Thematic Article

Intrinsic and Extrinsic Motivation to Learn as Factors of Resilience in Students' Pedagogical Disciplines – Pilot Study

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Abstract

Motivation determines the dynamics of behaviour and helps in overcoming obstacles. A related concept is resilience, which also relates to overcoming stressful situations and speaks to an individual's ability to adapt to challenging circumstances in life. The aim of this paper was to investigate the relationship between resilience and motivation to learn in students studying in the field of education. One hundred and thirty students participated in the research (100 bachelor students and 30 master students). The research instrument used to measure resilience was The Connor-Davidson Resilience Scale (CD-RISC 10) and to detemine motivation The Academic Motivation Scale (AMS-C 28) tool was used. The Mann-Whitney test found no significant difference between the two groups of students in each of the variables measured. The results show a significant association between resilience and types of intrinsic motivation in particular, but the strongest relationship was found between resilience and the lack of motivation. Students with low resilience scored higher on amotivation. For students at university, motivation to learn based on intrinsic drives is assumed to be self-evident. However, the ability to overcome obstacles is also necessary for the attainment of learning goals. Its degree can also be developed through educational intervention, which provides an opportunity for university teachers to expand their area of operation.

Keywords: intrinsic motivation, extrinsic motivation, motivation to learn, resilience, university student, pedagogical field of study

Introduction

As many definitions state, motivation is the process that activates human behaviour. Intrinsic (e.g., enjoyment of teaching), extrinsic (e.g., job security, social status), and altruistic (e.g., interest in helping children) motives are mentioned by several authors as important for the choice of a teaching profession (Brookhart & Freeman, 1992; Heinz, 2015). Based on the results of his research, Tomšik (2017) found a significant association between altruistic motives and students' interest in learning, indicating that decreased interest in the profession was also related to decreased prosocial behavior in working with children and adolescents. In a research that surveyed students' interest in studying the field of primary education teacher, more than one-third of students (38.23%) showed high interest in studying, but 16.67% reported only moderate interest (Izdenczyová, 2019). Teachers with high intrinsic motivation are more likely to try to arouse students' intrinsic motivation for learning (Fokkens-Bruinsma & Canrinus, 2014).

Kuruc (2021) states that during the course of study, the motivational setting of pre-primary and primary education students may change. In doing so, it draws on Deci and Ryan's (1985) Self-Determination Theory (SDT), which refers to the fulfillment of a student's needs for autonomy, competence, and connectedness during

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the learning process (Deci & Ryan, 1985; Deci Ryan, 2000). In his research, the author in comparing bachelor's and master's degree students finds the domination of extrinsic motivation in bachelor's degree students and the domination of intrinsic motivation in master's degree students. In relation to academic achievement, motivation plays a significant role and is reflected in the choice of tasks, the time and effort students devote to them, and the management of obstacles encountered in the learning process (Tomšík, 2017). Some studies have found that students' lower motivation to study at university may also be due to incorrect choice of university or study program, which may also lead to dropping out (Kovács, 2018; Bocsi et al., 2019).

However, studying at university is also accompanied by complications, such as failing an exam, study pressure, stress, and negative teacher evaluations, which can significantly interfere with the desire to work. In case of lack of resilience, demotivation and disruption of academic achievement may occur (Martin, 2002). Thorová (2015), Masten et al. (2014), Dubayová et al. (2021) as well as other authors emphasize that resilience is developed through an individual's interaction with the environment. It is the result of:

- personality factors – e.g. flexibility, self-perception, self-esteem, attitude to life, etc;
- emotional and motivational factors – the ability to work with negative but also positive emotions, self-control;
- cognitive factors – the ability to identify problems and work on their solution;
- relational factors – e.g. the strength and quantity of satisfying social contacts and the fulfilment of the need to form a relational bond;
- community factors – e.g. support, understanding, value setting of the wider social environment;
- educational factors – e.g. access to and quality of education, opportunity for self-development through quality leisure activities, etc. (Thorová, 2015).

Resilience is also related to the onset of mental health problems, where it has been confirmed that trauma survivors with low levels of resilience are more likely to experience symptoms of mental illness than trauma survivors with higher levels of resilience (Cambell-Sills & Stein, 2007). Despite the similarities in content, a distinction needs to be made between resilience and motivation. The essence of resilience is related to the internal disposition in times of adversity, but motivation is related to the desire to act in a certain way to achieve a certain goal. However, both phenomena are interrelated because a person who is resilient must be motivated; therefore, the characteristics of motivated and resilient individuals are similar (Resnick, 2018).

The aim of this paper is to clarify the relationship between the intrinsic and extrinsic motivation of educational study program students to study and their resilience. Changes in extrinsic motivation, intrinsic motivation and amotivation were detected using a cross-sectional assessment of motivation in different year groups of students. Due to the disproportionate representation of boys and girls in pedagogical studies, gender differences were not detected. Based on the information presented in the theoretical part, the following hypotheses were tested:

H1: Master's students will have significantly higher intrinsic motivation than bachelor's students.

H2: Students with higher intrinsic motivation scores (of all types) will also score higher in resilience than students with lower intrinsic motivation scores.

Research Design and Methods

The data collection was conducted in May 2022 electronically from among full-time students of educational science majors. Two main research instruments were administered: The Academic Motivation Scale and The Connor-Davidson Resilience Scale.

The collected data were analyzed using SPSS 20.0 software. Among the mathematical and statistical methods, ANOVA and Pearson's correlation coefficient were used to find out the relationships among the variables. Due to the size of the research population and its composition, the gender of the respondent was not taken into account in the analyses, and only undergraduate students were compared together with master's degree students.

The Academic Motivation Scale (AMS-C 28)

The Academic Motivation Scale distinguishes three types of motivation to learn – extrinsic motivation (EM), intrinsic motivation (IM) and amotivation. The scale is designed for middle and high school students, but in some research, it has been shown to be a valid instrument for elementary school students as well. The AMS-C

28 includes 28 statements that the respondent uses to rate his/her attitude and motivation towards learning on a 7-point Likert scale, which relate to 7 subscales: IM to know, IM to accomplish, IM to experience, external: EM, introjected EM, identified regulation EM and amotivation. The maximum possible score for each scale was 28 points in the total score. The AMS-C 28 has been psychometrically validated on a population of secondary school students in Slovakia and confirmatory factor analysis was used to establish construct validity, which confirmed it as a reliable and valid research instrument: $\alpha_{EM\ (external)} = 0{,}78$, $\alpha_{EM\ (identified)} = 0{,}79$, $\alpha_{EM\ (introjected)} = 0{,}77$, $\alpha_{IM\ (to\ know)} = 0{,}73$, $\alpha_{IM\ (to\ acomplish\ things)} = 0{,}63$, $\alpha_{IM\ (to\ experience\ stimulation)} = 0{,}70$ (Kubiatko, 2018).

The Connor-Davidson Resilience Scale (CD-RISC 10)

The Connor-Davidson Resilience Scale is designed for the adult population. Resilience is characterized here as a stress management ability. The questionnaire contains 10 items that have been scored as a summative score that expresses resilience as the ability to tolerate change, personal problems, illness, pressure, failure, or feelings of pain (Cambell-Sills & Stein, 2007). Respondents rate items on a scale from 0 (not true at all) to 4 (true almost all the time), total score ranges from 0-40. The average score of 30.1 corresponded with the average scores in studies from the USA, Canada, Portugal and Hungary (from 28 to 30.1) (Davidson, 2018). The CD-RISC-10 showed high internal consistency: Cronbach's $\alpha = 0.81$.

Ethics statement

The aims and objectives of the research were explained to the students. Written informed consent was obtained from all participants involved in the study.

Research sample

The research population included students in the 1st and 3rd year of the Bachelor's degree program and the 1st year of the Master's degree program. A specific feature of each group was that first year students entered university after almost two years of predominantly distance learning due to the COVID pandemic. They did not finish their secondary school studies with a high school diploma, but with an average grade in their final report certificates. Students in the third year of the bachelor's degree completed the first semester of their studies in in-person/contact classes, while the second semester classes were moved online and, for almost 3 semesters, were taught by distance learning. Students in the third year of the Bachelor's degree and the first year of the Master's degree completed their secondary education with a regular matriculation examination.

Of the total number of students enrolled in the bachelor's and master's degrees *Special education*, *Preschool and elementary education* programs and the *Preschool and elementary education and education of the children with conduct disorders* study programs, a sum of 130 students completed the questionnaire. Of the 242 first year bachelor's degree students, 48 students participated in the research, while of the 192 third year bachelor's degree students, 52 students participated in the research. Of the 112 first year master's degree students, 30 students completed the questionnaire. The response rate of the questionnaire was 24%. Because only 3 men (1 bachelor's and 2 master's degree) completed the questionnaire, we did not control for gender in the analyses.

Results

There was no significant difference in the resilience summary score between the bachelor's and master's student cohorts. The expected difference between the types of intrinsic and extrinsic motivation between students at both levels of education, based on the research of some authors, was also not confirmed. Students scored lowest on intrinsic motivation to experience stimulation, while higher scores were found on extrinsic motivation - identified, a variable related to the expectation of a better job placement (Table 1.). In the amotivation subscale, where a maximum score of 28 points was possible, the average scores measured were 8.73 for bachelor's students and 8.63 for master's students, which can be considered low values. Only 9 students (7 bachelor and 2 master students) expressed their reduced motivation for study by scoring 5 points or higher in at least two of the four items for amotivation.

Table 1. Difference in the values of the variables: resilience (expressed by total score) and different types of motivation between bachelor's and master's students.

	Bachelor's degree students N = 100		Master's degree students N = 30		Mann–Whitney test
	priemer	SD	priemer	SD	
CD-RISC-10 (SUM)	30,18	5,03	30,10	3,85	ns
Intrinsic motivation towards knowledge	18,97	5,25	19,10	6,02	ns
Intristic motivation towards accomplish-ments	16,88	5,37	17,37	6,17	ns
Intristic motivation to experience stimu-lation	13,38	5,65	13,70	5,45	ns
Extrinsic motivation – identified	22,04	4,77	22,53	4,64	ns
Extrinsic motivation – introjected	16,07	6,35	16,20	7,65	ns
Extrinsic motivation – external regulation	19,30	5,72	18,93	5,29	ns
Amotivation	8,73	5.09	8,63	6,19	ns

(Abbreviations: CD-RISC-10 = total score in resilience)

Subsequently, we investigated the association between the final resilience score and the different types of motivation through Pearson's correlation coefficient. We included all students in the analyses because of similar results in mean scores between undergraduate and graduate students. The strongest association emerged between total resilience scores and amotivation, confirming that low resilience corresponds with higher scores in amotivation.

Apart from extrinsic motivation – introjected and extrinsic motivation - external regulation, all other types of motivation were positively correlated with high resilience values, but only at the $p \leq 0.05$ level, which could change in the direction of both higher and lower correlations in the case of a larger research set. Correlations at a level higher than $p \leq 0.05$ will not be interpreted as these are correlations between dimensions of the same research instrument where relationships between them are assumed.

Table 2. Correlations between the variables: resilience (expressed by total score) and individual types of motivation in students of pedagogy.

	CD-RISC-10 (SUM)	IM - K	IM - A	IM - ES	EM - ID	EM - IN	EM – ER	AM
CD-RISC-10 (SUM)	-							
IM - K	,185*	-						
IM - A	,199*	,754**	-					
IM - ES	,176*	,730**	,757**	-				
EM - ID	,179*	,651**	,574**	,412**	-			
EM - IN	,067	,379**	,645**	,473**	,372**	-		
EM – ER	,080	,358**	,480**	,329**	,567**	,554**	-	
AM	-,268**	-,511**	-,445**	-,247**	-,637**	-,175*	-,251**	-

(Abbreviations: * $p \leq 0,05$, ** $p \leq 0,01$; IM – K intrinsic motivation towards knowledge; IM – A intrinsic motivation towards accomplishments; IM – ES – intrinsic motivation towards experience stimulation; EM – ID extrinsic motivation identified; EM – IN – extrinsic motivation introjected; EM – ER – extrinsic motivation towards external regulation; AM – amotivation)

Discussion

Motivation and resilience as content-related constructs are important prerequisites for an active and successful mastery of university studies. The aim of this paper was to investigate the relationship between different types of motivation and resilience in undergraduate and graduate students of education.

There was no significant difference in any of the measured variables between the two sets of students, on the basis of which we consider the first hypothesis to be unconfirmed. The results are not consistent with the findings of Kuruc (2021) who found higher intrinsic motivation in senior students compared to undergraduate students. However, the difference between the research results may be influenced by the lower representation of master's students.

Resilience, according to the results presented, is statistically significantly associated with the construct of motivation. Only two variables did not show an association – *extrinsic motivation – introjected* and *extrinsic motivation – external regulation*. We talk about *extrinsic motivation – introjected* when people perform an action with a sense of pressure to avoid guilt or anxiety or to achieve ego boosting or pride, e.g. they consider it important to prove to themselves that they can graduate from college. In terms of mean scores, this type of motivation scored the lowest, so we can assume that studying at university does not serve to prove to oneself one's importance. Given that this is an introjection of extrinsic motives, its link to resilient behaviour is not linear, since individuals with low *extrinsic motivation – introjected* are likely to have achieved different levels of resilience. *Extrinsic motivation – external regulation* as a typical representative of extrinsic motivation is characterized by the fact that a person acts in order to obtain an extrinsic reward, such as a better salary or a better position in the labor market (Ryan & Deci, 2000). Its association with resilience also appears ambiguous, although its mean score was quite high. Arguably, being motivated by a desire for something is unrelated to intrinsic power to achieve set goals. Bulkova and Hibky's (2016) findings suggest that among the three types of motivation, cognitive motivation was the least preferred, but students attributed more importance to social and instrumental motivation, and enjoyment, pleasure, and beliefs about the importance of university study for personal development were not the main sources of motivation for university students. Also for this research set, the values in all three types of intrinsic motivation were lower than those in the subscales of extrinsic motivation. Consistent with the finding of a positive correlation between intrinsic motivation and resilience scores, we consider the second hypothesis to be confirmed.

The limitations of the study are the disproportionality of the research samples, where there were only 30 master's students, so we consider the unobserved differences between the two groups of students to be indicative only. Unfortunately, due to the small number of respondents in the sample, we cannot consider the results to be representative. Nevertheless, they motivate us to continue the research. For practical reasons, we chose to distribute the questionnaire electronically, which did not allow us to control the data collection. It is possible that the research was predominantly attended by students with a tendency to cooperate and that students with lower motivation avoided completing the questionnaire, as evidenced by the low number of students showing high scores in the area of *amotivation*. In the future, we recommend prioritizing data collection in the classroom and through the pen-and-paper method, despite its lengthiness. Another limitation of the study is the lack of representation of statements from students from other universities. In the following research, the data collection will be conducted in all faculties of education in Slovakia and we recommend that the results of the presented research be seen as preliminary and pilot. Other variables such as emotional intelligence will also be surveyed in the following larger research. Regarding the research findings, Magnano, Craparo and Paolilo (2011) confirm its significant role and association with resilience and motivation to achieve academic success.

Of course, a student's resilience is built throughout his or her life so far, and his or her ability to adapt to and cope with even adverse life circumstances influences his or her motivation to act. On the basis of our research, even after confronting other authors, we cannot assume the causality of the relationship between motivation and resilience. It is not clear whether low ability to overcome obstacles is the cause of low levels of overall motivation to learn, or whether low motivation causes higher passivity and low combativeness in situations that can only be successfully overcome by increased activity. Research in this area needs to be expanded to include additional contexts that will help create a more comprehensive model with new, even non-linear, relationships.

Conclusion

The teaching profession is demanding both in terms of personal commitment and motivation for the profession and in terms of coping with stressful situations. This study presents an insight into the motives for studying and its relations to resilience of one cohort of male and female students of the Faculty of Education of the University of Prešov. The key result is the confirmation of an inverse relationship between the level of amotivation and resilience, which suggests that students poorly motivated by both extrinsic and intrinsic motivation factors are

less prepared to cope with the burden. The results of the pilot research also suggest relationships of resilience with other types of motivation, but these will need to be verified with a larger research population. The research inspires to include other variables such as relationship to learning, emotional intelligence, etc., to the next research, which would also help to clarify the broader context needed to understand the relationship between motivation and resilience.

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