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Prediction of Study Results of first year Engineering Students?
A Comparison of Tools

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R esearch in Flanders shows that only 40% of the 47.000 students who started higher education acquired all of the 60 credits during the academic year 2007-2008 [1]. This tendency even seems to continue. This is partly due to a wrong choice of study [2]. Better support for making the right choice before the start and/or re-orientation a few weeks after the start of the term seems to be more necessary than ever. But is it possible to predict the chances of success? A lot of research on the prediction of study results is found in literature [3], [4], [5], [6]. Most of these studies were USA studies based on the SAT (Scholastic Aptitude Test) test.

We examined three possible (cognitive) tests that could be used for making a better choice before start or for re-orientation after a few weeks. We focused on industrial engineering students in Flanders (Belgium).

The first and second test are non-obligatory tests for students before the start of the study. These tests examine elementary scientific and math skills. During this pilot test phase, these tests were offered at the start of the academic year. In Ref. [7] these tests can be found.The third test was a test that took place a few weeks after the start of the semester. The study material is part of the curriculum. This test can be used for re-orientation a few weeks after the start of the academic year.

The relationship between exam result and score on the different tests was investigated using Spearman's Rank-Order Correlation coefficient (r_s). There is a small correlation in case of test 1 ($r_s=0,175$), a medium correlation in test 2 ($r_s=0,472$) and a large correlation in test 3 ($r_s=0,675$). Using test 1, we can not advise students to start the engineering study or not. In case of test 2, we get a much higher correlation coefficient, but even then, we can not advise students. The only test which we slightly can rely on to advise students is test 3.

What's the reason for the low correlation in case of test 1? And why is the correlation higher in test 2 and test 3? In this paper we will give some possible explanations. Further research is certainly needed. ∎

REFERENCES

[1]   Tegenbos, G (2010), Maar vier op de tien slagen in eerste jaar, De Standaard, 8 october 2010.

[2]   Warps, J., Hogeling, L., Pass, J. & Brukx, D., Studiekeuze en studiesucces. Een selectie van gegevens uit de startmonitor over studiekeuze, studieuitval en studiesucces in het hoger onderwijs, ResearchNed.16, Nijmegen

[3]   Larson, J.R., Scontrino, P. (1976). The consisitency of high school grade point average and the verbal and mathematical portions of the Scholastic Aptitude Test of the College Entrance Examination Board, as predictors of college performance: an eight year study. Educational ans Psychological Measurement, 36, 439-43

[4]   DeBerard, S.M., Julka, D.L., Spielmans, G.I. (2004). Predictors of academic achievement and retention among college freshmen: a longitudinal study. College Student Journal, 38, 66-85

[5]   A. Olani, Predicting First Year University Students'Academic Success, Electronic Journal of Research in Educational Psychology, 7(3), 1053-1072, 2009 (n° 19), ISSN: 1696-2095

[6]   Ting, S.R. (2001). Predicting academic success of first year engineering students from standardized test score and psychological variables. Internatial Journal of Engineering Education, 17, 75-80.

[7]   https://sites.google.com/site/sefijvdb/