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## The Relevance of Learning Approaches and Temporal Perspective for Test-Taking

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ANDREJA BUBIĆ<sup>1</sup>

∞ Test-taking is an integral part of students' lives, and the way they approach tests may be of high relevance for their academic outcomes. Therefore, the present study addressed the way college students reflect on the process of preparing for tests. Specifically, it investigated the relevance of students' achievement goals, perceived academic control, and consideration of future consequences for several aspects of the test-taking process. The results obtained revealed mastery goals, perceived academic control, and the ability to disengage from the present moment as significant predictors of students' satisfaction with knowledge. Furthermore, higher success optimism was associated with having higher perceived academic control, more pronounced mastery goals, less pronounced social solidarity goals, and a higher tendency to focus on the future, whereas perceived academic control was revealed to be a significant predictor of the perceived ease of preparing for tests.

**Keywords:** achievement goals, consideration of future consequences, higher education, perceived academic control, test-taking

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<sup>1</sup> Faculty of Humanities and Social Sciences, University of Split, Croatia; abubic@ffst.hr.

## Pomembnost učnih pristopov in časovni pogled na opravljanje preizkusov znanja

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ANDREJA BUBIĆ

≈ Opravljanje preizkusov znanja je sestavni del življenja študentov; način, na katerega pristopajo k opravljanju preizkusov, je lahko zelo pomemben za njihove študijske dosežke. Zato se je zadevna raziskava ukvarjala z ugotavljanjem načina, na podlagi katerega študentje razmišljajo o procesu priprave na opravljanje preizkusov. Raziskava se je osredinila zlasti na pomembnost izvedbenih ciljev, zaznan akademski nadzor in na premislek o prihodnjih posledicah za različne vidike postopka opravljanja preizkusov znanja. Pridobljeni rezultati so pokazali, da so visoki cilji, zaznan akademski nadzor in sposobnost odmika od sedanjosti pomembni napovedovalci zadovoljstva študentov z znanjem. Poleg tega je bila višja stopnja optimizma glede uspeha povezana z večjo zaznano stopnjo akademskega nadzora, bolj izraženimi visokimi cilji, z manj izraženimi cilji glede družbene solidarnosti in z večjo težnjo po usmerjenosti v prihodnost, medtem ko se je zaznan akademski nadzor izkazal kot ključni dejavnik napovedi zaznane preproste priprave na opravljanje preizkusov.

**Ključne besede:** izvedbeni cilji, upoštevanje prihodnjih posledic, univerzitetno izobraževanje, zaznan akademski nadzor, opravljanje preizkusov znanja

## Introduction

Obtaining a college degree is a process that involves not only learning and participating in various academic activities but also demonstrating the acquired knowledge and skills that is typically accomplished through various forms of evaluative events, namely tests. Although the format of such tests generally varies across teachers, subjects, schools, and education levels, test-taking is a process that always includes a forethought or preparatory phase during which students prepare for the test, a performance phase during which they take the test, and a self-reflection phase during which they reflect on the results of the test (Schutz & Davis, 2000; Zimmerman, 1998, 2000). All of these phases may be very cognitively and emotionally demanding for students, and often require a considerable amount of self-regulation efforts and skills (Schutz & Davis, 2000). Interestingly, although most students are typically very motivated to provide their best performance in testing situations, their perception of their efforts and progress is not always objective and realistic. Specifically, it has been demonstrated that students tend to experience difficulties judging their readiness and performance on tests, even in college (Peeverly et al., 2003; Pressley & Ghatala, 1988; Pressley et al., 1990).

The self-reflection phase (Zimmerman, 1998, 2000) is a vital part of the test-taking process because, although it may not influence the outcomes of completed tests, this period can provide students with an opportunity to reflect on their previous behaviours and learning. During this time, learners' satisfaction with the acquired knowledge and the achieved grades, as well as their perception of actions undertaken while preparing for tests, may provide strong motivation and guidance for changing future behaviours. Therefore, this phase offers students a unique opportunity to develop deeper metacognitive insights (Brown, 1978; Flavell, 1979; Veenman et al., 2006) that may allow them to accomplish more favourable outcomes in the future. Consequently, it is crucial to better understand students' considerations of their behaviours and performance during this phase, as well as factors that influence these.

## The Role of Academic Motivation and Perceived Academic Control in Students' Educational Outcomes

Among different determinants of students' academic behaviours and outcomes, numerous studies have previously demonstrated that motivation, achievement goals, and views of one's abilities are some of the most relevant factors associated with individuals' success and attributions of one's success in the academic domain (Nilsen, 2009; Pajares, 2003). Consequently, various theoretical

conceptualisations have thus far been developed that offer different approaches to understanding student motivation. A number of these theories has recognised the relevance of individuals' expectations regarding the outcomes, subjective value of the task, and achievement goals that reflect the purpose of one's engagement in a specific activity (Eccles, 2005; Eccles & Wigfield, 2002; Wigfield & Eccles, 2000, 2002). Within the Personal Investment Theory (Maehr, 1984; Maehr & Braskamp, 1986), such goals are defined as students' beliefs regarding the purpose of academic work, achievement, and success (Urda & Maehr, 1995). According to this theory, it is possible to distinguish between four types of relatively stable achievement goals that include mastery (task), performance (ego), social solidarity (social relations), and extrinsic goals (Maehr, 1984; McInerney et al., 2002; McInerney et al., 1997). Among these, mastery or task goals are directed towards knowledge, learning, and tasks, and are utilised by students who typically have good self-regulatory skills, use deep processing strategies, and experience more positive emotions during learning (Covington, 2000; Urda & Maehr, 1995). In contrast, performance or ego goals reflect individuals' strivings towards accomplishing socially acceptable standards and excel in performance when compared to others. Next, extrinsic goals are related to learning because of rewards received from others, whereas social solidarity achievement goals reflect individuals' attempts to belong to a peer group or gain the approval of others.

In addition to students' achievement goals, academic behaviours and success are also related to their views of their characteristics and potentials. One aspect of such beliefs includes perceived academic control that reflects individuals' beliefs regarding their abilities and other characteristics that are relevant for academic success and the accomplishment of favourable educational outcomes (Perry, 1991; Perry et al., 2001). Similarly to the related construct of academic self-efficacy, perceived academic control influences individuals' motivation, academic achievement as well as emotions typically experienced in school (Bandura, 1977; Multon et al., 1991; Robbins et al., 2004; Schunk et al., 2008; Zimmerman & Kit-santas, 1997).

### **The Relevance of Temporal Perspective for Students' Educational Outcomes**

In addition to the described characteristics that are specifically associated with the educational domain, individuals' academic outcomes are also influenced by other characteristics, such as abilities, interests, personality traits, or emotions (Slavin, 1991). Furthermore, persons' cognitive and decision-making styles, namely ways that they typically collect, process, and use information in

decision-making situations, may also be of relevance in this context (Appelt et al., 2011). Among these, the present study explored one aspect of individuals' temporal perspective: the tendency to explicitly consider the potential future outcomes of actions (Strathman et al., 1994). Specifically, it has previously been demonstrated that people differ with respect to their tendency to focus on the present moment and the willingness to sacrifice immediate wishes in order to secure the desired future outcomes (Strathman et al., 1994a; Zimbardo & Boyd, 1999). Earlier studies that have investigated this characteristic have indicated that individuals who carefully consider future consequences more frequently engage in different types of responsible behaviours (Joireman et al., 2008; Joireman et al., 2001; Moore & Dahlen, 2008; Strathman et al., 1994a; Strathman & Joireman, 2005). Similar to other domains, within the educational context such individuals invest more efforts and persist in academic activities, indicating the relevance of this trait for their motivation, self-regulation and academic achievement (Bembenutty & Karabenick, 2004; Husman & Lens, 1999; Joireman et al., 2008; Malka & Covington, 2005; McInerney, 2004; Taber, 2013).

## Research Questions and Hypotheses

The present study focused on the self-reflection phase of the test-taking process, during which students consider test results, and investigated the way they reflect on the process of preparing for tests, its outcomes, and expectations regarding future success. Specifically, within this study, college students majoring in the social sciences and humanities in Croatia assessed their perceived ease of preparing for tests during the previous year, satisfaction with knowledge acquired while preparing for tests, and optimism regarding success in completing future tests. Next, we addressed the importance of several characteristics whose impact on other segments of students' academic behaviours has previously been described, namely perceived academic control, achievement goals and the tendency to consider future consequences, for these criteria.

In doing so, it was hypothesised that mastery goals would be associated with higher commitment to the process of preparing for tests, resulting in students' higher satisfaction with the knowledge acquired while preparing for tests and higher optimism with respect to achieving success in future tests. Next, we expected that higher perceived academic control would be associated with a more dedicated and successful approach to test-taking, which would be reflected in students' higher satisfaction with the knowledge acquired while preparing for tests and higher optimism regarding future success. Furthermore, given that students with higher perceived academic control view their abilities

in a more favourable light, they were expected to perceive the process of preparing for tests as being easier than those students characterised by lower perceived academic control. Finally, within the present study, it was hypothesised that individuals who carefully consider future consequences would be more responsible with respect to the way they approach test-taking, which would result in their higher satisfaction with the knowledge acquired while preparing for tests as well as higher optimism regarding future success.

## Method

### *Sample and Procedure*

Among 291 college students (average age  $M = 21.32$  years,  $SD = 1.98$ ) who participated in the present study, 15 (5.2%) were male and 276 (94.8%) female. The participants were all students majoring in different social studies (e.g., sociology, pedagogy) and humanities (e.g., history, art history, philosophy) at the University of Split, Croatia. Participants were approached at the college premises during their lectures. There, they completed the prepared questionnaires within a group setting for course credit. The following instruments were used in the present study: *Perceived Academic Control Scale* (Perry et al., 2001), *Consideration of Future Consequences Scale* (Strathman et al., 1994) and the *Inventory of School Motivation* (McInerney et al., 1997; McInerney et al., 2000; McInerney & Sinclair, 1991, 1992). In addition, the participants reported the perceived ease of preparing for tests using a five-point Likert-type response scale (1 – very easy; 5 – very difficult). Furthermore, they reported their level of satisfaction with the knowledge acquired while preparing for previous tests using a five-point Likert-type response scale (1 – completely unsatisfied; 5 – completely satisfied), and optimism regarding their chances of successfully completing future tests (success optimism) using a five-point Likert-type response scale (1 – very pessimistic; 5 – very optimistic). Their reported ease of preparing for previous tests was 2.95 ( $SD = .63$ ), satisfaction with the knowledge acquired while preparing for previous tests 3.66 ( $SD = .76$ ), and optimism regarding future chances for success 4.45 ( $SD = .74$ ).

### *Instruments*

The *Perceived Academic Control Scale* (Perry et al., 2001) is a questionnaire used for measuring students' perceived academic control that reflects their beliefs regarding the capacity to influence their academic outcomes. This scale comprises eight items (e.g., *My grades are basically determined by things beyond my control, and there is little I can do to change that*) that the participants

rated on a five-point Likert type scale (1 – strongly disagree; 5 – strongly agree). Among them, four items, including the presented one, were negatively phrased and therefore reverse scored. A higher score on this scale reflects a higher degree of perceived academic control.

The *Consideration of Future Consequences Scale* (Strathman et al., 1994b) is a 12-item instrument used for assessing the extent to which individuals focus on the short-term or long-term consequences of their actions. As previous studies have indicated a two-factorial structure of this scale, within the present study, participants' scores were calculated separately for two distinct subscales: one reflecting present-oriented, and one future-oriented tendencies (Bubic, 2015; Joireman et al., 2008). The first, the *Present Focus* scale, comprises seven items that primarily describe individuals' tendency to focus on the current moment (e.g., *I only act to satisfy immediate concerns, figuring out the future will take care of itself*). In contrast, the *Future Focus* scale comprises five items that describe individuals' willingness to disengage from the present and consider the future (e.g., *I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes*). A higher score on these scales reflects a higher degree of present and future orientation, respectively.

The *Inventory of School Motivation* (McInerney et al., 1997, 2000; McInerney & Sinclair, 1991, 1992) is an instrument that measures different types of achievement goals that include mastery (task and effort), performance or ego (competition and social power), social solidarity (affiliation and social concern), and extrinsic goals (praise and token rewards). The whole instrument comprises 43 items that the participants rated on a four-point Likert type scale (1 – strongly disagree; 4 – strongly agree). Among these, 11 items are used for measuring mastery goals (e.g., *When I am improving in my schoolwork I try even harder*), 12 for measuring performance or ego goals (e.g., *I like to compete with others at school*), 8 for measuring social solidarity goals (e.g., *I prefer to work with other people at school rather than work alone*), and 12 for measuring extrinsic goals (e.g., *I work best in class when I get some kind of rewards*). A higher score on these scales reflects a higher degree of each achievement goal, respectively.

Table 1  
*Psychometric Properties of the Administered Instruments*

Measure	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	Cronbach $\alpha$
Present focus	18.99	5.02	8	32	.81
Future focus	18.75	3.27	9	25	.73
Mastery goals	36.07	4.09	22	44	.80
Performance goals	19.14	5.99	12	45	.90
Social solidarity goals	24.67	4.02	13	32	.81
Extrinsic goals	24.48	7.06	12	47	.89
Perceived academic control	32.88	4.06	19	40	.74

## Results

Correlation analyses were conducted as the first step in investigating the relations among the explored variables. The results revealed positive correlations among participants' mastery goals, perceived academic control, satisfaction with acquired knowledge, and success optimism. Furthermore, a positive correlation between mastery goals and future focus, as well as a negative correlation between these goals and present focus were also revealed. The remaining correlations are presented in Table 2.

Table 2  
*Correlation Matrix for the Tested Variables*

	2	3	4	5	6	7	8	9	10
Present focus (1)	-.13'	-.19"	-.05	-.01	.01	-.16"	-.05	-.19"	-.04
Future focus (2)		.39"	.24"	.13'	.19"	.18"	.03	.04	.23"
Mastery goals (3)			.25"	.21"	.23"	.28"	.10	.26"	.31"
Performance goals (4)				-.10	.59"	-.06	.09	-.06	.05
Social solidarity goals (5)					.04	.05	.11	.07	-.12'
Extrinsic goals (6)						.01	.12*	.02	-.02
Perceived academic control (7)							-.22**	.21"	.29"
Ease of preparing for tests (8)								.09	-.14*
Satisfaction with acquired knowledge (9)									.15'
Optimism regarding future tests (10)									

Note: \* $p < .05$ ; \*\* $p < .01$ .



Next, the relationships among the investigated variables were explored in more detail using three hierarchical regression analyses in which students' perceived ease of preparing for tests, satisfaction with knowledge acquired while preparing for tests, and optimism regarding success in future tests served as criteria. Within these analyses, participants' present and future focus were entered in the first step on the analyses as domain-unspecific individuals' characteristics associated with their general decision-making tendencies. Four types of achievement goals were entered in the next step of the analyses, whereas perceived academic control was entered as the last potential predictor in the third step (Table 3). The conducted analysis in which the ease of preparing for tests served as a criterion indicated that the regression model became significant only in the last step of the analysis, after including perceived academic control in the model, which then explained 10% of the variance. In contrast, regression models in which satisfaction with knowledge and success optimism served as criteria reached significance in the first step of the analyses, at which point individuals' general temporal perspectives explained 4% and 5% of the variance, respectively. Although their contributions were not high, it has to be noted that temporal orientations represent individuals' characteristics that are not related to any specific context but reflect their general decision-making tendencies. Not surprisingly, the amount of explained variance increased after including academically-specific predictors in later steps of the analyses and reached 12% for satisfaction with knowledge and 20% for success optimism.

Overall, the obtained results revealed mastery goals and perceived academic control as significant predictors of students' satisfaction with knowledge and success optimism. Furthermore, future focus was identified as a significant predictor of success optimism, whereas present focus was negatively associated with students' satisfaction with knowledge. In addition, lower levels of social solidarity goals predicted higher success optimism among students. Finally, perceived academic control was identified as a significant predictor of students' perceived ease of preparing for tests. Although performance goals did not significantly contribute to any addressed criteria, they were identified as a predictor of satisfaction with knowledge after the second step of the analysis but lost their significance after including perceived academic control in the model.

Table 3

*Results of the Regression Analyses using Ease of Preparing for Tests, Satisfaction with Acquired Knowledge, and Optimism Regarding Future Tests as Criteria*

Steps	Predictors ( $\beta$ )	Criteria		
		Ease of preparing for tests	Satisfaction with acquired knowledge	Optimism regarding future tests
1.	Present focus	-.04	-.18**	-.02
	Future focus	.03	.02	.22**
	R	.05	.19	.23
	R <sup>2</sup>	.00	.04	.05
	F (df)	.39 (2, 288)	5.16** (2, 288)	7.76** (2, 288)
2.	Present focus	-.04	-.15*	.04
	Future focus	-.03	-.06	.16**
	Mastery goals	.05	.28**	.33**
	Performance goals	.04	-.16*	-.04
	Social solidarity goals	.11	.00	-.21**
	Extrinsic goals	.09	.07	-.09
	R	.18	.33	.40
	R <sup>2</sup>	.03	.11	.16
	$\Delta$ R <sup>2</sup> (95% CI)	.03 (0-.07)	.07** (.01-.13)	.11** (.04-.18)
F (df)	1.58 (6, 284)	5.75** (6, 284)	9.19** (6, 284)	
3.	Present focus	-.07	-.14*	.06
	Future focus	-.01	-.07	.13*
	Mastery goals	.12	.25**	.28**
	Performance goals	-.01	-.14	.00
	Social solidarity goals	.10	.00	-.20**
	Extrinsic goals	.10	.06	-.10
	Perceived academic control	-.27**	.12*	.21**
	R	.31	.35	.45
	R <sup>2</sup>	.10	.12	.20
	$\Delta$ R <sup>2</sup> (95% CI)	.06** (.01-.11)	.01* (0-.03)	.04** (0-.08)
F (df)	4.25** (7, 283)	5.58** (7, 283)	10.22** (7, 283)	

Note: \* $p < .05$ ; \*\* $p < .01$ .

## Discussion

The present study focused on the self-reflection phase of the test-taking process that represents a crucial part of students' academic lives and strongly impacts their final learning outcomes and achievements. In doing so, it investigated the relevance of students' achievement goals, perceived academic control and consideration of future consequences for their evaluations of the test-taking process, namely the **perceived ease of preparing for tests**, **satisfaction with knowledge** acquired while learning for tests, as well as optimism regarding success in completing future tests. **The results obtained identified perceived academic control**, mastery achievement goals, and the ability to disengage from the present moment as significant predictors of students' satisfaction with knowledge. In addition, perceived academic control was revealed to be a predictor of the perceived ease of preparing for tests. Finally, individuals' perceived academic control, higher levels of mastery goals, lower levels of social solidarity and the tendency to focus on the future were identified as significant predictors of success optimism.

### *The Role of Academic Motivation and Perceived Academic Control in Students' Educational Outcomes*

First, the present study revealed the relevance of participants' achievement goals with respect to their satisfaction with knowledge acquired while preparing for tests and optimism regarding success in future tests. Specifically, higher levels of mastery goals were associated with both of these outcomes, whereas less pronounced social solidarity goals were related to higher optimism regarding future success. With respect to the mastery goals, the obtained findings are not surprising, as these goals reflect individuals' strivings towards knowledge and learning (Maehr, 1984; McInerney et al., 2002; McInerney et al., 1997; Urdan & Maehr, 1995). Consequently, individuals who develop such goals would be expected to learn more while preparing for tests, and should, therefore, be more satisfied with the acquired knowledge. As indicated by the obtained results, such experiences would also allow them to develop more optimistic expectations regarding their success on future exams, as such predictions are typically formulated based on previous experiences (Bandura, 2006; Maddux, 1999). With respect to the social solidarity goals, the findings indicating its negative association with success optimism were not expected. However, these may be interpreted if we consider the fact that individuals who are oriented towards social relations and helping others generally, as well as in academic settings, may have different values and priorities when compared to those who are oriented towards learning or achieving more (Covington, 2000;

Urđan & Maehr, 1995). Although such strivings often converge with other academic goals, in some situations they can also conflict, in which case students may place more value on social relations than learning itself (Dowson & McInerney, 2001, 2003; Wentzel, 1996, 1999; Wentzel & Wigfield, 1998). Therefore, these individuals may not always consider their future academic achievements with such care or reflect on them in great depth, potentially resulting in their lower expectations of future accomplishments.

Next, within the present study, perceived academic control was revealed to be a significant predictor of students' perceived ease of preparing for tests, their satisfaction with knowledge acquired while preparing for tests as well as optimism regarding potential success in future tests. Such a role of this characteristic in the present context was expected, as previous studies have indicated the relevance of different types of students' views of their abilities for their academic accomplishments and outcomes (Bandura, 1986; Bandura et al., 1996; Pajares & Urđan, 2006; Perry, 1991; Perry et al., 2001). Given that students with higher perceived academic control tend to view their abilities in a favourable light, they also evaluated the process of preparing for tests as easier than those characterised by lower perceived academic control. Furthermore, as such students typically invest more efforts and are more dedicated to learning (Bandura, 1986; Perry et al., 2005; Schunk, 1990, 1991; Sorić & Burić, 2010; Zimmerman, 1995), it is not surprising that they were also more satisfied with their accomplishments. This resonates with previous studies indicating that self-efficacy and perceived academic control are related not only to students' higher academic achievement, but also to higher satisfaction with school (Ainley et al., 1991; Mok & Flynn, 2002; Raboteg-Šarić et al., 2009). The present study indicates that this satisfaction also extends to their views of their accomplishments and outcomes. In addition to showing higher satisfaction with the acquired knowledge, students with higher perceived academic control also posited more favourable expectations for the future. The relevance of such expectations has been repeatedly demonstrated in the context of social cognitive theory (Bandura, 2006), indicating that these may not only facilitate future success but are also related to individuals' increased well-being and satisfaction (Cummins & Nistico, 2002).

#### *The Relevance of Temporal Perspective for Students' Educational Outcomes*

Finally, the present study revealed the relevance of one aspect of participants' temporal perspective, namely the consideration of future consequences, for their satisfaction with acquired knowledge and optimism regarding future

success. Specifically, whereas the ability to disengage from the present moment predicted students' satisfaction with knowledge, a higher tendency to focus on the future was associated with higher success optimism. The general impact of these traits in the present context was expected, as it has previously been repeatedly demonstrated that temporal orientations have an essential role in individuals' cognitions, emotions, motivation, and behaviours (Frank, 1939; Gjesme, 1979; Husman & Lens, 1999; Lewin, 1935; Nuttin, 2014).

With respect to the orientation towards the present, previous studies indicate that focusing too much on the present moment may often lead to unproductive behaviours (Beal & Crockett, 2010; Joireman et al., 2001, 2008; Strathman et al., 1994a; Strathman & Joireman, 2005). Therefore, our findings indicating higher satisfaction among students who are able to sacrifice their current pleasures and wishes in order to accomplish future goals are in accordance with results showing that such individuals are more committed to learning and typically show less procrastinating behaviours during learning (Ferrari & Tice, 2000; Specter & Ferrari, 2000; Van Eerde, 2000), resulting in more favourable educational outcomes (Beal & Crockett, 2010; Kauffman & Husman, 2004; Manzi et al., 2010).

With regard to the orientation towards the future, it has been shown that individuals who are able to dissociate themselves from the present moment more often tend to show more positive motivation, as well as persistence and satisfaction from the undertaken actions than those with a stronger orientation towards the present moment (Husman & Lens, 1999; Husman & Shell, 2008; Zaleski, 1994). In the educational context, such individuals invest more efforts in learning and are better able to regulate their behaviours in order to achieve the desired academic goals (Husman & Lens, 1999; Malka & Covington, 2005; McInerney, 2004). Therefore, the results of the present study indicating that individuals who tend to focus more on the future also hold more positive expectations regarding future success were not surprising, as such individuals would be expected to prepare for tests in a timely and organised fashion given their ability to clearly define long-term goals and organise their behaviours accordingly (McInerney, 2004; Simons et al., 2004).

#### *Limitations of the Present Study and Directions for Future Research*

The interpretation of the obtained results may be influenced by several factors that can limit the generalisability of the reported findings. First, it is necessary to note the retrospective nature of this study, which was chosen because we wanted to capture the perspective of students in the self-reflection phase who had already had a chance to evaluate the results of their behaviours. However,

this procedure may introduce a recall bias (Podsakoff et al., 2003) because the retrieval process is often influenced by the respondents' current states (Bradburn et al., 1987; Linton, 1982), suggesting that future studies should implement longitudinal designs and investigate all phases of the test-taking process. In addition, several variables assessed in the present study, in particular participants' satisfaction with acquired knowledge, ease of preparing for tests, and success optimism, were based on one-item estimates associated with limited reliability and validity. Therefore, these measures should be refined and further examined in future studies. Next, the gender distribution of participants in the present study was unbalanced, reflecting the above-average representation of female students in the college majors included within this study. As previous research has demonstrated the existence of gender differences with respect to students' learning approaches and academic achievement (Anderman & Anderman, 1999; Baharudin & Zulkefly, 2009; Bodill & Roberts, 2013; Midgley & Urdan, 1995; Patrick et al., 1999; Pomerantz et al., 2002), as well as some aspects of temporal perspectives (Petrocelli, 2003; Zimbardo & Boyd, 1999; Zimbardo et al., 1997), the relevance of gender differences should be investigated with more scrutiny in future studies. Finally, these studies would benefit from further investigating the role of students' learning approaches as well as other characteristics in related aspects of their test preparation approaches and academic behaviours more generally. In doing so, it would be of great importance to focus on their objective outcomes as well as subjective beliefs regarding their accomplishments, and implement longitudinal research designs which would allow researchers to follow students as they transition from elementary to high school, and subsequently to college.

### *Implications for Practitioners*

Practitioners, teachers and counsellors alike, often consider tests in terms of their ability to evaluate student knowledge and orient themselves primarily to test effectiveness and their outcomes. However, students' perception of the test-taking process, as well as their personal experiences related to this process should also be considered with regard to teaching across all educational levels. The results of the present study indicate differences with respect to the perception of the test-taking process among individuals who approach decision making and learning in different ways which should be considered by counsellors and teachers working with college students.

Specifically, although we may often consider student counselling centres as services dedicated to dealing with potential mental health issues (Kitzrow, 2003), it should be noted that these may also be used to promote students' more positive self-beliefs and constructive attributions in the academic domain

(Perry et al., 2005; Perry et al., 1993), similar to the way these may be malleable in other domains (Di Fabio & Kenny, 2011; Gist & Mitchell, 1992; McNatt & Judge, 2008). Comparable with this, interventions aimed at raising students' awareness of the relevance of considering future outcomes when engaging in present behaviours et al., 2014) may also be helpful in this context because this awareness should promote their timely preparation for tests. It can be speculated that better preparation would, in turn, result in higher satisfaction with the acquired knowledge and more positive expectations, which may facilitate students' preparation for future tests and result in more favourable educational outcomes as viewed by themselves as well as their teachers (McInerney, 2004).

Similarly, teachers may be advised that discussing students' experiences and perception of the test-taking process can, even without formal interventions, influence students' views and approaches to test-taking, as even small changes in attributions may sometimes result in measurable improvements within the academic context (Wilson et al., 2002). Therefore, the present findings, together with future studies addressing individual differences related to the way students approach and evaluate the test-taking process, should be considered in the context of higher education as they reveal important insights that can inform the practitioners regarding ways of aiding their students in achieving better educational outcomes.

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## Biographical note

**ANDREJA BUBIĆ**, PhD, is an Associate Professor in the field of educational and cognitive sciences at the Faculty of Humanities and Social Sciences, University of Split. Her main research interests include decision making, judgment and other cognitive processes as well as their implications in the educational setting.