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The missing link: The role of professional mindsets and skills on the employability of STEM graduates

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A key challenge for engineering educators is to engender in graduates the skills they need to thrive in the workplace, given that a love for the technical is often students' core motivation. The central premise of this study is that, in order to create better employability outcomes for engineering graduates (measured here as their ability to know what job they want, their ability to get the job they want, and their ability to perform in their job) educators much teach them the work-ready skills they need, but that this is insufficient. They must also help them adopt a mindset that renders those skills valuable.

This study explores the direct and indirect relationships between mindsets and employment, job choice, get a job, and performance through skills. The research involved 100 engineering alumni (71% male, 29% female) of a major Australian university, surveyed 1-5 years after graduation. Mindset predicted employment and explained 81.8% of the variance in employment. Skills together with mindset explain 87.8% of the variation in employment.

Based on the bootstrap method, we found that skills have a mediating role in the relationship between mindset and employment. Additionally, we found that mindset predicted performance, get a job and job choice. Skills predicted performance, but did not predict get a job and job choice. Mindset explained 57.8% of the variance in performance, with skills and mindset together explain 67% of the variance in performance. The bootstrap method revealed that skills also have a mediating effect on the relationship between mindset and performance only. These findings indicate that mindset plays a crucial role in employability outcomes, both in making students employable, and allowing them to develop the skills they need to thrive.

Bio

Peter Cebon leads the Innovation Practice Program at the University of Melbourne. The program brings together degree candidates with corporate sponsors and employees to work on projects that leverage the resources of each participant to improve the outcomes of the others. Sponsors' needs for innovative solutions are leveraged to create learning and job opportunities for students and research opportunities for researchers. Students' curiosity and intelligence is leveraged to create innovative insights and solutions for sponsors. Students' inexperience is leveraged to create leadership learning opportunities for sponsor employees.

Peter's research focuses on:

1. Effective methods for teaching innovation, entrepreneurship, professional capabilities, and other skills requiring values changes
2. Corporate governance in the context of high strategic risk, such as when organisations pursue high-innovation strategies or environments shift rapidly
3. The managerial processes needed to deliver high-uncertainty strategies effectively, with a particular focus is on the integration of strategic processes, operational innovation processes, and work organisation. He has published over 30 articles, teaching cases, and book chapters, and has edited two books, one on climate change, and the other on innovation in Australia.

Peter taught at the Melbourne Business School for sixteen years until 2012. Prior to joining MBS, he worked at Harvard University and an institute of the ETH in Zurich. He holds a Master's (Technology Policy) and PhD (Management) from MIT and a B.E.(Hons) from the University of Melbourne.

Before joining FEIT in 2016, Peter ran a consulting company that helped large organisations with their strategic innovation problems. He was a founder of Transport Informatics Pty Ltd - a start-up which had a great idea that Uber implemented better. He was a director of the Consumer Law Centre of Victoria from 1996-2002, and a director of Transport Informatics Pty Ltd from 2008-2012. Prior to commencing his academic training, Peter worked for three years for the Victorian government and as an engineering consultant.