



PROBLEMS AND PERSPECTIVES OF CONTEMPORARY EDUCATION

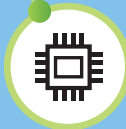


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UNIVERSITY STUDENTS' BELIEFS ABOUT LEARNING AND KNOWLEDGE AND THEIR APPROACHES TO LEARNING²

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INTRODUCTION

When studying learning motives, attitudes and approaches, there are two prevailing lines of research (Pintrich, 2004; Richardson, 2007; Mirkov, 2013c). The *SRL* perspective (Self-Regulated Learning) is derived from Information processing (IP) approach, and the research based on this perspective involve self-regulation and self-regulated learning in different contexts, particularly in higher education. *SAL* perspective (Students' Approaches to Learning) was created as a response to IP perspective, as a result of a need to include learning context in the study to a greater extent (Entwistle & Waterston, 1988). Within this perspective, more attention has been directed to the quality of learning, with the emphasis on relationship between motives and learning behaviour. Basic constructs in the models based on *SAL* perspective are derived from phenomenological and phenomenographic approaches which are based on the students' reporting on their own learning processes. The qualitative studies identify two approaches to learning (Marton & Saljo, 2005). The students who applied surface approach were (self)directed on memorizing facts and ideas in the text they were learning so as to be able to reproduce them later. The students who applied deep approach were (self)directed on searching for the meaning of the text, and were connecting new ideas to previous knowledge. Dichotomy of a surface and deep approach is confirmed in a great number of research in higher education. Biggs presented a learning model where the personal and situational factors are connected in such a way to create three approaches to learning: surface, deep and achievement

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approach (Biggs, 1984; 1985). Numerous research which developed a range of instruments suitable for use in practice with the aim of improving the teaching, are based on this model (Mirkov, 2013a; 2013b).

Distinction between deep and surface approach to learning is based on distinction between meaningful learning and rote learning (Biggs & Rihn, 1984). The learning approach to be adopted by a student, as well as quality of the outcome achieved, are determined to a great extent by the student's intention. The key question is what the student wants to achieve. There is an agreement in principle on characteristics of the two basic approaches to learning identified in the university environment, and which students adopt depending on the nature of a task and requirements, but also on their predispositions and motives (Mirkov, 2013c). Longitudinal research (Fox, McManus, & Winder, 2001) establish that approaches to learning are partially stable and partially liable to modification under the influence of environment. The research indicate differences between the students who study science and the students who study social sciences, as well as differences between educational systems (Sachs & Gao, 2000). As regards achievement approach to learning, in one of the most commonly used instruments – SPQ (Study Process Questionnaire), the achievement scales are fundamentally different from the scales of deep and surface motives and strategies. Deep and surface strategies refer to the way of engaging in performing academic task, while the achievement strategies refer to the way of organizing such engagement. The results of the first factor analyses (Biggs & Rihn, 1984; Biggs, 1984; Kirby & Biggs, 1980) already demonstrated that motives and achievement strategies can be related both to deep and surface approach to learning. It is believed that achievement approach does not need to be related to a specific strategy, but that choice of a strategy depends on requirements regarding understanding or rote learning (Wong & Lin, 1996). This is why this approach can be related to surface approach in some environments and to deep approach in others.

As regards motives for learning, the emphasis is on a student's intention which points to personal goals. Learning can be guided by different goals which were initially viewed as mutually exclusive (Dweck, 1989; Suarez Riveiro, Gonzalez Cabanah, & Valle Arias, 2001; Valle et al., 2003). The research identify achievement orientation or ego orientation, and learning/mastering orientation or task orientation, which are related to achievement, use of learning strategies, way of experiencing success/failure, beliefs about one's own abilities and perception of

efficacy (Ames & Archer, 1988; Dweck, 1989; Driscoll, 1999; Meece, Blumenfeld & Hoyle, 1988; Seegers, Van Putten & De Brabander, 2002; Seifert & O'Keefe, 2001; Skaalvik, 1997). The students with achievement orientation treat learning of the material as a means for achieving other goals, whereas for the students with learning orientation learning itself is a goal. However, the research indicate that combination of interest in mastering knowledge/understanding and interest in obtaining high marks/achieving superiority vis-à-vis others, could be the most desirable because it can provide flexibility in the choice and use of learning strategies (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Bouffard, Vezeau & Bordeleau, 1998; Seifert, 1995; Seifert, 1996; Somuncuogly & Yildirim, 1999; Suarez Riveiro, Gonzalez Cabanah, & Valle Arias, 2001; Valle et al., 2003).

The research focused on examining a learning strategies also involve the ways in which students perceive characteristics of different learning environments at universities (Mirkov, 2013c). Empirical evidence shows that if a student-oriented environment includes conceptual and epistemological relations within subject area, it promotes constructive learning which implies relating, structuring and critical processing (Wierstra, Kanselaar, Van der Linden, Lodewijks, & Vermunt, 2003). Individual personal characteristics also affect whether a person will learn constructively, even though the students also try to adjust their learning approach to requirements, and this is why the changes in environment can lead to the changes in learning approach. Nevertheless, a constructive and reproductive learning should not be perceived as opposites, but as different dimensions. Some studies show that different learning patterns stem from different sources and that they are related to different personal and contextual factors (Vermunt, 2005), which contributes to clarifying stability in use of learning strategies, as determined in prior research (Vermunt, 1998).

The ways in which students understand learning and knowledge have become key components in understanding learning (Hofer, 2001). The research of epistemological beliefs are based on presumption that these beliefs are important determinants of the learning process (Pavlović, 2008). Epistemological beliefs of university students were studied, at first, as a wide one-dimensional construct (Perry, 1985; 1999). The research of multidimensional nature of these beliefs that followed (Schommer, 1990; Schommer, Crouse, & Rhodes, 1992; Schommer-Aikins, Duell & Hutter, 2005) resulted in developing instruments, the most famous being Epistemological Questionnaire – EQ (Schommer, 1990).

Development of epistemological beliefs is described through the dimension: "naive versus sophisticated" (Mirkov & Jakšić, 2015). The role of epistemological beliefs in students' behaviour is being increasingly examined (Mirkov, 2013a): how these beliefs intermediate in cognitive and motivational factors (Muis, 2004), their role in choice of strategies, in self-regulation and their importance for prediction of achievement (Hofer, 2005; Stoeger, 2006). Students' epistemological beliefs are an important predictor of learning outcomes as they enable prediction of motivation and self-evaluation which contribute to learning efficacy and high achievement (Stoeger, 2006).

Different beliefs about learning and knowledge lead to different ways of performing academic tasks, as explained in SAL conceptual framework (Marton & Saljo, 2005; Opačić & Mirkov, 2010; Mirkov, 2014; Richardson, 1994). Longitudinal research showed that epistemological beliefs influence approaches to learning more than approaches to learning influence epistemological beliefs; that academic achievement can be predicted on the basis of epistemological beliefs and approaches to learning; and that approaches to learning mediate in the influence of epistemological beliefs on academic achievement (Phan, 2008). The role of students' beliefs about learning in self-regulation is established as early as primary school-age (Law, Chan, & Sachs, 2008): students' constructivist beliefs about learning influence deeper text understanding to a greater extent than learning strategies. The students who express constructivist beliefs about learning believe that learning is not merely increasing knowledge but that it also implies ability to understand new information, which leads to use of self-regulating learning strategies, thus resulting in deeper understanding. The students who view learning only as performing of school tasks set by a teacher, use these strategies to a lesser extent and process information superficially.

In a large number of research it is confirmed that some beliefs are predictors of adopting certain goal orientations and that sophisticated beliefs influence the use of learning strategies positively (Muis, 2004). Even though influences of epistemological beliefs on academic achievement mostly occur indirectly, that does not diminish the significance of these beliefs (Mirkov & Jakšić, 2019). It is empirically confirmed that the effects of knowledge acquisition methods on academic achievement are mediated by belief that learning is quick (Schommer-Aikins & Easter, 2006), and that development of belief can be encouraged if the students are enabled to view effects of a quick task solving as opposed to

leaving time for reflection; integration of information as opposed to memorising unrelated facts; and accepting ideas as unchangeable as opposed to realization that what represents knowledge today can be a step towards new ideas in the future. In research it has been confirmed that these beliefs are predictors of school achievement, that they are significant for text understanding, for understanding multiple perspectives, but likewise for motivation, strategy choice of and self-regulation in learning (Schommer, 2006; according to Pavlović, 2008). The students' beliefs about learning and knowledge can influence the way of interpreting information, monitoring one's own understanding, investing effort in performing difficult tasks and maintaining a global positive attitude towards school. Empirical findings confirm that belief that knowledge represents a set of isolated facts is accompanied by increased difficulties in understanding information; and that belief that learning abilities are innate is accompanied by negative perception of school and manifestations of feeling of helplessness in behaviour when coping with challenging academic tasks (Law, Chan & Sachs, 2008; Phan, 2008, 2009; Schommer, 1990; Schommer, Crouse, Rhodes, 1992; Schommer, Calvert, Gariglietti, & Bajaj, 1997; Schommer-Aikins, Duell & Hutter, 2005).

The previous research showed that students' epistemological beliefs are related to their learning goals and strategies (Mirkov, 2016). The aim of this paper is to examine whether and in what way the beliefs of students of economics about learning and knowledge are related to their approaches to learning. More precisely, we were interested in examining on the sample that had not been included in earlier research, what beliefs about learning and knowledge are related to particular goals that students set and to specific cognitive and metacognitive strategies they use in learning. The findings of this research may point to existence of similarities and differences in students' attitude to learning at different universities.

METHOD

Sample. 448 students of Faculty of Economics of University of Belgrade were examined (71,7% female), aged 19 to 38 ($M=22,5$; $SD=2,349$). The sample evenly represents students of different years of study: 25,3% of the 1st year students, 26,1% of the 2nd year students, 20,1% of the 3rd year students and 28,5% of the 4th year students.

Instruments. The students' epistemological beliefs are examined via Serbian version of EQ – Epistemological questionnaire (Schommer, 1990; Plazinić, 2014), containing 63 statements about learning and knowledge, which form 12 subscales. The students' learning goals and strategies are examined by the Instrument for measuring learning goals and strategies (Opačić & Mirkov, 2010; Mirkov, 2014) which contains 38 statements about learning goals and strategies, also including 21 items from METAS – Scale of students' metacognitive strategies (Sladoje Bošnjak, 2013). The respondents responded to items via five-point assessment scale by expressing a degree of agreement/disagreement with a stated statement.

Variables. Variables referring to beliefs about learning and knowledge include 12 subscales of EQ: Seek single answers; Avoid integration; Avoid ambiguity; Depend on authority; Knowledge is certain; Don't criticise authority; Ability to learn is innate; Learning is quick; Concentrated effort is a waste of time; Can't learn how to learn; Success is unrelated to hard work; and Learn the first time. Variables referring to approaches to learning include items which in the previous research (Mirkov, 2014) were confirmed within 14 obtained factors of learning goals and strategies based on the mentioned instruments: Deep strategies – understanding and elaboration; Achievement strategies – organizing time and activities; Deep strategies – broadening and deepening knowledge; Metacognitive strategies – planning and organizing time and activities; Metacognitive strategies – monitoring understanding and elaboration; Deep goals – intrinsic interest; Surface goals – avoiding effort; Metacognitive strategies – monitoring strategy use; Achievement strategies – comparison with others; Metacognitive strategies – awareness and evaluation; Surface strategies – memorizing and absence of strategy; Achievement goals – self-affirmation, self-verification, focus on others; Strategies of rehearsal, underlining, drawing, or making schemas; and Achievement goals – high aspirations.

Data collection method. The data were collected during the summer half-term (February to May) during the school year 2018/2019 via Internet (on-line questionnaire).

Statistical procedures. The data analysis was made in statistical software SPSS 20. In the sample structure analysis, the procedures of descriptive statistical analysis (frequencies and percentage) were applied, and the results displayed relating to beliefs about learning and knowledge and to learning approaches, were obtained via factor analyses (principal components method).

RESULTS

Results of first-order factor analyses. In the first phase of the research, separated factor analyses were conducted in order to establish the structure of epistemological beliefs, learning goals, cognitive and metacognitive strategies.

By the principal components analysis (Varimax rotation with Kaiser normalization) across 12 EQ subscales (63 items in total), we obtained three factors explaining 48.417% of epistemological beliefs variance. The factors obtained are displayed in Table 1.

Table 1. Epistemological beliefs factors

Factors	Names of EQ subscales	Saturation by factors
I	Don't criticize authority	0.652
	Seek single answers	0.641
	Avoid ambiguity	0.594
	Knowledge is certain	0.576
	Depend on authority	0.535
II	Learning is quick	0.773
	Success is unrelated to hard work	0.718
	Learn the first time	0.570
	Ability to learn is innate	0.541
III	Avoid integration	0.757
	Concentrated effort is a waste of time	0.684
	Can't learn how to learn	0.413

The first first-order factor (Table 1) is named "Certain knowledge – dependence on authority". It can be described by representative items from EQ: *Sometimes you just have to accept answers from a teacher even though you don't understand them. Most words have one clear meaning.* The second first-order factor is "Quick learning - innate ability to learn", and is best described by the following items: *Successful students understand things quickly. The really smart students don't have to work hard to do well in school.* The third first-order factor is named "Avoiding integration and avoiding to invest effort". This factor can be described on the basis of the items like: *You will just get confused if you try to*

integrate new ideas in a textbook with knowledge you already have about a topic. If a person tries too hard to understand a problem, they will most likely just end up being confused.

By the principal components analysis (Varimax rotation with Kaiser normalization) across the items from the used instrument which measure learning goals, we obtained five first-order factors explaining 64.925% of learning goals variance. The factors obtained are displayed in Table 2.

Table 2. Learning goals factors

Factors	Items	Saturation by factors
I	I study because I am interested in the topics we learn.	0.886
	I show interest in a large number of topics we study at university.	0.863
	I study because I want to learn something new.	0.673
	Sometimes I wonder why I chose this faculty anyway.	-0.658
	It is important for me to understand the course content as thoroughly as I can.	0.599
II	I prefer the kind of learning that really makes me think.	0.535
	I hope that we will not be assigned a lot of work.	0.876
	I like it when there is not much to study.	0.845
III	I try to study as little as possible.	0.796
	I do my best to achieve the goals I set for myself.	0.788
	I evaluate my performance against the goals I set for myself.	0.753
IV	I set myself the highest academic goals which I believe I can achieve.	0.744
	I feel successful when I know my work is better than others.	0.857
	I try to do better than others.	0.825
V	I would love to be a manager at my future job even if that means that I will often be busy and overburdened by obligations.	0.562
	I want to do well in university classes to show my abilities to my family, friends and others.	0.821
	An important reason I study is so I won't embarrass myself.	0.740
	I enrolled at the university because I want to test myself, to see if I am capable of graduating from university.	0.727

The first learning goals factor (Table 2) is named "Intrinsic interests and focus to understanding". It is defined by the items that point to deep goals, and the item indicating a clear focus regarding selection of university is also saturated

with this factor. The second factor is named "Avoiding effort" and the items on the basis of which it is defined indicates the aspects of surface goals. The third factor is named "High aspirations" and indicates achievement orientation. The fourth factor is named "Comparison with others" and is defined by the items indicating achievement orientation. The fifth factor is named "Self-affirmation/Self-verification", and the items saturated by this factor indicates achievement orientation factor.

Using the principal components analysis (Varimax rotation with Kaiser normalization) across the items from the instrument applied, measuring cognitive strategies, we obtained five first-order factors explaining 63.783% of cognitive strategies variance (Table 3).

Table 3. Cognitive strategies factors

Factors	Items	Factor saturation
I	I always have enough time left to learn everything.	0.814
	I finish my assignments on time so I do not need much time for studying.	0.814
	I study regularly during the semester rather than leave everything for the last moment.	0.674
	I organize study time carefully, so as to make the best use of it.	0.648
	I plan in advance and strictly adhere to study plan.	0.616
	I successfully complete every job I start.	0.533
II	I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.	0.898
	I read additional literature about the topics we study at university.	0.896
	I am interested in new topics, and spend extra time trying to obtain more information about them.	0.734
III	When learning a new lesson, I try to see how the parts are mutually connected.	0.733
	I return to the parts of the course content I did not understand.	0.709
	When I am not certain about something, I check it in the book or somewhere else.	0.693
IV	I repeat to see whether I can memorize the important parts of the course material for the exam.	0.735
	I try to memorize the most part of course content, since I do not know what will be examined.	0.605

Factors	Items	Factor saturation
IV	I learn some things by rote, going over and over them until I memorize them, even though I don't understand them.	0.588
	I start to panic when I am behind in studying.	-0.469
V	I try to attend all lectures and seminars regularly.	0.830
	As I am not certain what is really important, I try to write down as much as possible during classes.	0.634

The obtained cognitive strategies factors (Table 3) are described in the following way: The first factor, named "Organizing time and activities" saturates the items relating to achievement strategies. The second factor, named "Broadening knowledge" saturates the items measuring deep strategies. The third factor is named "Integration – understanding" and is defined by the items relating to deep strategies. The fourth factor is named "Memorizing", and most of the strategies saturated by it relate to surface strategies. The fifth factor is named "Academic conscientiousness" and is defined by the items indicating achievement strategies.

By the principal components analysis (Varimax rotation with Kaiser normalization) across the items from the instruments relating to metacognitive strategies, we obtained six first-order factors explaining 56.825% of metacognitive strategies variance (Table 4).

Table 4. Metacognitive strategies factors

Factors	Items	Factor saturation
I	When planning activities for the following day, I make a list of the most important things.	0.764
	I plan the breaks and rests when learning.	0.712
	I estimate the time needed to finish learning.	0.676
	I plan different strategies like underlining, drawing or making schemes for a particular subject.	0.482
II	When something is being concluded at the class, I think whether there is a proof supporting this conclusion.	0.818
	When we are coming to a conclusion at the class, I think about other possible conclusions.	0.757
	If I particularly dislike the subject, I try to additionally motivate myself with valid reasons.	0.415

Factors	Items	Factor saturation
III	When I read a task, I know whether I can solve it.	0.738
	When I finish the work I know how successfully I have done it.	0.733
	I'm aware of the grade I can get for the learning I invested.	0.700
IV	I think about requirements of a task (whether it's an essay or multiple choice test, or other), and I study accordingly.	0.787
	When I examine the study material, I think about what is expected from me and make learning guidelines accordingly.	0.526
	When I learn a new lesson, I am aware of what I know and what I don't know.	0.510
	I try to connect what I've read with what I already know about it.	0.476
	I share my attention according to difficulty of the material – I invest more attention into difficult parts and less into easy ones.	0.419
V	If the material is difficult, I change the way of learning.	0.670
	I ask myself questions to be sure whether I understood the material.	0.622
	When I don't understand material, I stop and think how I could explain it to myself.	0.576
VI	I think about my learning strategies, whether they are good or not, whether I should replace them with others.	0.808
	I am not sure how I should learn the material.	-0.673
	I ask myself question what is the best way to learn the given material.	0.636

The first obtained factor of metacognitive strategies (Table 4) is named "Planning" and it saturates the items relating to planning time and activities. The second factor is named "Argumentation and conclusion", and is defined by the items which may indicate critical thinking (questioning justification of conclusions based on evidence, and possibility of drawing different conclusions). The items measuring different aspects of awareness and self-evaluation are saturated by the third factor named "Self-evaluation – awareness". The remaining three factors of metacognitive strategies relate to different aspects of monitoring which is regarded as a key component of self-regulation: the fourth factor is named "Monitoring – adapting to requirements", the fifth factor is named "Monitoring understanding", and the sixth factor is named "Monitoring strategy use".

The results of second-order factor analysis. In the second phase of data analysis, the second-order factor analysis is made so as to determine whether and in what way the students' epistemological beliefs are related to their approaches to learning. Through the principal components analysis which included all of the

obtained first-order factors displayed in Tables 1, 2, 3 and 4, we obtained seven second-order factors, explaining 59,926% of variance (Table 5).

Table 5. Second-order factors – beliefs about learning and knowledge, and approaches to learning

Second-order factors	First-order factors	Factor saturations
I	cognitive strategies <i>Broadening of knowledge</i>	0,843
	metacognitive strategies <i>Argumentation and conclusion</i>	0,761
	epistemological beliefs <i>Certain knowledge - dependence on authority</i>	-0,528
	learning goals <i>Avoiding effort</i>	-0,480
	learning goals <i>Intrinsic interests – focus on understanding</i>	0,450
II	cognitive strategies <i>Memorizing</i>	0,701
	metacognitive strategies <i>Monitoring strategy use</i>	0,660
	learning goals <i>Self-affirmation/Self-verification</i>	0,575
	epistemological beliefs <i>Certain knowledge - dependence on authority</i>	0,484
	learning goals <i>Comparison with others</i>	0,305
III	metacognitive strategies <i>Monitoring – adapting to requirements</i>	0,806
	cognitive strategies <i>Integration – understanding</i>	0,631
	learning goals <i>Intrinsic interests – orientation to understanding</i>	0,560
	learning goals <i>High aspirations</i>	0,349
IV	cognitive strategies <i>Organizing time and activities</i>	0,832
	metacognitive strategies <i>Planning</i>	0,650
	learning goals <i>Avoiding effort</i>	-0,408
	metacognitive strategies <i>Monitoring strategy use</i>	-0,396
V	metacognitive strategies <i>Self-evaluation – awareness</i>	0,747
	epistemological beliefs <i>Avoiding integration and avoiding to invest effort</i>	-0,629
	learning goals <i>Self-affirmation/Self-verification</i>	-0,397
VI	cognitive strategies <i>Integration – understanding</i>	0,385
	cognitive strategies <i>Academic conscientiousness</i>	0,657
	metacognitive strategies <i>Monitoring understanding</i>	0,564
	learning goals <i>Comparison with others</i>	-0,564
VII	learning goals <i>High aspirations</i>	0,350
	epistemological beliefs <i>Quick learning - innate ability to learn</i>	0,800

Based on indicators displayed in Table 5, the first second-order factor – “Deep approach to learning” is defined by orientation to understanding, intrinsic interests, knowledge broadening strategies and the strategies relating to argumentation and conclusion. Belief that knowledge is certain, accompanied by dependence on authority, is negatively saturated by a deep approach to learning.

The second second-order factor named “Surface approach oriented to self-affirmation” mostly saturates the memorizing strategies and metacognitive monitoring strategy use. Orientation to self-affirmation, i.e. self-verification is related to these strategies, and to a lesser degree – orientation to comparison with others. Belief that knowledge is certain, followed by dependence on authority is related to surface approach oriented to self-affirmation (Table 5).

The third second-order factor, according to the data from Table 5, is named “Deep approach oriented to achievement” and is defined by combination of integration strategies, oriented to understanding, metacognitive monitoring relating to adapting to requirements, intrinsic interests, orientation to understanding and high aspirations. Beliefs on learning and knowledge are not saturated by this factor.

The fourth second-order factor – “Planning and organizing of learning” is mostly saturated by strategies of planning and organizing time and activities which are negatively related to orientation to avoiding effort and metacognitive monitoring of strategy use (Table 5). This indicates willingness for investing an effort, but also absence of self-regulation. Beliefs on learning and knowledge are not related to this factor.

The fifth second-order factor is named “Awareness and focus on integration”, and is defined by metacognitive strategies relating to awareness and self-evaluation, and by beliefs relating to integration and investing an effort, which are accompanied by absence of orientation to self-affirmation/self-verification and presence of integration strategies, i.e. understanding (Table 5).

The sixth second-order factor named “Academic conscientiousness” (Table 5) mostly saturates learning strategies that indicate academic conscientiousness, which are displayed in a more detail in Table 3, and metacognitive monitoring understanding. This factor is characterized by the absence of orientation to comparison with others and (to a lesser extent) presence of high aspirations, whereas beliefs about learning and knowledge are not related to this factor.

Finally, the seventh second-order factor, as seen from indicators in Table 5, is only defined by the second factor of beliefs about learning and knowledge, and it is therefore named “Beliefs about quick learning and innate abilities to learn”. The learning goals and strategies are not saturated by this factor.

On the basis of the data displayed in Table 5, we can observe that certain beliefs about learning and knowledge are grouped in different ways with certain learning goals and strategies into second-order factors which indicate approaches to learning. We shall elaborate obtained results in a broader context, in order to understand their relationships with the results of other research.

DISCUSSION

Several earlier studies conducted in Serbia on different samples produced different results regarding relations of epistemological beliefs to motivation to learn and learning strategies. On the sample of high school students (Simić, Savanović, & Jokić, 2012), it was confirmed that the more naïve epistemological beliefs, the weaker motivation to learn; as well as that intrinsic motivation, to a greater extent than extrinsic, correlates with level of sophistication of epistemological beliefs. A higher level of intrinsic motivation is accompanied by a more sophisticated epistemological beliefs. The results obtained in our research are generally in line with the results of this research, and point to the need for stimulating development of sophisticated epistemological beliefs by encouraging critical thinking, independence on authority and tolerating uncertainty in the process of constructing knowledge, emphasising importance of the learning process itself as opposed to focus on effects, enabling searching for different solutions of a problem, emphasising the importance of persistence in learning, as well as encouraging development of skills for self-regulation and readiness to take control over learning. In the study aimed to relations of students' epistemological beliefs with learning strategies they use (Plazinić, 2014), it has been confirmed that correlations between naïve beliefs about the nature of learning and complex learning strategies are of a low intensity, but positive. These relations, however, have a completely unexpected direction, unlike the results obtained in our research which point to relation of certain sophisticated beliefs with deep learning approach, as well as to relation of some naïve beliefs with surface approach.

According to the results obtained in our research, the belief that knowledge is certain, accompanied by dependence on authority, negatively correlates with deep learning approach and positively with surface approach oriented to self-affirmation. This result is in line with the results of the previous study which involved students of different faculties and according to which the beliefs relating to tolerance of ambiguity, absence of seeking single answers and critical attitude towards authority are related to orientation to broadening and deepening knowledge, as well as with absence of using memorizing strategies (Mirkov, 2016).

In our sample, belief that learning is quick and that ability to learn is innate is not related to the obtained factors which describe approaches to learning. This result differs from the results of other studies. In the previous study (Mirkov, 2016) it was confirmed that belief that learning is quick is related to absence of critical attitude towards authority, to absence of high aspirations, to absence of intrinsic interests as well as to absence of use of cognitive and metacognitive strategies which are oriented to elaboration and understanding. The same study showed that belief of innate ability to learn is accompanied by the goals oriented to self-affirmation, self-verification and fulfilment of expectations of others, as well as with use of organizing strategies. According to the results of the same study, the belief about learning the first time (which, according to indicators in Table 1, is also saturated by this factor in our study) is related to avoiding effort, to absence of organizing strategies and to orientation to self-affirmation, self-verification and to fulfilment of expectations of others.

The belief regarding avoiding integration and avoiding to invest an effort is negatively saturated by the factor named "Awareness and orientation to integration" (Table 5). In the previous study (Mirkov, 2016) it was confirmed that belief regarding aspiration to integration is accompanied by orientation to broadening and deepening knowledge, and that it is related to absence of use of memorizing strategies. According to the results of the same study, belief that learning can be learned (which is saturated by this factor in our research, as seen from the Table 1), is related to monitoring of strategy use and to orientation to self-affirmation, self-verification, as well as to fulfilment of expectations of others.

Having in mind that the results obtained on different samples are contradictory to a certain extent, it is necessary to investigate further into relations between the variables examined here. In principle, the results of our research are in line with the results of the study (Phan, 2009) which confirmed that epistemological

beliefs influence the adoption of mastering goals and achievement goals; that epistemological beliefs influence investing an effort when learning directly and indirectly, by mediation of different goals; and that epistemological beliefs, through the mastering goals, influence deep processing, and accordingly, academic achievement.

The result obtained in our study, according to which belief about quick learning is not related to learning goals and strategies, differs from the results of other studies (Braten & Stromso, 2006), which showed that beliefs about quick learning are predictors of adopting achievement goals, and that beliefs about construction and changeability of knowledge are negatively related to adopting achievement goals. According to the same study, the students who believe that knowledge is reliable and that it is being transferred, do not adopt mastering goals, while beliefs about construction and changeability of knowledge precede adoption of mastering goals. In line with this stand the results of our study, according to which belief that knowledge is certain, accompanied by dependence on authority, is negatively related to deep approach to learning, and positively with surface approach oriented to self-affirmation. We should bear in mind that the students in competitive environment are more oriented to achievement goals. Beliefs on quick learning can negatively influence development of adaptive forms of regulation related to goals (Braten & Stromso, 2006) and this is why, in the teaching process, we should work on overcoming a self-defencing belief according to which knowledge is acquired quickly or not at all.

CONCLUSION

The results obtained confirm that students' beliefs about learning and knowledge are related to their approaches to learning. Those students of economics who are oriented to understanding, on intrinsic goals, who apply knowledge broadening strategies and strategies relating to argumentation and conclusion, do not regard knowledge as certain, and they are not dependent on authorities. The students who are convinced that knowledge is certain and who demonstrate dependence on authority, use memorizing strategies as well as metacognitive monitoring strategy use. They are oriented to self-affirmation, i.e. on self-verification and, to a lesser degree, on comparison to others.

The students who express beliefs which imply avoidance of relating new ideas to previously acquired knowledge and avoidance of investing an effort, in line with their beliefs, do not use strategies of understanding/integration. They do not have built metacognitive strategies which relate to awareness and self-evaluation, and they are oriented to self-affirmation, i.e. self-verification.

The beliefs about quick learning and innate learning abilities, according to the results of our study, are not related to learning goals and strategies. This result differs from the results of other studies, and to be in a position to draw more accurate conclusions, as well as their implications to educational process, further research is needed.

In principle, results of our study imply that, if we encourage critical attitude to authority, critical thinking, acquiring the skill of argumentation and making conclusions, we may expect to influence development of intrinsic interests and orientation to understanding. On the other hand, avoiding ambiguity and seeking single answers, as well as depending on authority, indicates the orientation to self-affirmation and learning oriented to memorizing. According to our results and in line with the results of other studies (Mirkov, 2013a), focus on self-affirmation, typical for achievement approach, can be related to absence of metacognitive awareness, to deficiencies related to self-evaluation, and can negatively influence the readiness for investing an effort in order to achieve deep understanding and for using integration strategies which imply relating new ideas to previously acquired knowledge. We cannot draw conclusions about directions of influence on the basis of the analyses performed – moreover, relations can also be bidirectional – and therefore further research is needed to derive direct implications for practice.

Important implications for educational process can be based upon descriptions of learning from the perspective of students themselves (Mirkov, 2013c). Indicators of approach to learning represent only manifestations of the attitude about what learning entails (Entwistle, 2005), and efficacy of interventions focused on encouraging deep approach to learning also depends on different reactions of students to incentives, on the way in which they perceive requirements and on the way in which they approach performing to those requirements, under the influence of previous experiences and already formed personal beliefs (Marton & Saljo, 2005). It is not sufficient to teach less successful students the forms of behaviour typical for successful students, because they interpret requirements differently than successful students (Hattie, Biggs, & Purdie, 1996). The students

can also apply self-regulation skills with the aim of increasing efficacy of rote learning, if they assume that this is what is required from them. In order to achieve students' autonomy in managing learning process by encouraging development of students' personal capacities and study efficiency, the research can contribute to identifying conditions which will enable the students to first revise their already formed beliefs, goals and strategies, in order to be able to leave those that are not efficient and develop new, more efficient ones. The process of developing awareness and competences should enable development of awareness about possibilities of choice, change and adaptation, so the students would be able to develop their capacities further and achieve better success (Mirkov, 2016). Changing the way in which students engage in learning can lead to changes in their beliefs. Empirical results imply that learning strategies can influence epistemological beliefs, or that there is reciprocity in their relations (Muis, 2004). We need further research to examine directions of relations between beliefs and learning, and particularly environmental influences on these relations. Longitudinal research can contribute to determining directions of influences, and use of qualitative methods can enable deeper insight into students' and teachers' beliefs. The changes in traditional teaching style at different educational levels are needed, but they are not necessarily sufficient if the students are not helped in becoming aware of their own beliefs and also to reinterpret them in the context of their own educational experiences.

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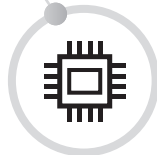
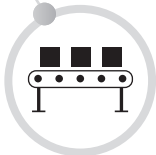
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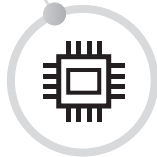
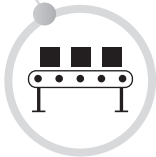
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AUTHORS' INDEX



A

Abazi - 354, 357, 362
Abbott - 375
Abd-el-Khalick - 362
Abel - 339
Aczél - 77
Adams - 142
Agnew - 376
Agyeman - 346
Aizer - 375
Ajzen - 339, 346
Akerson - 38
Aleahmad - 175
Alexander - 375
Alexandrova - 261
Alkaff - 353
Allen - 49
Allman - 174
Almeida - 65
Almendarez - 27
Ames - 297
Ananiev - 319, 321, 325
Anderson D.M. - 389
Anderson J. - 236
Anderson W.L. - 203
Andryukhina - 259
Antić - 36, 37, 48, 53
Antonio - 176
Arabatzi - 361
Arba'at - 360
Archer - 297
Arnold - 135
Arnon - 343
Arthur - 396
Ash - 119

Astratova - 259, 262
Atman - 354
Avalos - 63
Avramović Z.- 95
Avramović I.- 135
Ax - 64
Ayas - 38

B

Baggaley - 238
Bahar - 355, 373
Bain - 201
Bajaj - 299
Bakken - 77
Bales - 380
Ball - 210
Ballantyne - 343
Banarjee - 277
Bandura - 274, 287
Banzragch - 238
Banjari - 203
Barcelona - 108
Barke - 361
Barman - 36
Barnett - 54, 55
Barnhart - 213
Barraza - 353, 362
Barron - 64, 65
Barrows - 56
Barthes - 74
Bartlett - 210
Bašić - 375
Batinca - 212, 222
Baumann - 119
Bazić - 10

- Beara - 142, 151
Beavers - 174
Beers - 131
Beijaard - 64
Belacchi - 119
Belawati - 238
Beletzan - 78
Benelli - 119, 120, 122, 129, 135
Benson - 396, 397, 398, 405, 406, 407,
409, 410, 411, 413
Beręsewicz - 213
Berg - 352
Bergdahl - 211, 212, 236, 237, 243
Berger - 65
Berglund - 396
Berk - 380
Berman - 131
Bernadette - 143
Betzer - 57
Biesta - 75, 92
Biggs - 296, 311
Binder - 119
Bishop A. - 119
Bishop K. - 352
Bizzell - 76
Bjerk - 377
Black - 65
Blagdanić - 36, 48, 49, 53
Blaikie - 361
Blake - 346
Blazar - 160
Blieck - 361
Blomberg - 380, 389
Blommaert - 212
Bloom - 131
Blumenfeld - 56, 57, 62, 65, 297
Blyth - 407, 409, 410, 411, 412
Bodenhorn - 353
Bodur - 173, 174, 175, 176, 177
Boekaerts - 274
Boeve - 361
Bogan - 352
Bogner - 343, 353
Boisvert - 297
Bolam - 141, 142
Bond - 211, 237
Bonsignore - 175
Booth - 74
Bordeleau - 297
Borisov - 320, 323
Borko - 64, 173, 174, 175, 176, 177
Borkowski - 273, 274
Bornstein - 131
Borzzone - 131
Bostrom - 361
Bouffard - 297
Bouillet - 386
Boujaoude - 362
Bowen - 54
Box - 54
Boyes - 38
Bracken - 353
Bracy - 377, 380
Bradshaw - 387
Braten - 310
Braun A. - 210
Braun V. - 145
Bredl - 212
Breit - 173
Bridgstock - 289

- Brinkworth - 388
 Bromley - 109
 Brow - 260
 Brown - 203, 327
 Brownell - 119
 Browning - 21, 23, 24, 25, 26, 27, 29
 Bruce - 57
 Buchanan - 57
 Bukvić - 124, 406, 407, 411
 Bulatović - 275
 Bullis - 389
 Bulunuz - 38
 Burke - 76
 Burns - 110
 Bushina - 338
 Bushway - 374, 375, 380
 Buško - 275, 286, 288
 Butenko - 338
 Butler - 274
 Butterworth - 95
 Buttran - 142, 154
- C, Č**
- Caena - 196
 Cafaro - 342
 Cain - 119
 Calvert - 299
 Cancino - 121
 Carlson - 119
 Carmi - 343
 Carpenter - 175, 177, 212
 Carr - 352, 375
 Casotti - 54
 Castro - 38, 40, 47
 Catalano - 375, 396
- Celinska - 377
 Cestnik - 81
 Chalikias - 361
 Chan - 298, 299, 362
 Chen - 174
 Cheng - 56
 Cherdakli - 253
 Chia - 55, 66
 Chin - 55, 66
 Choy - 56
 Christensen - 135
 Chu - 353
 Churchill - 173
 Clark - 61
 Clarke - 145, 387
 Coates - 203
 Cochran-Smith - 200
 Code - 274
 Cohen - 26
 Consiglio - 213
 Conzemius - 32
 Copas - 175
 Coppola - 352
 Crouse - 297, 299
 Culen - 353
 Cunningham - 289, 352
 Cutri - 174
 Cvetek - 200, 201, 202
 Czerniak - 65
 Čekić-Marković - 390
 Čolić - 122
- D, Đ, Dž**
- Dainville - 76
 Danisch - 76

Darling-Hammond - 63, 64, 65
 Daudi - 352
 Day - 25, 375
 De Brabander - 297
 Deci - 259
 Dede - 173, 174, 176
 De Houwer - 131
 de Jong - 211
 De Laet - 387
 De La Paz - 57
 De Lisi - 135
 DeLisi - 377
 Delserieys - 38
 Denicolo - 159
 Denny - 387
 Dent - 274, 275, 276
 De Temple - 121
 Dewey - 29, 52
 Dickson - 197
 Dierkhising - 389
 Dietz - 336, 339, 340
 Dignath - 274
 Dijkstra - 141, 142, 143
 Dimitrijević - 97
 Dimitriou - 344
 Dimopoulos - 353
 Dochy - 56
 Dong - 212
 Dowler - 274
 Doyle - 375
 Draganić-Gajić - 376
 Dragičević - 97, 108, 109
 Driscoll - 297
 DuBois - 174, 175, 176, 177
 Dubovicki - 203

Dubrovina - 259, 267
 Duell - 297, 299
 Dülmer - 339
 Duncan - 278, 279
 Dutcher - 342, 347
 Dweck - 169, 287, 296, 297
 Dziubani - 203
 Dzobelova - 259
 Đerić - 58, 59, 63, 64, 143, 151
 Đermanov - 143
 Đević - 64, 164
 Đorđev - 107
 Đorđević - 106
 Đukić - 143
 Džinović - 63, 64, 141, 160, 164

E

Easter - 298
 Eccles - 259, 388
 Edwards S.I. - 57
 Edwards O.W. - 398
 Efremov - 252
 Elliot - 290
 Elliott - 375, 377
 Enger - 352
 English - 64, 99, 122
 Entwisle - 375
 Entwistle - 295, 311
 Erdogan - 352, 353, 354, 355, 356, 360,
 361, 363, 373
 Erickson - 174
 Erylmaz - 40, 47

F

Fagan - 377

- Faherty - 237
 Farley - 387
 Farley Ripple - 142, 154
 Farrington - 375, 388
 Fauning - 132
 Feather - 336
 Fenning - 375
 Fernandez-Ramirez - 203
 Ferry - 76
 Fien - 343
 Filippatou - 57
 Finley - 342
 Fischer - 175, 176
 Fishbein - 339, 346
 Fishman - 69, 174, 175
 Fitzgerald - 336
 Fontanieu - 361
 Forde - 197
 Fors - 237
 Fox B. - 173
 Fox R.A. - 296
 Fragkiadaki - 38
 Fraser - 55
 Freelon - 222
 Friedman - 134
 Fullan - 67, 160
 Furlong - 387
- G**
- Gabler - 78
 Galichin - 321, 323
 Galyardt - 175
 Gao - 296
 Garb - 343, 353
 Garcia - 274, 275, 288
 Gariglietti - 299
 Garrison - 353
 Geier - 57
 Gelman - 95
 Gendenjamts - 238
 Georgopoulos - 344
 Geyer - 203
 Ghazali - 339
 Gijbels - 55, 56
 Gillis - 131
 Gini - 119
 Given - 142
 Glassett - 175
 Gojkov - 53
 Goldkind - 389
 Goldman - 353
 Goldstein - 168
 Golinkoff - 190
 Golley - 353
 Golub - 262
 Gonzales - 174
 Gonzalez - 121
 Gonzalez Cabanah - 296, 297
 Gorard - 110
 Gordeeva - 261, 262, 264, 265
 Gottfredson - 375, 377, 388, 389
 Gouveia - 78
 Govaris - 57
 Govekar Okoliš - 204
 Grant - 61, 160
 Green - 160
 Greenhalgh - 177
 Gregory - 259
 Greiml-Fuhrmann - 203
 Grey - 342

Grigorovitch - 38
 Griller Clark - 389
 Gromkova - 318, 325
 Groot - 375
 Gruber - 203
 Grue - 77
 Guagnano - 339
 Gudmundsdottir - 211, 212
 Gunstone - 48
 Gunter - 387
 Guskey - 160, 163

H

Hadwin - 274
 Hakes - 119
 Halverson - 154
 Hansen - 175
 Hansson - 38
 Hargadon - 175
 Hargreaves - 61, 67
 Harlan - 57
 Harlen - 54, 55
 Harlow - 380
 Harris J.M. - 62
 Harris P.R. - 361
 Hart - 361
 Hartman - 203
 Harvey - 61, 63, 260
 Hasani - 357, 360
 Hathaway - 211, 212
 Hattie - 311
 Havel - 389
 Hawkins - 375, 396
 Hebib - 177
 Heckhausen H. - 324
 Heckhausen J. - 261, 323
 Hee - 353
 Henny - 31
 Henriksen - 126, 134
 Hernandez-Ramos - 57
 Herriman - 119
 Hershberger - 43
 Herz - 389
 Herzberg - 76
 Hewitt - 377
 Hill - 203
 Hillman - 212
 Hines - 354, 361, 362, 363
 Hirsch - 389
 Hirschfield - 377, 391
 Hirschi - 323
 Hirsh-Pasek - 190
 Hjalmarsson - 375
 Hodges - 211, 212, 237
 Hofer - 297, 298
 Hoff - 120
 Hoffman - 143
 Hofman - 141, 142
 Hofstede - 338
 Hogan - 160
 Holmberg - 237
 Holmes-Henderson - 77
 Holzer - 362
 Hord - 141, 142
 Horsey - 375
 Houle - 54
 Howe - 143
 Hoyle - 297
 Hsu - 38, 353
 Hu - 174

Huberman - 160, 163
 Huddleston - 175
 Huei-Min - 352
 Hugenford - 343
 Huizinga - 377
 Hungerford - 353, 354, 361, 362, 363
 Hunniger - 212
 Hunt - 28
 Hutter - 297, 299

I

Idrizi - 357
 Iermakov - 237
 Igbokwe - 353
 Ilić M. - 36
 Ilić P. - 104
 Ilić Z. - 375, 376
 Ilyin - 322, 323, 325
 Impedovo - 38
 Inglehart - 338, 339, 345
 Inhelder - 127
 Ipek - 38
 Ismaili - 354, 357, 358, 362
 Ivanov - 237
 Ivić - 53, 124
 Ivković - 97

J

Jack - 387
 Jackson L.W. - 27, 28
 Jackson M. - 202, 206
 Jacobs - 173, 174, 175, 176, 177
 Jagaiah - 131
 Jahng - 176
 Jakšić M. - 289

Jakšić I. - 298
 Jamieson-Noel - 274
 Jank - 84
 Jansen - 274
 Janjić - 97
 Jass Ketelhut - 173
 Javornik Krečič - 205
 Jenkins - 119
 Jenlink - 63
 Jensen - 56, 212
 Jenson - 387, 388
 Jerotijević - 390
 Jianping - 335
 Joaguin - 325
 Johansson - 382
 John - 30, 37, 40, 43, 46, 138
 Johnson - 174, 342
 Johnston - 323
 Jokić - 54, 55, 65, 308
 Joksimović - 289
 Jones - 134
 Jonuzi - 357
 Jošić - 143
 Jovanović - 143, 390
 Joyce - 161, 170

K

Kaldahl - 76
 Kaldi - 57
 Kalof - 339
 Kaltakci - 40, 47
 Kame'enui - 119
 Kampeza - 38
 Kandil Ingeç - 37
 Kanfer - 324

- Kanselaar - 297
Karabenick - 274
Karaçalli - 57
Karimzadegan - 353
Karlberg - 213
Karyanto - 360, 361
Kašić - 119, 131
Kayalvizhi - 66
Kearns - 131
Keles - 353
Kelly - 71, 176
Kett - 380
Khawaja - 362
Khoshaba - 260
Kilpatrick - 53
Kim - 135
Kimmons - 174, 212
King - 32, 173, 203
Kinnucan-Welsch - 63
Kirby - 296
Kiseleva - 262
Kitsantas - 64, 290
Kızılaslan - 356, 373
Kjeldsen - 77
Klafki - 84
Knabb - 54
Knaflič - 97
Knoll - 52, 62
Knutsson - 237
Kock - 76
Kocsis - 353
Kodžopeljić - 122, 136
Koehler - 177
Koellner - 173, 174, 175, 176, 177
Koenka - 274, 275, 276
Kokhan - 237
Kokotsaki - 65
Kollmuss - 346
Kolodner - 53
Kolokoltsev - 237
Konstantinović-Vilić - 377
Kooij - 324
Kopnina - 342
Korać - 142, 143, 152, 153, 154, 155
Korolkov - 254
Korshunova - 259
Kortenkamp - 361
Korthagen - 160
Korur - 57
Kosanović - 142, 143, 155
Kostić - 130
Kostova - 353
Kostović - 142, 143, 155
Kovačević - 108, 112, 131
Kövecses - 108
Kraft - 160
Kraig - 318, 320
Krajcik - 56, 61, 63, 65
Krajcik - 67
Kranželić-Tavra - 375
Kranjčec - 204
Krasny - 174, 175, 177
Kraynik - 237
Krishnakumari - 361
Kristal - 108, 111
Krnjaja - 53, 143, 151, 152
Kromrey - 352
Kruger - 35, 40
Krutka - 175, 177, 212
Kub - 142

- Kubek - 375, 389, 391
Kubitskey - 174
Kudinov - 261, 323
Kuhlemeier - 360, 361, 363
Kumar - 277
Kundačina - 362
Kurland - 120, 121, 128, 129
Kutu - 356
Kuzmanović - 143, 286
Kwan - 57
Kyndt - 142
Kyriakopoulos - 361
- L**
- Ladewski - 61
Lagerweij - 360, 361, 363
Lagutkina - 236
Lai - 343
Lajović - 160
Lam - 56
Lammers - 203
Lang - 382
Lantz-Andersson - 212
Larina - 236
Larouche - 297
Larrabee - 36
Lasen - 142
Laurie - 203
Lavrič - 200, 202
Law - 298, 299
Lawy - 75, 92
Lay - 174, 176
Lazarević - 116, 118, 119, 122, 134
Lebedeva - 338
Lečić-Toševski - 376
Lee - 325, 353
LeeKeenan - 142
Leeming - 353
Le Fevre - 63
Leffert - 397, 399, 407, 410
Le Hebel - 361
Lehtonen - 213
Leontiev - 260, 261, 262
Levinson - 210
Lewis - 55
Li - 119
Liang J.C. - 38
Liang S.W. - 343
Lim - 380
Lin - 296
Lindstrand - 38
Lithoxidou - 344, 345
Liu - 174, 175, 177
Lochner - 375, 389
Lockee - 211, 237
Lodewijks - 297
Loeber - 374
Lonczak - 396
Lončarić - 286
Longobardi - 131
Lopatina - 252
Lorion - 413
Losch - 160
Louws - 174, 176, 177
Loyens - 56, 57
Lozanov-Crvenković - 173
Lu - 260
Lubovsky - 259, 267
Lucangeli - 119
Luloff - 342

Lundin - 212
Ljung-Djarf - 38

M

MacGregor - 203
MacLachlan - 353
Maddi - 260, 262, 263, 265, 266
Magajna - 205
Maguin - 374
Maguire - 210
Makki - 362
Maksić - 106, 110
Malinić - 63, 64, 386
Mancl - 352
Mancosu - 213
Mann - 380
Mannes - 397, 398, 409, 411
Marcer - 143
Marcinkowski - 353
Marcinkowskim - 352
Mardell - 142
Marentič Požarnik - 200, 202, 205
Marinellie - 122
Marin Jerez - 261, 323
Markova - 320, 325
Marković - 98
Martin - 32
Marton - 295, 298, 311
Marušić - 153
Marušić Jablanović - 36, 48, 49, 342,
343
Marx - 62
Maslova - 236
Maslow - 324
Mason - 110
Mates - 325
Matijević - 53, 57
Matović - 144
McBeth - 353
McCall - 174
McCloskey - 173
McGhee-Bidlack - 126, 129
McGinnis - 168
McGregor - 134, 290
McKeachie - 275, 278
McLaughlin - 63
Mc Mahon - 197
McMahon - 141
McManus - 296
Meece - 297
Mee Hee - 353
Meiboudia - 353
Meirink - 174
Memeti - 357, 358, 360
Menard - 377
Menyuk - 119
Menzies - 65
Meredith - 142
Mergendoller - 56
Merrick - 396
Messer - 37, 40, 43, 46
Metioui - 35, 37, 40, 43, 47
Meyer - 53, 84
Meyers - 353
Micić - 96
Mikeseii - 325
Mikhailova - 261, 321, 323
Milin - 143, 151
Milinković - 124
Milkus - 238

Miller - 75, 76, 176, 352
Milošević - 102, 113
Minigan - 66
Miočinović - 122, 127
Mioduser - 57
Mire - 31
Mirkov - 275, 287, 295, 296, 297, 298,
299, 300, 309, 311, 312
Mirzaahmedov - 259
Miščević - 48
Mitchell - 48
Moallem - 56
Močnik - 76
Mohd Zaid - 360
Molle - 63
Montpied - 361
Mony - 353
Moore - 211, 237, 361
Moretti - 389
Morgan - 380
Morrone - 352
Mortensen - 76
Moskal - 203
Moskovljević Popović - 120, 122
Moust - 56
Mrše - 390
Muis - 298, 312
Mujagić - 275, 286, 288
Mukaržovski - 96
Mumford - 398
Murati-Sherifi - 357
Muratović - 37
Murphy - 76, 203
Murray - 197, 198
Mutum - 339

Myers - 54

N

Nagy - 109, 119, 131, 323
Najaka - 375
Nastić-Stojanović - 375
Negev - 343, 353, 360, 361, 363
Nelson - 387
Nesbit - 274
Newman - 134
Newmann - 343
Ng - 287, 352
Nguyen - 339
Nikolić-Ristanović - 377
Nippold - 121, 132
Nissen - 126, 134
Noonan - 174
Norton - 342
Nouri - 211, 212, 236, 237, 243
Novak - 50, 63
Ntanos - 361
Nussbaum - 75

O

Obadović - 173
O'Brennan - 387
O'Brien - 360, 361
O'Connor - 361
O'Donnell - 375
O'Dwyer - 353
Ogunbode - 361
O'Keefe - 297
Olinghouse - 131
Olson - 121
Olsson - 38

- Olympia - 387
 Opačić - 114, 298, 300
 Oparnica - 275, 286
 Orion - 343
 Osborne - 66
 Oshkina - 237
 Osin - 261, 262, 264, 265
 O'sullivan - 237
 Ovesni - 173, 175, 177
- P**
- Pabon - 377
 Packer - 142, 343
 Pahl - 361
 Pais-Ribeiro - 411
 Pajares - 289
 Palmer - 353, 362
 Panadero - 273, 274, 276, 289
 Pantic - 353
 Parakevopoulos - 353
 Paris - 274
 Park - 174, 175, 176, 177
 Parker - 25, 175, 177
 Paternoster - 374, 375, 380
 Patrick - 289
 Pavlin - 76
 Pavlović J. - 159, 160, 161, 162, 163,
 297, 299
 Pavlović V. - 375
 Pavlović Breneselović - 53, 141, 143, 152
 Payne - 388
 Pecore - 56, 62
 Pe'er - 353
 Peguero - 377, 380
 Pejatović - 153
 Pejović-Milovančević - 376
 Peng - 274
 Perels - 274
 Perry - 274, 297
 Persico - 260
 Pešec Zadavec - 76
 Pešikan - 36, 48, 53, 124
 Peter - 396, 407
 Petrovački - 97, 111
 Petrović - 98, 143
 Phan - 298, 299, 309
 Philipsen - 175, 176, 177
 Phillips - 274
 Piatelli-Palmarini - 118
 Piccolo - 342
 Piirto - 382
 Pijaže - 36, 127
 Pine - 37, 40, 43, 46, 55
 Pintrich - 274, 275, 276, 277, 278, 288,
 289, 295
 Piquero - 380
 Pirc - 79
 Plazinić - 300, 308
 Plucker - 338
 Poldrugač - 375, 387
 Pollard R. - 54
 Pollard J.A. - 396
 Pollozhani - 358
 Polshina - 325
 Ponmozhi - 361
 Ponte - 64
 Pope - 159
 Popović - 96
 Popović-Čitić - 375, 406, 407, 411
 Popović-Deušić - 376

- Postholm - 274
 Powell - 173, 174, 176, 177
 Pozo-Munoz - 203
 Pratt - 119
 Primack - 342
 Prince - 213
 Prtljaga - 52, 53, 54, 58, 60
 Psacharopoulos - 27
 Puckett - 30, 31
 Pugachev - 237
 Pulkkinen - 273, 274
 Purdie - 311
 Putnam - 64
 Putnick - 131
 Puustinen - 273, 274
- Q**
- Quintilian - 77, 78, 83, 90
- R**
- Radden - 108
 Radić - 131
 Radlović-Čubrilo - 173
 Radović - 173, 175, 177
 Radulović - 152, 155, 275
 Ramli - 360, 361
 Rasskazova - 260, 261, 262
 Rasulić - 108
 Raven - 352
 Reboloso-Pacheco - 203
 Redditt - 142
 Reed - 375
 Rees - 110
 Regoli - 377
 Reilly - 134
 Reis - 213
 Reyes-Garcia - 353
 Rhodes - 297, 299
 Richardson V. - 63
 Richardson J.T.E. - 295, 298, 373
 Rickinson - 343
 Rieser-Danner - 54
 Rihn - 296
 Rikers - 56, 57
 Ristanović - 58, 60
 Roberts - 353
 Robinson - 238
 Robottom - 361
 Roccas - 336
 Rocco - 142
 Rockcastle - 352
 Rodriguez - 38, 40, 47
 Roehlkepartain - 397, 407, 409, 410, 411, 412
 Roglić - 375
 Rolston - 342
 Romanova - 237
 Romashko - 322
 Rosandić - 108
 Rosenfeld - 61
 Rosenthal - 288
 Ross - 142
 Rossi-Arnaud - 131
 Roth - 352, 354
 Rothstein - 66
 Rovira - 353
 Rud - 375
 Ruggiero - 353
 Ruiz-Mallen - 353
 Rumberger - 380

- Rumble - 237
 Rusljakova - 262
 Russ - 174, 175, 177
 Rutar - 204, 205
 Rutten - 75, 76
 Rutter - 361, 388
 Ryabukhina - 320, 323
 Ryan - 259, 289, 396
 Rynsaardt - 160
 Ryung - 353
- S**
- Sachs - 296, 298, 299
 Sadovnikova - 259
 Sagiv - 336
 Sagy - 343, 353
 Şahin - 38
 Saigo - 352
 Saizmaa - 238
 Sakashita - 238
 Salisbury - 110
 Salzberg - 343, 353
 Saljo - 295, 298, 311
 Sanchez Abchi - 131
 Sander - 203
 Sans - 76
 Santana - 66
 Savanović - 308
 Savery - 55
 Savić - 111
 Scales - 397, 398, 405, 406, 407, 409,
 410, 411, 413
 Schahn - 362
 Schaie - 319
 Schleicher - 95
 Schley - 121
 Schmidt - 56
 Schmitz - 274
 Schnase - 259
 Schoenebeck - 175
 Schommer - 297, 299, 300
 Schommer-Aikins - 297, 298, 299
 Schon - 159
 Schugurensky - 174
 Schultz - 336, 340, 341, 347, 361
 Schulz - 261, 323
 Schumann - 325, 327
 Schunk - 274, 290
 Schwartz - 336, 337, 338, 345
 Scott - 109, 119, 363
 Seegers - 297
 Segedinac - 173
 Segers - 56
 Seifert - 297
 Semenova - 259
 Senechal - 120
 Serra-Roldan - 398
 Sesma - 407
 Shaha - 175
 Shek - 396
 Shevyakova - 254
 Shiang-Yao - 352
 Shin-Cheng - 352
 Shih-Wu - 352, 360, 361
 Shillingford - 398
 Shoreman-Ouimet - 342
 Shores - 387
 Short - 161
 Showers - 161, 170
 Shramko - 407, 410

- Shriberg - 121
Shwom - 336
Sicurella - 375
Silberberg - 375
Silva - 119, 131, 411
Simić R. - 96, 104
Simić N. - 153, 308
Simmons - 352
Simoncini - 142
Sinclair - 389
Skaalvik - 297
Skordoulis - 361
Sladoje Bošnjak - 300
Smith C. -119
Smith D. -275, 278
Smith K. -199
Smolleck - 43
Snow - 120, 121, 128, 129
Soares - 410
Soćanin - 375
Soetaert - 75, 76
Sofroniou - 29
Sokoloff - 413
Soldatović - 143
Somuncuogly - 297
Sözbilir - 356, 373
Spataro - 131
Spiroska - 360
Srbinovski - 353, 354, 355, 357, 358,
359, 360, 361, 362, 363
Srećković-Stanković - 160
Stables - 352
Stahl - 109, 119
Stančić - 111, 275
Stanisstreet - 38
Stanišić - 342, 343, 359, 361
Stanković - 59, 63, 143, 151, 160, 163
Stanojčić - 96
Stanojević - 173, 175, 177
Starkova - 325
Starostina - 237
Stein - 36
Stepanova - 320, 321, 322, 325
Stern - 339, 340
Stevanović - 95, 96, 97, 102, 106, 107,
110, 112, 113, 119, 134
Stevenson - 203
Stoeger - 298
Stojanović - 53
Stojnov - 63, 160, 163
Stoll - 141
Stromso - 310
Suarez Riveiro - 296
Suhre - 274
Sujo de Montes - 174
Sun - 396
Sutton - 210
Sweeten - 374, 375, 380, 389
Swennen - 197, 200
Sychev - 261, 262, 264
Symanyuk - 320, 323
Syvertsen - 405, 409, 410, 411, 413
Szechy - 353
Szerenyi - 353
Šefer - 58, 63, 64, 66, 119
Ševa - 59
Ševkušić - 143
Šipka - 98
Štefanc - 84

T

Taccogna - 398
 Tager-Flusberg - 119
 Tal - 343, 353
 Tamim - 61
 Taneva - 236
 Tanner - 343
 Taraban - 54
 Taşkın - 37
 Taylor - 93, 135, 342
 Tenjović - 106, 110
 Teodorović - 59
 Thomas J.W. - 56, 61, 62, 67
 Thomas S. - 141
 Tighe - 119, 120
 Tindall-Biggins - 375
 To - 119
 Todd - 361
 Tolchinsky - 131
 Tomasello - 131
 Tomera - 354, 361, 362, 363
 Tomlinson - 288
 Tondeur - 175, 176, 177
 Torenbeek - 274
 Torphy - 174, 176, 177
 Tošović - 106
 Treleaven - 212, 222
 Tretyakova - 237
 Trikaliti - 344
 Trivić - 95
 Trudel - 35, 37, 40, 43, 47
 Trust - 211, 212, 237
 Tsai - 38
 Tulman - 380
 Tunmer - 119

Turaga - 361
 Türkmen - 37
 Turner - 215
 Tuul - 238
 Twombly - 142

U

Ültay - 37
 Unruh - 389
 Uşak - 355, 373
 Usta - 37
 Utkina - 259
 Uyanga - 238
 Uzelac - 386
 Uzun - 353

V

Valenčič Zuljan - 205
 Valle Arias - 296
 Van Berkel - 56
 Van Den Bergh - 360, 361, 363
 Van den Bossche - 56
 Van Den Brink - 375
 Van der Klink - 197
 Van der Linden - 297
 Van De Vijver - 338
 Van Driel - 174
 Van Dulmen - 407
 Vangrieken - 142
 Van Klaveren - 375
 Van Petegem - 361
 Van Putten - 297
 Van Tulder - 161
 Van Veen - 174
 Varis - 212

- Varisli - 360
 Vasić - 97, 122, 124, 129, 130, 133
 Vath - 174
 Vavrus - 210
 Veenman - 161
 Vegetti - 213
 Vermunt - 297
 Vescio - 142
 Veselinov - 58, 60
 Veselinović - 390
 Vesić - 289
 Vezeau - 297
 Vigotski - 36, 109
 Villadsen - 76
 Vilotijević - 53, 101
 Vizek-Vidović - 289
 Vladisavljević - 130
 Voeten - 161
 Vogrinc - 205
 Volk - 343, 353
 Voss R. - 203
 Voss H. L. - 375
 Voyer - 110
 Vučetić - 286
 Vujačić - 59, 64, 289
 Vuković - 122, 135
 Vušurović - 390
- W**
- Waintrup - 389
 Walford - 362
 Wallace - 141
 Walsh-Daneshmandi - 353
 Wang B. - 175, 177
 Wang M.T. - 388
 Ward - 375
 Wardani - 360, 361
 Ward-Lonegran - 132
 Washington - 342
 Waterston - 295
 Watson - 121
 Wehlage - 343
 Wehren - 135
 Wei - 63
 Wei-Ta - 352
 Welsh - 388
 Weltzel - 339
 Welzel - 338, 339, 345
 Weston - 342
 Whalen - 211, 212
 Whitehouse - 173
 Wierstra - 297
 Wierzbicka - 108
 Wigfield - 259
 Wiggins - 65
 Wiliam - 65
 Willet - 177
 Williams - 360, 375
 Willits - 363
 Willott - 238
 Wilson - 375
 Winder - 296
 Winne - 274
 Winstead - 210
 Wolf - 55
 Wolfgang - 380
 Wolters - 274, 275, 288
 Wong - 296
 Wood - 259
 Woodhall - 27

Wrosch - 261, 323

Wubbels - 64

X

Xenitidou - 344

Y

Yablochnikov - 259

Yap - 339

Yaşar - 356

Yavetz - 353

Yildirim - 297

Yilmaz - 38

Yopp - 119

Yovanoff - 389

Yu - 275, 352

Z

Zabukovec - 205

Zeer - 320, 323

Zener - 237

Zeng - 352

Zenki - 357

Zhu - 175, 176, 177

Zidar Gale - 79

Zimmerman - 273, 274, 290

Zlatic - 106

Zmeev - 323

Zmeyov - 318

Zobenica - 275, 286

Zsoka - 353

Zubrick - 135

Ž

Žagar - 76, 79, 80

Žmavc - 76, 78, 79, 80

Žunić-Pavlović - 375

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FROM REVIEWS

Main aim of the monograph titled *Problems and perspectives of contemporary education*, is to thorough explore, critically analyze and elaborate complex, dynamic, multilayers and reciprocal relationship between significant changes in educational social environment and readiness, of educational system to anticipate, recognize, understand and adequately respond to those challenges. All contributing authors enthusiastically embraced the notion that education presents an important and proactive agent of social changes and consequently accepted all challenges as an opportunity for improvement and development of both society and educational system.

Professor Emeritus Djuradj Stakic
Pennsylvania State University, USA

The monograph is dedicated to looking into extremely significant and current concerns within educational policy and educational practice. The selected topic is viewed from the perspectives of contemporary theoretical approaches, but it is also empirically researched. A very large and relevant literature was used both for explaining the selected research subject and discussing the obtained results. A diverse, contemporary methodology was applied in researches, and the authors of works, starting from the existing results, analysed issues at a deeper level and illuminated some aspects that had not been studied thus far.

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Russian State University for the Humanities, Russia

The main topics covered by the monograph can be classified as traditional to some extent — related to approaches to learning, language culture etc., and modern — connected with the andragogical view, coaching in teacher training, also the problem of distance learning during the covid pandemic, and models for preventing problem behaviors...The main leitmotif that permeates the content of all presented articles is the topic of the development of key skills, attitudes, experience, creativity — by both subjects in the educational process, and it gives semantic integrity to the monograph.... In view of the new social realities, a reasonable emphasis is placed on the continuing education and development of the teachers themselves, dictated by the accelerated pace of social change.

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