University Simulator

Begoña Lang
The University of the Basque Country (Spain)
begona.lang@ehu.es

Abstract

University Simulator, helping students decide their training and what qualifications they need for the labour market.

It emulates the reality of University life and the labour market by using different variables, such as professional contacts and events, which are found in the real world.

The simulator may be a tool to be applied in the educational world and in the professional environment.

It does this by covering the main areas and functions of the University and allows for distinct levels of difficulty, depending on the user.

Interacting with the Internet, the Simulator uses different educational models, from the classic classroom to online and distant learning.

It can be used as well from a competitive point of view, by comparing unlimited Universities exam results. This allows a definition of different products, markets, technologies and client bases.

This means students can choose their courses and ultimately, success or failure.

Students also learn from mistakes through the programme.

Moreover, it includes other relevant characteristics, like the personal abilities of staff at distinct Institutions, the use of other languages, prices and social economic factors.

Finally it contains a wide variety of graphics and info sheets to show the main points of Universities on the market.

To sum up, all of these factors of this Simulator are excellent tools for the student to help in the choice of academic or professional careers.

Students may submit their careers and carry them to success or not. It will depend on the suitable decisions they have according to the labour market emulated by the Simulator. Thus, pupils may learn from their successes and mistakes.

The Universities involved in the simulation can be controlled by humans or computer programs. These computer programs will be developed using artificial intelligence techniques such as machine learning, an area for building computer programs (virtual agents) that improve with experience.

In this case, these virtual agents will learn to manage the Universities in a similar way that students will do by trial and error.

This will increase the difficulty of the simulated market and will open the possibility of multi-player simulations, where some players may be human, but others can be controlled by computer programs built with artificial intelligence techniques.

Apart from these learning techniques, we may mention many other tools in the field of artificial intelligence that can be used, such as business intelligence.

The Simulator will follow a business model that will include economical basic rules like for example if the price of a product increases, that product demand is likely to fall, and therefore it may be sold less and other complex elements that must be encoded.

This model will be formalized by experts in business management by business and educational rules.

To develop this tool will be needed a multidisciplinary team of professionals, teachers and computer engineers.

References

[1] GONZALEZ, E.; CERNUZZI,L. (2009): "Apoyando el aprendizaje de habilidades empresariales mediante la utilización de un simulador".

[2] AARONSON, D.; BARROW, L.; SANDER, W. (2007): "Teachers and student achievement in the Chicago public high schools". Journal of Labor Economics. Vol. 25, N.1, pp. 95-135.

[3] ACEMOGLU, D. (2012): "What Does Human Capital Do? A Review of Goldin and Katz's The Race between Education and Technology". Journal of Economic Literature. Vol.50, N. 2, pp.426-463.

[4] BETTS, J. R. (1995): "Does school quality matter? Evidence from the National Longitudinal Survey of Youth." Vol. The Review of Economics and Statistics, pp. 231-250.

[5] BOWDEN,J., Hart, G., King, B., Trigwell, K., & Watts, O. (2000): "Generic capabilities of ATN University graduates. Canberra: Australian Government Department of Education, Trainingand Youth Affairs".

[6] BLUNDELL, R.; DEARDEN, L.; MEGHIR, C.; SIANESI, B. (1999): "Human capital investment: the returns from education and training to the individual, the firm and the economy". Fiscal studies, Vol. 20, N.1, pp.1-23.

[7] BUGAS,J.; KALBUS, P.;ROTMAN. J.; TROUTE, A. (2012): "What can we learn about the United States Education System from international comparisons? Working Paper prepared for Silicon Valley Education Foundation.

[8] DARLING-HAMMOND, L. (1999): "Teacher quality and student achievement: A review of state policy evidence. Seattle, WA: Center for the Study of Teaching and Policy, University of Washington".

[9] DEARDEN, L.; REED, H.; VAN REENEN, J. (2000): "Who gains when workers train? Training and corporate productivity in a panel of British industries".

[10] FIGLIO,D.N.; KENNY,L.W.(2007): "Individual teacher incentives and student performance. Journal of Public Economics".Vol.91, N.5, pp. 901-914.

[11] GOLDHABER, D. D.; BREWER, D. J.(2000): "Does teacher certification matter? High school teacher certification status and student achievement. Educational evaluation and policy analysis". Vol.22, N.2, pp. 129-145.

[12] GORMLEY, W (1999): "Using Organizational Report Cards"

[13] HANUSHEK, E. A.; WOESSMANN, L.(2011): "How much do educational outcomes matter in OECD countries?". Economic Policy, Vol.26, N.67, pp. 427-491.

[14] HARRIS, D. N.; SASS, T. R. (2011): "Teacher training, teacher quality and student achievement." Journal of public Economics. Vol 95, N.7, pp.798-812.

[15] HARVEY, L. (1999): "Employability: Developing the relationship between higher education and employment. Quality in Higher Education", pp. 1-14.

[16] JORDAN, H.; MENDRO, R.; WEERASINGHE, D. (1997): "Teacher effects on longitudinal student achievement: A report on research in progress. National Evaluation Institute".

[17] MURNANE, R. J.; COHEN, D. K. (1986): "Merit pay and the evaluation problem: Why most merit pay plans fail and a few survive. Harvard Educational Review".Vol.56, N.1, pp. 1-18.

[18] PSACHAROPOULOS,G.(1981): "Returns to education: an updated international comparison. Comparative education", Vol.17, N.3, pp.321-341.

[19] RAMSDEN, P. (1991): "A performance indicator of teaching quality in higher education: The Course Experience Questionnaire. Studies in Higher Education".Vol.16, N.2, pp.129-150.

[20] SANDERS, W. L.; RIVERS, J. C. (1996): "Cumulative and residual effects of teachers on future student academic achievement. Working Paper".

[21] SOLOW, R. M. (1956): "A contribution to the theory of economic growth. The quarterly journal of economics".Vol. 70, N.1, pp. 65-94.

[22] WRIGHT, S. P.; SANDERS, W. L.; HORN, S. P. (1997): "Teacher and classroom context effects on student achievement: Implications for teacher evaluation". Journal of personnel evaluation in education. Vol. 11, N.1, pp. 57-67.

[23] WOOLDRIDGE, J. M. (2012): "Introductory econometrics: A modern approach. CENGAGE Learning".