"Humor Applied to Enhancing Technical Education, Communication and Innovation"

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Pete Ludovice received his Ph.D. in chemical engineering from M.I.T., before postdoctoral positions at IBM, NASA, and the ETH-Zurich. He managed the commercial development of molecular modeling software before joining the Georgia Institute of Technology. His primary research area is the computer simulation of synthetic and biological macromolecules. His recent work has produced important insight into the behavior of photoresist and membrane polymers, and stochastic simulation algorithms that are four orders of magnitude faster than traditional molecular dynamics. Since 2004, Pete has performed as a stand-up comedian at diverse venues from colleges and clubs to technical meetings including meetings of the American Chemical Society, the American Institute of Chemical Engineers and National Science Foundation. He has combined his academic and stand-up careers to carry out research on the application of humor to improve technical education, communication, and innovation. Pete is the co-director of the Humor Genome Project and the Geekapalooza Comedy Tour at Georgia Tech. He is the producer and host of "Inside the Black Box", a weekly radio program on WREK-FM in Atlanta on science and technology whose motto is "Science, only funnier". While this unusual application of humor has not always been well received by Georgia Tech Administrators, it has recently earned Pete the 2019 "Innovation in Education Award" from the American Institute of Chemical Engineers.

ABSTRACT

Most of us believe that learning should be fun, and studies indicate that humor in the classroom can improve student engagement and satisfaction. However, humor can become a distraction in technical knowledge domains and worsen educational outcomes. Using a cognitive load theory framework, we have explored how a relatable proxy example can improve educational outcomes in technical areas such as science and engineering. If the example is humorous it can also increase student engagement, but the juxtaposition of technical analysis and relatable examples often provides the incongruity that produces humor with no effort. Humor, in the form of humorous improvisation, was also utilized as the divergent thinking component in technical innovation exercises. We utilize humorous improvisation as a simulation in idea space to discover innovative ideas. This is analogous to using stochastic simulations to explore system space in science and engineering.

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