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THE IMPORTANCE OF THE AUTHOR-VERIFIER RELATIONSHIP IN PROJECT MANAGEMENT

By **Patrick Coleman**

The relationship between an engineer who created a work and an engineer who checks it, functions only if the two communicate and trust each other. This partnership improves the work done and grows the expertise of those involved. If this relationship fails, an error can creep into the design, that at best causes embarrassment, and at worse costs innocent people their lives.

When my son was three, his U.K. nursery school required him to write his name. He had a hard time with the first letter – "E". We told him: "Make one stick and then three sideways sticks like your age." All was fine until he turned four. A fourth sideway stick showed up. When we asked why, he answered, "I am now four". We obtained the desired outcome, but it was not until he had a birthday that we realized we had miscommunicated.

Communication is difficult. When we rush to agree, we may not have agreed at all. We can attribute more than one engineering disaster to poor communication. For example, the design error that caused the Hyatt Regency Walkway Collapse in 1981, crept into the project because the consultant provided what they thought were preliminary sketches; the contractor thought they were final drawings.

Communication is a challenge because, while we think we know what we are saying, our words may say something else, and we are only guessing what the other person is hearing. If the conversation is not genuine, or ends too soon, we are in danger of walking away not understanding what the other person was saying.

Ian Leslie, in his book *"Conflicted: Why Arguments Are Tearing Us Apart and How They Can Bring Us Together"*, draws from the experience of individuals who must establish communication in highly charged situations. These individuals include police officers, crisis workers, hostage negotiators and interrogators.

The Hyatt Regency walkway collapse in Kansas, Missouri, killed 114 people and injured 216. It was one of the deadliest structural failures in the U.S. until the collapse of the World Trade Center. Credit: Dr. Lee Lowery, Jr., P.E., Wikipedia, Public Domain.

View of the collapsed spans of the Second Narrows Crossing Bridge in August 1958, two months after the collapse. Credit: Ron B. Thompson, Wikipedia, CC BY-SA 3.0

Those who succeed in these situations first focus on establishing a trust relationship with the other party. They know when they walk into a room there is no trust. When we enter an author-verifier relationship, we may assume trust is in place, but often it is not. Proceeding on an incorrect assumption that someone trusts us is as dangerous as proceeding when no trust is in place.

Once we gain trust and the conversation starts, we need to do what it takes to keep it going. Be curious, show respect, be aware of our biases, apologize for our mistakes, control our anger, and disrupt the script if the conversation is going nowhere. Once engaged, stay engaged.

We also need to avoid trying to control the other person, or trying to guess what the other person wants to hear. In this "difficult conversations" age, we all have become adept at saying what other people want to hear. If we manipulate, we will hear what we want but not what we need to hear.

Professional Engineers Ontario (PEO) guideline *"Professional Engineers Reviewing Work Prepared by Another Professional Engineer"* states: "Professional engineers should not object to having their work reviewed or to reviewing work of a colleague."

The guideline goes on to say: "All practitioners should be aware of the broader implications of offering opinions on the work of another professional engineer." The PEO expects that (1) professionals having their work checked and those checking it will be respectful, and (2) the person checking the document is cognizant how their comments may impact the engineers who produced the work.

The conversation that follows checking, or having work checked, can feel awkward, or worse, confrontational. But, if we focus, we will catch what is important.

Ian Leslie argues we need to establish rules. The author-verifier must agree on constraints and processes. Here are a few rules I have learned:

- Ensure the copy that goes to the verifier is free of grammatical and spelling errors. A verifier is not an editor. However, an error filled document undermines the verifier's confidence in the author.
- Understand what the verifier was asked to check. One verifier's task may be to review the document to check against the company's communication standards, while a second verifier may be checking against technical best practices. Respond accordingly.
- Respect confidentiality. The author-ver-

ifier relationship is private, meaning the verifier should not talk to others about the review. Verifiers should provide their comments to those who asked for them and be ready to support the author in making their corrections. Verifiers must act in a way that retains the author's trust in the process.

- The intent of a verifier's comments must be clear to the author. Good practice is to code the comments (Table 1). If a verifier asks that a number be checked, they may be asking that we confirm it, or they may be asking us to correct it. The intent of these requests is different as is the action to resolve them.
- The verifier comments on what they have been asked to review. They do not provide an opinion on the individuals who produced the work in their comments. Verification is not a "practice review".
- A verifier should use their relationship with the author to both teach and learn. The author and verifier should take pride in how they have worked together to improve the quality of a deliverable.

Table 1: Code Request

A	Incorporate or add
B	Confirm
C	Consider
D	Change
E	Note

I visited a design centre to review their procedures and was impressed by the centre's procedures for checking documents, specifications, calculations and drawings. However, my host handed me a fifth procedure and said: "This is the most important one." The fifth procedure placed the onus on the project manager to ensure that no document left the company until the team resolved all the verifier's concerns. He said: "No point in checking something if no one acts on the comments." In some cases, the author and verifier must be forced to resolve their issues by a third-party.

The collapse of the Ironworkers Memorial Second Narrows Crossing Bridge during construction is a stark reminder of this fact. On June 17, 1958, the partly built Second Narrows Bridge across the Burrard Inlet in Vancouver collapsed. Seventy-nine workers fell 30 metres to the water.

Eighteen men either died instantly or drowned because tool belts weighed them down or they were trapped in the wreckage. Later a rescue diver also died. A Royal Commission was convened to determine the cause of the accident. The Royal Commission concluded the cause was due to an error in the design of the temporary framework used in building the bridge to hold items in place until the structure was able to support itself.

The details of this event are chronicled in Eric Jamieson's excellent book *"Tragedy at Second Narrows"*. Here is a description of the exchange between R. S. Eadie (Dominion Bridge) and John L. Farris, the royal commission's senior counsel:

"A few minutes later, Eadie was asked about who had made the pencilled correction of one of the dimensional errors on the upper grillage design sheet. Someone had discovered one of the errors (flange thickness substituted for web thickness), astonishingly before the collapse, and although they had put a pencil mark through the incorrect figure and noted the correct web thickness, they had not followed through with the rest of the calculation or made anyone else aware of their discovery.

"What was even more astonishing was that the grillage calculation sheet never left the small mobile office on the north bridge approach. Access was therefore limited to a few individuals. Whoever found that error, whether out of fear or embarrassment, or both, must have recognized its implications, but for whatever reason chose to remain silent."

I remember when I was shown that calculation as an engineering student in the late 1970s. The room went silent as our teacher let it sink in that the uncorrected mistake cost 19 innocent lives, including the design engineer and his supervisor.

We have a vested interest in preserving the integrity of the relationship between those who do the work and those who check it. Miscommunication caused by a poor relationship puts both those we serve and ourselves at risk.

If we take all verifications seriously, we will not fail to take the one seriously that could cost innocent lives. ■

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