Online Ethics Center
FOR ENGINEERING AND SCIENCE

Vote Early and Often

Year

2000

Description

The basic issue addressed in this case is the integrity of the researcher: Under what conditions does changing a model violate that integrity? The case also touches on the conflict that sometimes arises between the client's wishes and the engineer's responsibility to the first canon of the Engineering Code of Ethics.

Body

Susan Landers is a new tenure track junior faculty member in the Transportation Engineering Department at Dearborn University. Her recent research involves developing mathematical models to determine good locations for transportation facilities. Jim Lamont, a senior faculty member who has been working extensively with Landers, has asked her to stop by one afternoon.

Lamont: Susan, I've just gotten some great news! Mayor Walsh has heard about our new work related to the location of transportation facilities. She is a long-time supporter of the university, and she also wants the city to benefit from the newest methods. She has asked us to recommend an additional location for the public transit system.

Landers: That's fantastic! It'll be great to be able to apply these methods to a real-world situation. When do we start?

Lamont: I'd like to begin immediately. With elections coming up, the Mayor is

certainly eager to have our recommendation as soon as possible. She has a lot of pressure from community groups -- seems that everyone wants the transit station in their area. If this works out well, I expect that it will also lead to future projects for the university.

Landers: Well, I just finished the report that you asked about last week, so I can start on this project immediately if you like.

Lamont: Great. Actually, I'd like you to be the project director. I've been very pleased with the work that you have done so far, and I think you'll learn a lot from overseeing this project. Of course, I'm here if you really need help, but I think you are capable of working independently. Here's the list of the Mayor's requirements and priorities. Why don't you get back to me with your initial results, and we'll run them by the Mayor.

Landers: Sounds good. Thanks for your confidence. I think it will be a great opportunity to see what it's like interacting with both the research world and the public on a project. I'll get back to you as soon as I can with those results.

A few weeks later, Lamont asks Landers to stop by his office to discuss the project.

Lamont: That was fast work, Susan! I'm pleased with how you have handled this project so far.

Landers: Thanks. I must say, it's been pretty exciting to actually get to use the research we've been working on.

Lamont: I sent the initial results over to the Mayor yesterday, and she called me this morning with some concerns about the report. She noticed that there were two locations that both seemed promising in your report: one on the southeast side of the city, and one in Belmont, that new development area. Your results indicated the southeast location was the best location, but from her standpoint, Belmont might be a better choice. You know, Belmont certainly has a lot of vocal voters, and they're usually the ones at the polls. The initial results also indicated to her that the city location might be a little more expensive to build.

Landers: The mayor's right about the cost, but it also seems that's where the greatest need is. Didn't she ask for the location with the greatest need for transit?

Lamont: That's right, she did. But you know, maybe the difference between these

two locations isn't so large. Can you take another look at our model? Maybe there is a way to refine it a little more, or perhaps there are some assumptions or parameters that can be changed a little. A model is just that -- a model. It's certainly not the same as reality. If there were just some way to keep the Mayor happy, I really think it would turn out well for our department in the long run.

Landers: Well, I can certainly take another look at the results to see if that's really what the model predicts. I can also look more at the model itself, although it appeared that the model was working pretty well with earlier applications. I'll get back to you with the final results.

That afternoon, Landers is discussing the project with a post-doc and friend, Philip Harris.

Landers: I don't know, Philip. I just don't know what to do. When I look at the demand data, it seems pretty clear that the greatest need is on the southeast side of the city. Unfortunately, that area is one of the poorer communities, so some of the infrastructure is not in place. Building the facility there would cost more.

Harris: Sorry, Susan, I just don't see what the problem is. You just have to pick one of the sites, right?

Landers: Well, I don't think it's quite that simple. I really want to do what would most benefit the public. But for the Mayor, money seems to be the largest factor. And, of course, voters. The voters in that new suburb just go to the polls more. But since they also have the money for cars, they don't need the transit facility quite as much. I want to do what's best for the public, but pleasing the mayor may also mean future projects for our department.

Harris: Hmm. Well, I suppose you could always change a little bit of the data. I doubt anyone would notice, and if it gives you a better result. . . . Anyway, some of them are just estimates, right? Or, didn't you say Lamont suggested changing the model? I mean, if a math model says it's the right location, everybody will believe it, won't they? And who really cares if you change a factor here and there, anyway?

Landers: I don't know, Philip. I guess I haven't thought a lot about changing the model. Well, whatever I decide, it had better be soon! The deadline for my recommendation is tomorrow.

Discussion Questions

1. Revisions and adaptations are a normal part of the development of models. What are the ethical issues in adapting the model in this case? Is there a difference between changing data estimates and changing or adding to a model? Is it ethical to make any of these changes, and if so, which ones?
2. As a mathematical modeler, does Landers have any responsibility for the outcome of her recommendations?
3. The first canon of engineering states, "The engineer shall hold paramount the health, safety, and welfare of the public." In what way does this canon apply to the situation in this case?
4. What if this canon conflicts with the wishes of a client?
5. Should potential future projects for the department be a consideration in the decision-making process?
6. What should Landers do? Are there things that she should not do? What are the consequences of her decisions?

Notes

Brian Schrag, ed., Research Ethics: Cases and Commentaries, Volume 4, Bloomington, Indiana: Association for Practical and Professional Ethics, 2000.

Contributor(s)

Brian Schrag

Editor(s)

Brian Schrag

Rights

Resource Type

Case Study / Scenario
Hypothetical / Fictional Case

Parent Collection

Graduate Research Ethics: Cases and Commentaries - Volume 4, 2000

Topics

Conflict of Interest
Ethics and Society
Public Well-being
Research and Practice

Discipline(s)

Engineering

Publisher

Association for Practical and Professional Ethics
Authoring Institution
Association for Practical and Professional Ethics (APPE)