

ETHICAL DATA SCIENCE

ROCHELLE TRACTENBERG ~ GEORGETOWN UNIVERSITY
FORMER VICE CHAIR & CHAIR OF COMMITTEE ON PROFESSIONAL ETHICS
CHAIR OF WORKING GROUPS ON ASA ETHICAL GUIDELINES REVISIONS
2016; 2018; 2021 (CO-CHAIR)
VIRTUAL APPLIED DATA SCIENCE TRAINING INSTITUTE (VADSTI)
VIRTUAL ~ 8 APRIL 2021

TAKE HOME MESSAGES

- “ASA ETHICAL GUIDELINES FOR STATISTICAL PRACTICE” WILL HELP ANY STATISTICIAN, DATA SCIENTIST, OR INDIVIDUAL USING STATISTICS OR DATA SCIENCE TO BE A MORE ETHICAL USER OF THE QUANTITATIVE SCIENCES;
- THE PURPOSE IS NOT TO CORRECT UNETHICAL HABITS, BUT TO INculcate A RESPECT FOR, AND AWARENESS OF, THE COMPLEXITIES OF ETHICAL STATISTICAL & DATA SCIENCE PRACTICE IN THE MODERN DATA ANALYSIS LANDSCAPE.
- GUIDELINES – PLUS REASONING – CAN PROMOTE DISCUSSIONS AND EXPLICATION OF EXPECTATIONS & STANDARDS OF PRACTICE – WITHIN & OUTSIDE OF THE DISCIPLINE.
 - IMPORTANT CONSIDERATIONS FOR THOSE WHO USE DATA ANALYSIS IN SCIENCE, OR IN DATA SCIENCE

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-2

OUTLINE

- WHAT ARE THE ASA ETHICAL GUIDELINES FOR STATISTICAL PRACTICE?
- WHAT IS "THE DATA SCIENCE PIPELINE"?
 - HOW DO ETHICS PERTAIN ALONG THE DATA SCIENCE PIPELINE?
- ETHICAL DECISION MAKING IN DATA SCIENCE: STAKEHOLDERS
- ETHICAL DECISION MAKING IN DATA SCIENCE: USING ETHICAL REASONING ALONG THE DATA SCIENCE PIPELINE

- DISCLOSURE: THESE MATERIALS & ACTIVITIES ARE FEATURED IN TWO BOOKS I'VE WRITTEN & AM IN THE PROCESS OF GETTING PUBLISHED.

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-3

ASA GUIDELINES (2018): PRINCIPLES (# ELEMENTS)

- A. PROFESSIONAL INTEGRITY & ACCOUNTABILITY (7)**
- B. INTEGRITY OF DATA AND METHODS (11)**
- C. RESPONSIBILITIES TO SCIENCE/PUBLIC/FUNDER/CLIENT (5)**
- D. RESPONSIBILITIES TO RESEARCH SUBJECTS (7)**
- E. RESPONSIBILITIES TO RESEARCH TEAM COLLEAGUES (4)**
- F. RESPONSIBILITIES TO OTHER STATISTICIANS OR STATISTICS PRACTITIONERS (4)**
- G. RESPONSIBILITIES REGARDING ALLEGATIONS OF MISCONDUCT (6)**
- H. RESPONSIBILITIES OF EMPLOYERS/CLIENTS EMPLOYING STATISTICAL PRACTITIONERS (8)**

[HTTPS://WWW.AMSTAT.ORG/ASA/YOUR-CAREER/Ethical-Guidelines-for-Statistical-Practice.aspx](https://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx)

© RE Trachtenberg - ethical data science ~ VADSTI 8 April 2021-4

<https://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx>

The eight principles of the ASA Ethical Guidelines for Statistical Practice (see URL above) are listed here – each principle has a number of elements that outline key features of the Guideline principle. These are updated every 5 years (2021 revision is under way NOW) – everything in this talk applies to these Guidelines, no matter what their content/what year you’re looking!!

Principle B outlines the practitioner’s responsibilities relating to data – Big or Small. Since data science involves data, as well as analysis (methods), these Guidelines are applicable to both statistics and data science.

All of the NIH topics for responsible conduct of research are also addressed in the ASA Ethical Guidelines – but, the Guidelines are much more relevant to all practice with data. This talk is intended to show how that is true.

ASA ETHICAL GUIDELINES ...

- (EXIST) “TO HELP STATISTICS PRACTITIONERS MAKE AND COMMUNICATE DECISIONS ETHICALLY”; AND
- (EXIST) “TO INFORM THOSE RELYING ON STATISTICAL ANALYSIS, INCLUDING EMPLOYERS, COLLEAGUES AND THE PUBLIC, OF THE STANDARDS THAT THEY SHOULD EXPECT.”
- “...SHOULD GUIDE BOTH THOSE WHOSE PRIMARY OCCUPATION IS STATISTICS AND THOSE IN ALL OTHER DISCIPLINES WHO USE STATISTICAL METHODS IN THEIR PROFESSIONAL WORK.”

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-5

ASA Ethical Guidelines for Statistical Practice are NOT JUST FOR STATISTICIANS!! Instead, they “...should guide both those whose primary occupation is statistics and those in all other disciplines who use statistical methods in their professional work.”

"THE DATA SCIENCE PIPELINE": SEVEN TASKS

THERE ARE **SEVEN** TASKS SUPPORTING **ALL STATISTICS AND DATA SCIENCE**:

1. PLAN/DESIGN
2. COLLECT/MUNGE/WRANGLE DATA
3. ANALYSIS – RUN OR PROGRAM TO RUN
4. INTERPRET
5. REPORT & COMMUNICATE
6. DOCUMENT YOUR WORK
7. WORK ON A TEAM

THESE TASKS ARE ESSENTIAL IN THE PRACTICE OF STATISTICS AND DATA SCIENCE.

ASA ETHICAL GUIDELINES (GLs) PERTAIN IN EACH OF THESE TASKS.

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-6

Note that the NIH responsible conduct of research (RCR) topics may be relevant in each (or any) of these tasks. Each task can (should) be done ethically (responsibly).

ETHICAL PRACTICE MATCHING ASA GLS TO TASK

STEP 1: SCAN THE GUIDELINES TO IDENTIFY WHAT IS RELEVANT TO YOUR TASK!

TASK 1: PLAN/DESIGN

ASA GLs, **Principle A** (Professional integrity and accountability) : you need a full understanding of the data and the methods, SO whatever you plan will produce results that are "valid, interpretable, and reproducible".

What else in the ASA Ethical Guidelines is relevant in the planning and designing stage of a project? The ones that say, "the Ethical Statistician..."

A.1, "Identifies and mitigates any preferences on the part of the investigators or data providers that might **predetermine or influence the analyses/results.**"

C. 1 "To the extent possible, presents a client or employer with **choices among valid alternative statistical approaches** that may vary in scope, cost, or precision."

E. 3 "Avoids compromising scientific validity for **expediency.**"

Each of these (**bold words**) suggests its relevance to your PLAN or DESIGN.

**other guideline elements also apply - these are just examples you can easily match. **

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-8

TASK 2: COLLECT/MUNGE/WRANGLE DATA

Consider **D. 6**:

"In contemplating whether to participate in an analysis of data **from a particular source**, refuses to do so if participating in the analysis could reasonably be interpreted by individuals who provided information as sanctioning a violation of their rights."

What ELSE in the ASA Ethical Guidelines is relevant to data collection/munging/wrangling ?

e.g., The ones that say, "the Ethical Statistician..."

A.1, "Identifies and mitigates any preferences on the part of the investigators **or data providers** that might predetermine or influence the analyses/results."

B.5 "Clearly and fully reports the steps taken to **preserve data integrity and valid results**."

C.5 "Understands and conforms to **confidentiality requirements of data collection**, release, and dissemination and any restrictions on its use established by the data provider (to the extent legally required), protecting use and disclosure of data accordingly. Guards privileged information of the employer, client, or funder."

© RE Trachtenberg- ethical data science ~ VADSTI 8 April 2021-9

TASK 3: ANALYSIS (PERFORM/PROGRAM TO PERFORM)

What in the ASA Ethical Guidelines is relevant to **analysis**?

E.g., the ones that say, "the Ethical Statistician..."

D. 6. "In contemplating whether to participate in an **analysis** of data from a particular source, refuses to do so if participating in the analysis could reasonably be interpreted by individuals who provided information as sanctioning a violation of their rights."

G.1 "Avoids condoning or appearing to condone **statistical**, scientific, or professional **misconduct**."

Or, the ones that say, "*those employing statisticians* are expected to..."

H.7 "Support sound statistical analysis and expose incompetent or corrupt statistical practice."

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-10

The most obvious matches to Analysis are in Principles B (methods & data) and A (integrity and accountability as a practitioner using statistics or data science). But those are not the only relevant guidance, as you can see here. D6 (from previous slide) may also be considered relevant to task 3 (analysis), "In contemplating whether to participate in an **analysis** of data from a particular source, refuses to do so if participating in the analysis could reasonably be interpreted by individuals who provided information as sanctioning a violation of their rights."

TASK 4: INTERPRET

What in the ASA Ethical Guidelines is relevant to interpretation?

E.g., the ones that say, "the Ethical Statistician..."

E. 3 "Averts compromising scientific validity for expediency."

G.1 "Averts condoning or appearing to condone statistical, **scientific**, or professional misconduct."

Or, the ones that say, "those employing statisticians are expected to..."

H.4 "Recognize the results of valid statistical studies cannot be guaranteed to conform to the expectations or desires of those commissioning the study or the statistical practitioner(s)."

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-11

Interpretation is clearly part of statistical practice, and is usually part of data science (depends on your definition, and where you are in a project). The simple visual match/search for the word "interpret" in the Guidelines won't identify all the relevant Guideline elements, though. The elements from E (responsibilities to research team colleagues), G (responsibilities regarding allegations of misconduct), and H (responsibilities of employers) are important – if not explicitly about interpretation. When results are cherry picked, or p-hacked, interpretations will not be reproducible or valid. Ethical practice requires that we avoid compromising scientific validity for expediency; even if over-interpreting, or failing to appropriately describe the uncertainty of an interpretation of analyses, will strengthen a grant application or paper, the ethical practitioner "Ensures all discussion and reporting of statistical design and analysis is consistent with these guidelines." (E2)

TASK 5: REPORT AND COMMUNICATE

What in the ASA Ethical Guidelines is relevant to reporting and communication? E.g., the ones that say, "the Ethical Statistician..."

B.2 "Reports the limitations of statistical inference and possible sources of error."

E. 3 "Ensures all discussion and reporting of statistical design and analysis is consistent with these guidelines."

Or, the ones that say, "those employing statisticians are expected to..."

H.5 "Recognize it is contrary to these guidelines to report or follow only those results that conform to expectations without explicitly acknowledging competing findings and the basis for choices regarding which results to report, use, and/or cite."

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-12

Communication is a key component of research – just as the statistical and data science aspects are. All practitioners must be transparent, to promote understanding of what was done and the strengths and limitations of the results.

TASK 6: DOCUMENT

What in the ASA Ethical Guidelines is relevant to documentation?

E.g., the ones that say, “the Ethical Statistician...

A. 6 “Accepts full responsibility for his/her professional performance. Provides only expert testimony, written work, and oral presentations that he/she would be willing to have peer reviewed.”

B. 5 “Clearly and fully reports the steps taken to preserve data integrity and valid results.”

E. 4 “Strives to promote transparency in design, execution, and reporting or presenting of all analyses.”

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-13

In addition to communicating and reporting, practitioners must document what they did – including assumptions that were made – so that others can appreciate the evidence that results from statistical and data science practice. Sometimes documentation remains internal (and a “report” or “communication” (paper, poster, etc.) to the outside/external stakeholders is a distinct activity).

TASK 7: WORK ON A TEAM

What in the ASA Ethical Guidelines is relevant to team work?

Preamble: "Ethical statistical practice does not include, promote, or tolerate any type of professional or scientific misconduct, including, but not limited to, bullying, sexual or other harassment, discrimination based on personal characteristics, or other forms of intimidation."

B.11 "Strives to promptly correct any errors discovered while producing the final report or after publication. As appropriate, disseminates the correction publicly or to others relying on the results."

G.1 "Avoids condoning or appearing to condone statistical, scientific, or professional misconduct."

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-14

Most of the Guidelines are relevant for team work – since many statisticians and data scientists work with other people from different –or the same- disciplines. Many of the 6 tasks we've discussed involve team work/team members. Transparency, and respect for human and animal data contributors as well as others on the team, are fundamental to ethical practice in data science.

SUMMARY OF TASKS FOLLOWING **GUIDELINES** (**GL**)

ASA Ethical Guidelines for Statistical Practice (**GL**) are relevant for all of the tasks in the DS Pipeline.

Many GLs are relevant for >1 task

All tasks have elements from more than one GL Principle.

NOTE: GLs are relevant to aspects of practice BEYOND ANALYSIS

i.e., the ASA Ethical Guidelines support ethical statistics AND data science practice

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-15

SO, ASA GUIDELINES SUPPORT ETHICAL DATA SCIENCE... **WHY IS THIS TALK NOT OVER!?**

- ETHICAL DATA SCIENCE PRACTICE IS PROMOTED BY USING THE ASA ETHICAL GUIDELINES IN EVERY TASK THAT YOU DO.

BUT

- SOMETIMES, OTHERS MAKE DECISIONS THAT REQUIRE US TO RESPOND... AND IN THOSE CASES, **OUR** ETHICAL PRACTICE MAY NOT BE SUFFICIENT. **WE NEED A METHOD TO RESPOND: MAKING AND JUSTIFYING ETHICAL DECISIONS (USING THE ASA ETHICAL GLS!)**

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-16

ETHICAL REASONING

RUBBER MEETS ROAD! (SPOILER ALERT: THEY BECOME CLOSE FRIENDS!)

ETHICAL REASONING

WHEN AN ETHICAL CHALLENGE ARISES, IT MUST BE RECOGNIZED, AND A DECISION MUST BE MADE.

TO *MAKE* AND THEN SUPPORT THE DECISION, YOU MUST:

1. IDENTIFY/ ASSESS YOUR PREREQUISITE KNOWLEDGE – USE ASA GLs
2. IDENTIFY RELEVANT DECISION-MAKING FRAMEWORKS (E.G., VIRTUE OR UTILITARIANISM)
3. RECOGNIZE AN ETHICAL ISSUE (AND THAT A DECISION MUST BE MADE) –GLS HELP PINPOINT
4. IDENTIFY AND EVALUATE ALTERNATIVE ACTIONS
5. MAKE & JUSTIFY A DECISION
6. REFLECT ON THE DECISION

NOTE: YOU WILL SPEND THE MAJORITY OF YOUR TIME ON KSA #1 ~ THERE IS A LOT TO “KNOW” & IT IS IMPORTANT FOR ~90% OF YOUR WORK.

© RE Tractenberg~ ethical data science ~ VADSTI 8 April 2021-18

Knowing that there are Guidelines, and even what they contain, is simply not enough. Because different situations require different principles and elements of the Guidelines, Ethical Reasoning is an important set of knowledge (K), skills (S), and abilities (A) that can be learned and improved <and beginning this learning and improving should start as early as possible!>. The Ethical Reasoning KSAs can be brought to bear on situations where the Guidelines may be useful, to structure decision making and the use of the Guidelines.

Ethical reasoning (and these specific knowledge, skills, and abilities) are introduced here
https://www.academia.edu/1130402/A_Mastery_Rubric_for_the_design_and_evaluation_of_an_institutional_curriculum_in_the_responsible_conduct_of_research

These KSAs are based on Santa Clara University. (no date). Ethical Reasoning. Downloaded from
<http://www.scu.edu/ethics/> 29 November 2009.

And discussed in several other papers, including two contributions to JSM proceedings. Search my Academia.edu web page for “Mastery Rubric” and “ethical reasoning” for papers (including Gunaratna N, Tractenberg RE. (2016). Ethical Reasoning for consulting with the 2016 Revised ASA Ethical Guidelines for Statistical Practice. *Proceedings of the 2016 Joint Statistical Meetings, Chicago, IL. Pp. 3763-3787*) and talks.

PREREQUISITE KNOWLEDGE TO THIS POINT

- **ASA ETHICAL GUIDELINES:** ETHICAL/PROFESSIONAL PRACTICE STANDARDS
 - HOW TO DO YOUR JOB, EACH TASK, ETHICALLY
- **SEVEN TASKS**
 - THE PRACTITIONER MAKES DECISIONS IN EACH TASKS; EACH HAS RELEVANT ASA ETHICAL GUIDANCE
- **ETHICAL REASONING KSAs**
 - **KSA #1** (THIS ONE!) CAN HELP YOU PRACTICE ETHICALLY ALONG THE DS PIPELINE.

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-19

PREREQUISITE KNOWLEDGE IS JUST THE BEGINNING

- **KSA #1** (PREREQUISITE KNOWLEDGE) HELPS YOU PRACTICE ETHICALLY ALONG THE DS PIPELINE.
- **KSA #2** MAY HELP YOU JUSTIFY YOUR DECISION TO USE THE ETHICAL GUIDELINES:
 - **VIRTUE PERSPECTIVE:** WHAT WOULD THE (IDEAL) PRACTITIONER DO IN THIS SITUATION? (ASA)
 - **UTILITARIAN PERSPECTIVE:** WHAT ACTION MINIMIZES HARMS/MAXIMIZES BENEFITS? (ALTERNATIVE PERSPECTIVE)
- **KSA #3: IDENTIFY THE ETHICAL CHALLENGE/ISSUE:** IF ACTIONS VIOLATE THE GUIDELINES, THEN THAT IS THE ETHICAL ISSUE.
- **NOTE: 90% (HOPEFULLY!) OF THE TIME, PRACTITIONERS WILL JUST BE CONCERNED WITH FOLLOWING THE GUIDELINES; 10% OF THE TIME, THERE WILL BE AN ETHICAL ISSUE. ETHICAL REASONING KSAs 4-6 ARE FOR THAT – HOPEFULLY RARE- SITUATION.**

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-20

The first 16 slides outline how prerequisite knowledge of the ASA Ethical Guidelines can help anyone practice ethical data science. Understanding the ethical perspective that you prefer, your boss or workplace utilizes, can help you justify the extra effort/time it may take to use and follow the Guidelines: you want to align your behavior with the “virtuous” or ideal data science practitioner (this is the virtue perspective); or, you want your data science practice to optimize benefits and minimize harms (this is the utilitarian perspective). There are many other ethical perspectives, but the ASA Ethical Guidelines are specifically virtue –ethics aligned. The Association for Computing Machinery Code of Ethics is specifically utilitarian. European contexts favor a utilitarian perspective; your background, training, or work environment may have a different perspective.

ETHICAL REASONING **KSA #3: ID AN ETHICAL ISSUE**

1. IDENTIFY/ ASSESS YOUR PREREQUISITE KNOWLEDGE – USE ASA GLs
2. IDENTIFY RELEVANT DECISION-MAKING FRAMEWORKS (E.G., VIRTUE OR UTILITARIANISM)
3. **RECOGNIZE AN ETHICAL ISSUE (AND, THAT A DECISION MUST BE MADE) ->GLs HELP PINPOINT**
4. IDENTIFY AND EVALUATE ALTERNATIVE ACTIONS
5. MAKE & JUSTIFY A DECISION
6. REFLECT ON THE DECISION

WE ALREADY SAW WHICH ASA GLs WERE RELEVANT FOR WHICH TASKS. IDENTIFYING THE ETHICAL ISSUE FOLLOWS FROM THAT:

WHAT ABOUT WHAT YOU ARE DOING, PLANNING, OR HAVE OBSERVED IS INCONSISTENT WITH THE ASA GLs? WHAT SEEMS “QUESTIONABLE” GIVEN THE ASA GLs? IF YOU ACT/SOMEONE ACTS A CERTAIN WAY, DOES IT VIOLATE THE ETHICAL GUIDELINES?

*IF SO, THEN YOU HAVE IDENTIFIED AN ETHICAL ISSUE – **SOMETHING MUST BE DONE!***

© RE Tractenberg~ ethical data science ~ VADSTI 8 April 2021-21

NOTE: 90% (hopefully!) of the time, practitioners will just be concerned with following the Guidelines; 10% of the time, there will be an ethical issue. Ethical Reasoning KSAs 4-6 are for THAT – hopefully rare- situation.

Note also that the simplest way to correct an ethical challenge is to change the action so that it is no longer inconsistent with the Guidelines –i.e., make it so that the action or decision *follows the Guidelines*.

ETHICAL REASONING KSA #4: ID ALTERNATIVE ACTIONS

THE GLS TELL YOU HOW TO PRACTICE ETHICALLY, AND HELP IDENTIFY WHEN SOMETHING IS AMISS. **BUT WHAT TO DO?? FIGURING OUT YOUR ALTERNATIVES CAN BE DIFFICULT.**

THERE ARE ALWAYS THREE ALTERNATIVES. **EVERY TIME:**

- A) DO NOTHING.
- B) CONSULT OR CONFER WITH A PEER OR A SUPERVISOR – USING THE PROFESSIONAL GUIDELINES OR OTHER RESOURCES.
- C) REPORT VIOLATIONS OF POLICY, PROCEDURE, ETHICAL GUIDELINES, OR LAW.

ALTERNATIVELY (NOT EQUIVALENTLY!!),

- "AGREE TO DO <REQUESTED ACTIONS>"
- "REFUSE TO DO <REQUESTED ACTIONS>"
- "IGNORE <REQUEST>"

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-22

If you identify an ethical challenge (KSA/step 3) and do nothing, you have made a choice. You can (and should) evaluate that alternative; you will find, in every case (without exception), that doing nothing to correct or address an ethical challenge is *inconsistent with the ASA Ethical Guidelines*. So, if you identify an ethical challenge and consult a peer or supervisor who recommends (or insists) that you do nothing, that person's recommendation/requirement is ANOTHER ethical issue. It does not address the original one!

Once the ethical issue has been identified – using the ASA Ethical GLs – the simplest alternatives are to make the behavior, action, or decision consistent with the GLs (change the behavior, revise the decision, or take action to make either of these happen). EVALUATING the alternatives is how you choose which alternative to adopt. Choosing is KSA (step) 5.

ETHICAL REASONING KSA #4: THREE ALTERNATIVES

IDENTIFY AND EVALUATE ALTERNATIVE ACTIONS

CONSIDERING THESE 3 OPTIONS IS THE SIMPLEST APPROACH TO IDENTIFYING/EVALUATING ALTERNATIVES:

A) DO NOTHING (IGNORE OR ACCEPT REQUEST).

NOTE: WITH KSA#3 YOU IDENTIFIED A (POSSIBLE) VIOLATION OF THE ETHICAL GUIDELINES. **DOING NOTHING IS NOT AN ETHICAL OPTION- BUT IT IS AN OPTION.** THERE ARE LIKELY ETHICAL OPTIONS IDENTIFIED/IDENTIFIABLE IN THE GUIDELINES. G.1 (AMONG OTHERS) IS PRETTY CLEAR ON ""DOING NOTHING" IS UNETHICAL".

B) CONSULT OR CONFER WITH A PEER OR A SUPERVISOR – USING THE PROFESSIONAL GUIDELINES OR OTHER RESOURCES.

NOTE: THIS CONSULTATION IS FACILITATED BY YOUR PREREQUISITE KNOWLEDGE! "Hi, COLLEAGUE, I'M IN A BIT OF A SITUATION. I OBSERVED X, AND THAT'S CONTRARY TO THE ETHICAL GUIDELINES. WHAT DO YOU RECKON I SHOULD DO?" –BEWARE THOSE WHO ADVISE, "JUST DO WHAT THEY ASK"/"DO NOTHING"

C) REPORT VIOLATIONS OF POLICY, PROCEDURE, ETHICAL GUIDELINES, OR LAW.

AKA: WHISTLEBLOWING. THIS MIGHT BE EASIER IF YOU TRY OPTION B FIRST. WHISTLEBLOWING WILL ALSO BE FACILITATED BY YOUR PREREQUISITE KNOWLEDGE!!

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-23

RECALL: G.1 "Averts condoning or appearing to condone statistical, scientific, or professional misconduct." Ignoring incompetent, unethical, or unprofessional behavior is itself unethical.

So: doing nothing about (to correct or raise awareness of) the ethical challenge you identified in KSA #3 **is unethical** – it goes against the ASA Ethical Guidelines. KSA #4 can help you to identify specific options that you might have (beyond consulting a colleague/supervisor or whistleblowing). Walking through these steps – writing it down – will make the conversations easier because instead of saying, "I think there might be a problem", you would say, "X is a problem because it is inconsistent with the Ethical Guidelines for how we're supposed to be using/getting/analyzing/interpreting/reporting data. We can't continue to do X. What else can we do?" You can see the discussion that follows will be much more concrete than if you just say, "I think there might be a problem".

Note that you might accept a request to do something you know isn't ethical; you might ignore the request and not notify the requestor that what they're asking is inconsistent with the Ethical Guidelines/requires you to act contrary to the Ethical Guidelines; or you might observe a request that is inconsistent/requires behavior inconsistent with the Ethical Guidelines and do nothing. **NONE OF THESE IS AN ETHICAL RESPONSE – but ALL ARE DECISIONS.**

ETHICAL REASONING KSAS 5 AND 6

WHEN AN ETHICAL CHALLENGE ARISES, IT MUST BE RECOGNIZED, AND A DECISION MUST BE MADE.

1. IDENTIFY/ ASSESS YOUR PREREQUISITE KNOWLEDGE
2. IDENTIFY RELEVANT DECISION-MAKING FRAMEWORKS (E.G., VIRTUE OR UTILITARIANISM)
3. RECOGNIZE AN ETHICAL ISSUE (AND THAT A DECISION MUST BE MADE)
4. IDENTIFY AND EVALUATE ALTERNATIVE ACTIONS
5. **MAKE & JUSTIFY A DECISION**

➤ **THE DECISION WILL BE ONE OF THE REMAINING OPTIONS! (CONSULT <OR SOME VARIATION>, OR REPORT <OR SOME VARIATION>) – SINCE "DO NOTHING"/"IGNORE REQUEST" IS NOT ETHICAL.**

➤ NOTE: **EACH DECISION MUST BE JUSTIFIED** – I.E., JUSTIFIABLE. THIS IS ONE WAY TO PROVE TO YOURSELF THAT "DO NOTHING" IS NOT ETHICAL... **IT CANNOT BE JUSTIFIED.**

KSAs 3 and 4 are super hard, but KSAs 1-2 help, and then make KSA 5 very straightforward.

6. **REFLECT ON THE DECISION**

➤ **IS THE DECISION THE BEST-JUSTIFIED ONE? HELP OTHERS WHO MAY ENCOUNTER THE SAME SITUATION, DOCUMENT THE DECISION MAKING PROCESS FOR FUTURE "DECIDERS".**

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-24

Again, the purpose of considering the ethical reasoning KSAs is to help you to make a plan – and a decision – that will put an end to or correct unethical behavior. If you have written down what you decide, and the justification for that decision, it may help others understand what went wrong –so that can be avoided in the future. It may help others work better/more ethically –so the specific issue you identified can be avoided in the future. If the justification is sound and your supervisor disagrees, it will plainly show that YOU know how to practice ethical data science, but that isn't valued in your work environment, possibly. If you choose to seek other jobs, you will know what to look for - and what kind of employer or team members to avoid.

SUMMARY OF ETHICAL REASONING KSAS

WHEN AN ETHICAL CHALLENGE ARISES, IT MUST BE RECOGNIZED, AND A DECISION MUST BE MADE.

1. IDENTIFY/ ASSESS YOUR PREREQUISITE KNOWLEDGE
2. IDENTIFY RELEVANT DECISION-MAKING FRAMEWORKS (E.G., VIRTUE OR UTILITARIANISM)
3. RECOGNIZE AN ETHICAL ISSUE (AND THAT A DECISION MUST BE MADE)
 - WHATEVER IS NOT CONSISTENT WITH THE GUIDELINES IS PROBABLY THE ISSUE!!
4. IDENTIFY AND EVALUATE ALTERNATIVE ACTIONS
 - THERE ARE ALWAYS 3 OPTIONS: DO NOTHING <OPTION 1> IS NOT AN ETHICAL OPTION.
5. MAKE & JUSTIFY A DECISION
 - THE DECISION WILL BE ONE OF THE REMAINING OPTIONS! (CONSULT <OR SOME VARIATION>, OR REPORT <OR SOME VARIATION>)
6. REFLECT ON THE DECISION
 - IS THE DECISION THE BEST JUSTIFIED ONE? HELP OTHERS WHO MAY ENCOUNTER THE SAME SITUATION, DOCUMENT THE DECISION MAKING PROCESS FOR FUTURE "DECIDERS"

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-25

SUMMARY: ETHICAL DATA SCIENCE USING THE ASA GLS

- ASA ETHICAL GUIDELINES FOR STATISTICAL PRACTICE OFFER GUIDANCE FOR ETHICAL PERFORMANCE OF EVERY TASK ALONG THE DATA SCIENCE PIPELINE.
- DIFFERENT GL PRINCIPLES APPLY TO EVERY TASK IN THE PIPELINE, NOT JUST AT THE START OR THE END OF A PROJECT
- EVERY TASK HAS >2 DIFFERENT PRINCIPLES/ELEMENTS THAT APPLY.
- **"Do Nothing" IS ALWAYS AN OPTION AND IS ALMOST ALWAYS AN UNETHICAL OPTION.**
- THESE CAN BE INTEGRATED INTO WORKPLACE TRAINING/POLICIES.
- MENTORS AND SUPERVISORS CAN EMPHASIZE ETHICAL PRACTICE IN EACH TASK ALONG THE PIPELINE.

© RE Trachtenberg~ ethical data science ~ VADSTI 8 April 2021-26