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NEVELÉSTUDOMÁNYOKBAN

ÚJ KUTATÁSOK A NEVELÉSTUDOMÁNYOKBAN 2020

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Előszó

az Új kutatások a neveléstudományokban 2020. évi kötetéhez

Az Új Kutatások a Neveléstudományokban – amely a 2020. évi debreceni Országos Neveléstudományi Konferencia (ONK) válogatott előadásait tartalmazza – évfordulós kötet. Nem azért, mintha a sorozat kerek évfordulót ért volna meg, hanem azért, mert a konferencia – amelynek terméke – elérte a huszadik évfordulót. Méltó tehát megemlékezni róla.

Ma már jobban látjuk, kezdetben inkább csak kétkedés fogadta, hogy az ONK-k megalapítása, megszervezése és lefolytatása fordulatot hozott a hazai neveléstudományban. Nem mintha nem lettek volna az ONK előtt is pedagógus konferenciák. A pedagógus szakma híres-hírhedt volt a sok gyűlésről, továbbképzésről központi tájékoztatásról és “fejtágítókról”, amelyeken minden rendű-rangú pedagógus több-kevesebb lelkesedéssel és elkötelezettséggel vett részt, különösen ha “központi előadót” sikerült megnyerni hozzá. Egész foglalkozás nőtt ki ebből, előre ütemezett és lekötött előadásokkal, előkészített és nem ritkán akár többször is elmondott prezentációkkal, amelyek helyszínei legtöbbször az egykori pedagógus továbbképző intézetek voltak. Más társadalomtudományok képviselőinek nagy ritkán jutott olyan megtiszteltetés, hogy meghívták valahová előadni – miközben a pedagógusok valósággal dúskáltak az előadások lehetőségei vagy éppen kötelezettségei között. Nem ritkán reprezentatív helyszíneken, a továbbképzésre juttatott állami pénzek kényelmével.

Amit 2000-ben – az első ONK évében – a neveléstudomány képviselői kitaláltak, nem is emlékeztetett az egykori pedagógus továbbképzésekre. Akik az ONK-t kezdeményezték, maguknak szervezték, mintegy „alulról”, a neveléstudomány berkeiből, nem pedig „felülről”, az államigazgatásból. Nem is volt kötelező részt venni rajta, viszont aki részt akart venni, saját maga is előadóvá vált. Senkit nem hívtak meg rá – legalább is formálisan nem –, mint az egykori pedagógus továbbképzésekre. Ezt eleinte többen nehezményezték is. Nem volt hagyománya annak, hogy a pedagógusok csak úgy találkozzanak, hogy egymást meghallgassák, az előadótól kérdezzenek, előadását megvitassák. Annak még

kevésbé, hogy aki elő akar adni, annak elbírálják, „lektorálják” a jelentkezését, netán el is utasítják. Nem is beszélve a pénzről. Az egykori pedagógus továbbképzéseket az intézmény vezetői utasításra hajtották végre. Egy-egy továbbképzési alkalom pénzbe került, a meghívott előadó tiszteletdíjat kapott. Ha valaki „csak úgy” kitalált volna egy továbbképzést (miről? kiknek? kinek a hozzájárulásával?), az jókora figyelmet, esetenként legalább is rosszallást keltett volna az iskolák állami főnntartói között. Az ONK megszervezői ezzel szemben nem kérdeztek senkit. Nem kértek engedélyt – viszont alaposan utána kellett nézni a támogatóknak és támogatásoknak. Az első ONK-k az Akadémia központi épületében szerveződtek az MTA Pedagógiai Tudományos Bizottságának szárnyai alatt, amit az MTA vezetői fejcsoválva vettek tudomásul. Akkora közönség gyűlt egybe, hogy az összes többi tudomány három napra kiszorult az összes tanácsteremből. A neveléstudomány úgy érezte, most megmutatja, milyen erős, és végre elfoglalja a neki járó helyet az MTA-n. Az ONK-t a neveléstudomány képviselői önmaguknak rendezték. A pénzt is ők adták hozzá konferencia díj formájában.

Az egykori továbbképzéseken való részvétel kötelező, de legalább ajánlott volt – és ki hallott volna olyat, hogy belépti díjat kelljen érte fizetni. Ez benne volt a tanári kötelezettségek között (pedagógus fokozatok akkor még nem voltak), és megszokottá vált az állami irányításban is mint a pedagógiai változtatások elterjesztésének kézenfekvő módozata. Az ONK célja teljesen más volt. Ez a kutatók fórumává vált; olyan eseményé, amelyen egy-egy kutatási témáról egymással osztották meg eredményeiket, több-kevesebb vitát kiváltva vagy helyeslést elkönyvelve. A helyzet új volt mind a kutatóknak (főleg egyetemi oktatók), akik egyszer-egyszer úgy szóltak a közönségükhöz, mintha az egykori pedagógus továbbképzésen lettek volna. És új volt a közönségnek is: a gyakorló pedagógusokat nem csak nem hívták az ONK-ra, de nem is fogadták őket tárt karokkal, ha szerettek volna részt venni – még akkor sem, ha újításaikat és fejlesztéseiket szerették volna előadni.

Az ONK katalizátora lett a neveléstudomány magára találásának és önreflexiójának. A pedagógiát máig sokan tekintik egyfajta technológiának, mely a sikeres iskolai tanításhoz és neveléshez kell. Az ONK megjelenése szemlélteti és hangsúlyozza a két tevékenység - a „gyakorlati pedagógia” (vagyis a tanítás) és a „tudományos pedagógia” (azaz a kutatás), fokozatos önállósodását.

Már az is jelzés, hogy mindezt el kell magyarázni. A húsz év alatt – amióta az ONK évente megrendezésre kerül (a szirénhangok ellenére, hogy ennyi kutatás nincs is) – felnőtt egy új nemzedék, sőt inkább kettő. Ők “a pedagógiát” nem csupán szaktárgyuk kiegészítéseként hallgatták, hanem a tanári diploma mellett – esetleg ahelyett – tudományos fokozatot szereztek pedagógiából. Az egyetemi doktori képzés újjászervezése kényszerítette ki azokat a fórumokat, tevékenységeket és publikációkat, amelyek nélkül egy tudomány nem tudja megszervezni önmagát, és amelyek nélkül nem lehet versenyképes más társadalomtudományokkal.

Ennek az átalakulásnak egyik fejleményét tartja most kezében az olvasó. Az *Új kutatások a neveléstudományokban* című sorozatot 2008-ban indítottuk azzal a szándékkal, hogy a legsikeresebb előadásokat írottan is átnyújthassuk a konferencia résztvevőinek; egyben kedvet keltsünk azoknak, akik a jövőbeli ONK-részvételre készülnek. A sorozat megjelenéséig csupán az előadások absztraktjai álltak rendelkezésre, absztrakt-kötetbe fűzve. Sorozatunk megjelenése óta vissza is lapozhatók az előadások, érzékeltetve, hogyan változtak a kutatási tematikák, a módszerek, az irányultságok és törekvések.

Az ONK eredeti szervezői nem gondolkodtak kötetben. Elegendőnek tartották a benyújtott absztraktot, amelyből megbízhatóan előre látható egy-egy előadás minősége, irányultsága, érdekessége. Az elmúlt húsz évben sok minden megváltozott. Az *Új kutatások a neveléstudományokban* fontos publikációs fórummá vált, ahol a kutatói pályán előrehaladottak találkoznak, és együtt szerepelnek az újonnan belépőkkel. Ez adja meg a jelen kötet sajátosságát is. Valamint az, hogy a huszadik ONK, amelyet a Debreceni Egyetem munkatársai szerveztek, a pandémia miatt online rendeződött. Egy okkal több, hogy visszakeressük az előadásokat, amelyek a résztvevőknek leginkább tetsztek. Miközben közreadjuk őket, abban is reménykedünk, hogy a következő ONK-kat már nem elektronikusan kell majd megrendeznünk. Hiszen a közösségépítés és az innovációk igazi tere a jelenléti konferencia. Minderre gondolva kívánunk jó olvasást!

Perjés István

Kozma Tamás

A felsőoktatáskutatás új irányai

**Gyöngyvér Molnár, Ágnes Hódi, Éva D. Molnár,
Zoltán Nagy, Benő Csapó**

**ASSESSMENT OF FIRST-YEAR UNIVERSITY
STUDENTS: FACILITATING AN EFFECTIVE
TRANSITION INTO HIGHER EDUCATION**

Abstract

The paper discusses results from a longitudinal research project conducted at the University of Szeged (Hungary) with the aim of identifying cognitive, affective and demographic characteristics which may influence academic success. Participants of the study were first-year students who started their university studies in 2015, 2018 or 2019 at one of the largest universities in Hungary. The tests were administered using the eDia online platform. Our findings showed that there are large differences at the faculty level. The most stable predictor of academic success proved to be the earning of the first 20 credits and mother's education, while reading literacy can also be considered as a facilitator of or barrier to student retention.

Keywords

online assessment, higher education, effective transition

Theoretical background

Past waves of social and economic development, technological advancement and globalization have had a significant impact on jobs and the employment landscape, ranging from new job creation to job displacement; they have changed the skills needed for workers to succeed (OECD, 2019). Computer technologies are displacing labour in routine tasks; that is, to remain competitive, workers need to be able to renew, to acquire new skills, to be flexible, to have a positive attitude to lifelong learning and, beyond cognitive skills, to be equipped with high-level social and emotional skills. All these reshape the mission of schooling, more specifically, the types of skills and knowledge schools are expected to develop in their students to prepare them for an unknown future (CSAPÓ & MOLNÁR, 2017).

These demands, expectations and changes have reached higher education as well. Novel assessment needs (e.g. 21st-

century skills as desired outcomes of higher education) have emerged to reflect the changes. Effective transition to higher education is challenging both from an academic and social perspective. Academic expectations are different than those in secondary education (DE LAET et al., 2016). Students have to manage their own lives, become independent learners and assume responsibility for their own learning. With an increasing diversity of students (MCKENZIE & SCHWEITZER, 2001) and a rising dropout rate (VAN ROOIJ et al., 2018a, 2018b), there is a growing interest in studying factors predicting academic performance and in identifying factors and barriers which can decrease students' attrition.

Some of the findings highlight situational (e.g. socioeconomic status (SES)), dispositional (e.g. motivation) and institutional (e.g. staff) aspects as facilitating factors in student retention, while others conclude that early academic success, such as earning first-term credits, predict graduation (BOWLES & BRINDLE, 2017). In the present paper, we follow a more holistic approach and involve cognitive, affective and demographic factors in the analysis, which can predict academic performance and support effective transition to higher education. That is, being part of an overarching research project, started in 2015, the present paper aims to monitor the predictive power of traditional cognitive domains, 21st-century skills and learning strategies, methods and motives regarding student attrition, and academic performance.

Beyond the widely studied, more traditional disciplinary knowledge domains, we seek to explore the role of the following. (1) Reading literacy, which is a basic information processing skill, a potential retention factor in higher education. (2) Problem-solving, which is one of the most important and most broadly studied general cognitive skills. One type, dynamic problem-solving, was assessed in PISA 2012. (3) Inductive reasoning, which is considered an essential component of intelligence and rule induction, plays an important role in the knowledge acquisition phase of problem-solving. (4) Research skills, which may be relevant in a number of disciplines as well as in everyday life and receive special attention in the context of inquiry-based science education. (5) Academic self-handicapping, which has been defined as a maladaptive strategy which involves creating obstacles (e.g. limiting efforts and drinking too much the night before an exam) to successful performance on academic tasks. Self-

handicapping is a proactive strategy that occurs before actual achievement activities. Research has indicated that self-handicapping can contribute to lack of confidence in one's own abilities, losing hope, impatience and low life satisfaction. (6) Demographic factors as potential retention factors in higher education.

The present paper summarises and highlights some of the main findings of three different studies conducted with the same aim: to identify cognitive, affective and demographic predictors of academic success in higher education to facilitate an effective transition to higher education and prevent students from dropping out. In both the paper and the entire research project, we followed a narrowing approach, starting from a five-year distance and focusing on more traditional cognitive domains. Then, based on the results of these analyses – that the successful earning of the first and second 20 credits can be used as proxies for potential graduation – we broadened the areas under examination and applied a more learning-centred approach in the data collection in the years that followed (1) to map the relations and the predictive value of different cognitive, affective and demographic factors on academic success and (2) to identify (a) student characteristics beyond the traditionally evaluated knowledge domains and reasoning skills as proxies in the 21st-century labour market and (b) academic self-handicapping within the confines of learning strategies. Both are indispensable elements of a successful life and career in a constantly changing and growing knowledge society.

Aims

The aim of the study is to identify cognitive, affective and demographic predictors of academic success in higher education, that is, to map significant factors that influence students' success in their studies to prevent them from dropping out. The research questions are (RQ1) What factors correlate with students' academic success at the university level? Do these factors change at the faculty level?

(RQ2) To what extent does reading literacy predict academic success at the university level?

(RQ3) Are 21st-century skills among the predictive factors for academic success at the university level? What are the relations between dynamic problem-solving (PS), inductive reasoning (IR) and research skills (RS) as 21st-century skills in higher education?

(RQ4) To what extent do learning strategies predict academic success at the university level and how does academic self-handicapping influence choice of learning strategies and learning motives in higher education?

Methods

Participants

Participants of the study were students admitted to a major Hungarian university in 2015 (N=1468), 2018 (N=2229) and 2019 (N=2213). Depending on the year, 63.3, 58.2 or 55.2% of the target population participated in the assessment. Their mean age was 19.8 years, and males comprised 45% of the population (see Table 1).

Table 1. Comparison of the samples involved in the analyses along the same variables

Year of data collection	N	Rate of participation (%)	Gender (% of girls)	Age (mean and standard deviation)
2015	1468	63.3	57.7	(Matura examination in 2015)
2018	2229	58.2	53.2	19.9 (2.05)
2019	2213	55.2	53.5	19.7 (2.10)

Student participation was voluntary; as an incentive, participants received credits for successful completion of the tests. The assessments were carried out in the first two weeks of the term in a large computer room at the university. The tests were administered using the eDia online platform (CSAPÓ & MOLNÁR, 2019). Students received feedback containing a detailed analysis of their performance in the context of normative comparative data on their performance a week after the testing period ended (MOLNÁR & CSAPÓ, 2019).

Instruments

The instruments for the study in 2015 included (1) five disciplinary knowledge tests (Hungarian language and literature, mathematics, history, science and English as a foreign language), (2) a problem-solving test using computer simulated systems based on the MicroDYN approach as a measure of knowledge acquisition and knowledge application (MOLNÁR, 2019), (3) a learning strategy

questionnaire (memorization, control, elaboration and problem-solving) and (4) a study motivation and SES questionnaire. Beyond these, data entry score, Matura examination, and longitudinal data on the number of credits earned and present status were collected from the student learning information database and involved in the analysis to answer RQ1 and RQ3. The instrument for the study conducted in 2018 measured (1) problem-solving as a measure of 21st-century skills, (2) inductive reasoning, which contained figural and numerical items (analogies and series; PÁSZTOR, 2019), (3) research skills, including designing experiments, and (4) reading literacy comprising four subtests representing different text formats and text types (a continuous narrative text, a continuous expository text, a non-continuous text and a digital text). Beyond the cognitive tests, further information was collected about students' other competencies and their background as well. Data retrieved from the 2018 assessment were used in the analysis for RQ2 and RQ3. The instrument for the study in 2019 was expanded with the Hungarian adaptation of the Academic Self-handicapping Scale (ASHS; Urdan, Midgley, & Anderman, 1998), which consists of six items rated on a five-point Likert scale ranging from 1 (not true at all) to 5 (very true; see MOLNÁR & GÁL, 2019). Besides the ASHS, we assessed variables related to study habits, learning strategies (cognitive, metacognitive and resource management) and learning motives. Data from this data collection were used in the analysis to find an answer to RQ4.

Table 2. Reliability of the tests

Test	Year	Number of items	Cronbach's alpha
Hungarian language and grammar	2015	126	0.90
Mathematics – disciplinary knowledge	2015	63	0.89
History	2015	161	0.93
Science	2015	163	0.88
English	2015	80	0.96
Problem-solving	2015	20	0.88
Learning strategies (OECD)	2015	21	0.80
Reading literacy	2018	82	0.82
Dynamic problem-solving	2018	25	0.90
Inductive reasoning	2018	55	0.86
Research skills	2018	19	0.88
Learning attitudes, motives and strategies	2019	117	0.90

Based on the reliability analyses, the tests and questionnaires used proved to be adequate to measure the constructs under examination (see Table 2). Cronbach's alpha ranged between 0.8 and 0.96.

Additional data and procedures

Beyond cognitive test results and affective and demographic questionnaire data, entry score, Matura examination results and data on the number of credits earned (in the first and second terms) were collected from the students' learning information database. These data were complemented with students' present status in respect of the 2015 sample.

The number of credits earned in the first and second terms was labelled as follows: 0 if the number of credits earned in a given term was less than or equal to 10; 1 if the number of credits earned was between 10 and 20; and 2 if the number of credits earned was 20 or more. The present status of the students was labelled as follows: 0: dropping out without any results; 1: completing all required courses at the BA level; 2: earning a BA degree; and 3: maintaining active status for more than seven terms. Study motivation was measured by the level of the highest degree students plan to achieve at university (1: I don't know; 2: BA; 3: MA/MSc; 4: PhD).

In the analyses, correlations, partial correlations and structural equation modelling were used to map the relations and predictive value of cognitive, affective and demographic factors in university success.

Results and discussion

(RQ1) What factors correlate with students' academic success at the university level? Do these factors change at the faculty level?

To tackle RQ1, we investigated bivariate correlations between students' achievement on different disciplinary tests (mathematics, reading literacy, history, science and English as a foreign language), demographic data, study motivation, learning strategies (focusing on memorization, control, elaboration and problem-solving strategies) and the labelled information on the number of credits earned in the first and second terms and the labelled information on students' present status. The present status of the students had a weak but positive correlation with their achievement on the disciplinary tests ($r=.069-.152$). Gender, mother's education and study motivation

correlated significantly ($r=.092-.117$), but at a low level ($r=.064-.073$) with school success like the monitored learning strategies. Students' entry score also correlated at a low level with later academic success ($r=.258$, $p<.001$) (see Table 3).

Table 3. Factors correlating with the present status of the students

	First 20	Second 20	Status
Mathematics	.055*	.061*	.102**
Reading literacy	.146**	.145**	.152**
History	.091**	.099**	.130**
Science	.075**	.058*	.112**
English	n.s.	n.s.	.069*
Entry score	.244**	.227**	.258**
First 20	1	.520**	.455**
Second 20	.520**	1	.425**
Mother's education	n.s.	n.s.	.117**
Study motivation	.066*	n.s.	.102**
Number of books	n.s.	n.s.	.091**
Gender (Male: 1; Female: 2)	.138**	.154**	.092**
Memorization learning strategy	.088**	.148**	.065*
Control learning strategy	n.s.	n.s.	.073*
Elaboration learning strategy	.062*	n.s.	.064*
Problem-solving learning strategy	.085*	n.s.	.072*

Note. * $p<.05$, ** $p<.001$ level significant

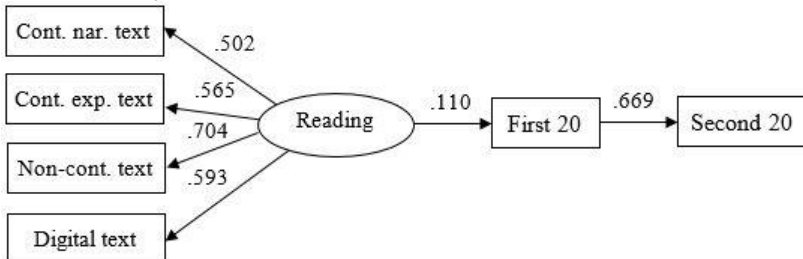
The strongest correlation between students' present status and the variables monitored was noticeable in connection with the earning of the first 20 credits at university ($r=.455$, $p<.001$). This was followed by the earning of the second 20 credits there ($r=.425$, $p<.001$). Based on this research result, we used the successful earning of the first and second 20 credits as proxies for potential graduation in RQ2 and RQ3. As regards the disciplinary domains under examination, reading literacy proved to be the most influential factor. Its predictive power was further examined in RQ2. At the faculty level, we obtained significantly different results. The most stable predictor proved to be the earning of the first 20 credits and mother's education. Out of the

eleven faculties, entry score proved to be a non-significant predictor of later academic success in five cases; moreover, the correlation between students' entry score and their present status was negative at one faculty. That is, we concluded that previous school performance was not a significant predictor of university performance in general.

(RQ2) To what extent does reading literacy predict academic success at the university level?

To answer RQ2, structural equation modelling was used to analyse the predictive value of reading literacy achievement on a successful learning trajectory among higher education students. We tested two different models to explore relations between the measured and latent variables. Based on the result of RQ1, the first model hypothesized that reading literacy test scores have an impact on the earning of the first 20 credits, which strongly predicts the probability of obtaining the second 20 credits. The second model envisioned that reading literacy affects later success in combination with affective factors, such as learning strategies and mother's education serving as a proxy for SES. The fit indices confirmed the validity of both models. In the first scenario, reading achievement influences ($\beta=.11$) the earning of the first 20 credits, which in turn strongly predicts ($\beta=.699$) the earning of the second 20 credits (CFI=.989, TLI=.982, RMSEA=.038; see Figure 1).

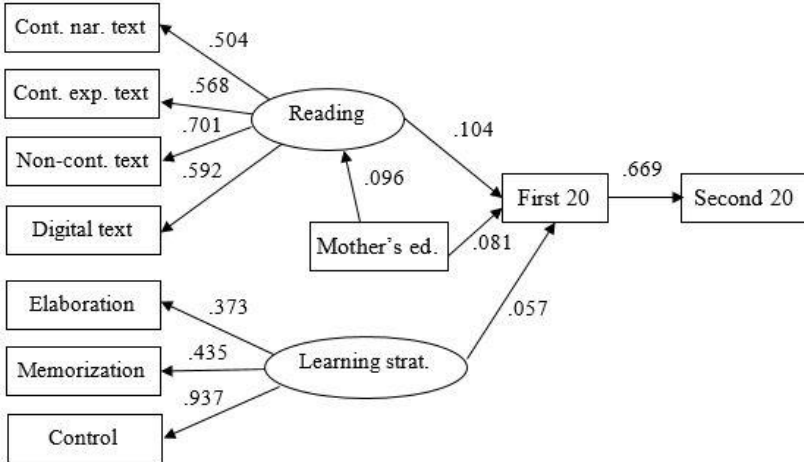
Figure 1. The predictive value of reading literacy achievement for a successful learning trajectory in higher education (CFI=.989, TLI=.982, RMSEA=.038)



In the second model (CFI=.966, TLI=.952, RMSEA=.041; see Figure 2), reading test scores have a weak but significant impact on earning the first 20 credits ($\beta=.104$), but their predictive value is stronger than

that of learning strategies ($\beta=.057$) or mother's education ($\beta=.096$).

Figure 2. The predictive value of reading literacy, learning strategies and mother's education for a successful learning trajectory in higher education



Our findings showed that reading literacy can be considered as a facilitator of or barrier to student retention; additionally, in combination with other affective or cognitive domains, it may be improved to contribute to better student outcomes in higher education.

(RQ3) Are 21st-century skills among the predictive factors for academic success at the university level? What are the relations between dynamic problem-solving (PS), inductive reasoning (IR) and research skills (RS) as 21st-century skills in higher education?

To tackle RQ3, we first investigated bivariate correlations between students' problem-solving skills as a measure of knowledge acquisition and knowledge application and their present status. Second, we investigated bivariate and partial correlations between students' cognitive test results, measuring their problem-solving skills, inductive reasoning skills and research skills. Neither the present status of the students nor their earning of their first or second 20 credits correlated with their problem-solving skills. That is, the developmental level of problem-solving skills did not play a significant role in any level of study success. There were strong correlations between the three tests (PS-IR: .469; PS-RS: .344; and IR-

RS: .251), and, in terms of the components of PS, the PS-IR relationship was stronger than the PS-RS link. These relationships remained high even when the impacts of other variables were controlled for. The partial correlations between two of these variables (PS-IR: .421; PS-RS: .266; and IR-RS: .106) remained the highest for problem-solving and inductive reasoning, indicating the dominant role of inductive reasoning in problem-solving performance (see Table 4).

Table 4. Correlations between students' level of reasoning skills

	IR	RS	PS	PS1	PS2
IR	1	.264	.475	.418	.443
RS	.264	1	.340	.323	.290
PS	.475	.340	1	.921	.895
PS1	.418	.323	.921	1	.650
PS2	.443	.290	.895	.650	1

Note. $p < .001$ for all coefficients; IR: inductive reasoning; RS: research skills; PS: problem-solving skills; PS1: knowledge acquisition; PS2: knowledge application

Studying the details of the mechanisms of completing the computerized problem-solving task, it is clear that the first phase, the knowledge acquisition phase (PS1), involves use of the control of variables skill, which is also required to complete the research skills test. The commonality explains that research skill correlates more strongly with knowledge acquisition than with knowledge application. The second phase of problem-solving, the knowledge application phase, requires generalization of the rules observed in the behaviour of the simulated systems that are the core of the test tasks. This is a rule induction process and explains the high correlation between inductive reasoning and knowledge application.

From an educational perspective, the results suggest that the component skills of problem-solving should be developed, as they may be fundamental to the functioning of problem-solving, which is an essential requirement, a basic skill in the 21st-century labour market. Despite the research results obtained for RQ1, that its level does not affect academic success at university level in Hungary, its development is still important.

(RQ4) To what extent do learning strategies predict academic success at the university level and how does academic self-handicapping (ASH) influence choice of learning strategies and learning motives in higher education?

In RQ1 we learnt that students' memorization, control, elaboration and problem-solving strategies as learning strategies only correlated minimally with their later academic success. In RQ2 we learnt that elaboration, memorization and control learning strategies play an important role in earning the first 20 credits, but have no direct effect on earning the second 20 credits. In RQ4 we go further and investigate the role of academic self-handicapping in the choice of learning strategies and learning motives in higher education. To answer RQ4, we used standard statistical procedures. The majority of the first-year students have low levels of self-handicapping ($M=1.75$, $SD=0.71$). It seems that it is not common among first-year university students to create obstacles to their academic activities. 86.8% of the students fall in the low ASH category (see Table 5).

Table 5. ASHS level among men, women and the whole sample (%)

Level of ASHS	Whole sample	Female	Male
Low	86.8	90.7	82.7
Moderate	11.	8.5	13.8
High	2.1	0.8	3.6

Both males and females showed similar tendencies: 90.7% of females reported that their ASH levels were low, compared to 82.7% of males. There were no significant differences in self-handicapping among students from different faculties ($F=1.211$, $p=0.21$) detected, but the age of the students, that is, the year of their Matura examination, had a significant influence on ASH levels between groups ($F=3.012$, $p=0.002$). The closer participants' Matura was to our assessment, the lower their ASH scores were (Table 6.).

ASH had a generally weak, albeit significantly negative correlation with participant's university entrance assessment and Matura exam scores (entrance exam score: $r=-.11$, $p=.01$; Hungarian grammar and literature: $r=-.08$, $p=.01$; mathematics Matura score: $r=-.08$, $p=.01$; history Matura score: $r=-.12$, $p=.01$).

Table 6. The mean for ASH levels among participants with different Matura years (significantly different groups, Tukey's HSD)

Distance between Matura examination and university entry in year	N	Sig. different groups Tukey's HSD ($p=0.05$)	
		1	2
0	971	1.70	
1	223	1.75	
6	19	1.78	
2	87	1.86	
3	41	1.91	
4	21	2.02	2.02
7	4	2.04	2.04
5	15	2.07	2.07
8	3		2.89

By examining the relationship of learning strategies, learning motives and self-handicapping, we found negative correlations between the constructs ($r=-.06$ – $-.14$, $p\leq.01$). Although their correlations were not strong, the results suggest that there is a relevant tendency for ASH and learning components to influence each other. Higher scores of self-handicapping imply lower levels of cognitive and metacognitive strategy use, as well as lower levels of learning motives.

According to the present analysis, it is not common among first-year university students to create obstacles to their studies, as self-handicapping levels were generally low for both males and females. This more or less overlaps with the results of a Spanish study, which found that less than 10% of the university students reported high levels of ASH, with the majority of the students falling into the low (54.67%) or moderate (32.88%) group (FERRADÁS, FREIRE, RODRÍGUEZ, & PIÑEIRO, 2018). The limitation of this comparison is that their study utilized a different measure of ASH and only 37% of their participants were first-year students. Furthermore, the number of years passed between the Matura examination and the university entrance assessment were also found to actively influence ASH. Students who began their university studies right after their Matura exam had the

lowest ASH scores, while participants' scores gradually increased with time. To our knowledge, this study is the first to find this relationship between the two variables. ASH also showed a significantly negative correlation with Matura scores, meaning that higher self-handicapping predicts worse Matura scores. This was perhaps due to students' less effective learning strategy use and motives, a finding that is further supported by previous literature on ASH. In their study, GADBOIS and STURGEON (2011) found that ASHS strategies are linked to surface learning, lower self-regulation and self-efficacy, with inadequate self-regulatory learning being the key predictor of ASH (GADBOIS & STURGEON, 2011).

Conclusion

In the present paper, we highlighted some of the findings of three different studies conducted with the same aim of identifying cognitive, affective and demographic predictors of academic success in higher education to facilitate an effective transition into higher education. We had four research questions and used a narrowing approach during the analyses.

We concluded that (1) previous school performance was not a significant predictor of university performance in general, (2) at the faculty level, we obtained significantly different results and (3) the successful earning of the first and second 20 credits can be used as effective proxies for potential graduation. Our findings also showed that (4) reading literacy can be considered as a facilitator or barrier to student retention, but (5) the developmental level of 21st-century skills, such as problem-solving skills, did not play a significant role in any level of study success; however, (6) it is strongly correlated with students' knowledge acquisition, knowledge application and research skills, which are indispensable to successful graduation in the 21st century. Finally, our findings also indicated that (7) self-handicapping can lead to ineffective strategy use among university students, which may lead to academic difficulties. In order to prevent students from dropping out of university, it is important for educators to think about the contextual and process variables that induce self-handicapping and that affect outcomes.

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