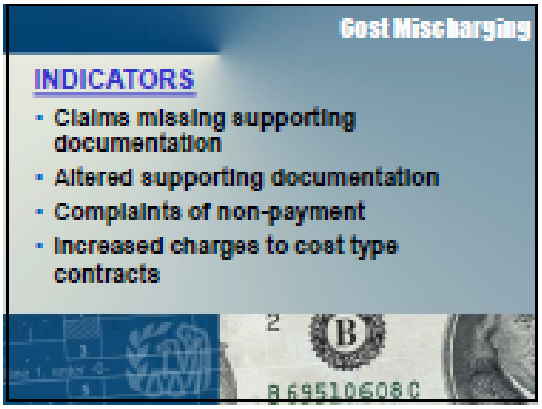
28



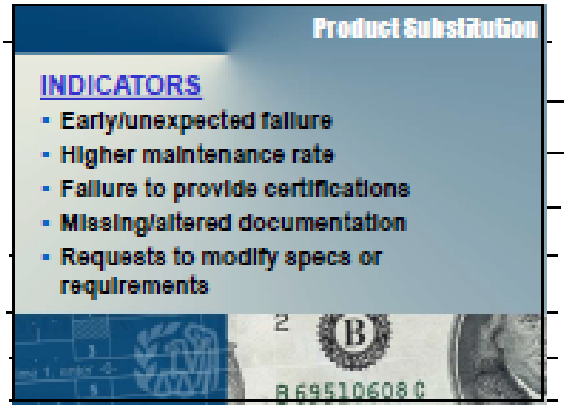
26



29

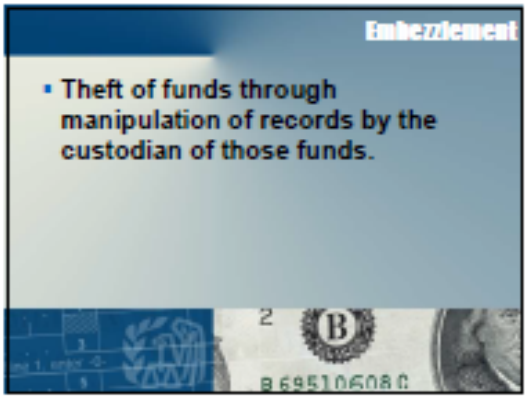


27



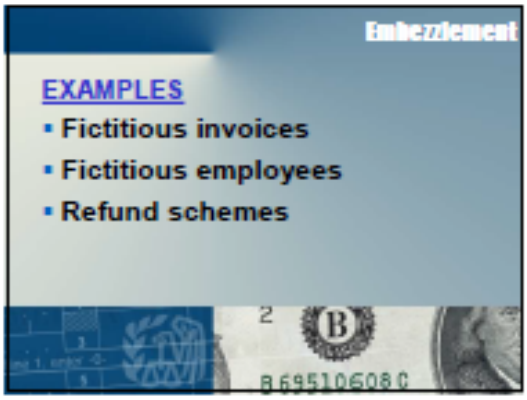
30

Page 5

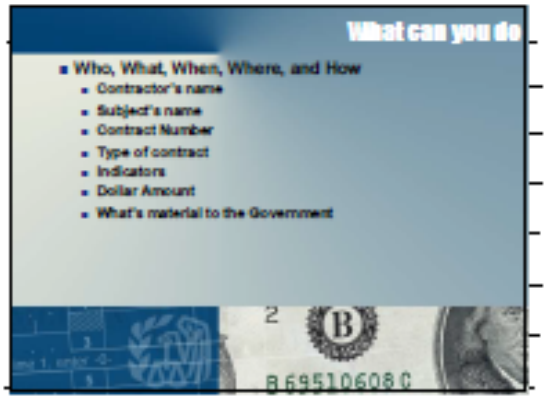


31

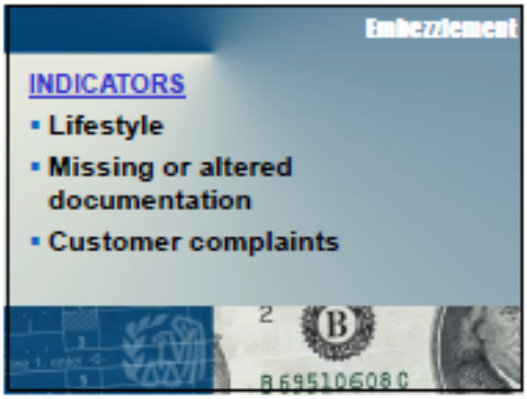
34



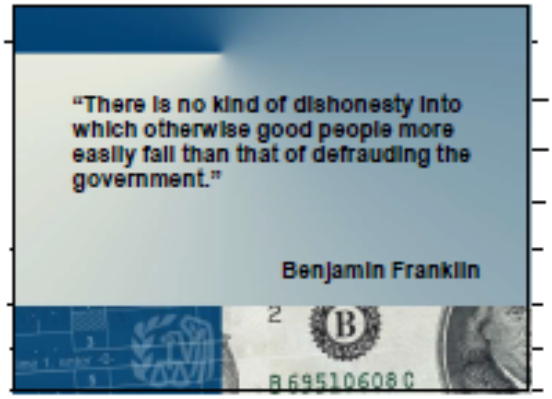
32



35



33



36

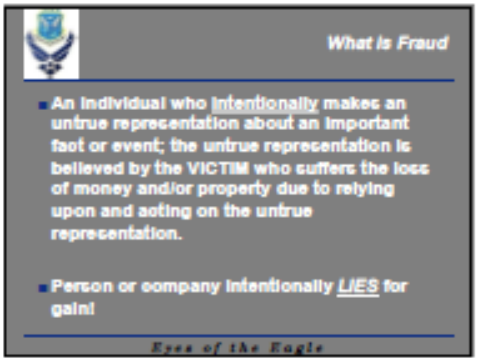
Page 6

APPENDIX C. CASE STUDY POWERPOINT

1

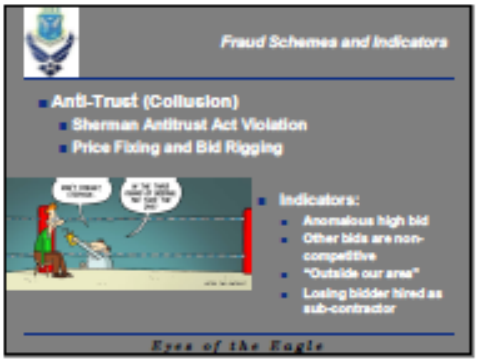
2

3



4

5



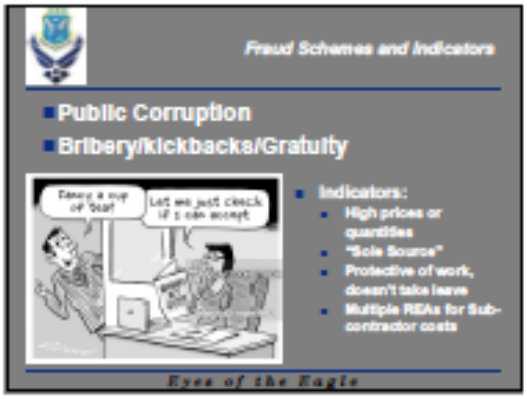
6


Fraud Schemes and Indicators
Cost Mischarging: Labor vs. Material
Indicators:
"Services Rendered"
High % work charged to high level
Costs differ across contracts
Radical change in billing amounts
Eyes of the Eagle

7


Fraud Schemes and Indicators
Defective Pricing
TINA and Certified cost or pricing data**
Indicators:
Delayed or stalled production of data
Vague data, lack of itemization
Failure to provide sub-contract data
Documents that don't math right or appear altered
Eyes of the Eagle

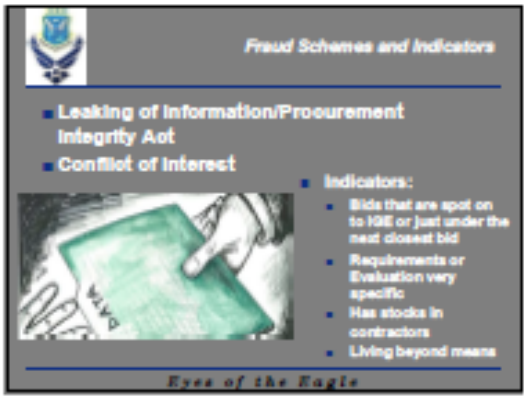
10


Fraud Schemes and Indicators
Public Corruption
Bribery/kickbacks/Gratuity
Indicators:
High prices or quantities
"Sole Source"
Protective of work, doesn't take leave
Multiple RFAs for Sub-contractor costs
Eyes of the Eagle

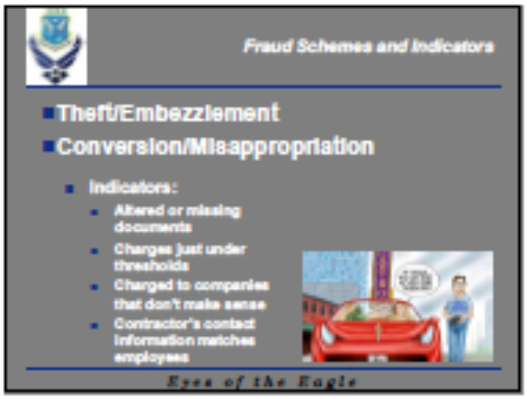
8


Fraud Schemes and Indicators
Product Substitution
Most dangerous to life and national security
Indicators:
Early/unexpected failures.
High Mx rate
Missing documents or identification marks
"Equivalent to ordered"
Neo
Eyes of the Eagle

11


Fraud Schemes and Indicators
Leaking of Information/Procurement Integrity Act
Conflict of Interest
Indicators:
Bids that are spot on to IGE or just under the next closest bid
Requirements or Evaluation very specific
Has stocks in contractors
Living beyond means
Eyes of the Eagle

9


Fraud Schemes and Indicators
Theft/Embezzlement
Conversion/Misappropriation
Indicators:
Altered or missing documents
Charges just under threshholds
Charged to companies that don't make sense
Contractor's contact information matches employees
Eyes of the Eagle

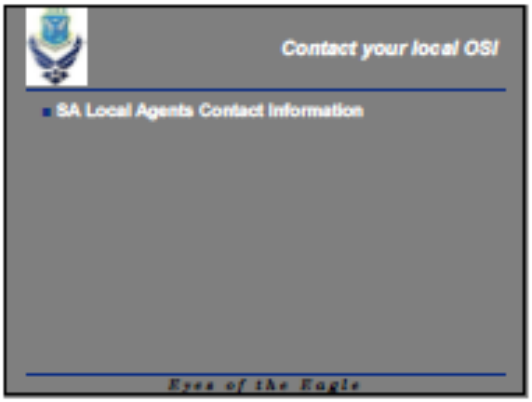
12

13

14

15

16



17

18

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D. CASE STUDY NARRATIVE AND DISCUSSION QUESTIONS

A. PROCUREMENT FRAUD CASE STUDY

Capt Spector, a USAF Contracting Officer, recently PCS'd into a new contracting squadron where he became the Services Flight Chief. Upon assuming his duties, he began to review his team's dynamics and the current service contracts administered by his team.

Seven individuals made up the service contract flight: four active duty and three civilians. Most flight members recently joined the team except for one TSgt Ross and one GS-13, Mr. Lit, who served on the team for three years. Over the last three years, Mr. Lit acted as the sole CO on the base's fighter maintenance contract. TSgt Ross intended to be the secondary CO/contract specialist, but Mr. Lit told him he did not need help and to enjoy less workload because TSgt Ross would deploy soon. Capt Spector also noted Mr. Lit had no leave on the calendar over the last year or any projected.

Once Capt Spector began reviewing the different service contracts, he noted some interesting items regarding the fighter maintenance contract award. First, he noted that the contract was on its second solicitation and award. The current contractor, Aero-Tech Services, won the Firm-fixed contract under LPTA evaluation and beat out the previous prime, Hardman Aerospace. Hardman Aerospace now works as the sub-contractor to Aero-Tech Services. In the solicitation phase, Aero-Tech bid approximately 15% under both Hardman and another contractor from out of state. Capt Spector also noted that within the first nine months, Aero-Tech submitted two REAs, under the justification that the required materials and services from their sub-contract have increased. Mr. Lit approved both.

A few weeks later, Capt Spector received an email from MSgt Zane, Senior Enlisted Leader, Aircraft Maintenance Squadron, who cc'd him on an email to Mr. Lit. MSgt Zane relayed concerns with the continued service of Hardman Aerospace on the fighters' ejection seats. According to Zane, they have replaced four ejection seats for electrical errors in the last five months, a significant concern because this failure should be extremely rare. Being concerned they were switching the same seat out on different jets, she went to obtain its serial number and noticed that a Hardman sticker was covering the manufacturer's name and part number on the electrical box. Mr. Lit responded, stating he understood her concern and would handle the contractor.

A week later, Capt Spector talked with Mr. Lit about how he handled or planned to handle the email from MSgt Zane. As Capt Spector went to enter Mr. Lit's office, he overheard him on the phone asking someone to admit his daughter to a private college, indicating that a friend should be sending a tuition check this week. Capt Spector asked if everything was

okay, and Mr. Lit explained it was; his tax bracket did not qualify for a federal student loan for his daughter, but a family friend offered to pay her first semester while he figured out how to pay the rest. When the conversation returned to the matter regarding MSgt Zane's email, Mr. Lit relayed he handled the contractor and it should not be a problem again. He also requested that Capt Spector stay out of his contracts because he's not one of the new guys.

Following the weird and rude reaction of Mr. Lit, Capt Spector decided to talk with TSgt Ross about the situation. TSgt Ross relayed he had only minimum information because Mr. Lit told him to focus on getting ready to deploy instead of administering the contract. TSgt Ross knew from the COR's emails that the COR had concerns that only Hardman employees were conducting maintenance, and reiterated some of the same problems MSgt Zane expressed. TSgt Ross expressed additional concern over the cost of the contract, given they never received certified cost and pricing data on the initial award. TSgt Ross concluded by saying the owner and military POC for Aero-Tech, Ms. Pearson, has been unreachable on vacation in Miami. TSgt Ross overheard Hardman's guys saying, "wouldn't it be nice to be like the boss and have a Miami vacation house?"

B. DISCUSSION QUESTIONS

1. Tell me what indicators jump out to you. What does that indicator signal to you about what's going on in this case, including what fraud schemes are at play?
    a. Note: If product substitution is not addressed, ask the group to focus on MSgt Zane's paragraph to pull out indicators.
    b. Note: If Anti-trust is not addressed, ask the group to focus on Capt Spector's initial review paragraph to pull out indicators. What specific anti-trust scheme do you believe happened?
    c. Note: If corruption is not addressed, ask the group to focus on the second paragraph of the case to pull out indicators.
2. Tell me about the unintended consequences/risks of product substitution in this case.
3. Tell me about the consequences/risks of Anti-trust in this case.
4. Tell me about the consequences/risks of corruption in this case.
5. How does the Fraud Triangle (Pressure, Opportunity, Rationalization) apply to Mr. Lit?
    a. What sides of the triangle were present? Examples?
    b. What side was not present? Tell me a possible rationalization of Mr. Lit.
6. If you were Capt Spector, at what point would you have addressed concerns to someone? Why?
    a. Who would you have talked to? Why?
    b. At what point would you have reported to OSI? When you report the initial information to OSI, how would you report it?

APPENDIX E. TEST AND TEST ANSWERS

A. FRAUD AWARENESS BRIEFING QUIZ

Do not include your name, rank, or other personally identifiable information on this quiz. Please answer the following questions to the best of your knowledge. This quiz intends to assess knowledge retention of the topics learned today. The quiz helps my research to identify the best method to improve fraud education in the Department of the Air Force. Your best effort gives realistic data to help determine the best way to educate you and your peers in the fight against fraud. Thank you for your time and effort. Good Luck!

1. As the CO on a service contract, your COR brings up multiple fraud indicators concerning the contractor. What should you do next?
    a. Refer the information to the Contractor and contact the local PD.
    b. Gather as much information as possible regarding these indicators, including questioning the contractor's staff.
    c. Contact your local OSI detachment or Procurement Fraud team with the initial information.
    d. Note the information in a memo in your contract file and wait for more overt indicators or acts of fraud before contacting OSI.

2. OSI Agent's primary duties concerning fraud are? Circle all that apply.
    a. Liaison, train, and work with the Air Force Audit Agency, Air Force Contracting Officers, Program Managers, Department of Justice, and other federal agencies in preventing, detecting, and investigating fraud.
    b. Investigate COs for making mistakes, errors, or failures in their contract awarding and administration.
    c. Be the investigative arm of the Department of the Air Force in relation to procurement issues that have indications of criminal intent or false statements.
    d. Bring dread and doom to an office when people see OSI agents enter a building.

3. List five fraud indicators
    a. _____
    b. _____
    c. _____
    d. _____
    e. _____

4. Identify two possible implications of product substitution besides the loss of money.

   a. _____

   b. _____

5. Any time contractors are involved in the restriction of competition, they violate 15 U.S.C. 1 Sherman Antitrust Act. Please provide an example of an Antitrust Scheme that could happen to your squadron.

   _____
   _____
   _____
   _____

6. You are the CO for a firm-fixed-priced service contract. The prime submitted its proposal that included sub-contract proposal data. During a site visit, you commented to the COR about the sub-contractor's customized sports car. The COR tells you he heard the owner joke it's his "work" vehicle and all his "overtime" paid for the custom work. Identify the possible scheme and what information you would relay to OSI during an initial report.

   _____
   _____
   _____
   _____

7. Match the following Fraud Triangle Definitions to their examples.

a. Pressure	a. It's just an interest-free loan until I get paid.
b. Opportunity	b. Need to make at least 5% profit not to be fired.
c. Rationalization	c. They inspect the first crate only, never the rest.

8. Explain the difference between bribery, kickbacks, and illegal gratuities.

_____

_____

9. Of all the fraud schemes discussed, which one do you believe OSI should prioritize in order to best protect the Department of the Air Force and why?

_____
_____
_____
_____

10. The difference between an error, misunderstanding, or mistake and fraud is what?
    a. _____

11. How much Procurement Fraud training have you received?

    a. 0-3 briefings/trainings
    b. 4-6 briefings/trainings
    c. 7-10 briefings/trainings
    d. 11 or more briefings/trainings
    e. Other_____

12. How did this procurement fraud training compare to previous procurement fraud training?

    a. Much better than previous training
    b. Slightly better than previous training
    c. The same as previous training
    d. Slightly worse than previous training
    e. Much worse than previous training
    f. Other_____

13. What aspects of this case study training do you believe were most/least beneficial and why?

B. ANSWER TO FRAUD AWARENESS BRIEFING QUIZ

() equals the cognitive square of the taxonomy table

1. C (C1)

2. A and C (B1)

3. There are several procurement fraud indicators to list. These include an employee not taking leave, sudden changes in behavior, significant changes in wealth or spending habits, serial numbers being scratched off or covered, high maintenance costs for new items, excessive control over their work, a dramatic drop in pricing when a new contractor enters, all bids above the normal market cost in the area, the use of "solo-source" contracts, frequent Requests for Equitable Adjustment (REAs), instances of "pay to play," and being charged for the same or similar invoices on multiple government contracts. (A1)

4. There are various implications to consider, similar to indicators. These include death or serious bodily harm to members, breaches of national security, sabotage, loss of trust in the weapon system, loss of time to replace, loss of the weapon system, and grounding of the fleet. (B4)

5. The learner discussed how price fixing, bid rigging, market allocation, or bid rotation could occur within the learner's AOR. (B2/B3/D3)

6. The learner should asses the indicators of Cost Mischarging. They will then apply their procedural knowledge to contact OSI and provide information regarding the contractor's name, contract number, and any fraud indicators. This will require them to provide details on who, what, when, where, and how the cost mischarging occurred. (A4/B4)

7. Pressure = Need to make at least 5% profit not to be fired.
   Opportunity = They inspect the first crate only, never the rest.
   Rationalization = It's just an interest-free loan until I get paid. (B2)

8. Bribery = is the act of giving or receiving something of value in exchange for an official act of a government official
   Kickback = is the act of giving or receiving something of value in exchange for an official act between the Prime contractor and Sub-contractor
   Gratuities = A gift or reward to a government official for doing their official duties, without the official quid-pro-quo relationship. (A2)

9. The learner discusses any fraud scheme with a clear understanding of its implications to the Air Force or DOD. (B5/D5)

10. Intent (A1)

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Adams, N.E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association, 103*(3), 152–153. http://dx.doi.org/10.3163/1536-5050.103.3.010

Air Force Audit Agency. (n.d.). *Air Force Audit Agency's mission and history* [Homepage]. Retrieved November 11, 2023, from https://www.afaa.af.mil/

Air Force Inspector General's Office (2014). *Inspector General's guide to fraud, waste, and abuse awareness*. United States Air Force. https://www.af.mil/Portals/1/documents/ig/FWA_Guide_Final.pdf

Air Force Inspector General's Office (2020). *Inspector General compliance resolution* (AFI90-301). United States Air Force. https://static.e-publishing.af.mil/production/1/saf_ig/publication/afi90-301/afi90-301.pdf

Air Force Office of Special Investigations. (2020, June 23). *Special Investigations; Fraud and corruption investigations* (AFOSIM 71-122, vol. 2)

Albrecht, W. S., Albrecht, C. O., Albrecht, C. C., & Zimbelman, M. F. (2016). *Fraud examination* (5th ed.). Cengage Learning.

American Psychological Association (APA). (n.d.a). Short-term memory (STM). In *APA Dictionary of Psychology*. Retrieved September 28, 2023, from https://dictionary.apa.org/short-term-memory

American Psychological Association (APA). (n.d.b). Long-term memory (LTM). In *APA Dictionary of Psychology*. Retrieved September 28, 2023, from https://dictionary.apa.org/long-term-memory

Anderson, L.W., Krathwohl, D.R., Airasian, P.W., Cruikschank, K.A., Mayer, R.E., Pintrich, P.R. … Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

The Associated Press. (2023, September 6). *Felony convictions vacated for 4 former Navy officers in sprawling 'Fat Leonard' bribery scandal*. https://apnews.com/article/navy-officers-convictions-vacated-bribery-scandal-4091c6696072221cfe3d38f91318d571

Association of Certified Fraud Examiners (ACFE). (2022a). *ACFE report to the nations | 2022 global fraud study*. ACFE. http://www.acfe.com/report-to-the-nations/2022/

Association of Certified Fraud Examiners (ACFE). (2022b). *Fraud awareness training benchmarking report*. ACFE. https://www.acfe.com/fraud-resources/fraud-awareness-training-benchmarking-report

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63*(3), 575–582. https://doi.org/10.1037/h0045925

Bloom. (1956). *Taxonomy of educational objectives; the classification of educational goals* (1st ed.). Longmans, Green.

Bonwell, & Eison, J. A. (1991). Active Learning: Creating excitement in the classroom. *ASHE-ERIC Higher Education Reports*. [Accessed through NPS database].

Breslin, M., & Buchanan, R. (2008). On the case study method of research and teaching in design. *Design Issues, 24*(1), 36–40. https://doi.org/10.1162/desi.2008.24.1.36

Brieger, E., Arghode, V., & McLean, G. (2020). Connecting theory and practice: reviewing six learning theories to inform online instruction. *European Journal of Training and Development, 44*(4/5), 321–339. https://doi.org/10.1108/EJTD-07-2019-0116

Campbell, M.G., Powers, T.M., & Zheng, S.L. (2016). Teaching with the case study method to promote active learning in a small molecule crystallography course for chemistry students. *Journal of Chemical Education, 93*(2), 270–274. DOI: 10.1021/acs.jchemed.5b00629

Chang, P.W. (2013). *Analysis of contracting processes, internal controls, and procurement fraud schemes* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/34642

Cohen, L.E., & Waite-Stupiansky, S. (Eds.). (2022). *Theories of early childhood education: Developmental, behaviorist, and critical* (2nd ed.). Routledge. https://doi.org/10.4324/9781003288077

Conceição, S.,C.O., & Taylor, L. D. (2007). Using a constructivist approach with online concept maps: Relationship between theory and nursing education. *Nursing Education Perspectives, 28*(5), 268–75. Retrieved from https://libproxy.nps.edu/login?url=https://www.proquest.com/scholarly-journals/using-constructivist-approach-with-online-concept/docview/236644724/se-2

Craik, F.I.M. (1983). *On the transfer of information from temporary to permanent memory*. Phil. Trans. R. Soc. Lond. B302, 341–359. https://doi.org/10.1098/rstb.1983.0059

Defense Acquisition University (DAU). (2023, June 26). *ACQ 0490 Procurement fraud indicators*. https://www.dau.edu/courses/acq-0490

Dorestani, A. (2005). Is interactive/active learning superior to traditional lecturing in economics courses? *Humanomics, 21*(1), 1–20. https://doi.org/10.1108/eb018897

Drew, C. (2023). 11 Examples of Passive Learning. *Helpful Professor*. https://helpfulprofessor.com/passive-learning/

Federal Acquisition Regulation [FAR] 4.21, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (2023). https://www.acquisition.gov/far/subpart-4.21

Fox News. (2022, September 8). *How 'Fat Leonard' orchestrated a major U.S. Navy corruption scandal and then escaped* [Online Article]. https://www.foxnews.com/us/how-fat-leonard-orchestrated-major-us-navy-corruption-scandal-escaped

Government Ethics Education, 5 C.F.R. 2638 (2023). https://www.ecfr.gov/current/title-5/chapter-XVI/subchapter-B/part-2638/subpart-C

Guntern. (2009). Handbook of Positive Behavior Support (Sailor, G. Dunlap, G. Sugai, & R. Horner, Eds.; 1st ed. 2009.). Springer U.S. https://doi.org/10.1007/978-0-387-09632-2

Harvard University. (n.d.). *The HBS case method*. Retrieved November 20, 2023, from https://www.hbs.edu/mba/academic-experience/Pages/the-hbs-case-method.aspx

Jordan, A., Carlile, O., & Stack, A. (2008). *Approaches to learning: A guide for teachers*. McGraw-Hill Education.

Joshi, A., Desai, P., & Tewari, P. (2020). Learning analytics framework for measuring students' performance and teachers' involvement through problem-based-learning in engineering education. *Procedia Computer Science, 172*, 954–959. https://doi.org/10.1016/j.procs.2020.05.138

Krathwohl, D.R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice, 41*(4), 212–218. https://www.jstor.org/stable/1477405

Larrsen, I., Marshall, M.K., & Whitworth, L. M. (2021). *Sandbox contracting: An evaluation of gamified vs. traditional contracting training methods at the USAF enlisted contracting technical school*. [Master's Thesis, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/68771

Larsen, T.M., Endo, B.H., Yee, A.T., Do, T., & Lo, S.M. (2022). Probing internal assumptions of the revised Bloom's taxonomy. *CBE: Life Science Education, 21*(4). https://doi.org/10.1187/cbe.20-08-0170

Lee, E., & Hannafin, M. J. (2016). A design framework for enhancing engagement in student-centered learning: own it, learn it, and share it. *Educational Technology Research and Development, 64*(4), 707–734. https://doi.org/10.1007/s11423-015-9422-5

Martinez, C. (2022). *Acquisition, sustainment office supports microelectronics vision. U.S. Department of Defense*. https://www.defense.gov/News/News-Stories/Article/Article/3152472/acquisition-sustainment-office-supports-microelectronics-vision/

Mattis, J., & West, B. (2019) *Call sign chaos: Learning to lead* [Kindle Version]. Amazon.com

Maucione, S. (2021, December 23). *Balfour Beatty Communities to pay millions in fines after pleading guilty to defrauding military*. Federal News Network. https://federalnewsnetwork.com/defense-main/2021/12/balfour-beatty-communities-to-pay-millions-in-fines-after-pleading-guilty-to-defrauding-military/

Rowe, M., & Mclaughlin, G. (2020). *Fraud in the DOD: Is the current fraud penalty system an effective deterrence tool*? [Acquisition Research Program, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/64805

Mcleod, S. (2023, July 24). Pavlov's dogs experiment and pavlovian conditioning response. *Simply Psychology*. https://www.simplypsychology.org/pavlov.html

McVey, T. (2017, December 1). Small businesses: Take heed of export regulations. *National defense magazine*. https://www.nationaldefensemagazine.org/articles/2017/12/1/small-businesses-take-heed-of-export-regulations

Menanno, J., & George, M. (2015). *Analysis of air force office of special investigations agents' knowledge of the contract management process* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/53553

Michel, N., Cater, J. J., & Varela, O. (2009). Active versus passive teaching styles: An empirical study of student learning outcomes. *Human Resource Development Quarterly, 20*(4), 397–418. https://doi.org/10.1002/hrdq.20025

Mueller, S.P. (2014). *MICT explained…Again* [Military Article]. United States Air Force. https://www.kadena.af.mil/News/Commentaries/Display/Article/770933/mict-explained-again/

Nabavi, R. T., & Bijandi M.S. (2011). Bandura's social learning theory and social cognitive learning theory. *Theory of Developmental Psychology, 1*(1), 1–24.

NASA's Office of Investigations (NOI). (n.d.). *Product Substitution* [Pamphlet]. https://oig.nasa.gov/docs/product_substitution.pdf

Nohria, N. (2021). What the case study method really teaches. *Harvard Business Review* [Digital Article]. https://store.hbr.org/product/what-the-case-study-method-really-teaches/H06R6A

Ormrod, J.E., (2020). *Human learning* (8th ed.) [E-reader version]. Pearson.

Paul, S.S. (2017). Active and passive learning: A comparison. *GRD Journal for Engineering, 2*(9), 27–29. http://www.grdjournals.com/uploads/article/GRDJE/V02/I09/0036/GRDJEV02I090036.pdf

Persellin, D.C., & Daniels, M.B. (2014). *A concise guide to improving student learning: Six evidence-based principles and how to apply them*. Stylus.

Rebeiz, K. S. (2011). An Insider Perspective on Implementing the Harvard Case Study Method in Business Teaching. *US-China Education Review*, 591–601. https://eric.ed.gov/?id=ED527670

Rendon, J.M. (2017). *DOD procurement: An analysis of Navy contracting professionals procurement fraud knowledge* [Acquisition research, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/58886

Rendon, R.G., & Rendon, J.M. (2015). Auditability in public procurement: an analysis of internal controls and fraud vulnerability. *Int. J. Procurement Management, 8*(6), 710–730.

Riley, J., & Ward, K. (2017). Active learning, cooperative active learning, and passive learning methods in an accounting information systems course. *Issues in Accounting Education, 32*(2), 1–16. https://doi.org/10.2308/iace-51366

SIPRI. (2023). *Trends in world military expenditure, 2022* [Fact sheet]. https://doi.org/10.55163/PNVP2622

Staahli, A. (2006). From the Harvard Case Study Method to the Genetically Growing Case Study. *In Management Andragogics 2* (pp. 3–11). Springer Berlin Heidelberg. https://doi.org/10.1007/3-540-28975-5_1

Stanny, C. J. (2016). Reevaluating Bloom's taxonomy: What measurable verbs can and cannot say about student learning. *Education Sciences, 6*(4), 37–n/a. https://doi.org/10.3390/educsci6040037

Strobel, J. & Van Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. *The Interdisciplinary Journal of Problem-Based Learning, 3*(1), 44–58. https://doi.org/10.7771/1541-5015.1046

U.S. Department of Defense (2022, May). *Microelectronics vision*. https://media.defense.gov/2022/Jun/15/2003018021/-1/-1/0/department-of-defense-microelectronics-vision.PDF

U.S. Department of Defense. (2022). *Department of Defense fiscal year 2023 budget estimate: Air Force justification book volume 1*. https://www.saffm.hq.af.mil/FM-Resources/Budget/Air-Force-Presidents-Budget-FY23/#:~:text=The%20Department%20of%20the%20Air%20Force%20FY%202023,or%2011.7%25%20increase%20from%20the%20FY%202022%20request.

U.S. Department of Justice (2012, April 23). *ATK Launch System Inc. settles false claims product substitution case for nearly $37 million*. https://www.justice.gov/opa/pr/atk-launch-systems-inc-settles-false-claims-product-substitution-case-nearly-37-million

U.S. General Services Administration (GSA). (2012). *Procurement fraud handbook* [Handbook]. https://www.gsaig.gov/sites/default/files/misc-reports/ProcurementFraudHandbook_0.pdf

Watson. (1924). *Psychology from the standpoint of a behaviorist, by John B. Watson*. J. B. Lippincott company [c1924].

Wayne, L. (2004, October 2). Ex-Pentagon official gets 9 months for conspiring to favor Boeing. *The New York Times*. https://www.nytimes.com/2004/10/02/business/expentagon-official-gets-9-months-for-conspiring-to-favor-boeing.html

Whetten, D.A., & Clark, S.C. (1996). An integrated model for teaching management skills. *Journal of Management Education, 20*(2), 152–181. https://doi.org/10.1177/105256299602000202

Wilson, L.O. (2020). Bloom's taxonomy revised: Understanding the revised version of Bloom's taxonomy. The Second Principle. https://thesecondprinciple.com/essential-teaching-skills/blooms-taxonomy-revised/

Wingfield, S.S., & Black, G.S. (2005). Active versus passive course designs: The impact on student outcomes. *Journal of Education for Business, 81*(2), 119–125. https://www.proquest.com/docview/202820631/fulltextPDF/EEC3CE69DBCB492BPQ/1?accountid=12702

Young, L.M., & Anderson, R.P. (2010). The use of personal narrative in classroom case study analysis to improve long-term knowledge retention and cultivate professional qualities in allied health students. *Journal of microbiology & biology education 11*(2). https://doi.org/10.1128/jmbe.v11i2.204

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Fort Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California