EPISTEMOLOGICAL BELIEFS AMONG UNIVERSITY STUDENTS: DEVELOPMENTAL TRENDS AND RELATION TO ACADEMIC ACHIEVEMENT

Snežana Mirkov and Ivana M. Jakšić

Institute for Educational Research, Belgrade, Serbia

INTRODUCTION

- The term epistemological beliefs (EB) refers to persons' beliefs about the nature of human knowledge and learning. The dimensions of EB are conceptualized as continuous, ranging from naive towards sophisticated beliefs. EB can affect behavior and learning (academic achievement) (Braten & Stromso, 2006; Hofer, 2001, 2005; Law *et al.*, 2008; Muis, 2004; Mirkov, 2013; Phan, 2008, 2009; Schommer-Aikins & Easter, 2006; Stoeger, 2006). Shaped by maturation and education, EB change over time (different dimensions do not have to develop in a synchronized manner) (Schommer *et al.*, 1997; Pavlović, 2009).
- Different studies point to the different dimensions of EB. Ćirović and Mirkov (2014) found that the latent structure of epistemological beliefs among students of University of Belgrade can be described with 4 second order latent dimensions (which can account for 53% of variance):
  1. Avoidance of integration, avoidance of ambiguity and dependence on authority
  2. The belief that one cannot learn how to learn and that success in learning is unrelated to hard work
  3. The belief that learning ability is innate and that learning is quick
  4. The belief in absolutely secure and unquestionable nature of knowledge (Table 1).

Table 1: Structure of epistemological beliefs (Principal component analysis upon 12 EQ scores)

Subscales	DIMENSIONS OF EB			
	1.	2.	3.	4.
Avoid integration	**.705**			
Avoid ambiguity	**.691**			
Dependance on authority	**.651**			
Seek single answers	**.570**			
Can't learn how to learn		**.766**		
Success in learning is unrelated to hard work		**.701**		
Learning the first time		**.520**	.294	
Concentrated effort is a waste of time			**.756**	
Ability to learn is innate			**.612**	
Learning is quick		.356	**.556**	**.308**
Knowledge is certain				**.838**
Don't criticise authority				**.562**

RESULTS

Table 2: Correlations between dimensions of epistemological beliefs and students' age, year of study, and indicators of academic achievement

DIMENSIONS OF EB	GPA	Number of passed exams	Year of study	Age
Avoiding integration, avoiding ambiguity and dependance on authority	**-,214****	,027	-,036	,047
One cannot learn how to learn and success in learning is unrelated to hard work	**,143****	-,083	**-,102***	,027
Ability to learn is innate and learning is quick	,061	**-,166****	**-,207****	,104*
Knowledge is certain and unquestionable	-,093*	**-,113****	**-,134****	,091*

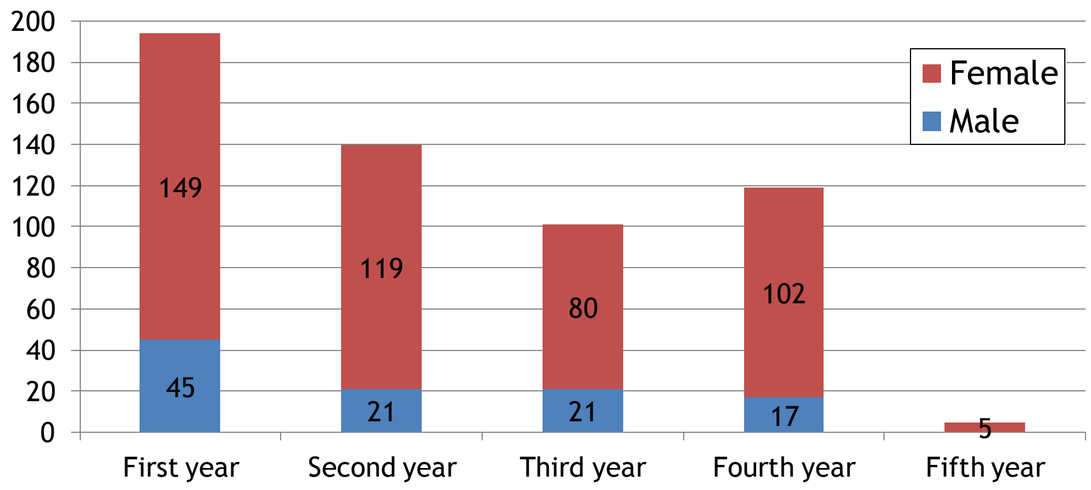
AIMS OF THE RESEARCH

1) Do (different dimensions of) EB among university students change during the course of their studies or with their age?
2) Are (different dimensions of) EB related to academic achievement (average grade point and the number of passed exams)?

SAMPLE

560 students (82% female) from the first to the fifth year of undergraduate academic studies at the University of Belgrade. Age of the students ranged from 19 to 42 years (M=21.05, SD=2.20).

Table 3: Structure of sample according to gender and year of studies



INSTRUMENTS AND VARIABLES

- **Students' epistemological beliefs** were assessed using Serbian version of the Epistemological Questionnaire (Schommer, 1990; Simić et al., 2012; Plazinić, 2014). This questionnaire consists of 63 statements about knowledge and learning divided into 12 subsets.
- **Grade point average of the passed exams (GPA)** (M = 8.45; SD = 0.75; range from 5.40 to 10.00)
- **Number of passed exams** (M = 21.05; SD = 2.20; range from 0 to 50)
- **Age** (M = 21.84; SD = 2.20; range from 19 to 42)
- **Year of study** (M = 2.28; SD = 1.17; range from 1 to 5)

MAIN FINDINGS AND CONCLUSIONS

DEVELOPMENTAL TRENDS

- No significant correlations were found between four dimensions of students' epistemological beliefs and the students' **age**.
- Relatively low, but statistically significant correlation coefficients were found beetwen **year of study** and following dimensions of EB:
  - *Ability to learn is innate and learning is quick*
  - *Knowledge is certain and unquestionable*
  - *One cannot learn how to learn and success in learning is unrelated to hard work*
- These results indicate that epistemological beliefs tend to get more sophisticated as students advance through their studies.

ACADEMIC ACHIEVEMENT

- Relatively low, but statistically significant negative correlation were found between the dimension *Avoidance of integration, avoidance of ambiguity and dependence on authority* and **GPA**, as well as low positive correlation of the dimension *One cannot learn how to learn and success in learning is unrelated to hard work* to the GPA.
- The dimension *Ability to learn is innate and learning is quick* and *Knowledge is certain and unquestionable* are negatively correlated to the **number of exams passed**
- These results indicate that academic success is to some extent related to epistemological beliefs. Students who hold sophisticated epistemological beliefs have slightly higher grades and pass more exams than students who hold naive epistemological beliefs.

Email: smirkov@ipi.ac.rs **Website:** www.ipi.ac.rs