

Professor finds success in others' failure

Brandon Hughes

Reporter

Engineering professor Henry Petroski spoke about finding success by looking at the failure of others, especially in engineering, Tuesday night in Elon's McCrary Theater.

Petroski addressed how wind affects bridges, skyscrapers and levees. The speech included a Power Point presentation that showed specific bridges, skyscrapers and levees. A brief question and answer period followed his speech.

Petroski started with early suspension bridges in Europe. He pointed out their ineffectiveness due to their inability to carry railroad train cars or stand up to winds.

He then talked about John Roebling, a German engineer, who came to America to build sustainable suspension bridges.

Roebling studied what had caused suspension bridges of the past to fail in order to create better, more sustainable bridges, or what he called "success through failure."

Petroski then spoke about the four components to a successful bridge as defined by Roebling, "weight, girders, trusses and stays."

Petroski continued by speaking about how engineers copied Roebblings' models because of the success he had achieved.

Eventually the success lead to more failure because engineers forgot their history and built bridges unable to handle the wind. He concluded this part of his speech by saying, "the reaction to failure is to regress."

Petroski then moved onto cable stay bridges and how the success of early cable stay bridges has lead to longer and longer bridges. He drew parallels between the failure of the suspension and cable stay bridges.

"We should not be surprised if a cable stay bridge collapses like a suspension bridge," Petroski said. "As structures become more familiar they become less challenging and young engineers forget the lessons of the past."

Petroski then talked about skyscrapers and their limiting factors, resistance to wind and adequate elevators. He went on to say determining skyscraper height is "usually a question of ego or impression that makes buildings as tall as they are."

He also discussed how the John Hancock Center introduced the tubular design concept that allowed skyscraper buildings to be built



Brittany Smith/ Photographer

Duke professor Henry Petroski shared how engineers learned from their mistakes Tuesday night in McCrary Theater.

more than 75 stories high.

He briefly addressed how skyscrapers were

built to withstand high winds, but not fire or terrorism. Tall buildings like the Twin Towers proved to the world that skyscrapers are not plane resistant. There is still debate about whether or not they can be made fire resistant.

Petroski concluded with the levees in New Orleans. The biggest problem Petroski in his mind is that there is no successful models of levees to look at and that even the failures are relatively few.

"How the levees are built will be a matter of politics and emotions," Petroski said.

Petroski is currently the Aleksandar S. Vesic professor in the department of Civil and Environmental Engineering at Duke University. He has also served as leader at Argonne National Laboratory and has written "To Engineer is Human: The Role of Failure in Successful Design."

Kevin Rate, a freshman here at Elon, thought the speech was "Interesting, I didn't know a lot about engineering before this speech but the information was relative and helped me get into the speech."

Contact Brandon Hughes at pendulum@elon.edu or 278-7247.

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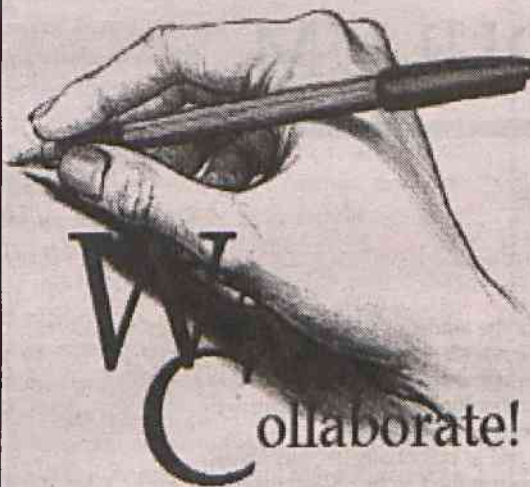
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