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Higher Education Students' Experience of Emergency Remote Teaching during the Covid-19 Pandemic in Relation to Self-Regulation and Positivity

Mojca Juriševič[*1], Lana Lavrih[2], Amela Lišić[3], Neža Podlogar[4] and Urška Žerak[4]

∽   The main objective of the present research was to explore students' experiences of emergency remote teaching during the Covid-19 pandemic. Specifically, we were interested in how strategies for coping with an emergency situation, learning strategies and positivity relate to this experience. A total of 337 university students participated in the study. The data were collected with an online questionnaire. The results show that students used more adaptive coping strategies (positive reappraisal, acceptance and refocus on planning) and fewer maladaptive strategies (blaming others, catastrophising). Furthermore, students reported the frequent use of two self-regulated learning strategies, i.e., environment structuring and goal setting, and the less frequent use of task strategies. Self-regulation and positivity explained a total of 40% of the variance of the students' experience during the pandemic. Important predictors for more constructive experience were the frequent use of goal setting and environment structuring strategies, more pronounced positivity, and less frequent use of the catastrophising coping strategy. The research findings contribute to a better understanding of students' emergency remote teaching and learning experience during the pandemic and its correlates. Moreover, the findings could enable academic staff to focus on the essential elements when supporting students to cope with the pandemic.

Keywords: coping strategies, cognitive emotion regulation, learning strategies, positivity, pandemic

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Izkušnje študentov z izrednim poučevanjem na daljavo med pandemijo covida-19 v odnosu do samoregulacije in pozitivnosti

Mojca Juriševič, Lana Lavrih, Amela Lišić, Neža Podlogar in Urška Žerak

〜 Glavni cilj raziskave je bil preučiti izkušnje študentov z izrednim učenjem in s poučevanjem na daljavo med pandemijo covida-19. Zanimalo nas je, v kakšnem odnosu s to izkušnjo so njihove strategije za spoprijemanje z izrednimi razmerami, učne strategije in pozitivnost. V raziskavi je sodelovalo 337 študentov. Podatki so bili zbrani s spletnim vprašalnikom. Rezultati kažejo, da so študentje uporabljali bolj prilagojene strategije spoprijemanja (pozitivno prevrednotenje, sprijaznjenje in preusmerjanje k načrtovanju) in manj neprilagojenih strategij (obtoževanje drugih, katastrofiranje). Poleg tega so študentje poročali o pogosti uporabi dveh učnih strategij, tj. strukturiranju okolja in postavljanju ciljev, ter o manj pogosti uporabi strategije prilagoditve načina dela. Samoregulacija in pozitivnost sta skupaj pojasnili 40 % variance študentskih izkušenj med pandemijo. Pomembni napovedniki za bolj konstruktivne izkušnje so bili pogosta uporaba strategij za določanje ciljev in strukturiranja okolja, izrazitejša pozitivnost in manj pogosta uporaba katastrofiranja kot strategije spoprijemanja. Ugotovitve raziskave prispevajo k boljšemu razumevanju učnih izkušenj študentov z izrednim učenjem in s poučevanjem na daljavo med pandemijo ter njihovih korelatov. Poleg tega visokošolskim učiteljem in sodelavcem omogočajo, da se pri podpori študentom za spoprijemanje s pandemijo osredinijo na bistvene elemente.

Ključne besede: strategije spoprijemanja, kognitivno uravnavanje čustev, učne strategije, pozitivnost, pandemija

Introduction

In March 2020, the onset of the Covid-19 pandemic led to the transfer of the learning setting from traditional to distance. This had an immense impact on the organisation of education worldwide and presented a major challenge for both educators and students, as it required active participation in the study process (e.g., higher motivation and increased engagement through the use of self-regulated learning strategies) and reimagining the structure and mode of the study process (Aristovnik et al., 2020; Carter et al., 2020; Hodges et al., 2020). Furthermore, most of the problems stemmed from a lack of planning, coordination and communication, which added to the stressfulness of the situation (Bozkurt et al., 2020; Browning et al., 2021). The most frequent challenges in higher education institutions were transferring the study process online, grading and evaluating students' work, offering support to foreign exchange students, and mental health care of university staff and students (Sahu, 2020). At the University of Ljubljana in Slovenia, emergency remote teaching (ERT) began on 18 March 2020, in the middle of the fifth week of a 15-week semester. At that time, all forms of face-to-face instruction and contacts were cancelled, and the use of various online forms of educational activities and communication was recommended. These restrictions were modified slightly after the 11th week of the semester to allow for practical training and final exams at the university or off-campus facilities in smaller groups and under special circumstances.

Some students were negatively affected by studying in these extreme circumstances, reporting feelings of anxiety, uncertainty and stress (Mudenda et al., 2020). Among the listed disadvantages of ERT that induced these feelings were a lowered degree of self-efficacy and deterioration of academic integrity (Li, Cao et al., 2020). In order to avoid these mishaps in the future, universities should consider a better way of evaluating students' work and leading the study process; specifically, they should focus on reducing unnecessary workload and increasing interaction between students and educators (Odriozola-González et al., 2020). Furthermore, the way the institution handles the situation and relays information to the students plays an especially important role in reassuring students and thus making the transition to ERT easier (Elmer et al., 2020; Li, Wang et al., 2020; Mechili et al., 2020; Mukhtar et al., 2020; Son et al., 2020; Wang et al., 2020). Students' attitudes towards the situation matter as well. Positive thinking and resilience can reduce the negative effects that the situation might have on their mental wellbeing (Yang et al., 2020).

On the other hand, students mentioned some advantages of ERT; namely, the flexibility of the study process and the possibility to adapt it to their

needs (Mukhtar et al., 2020). Moreover, Hamza et al. (2020) reported that the situation regarding university students' mental health was not as dire as some other studies reported, although a certain discomfort arose due to social isolation. This reinforces the need to pay special attention to students who may be at higher risk of mental health deterioration. In another study, Shawaqfeh et al. (2020) reported that the majority of students had a positive experience with ERT during the pandemic outbreak.

Based on the contemporary research findings, it can be assumed that possible factors influencing the experience of an extreme situation such as ERT during the pandemic are self-regulated learning, positivity and cognitive emotion regulation.

Cognitive Emotion Regulation

Emotions play an important role in the school setting and influence students' learning (Efklides, 2011; Frenzel et al., 2009; Kesici & Erdogan, 2009; Pekrun et al., 2011; Turner & Husman, 2008). Emotion regulation is associated with students' academic success and productivity (Bortoletto & Boruchovitch, 2013; DeCuir-Gunby et al., 2009; Pekrun et al., 2011). It is especially important in the academic context when individuals experience stressful events, as stress affects individuals' performance, physical and mental health (Pascoe et al., 2020). Individuals who better self-regulate their emotions are more resilient despite experiencing stressful life events (Troy & Mauss, 2011; Tugade & Fredrickson, 2004).

The various cognitive emotion regulation strategies one can use in stressful situations are particularly important elements of emotion regulation. Positive-focused cognitive emotion regulation includes more adaptive cognitive strategies, such as positive refocusing, positive reappraisal, putting into perspective, refocus on planning, and acceptance. Negative-focused cognitive emotion regulation consists of less adaptive strategies, such as self-blame, rumination, catastrophising and blaming others (Extremera et al., 2020; Garnefski et al., 2001; Garnefski & Kraaij, 2006). Research findings have shown that the former are associated with greater psychological and subjective wellbeing, more positive emotions and better mental health (Extremera et al., 2020; Garnefski & Kraaij, 2006; Gross & John, 2003; Gustems-Carnicer & Calderón, 2013; Lee et al., 2016), whereas the latter are associated with problems in mental health and emotional functioning (Aldao et al., 2010; Amaral et al., 2015; Garnefski & Kraaij, 2006; Sullivan et al., 1995). In contrast, Jenaabadi et al. (2015) did not confirm the correlation between the use of specific emotional regulation strategies and mental health.

Self-Regulated Learning in Emergency Circumstances

Self-regulation strategies play a crucial role in academic success, cognition, social and adaptive functioning, and postponing instant gratification. They are among the most important human skills, as they enable adaptability in different situations (Eisenberg et al., 2004; Zimmerman, 2005). Zimmerman (2013) defines self-regulated learning (SRL) as a self-directed process in which students set their own learning goals, while monitoring, controlling and regulating their behaviour, motivation and cognition. It is a cyclical process in that the self-feedback from prior performance helps students adjust their future actions. According to the triadic loop of self-regulation, it is divided into behavioural, environmental and covert self-regulation (Zimmerman, 2005). A diverse set of SRL strategies allows students to cope with various situations and social contexts more effectively (Schunk & Greene, 2018).

Usher and Schunk (2018) claimed that environment, with its different micro- and macro-level environmental factors and stressors, can have an impact on students' self-regulatory processes. From this perspective, the Covid-19 pandemic presents a specific environmental factor that has an important impact on students' SRL and cognitive emotion regulation. Effective coping with a stressful situation includes the use of coping strategies that promote resilience (Beer & Moneta, 2012; Luthar et al., 2000). Turner and Husman (2008) revealed that SRL can facilitate college students' self-regulation of emotions in stressful situations. SRL is especially important in extreme circumstances, as students are faced with new challenges and workload that influence their learning process and academic success (Bradley et al., 2017; Eom & Ashill, 2016).

In the distance education setting, students employ an array of different SRL strategies, such as environment structuring, goal setting, time management, help seeking, specific task strategies and self-evaluation (Barnard et al., 2009, Cleary et al., 2015; Karabenick & Newman, 2011; Seli & Dembo, 2020). Gonzales et al. (2020) investigated the performance of students in higher education before and after confinement due to the Covid-19 pandemic. Their findings suggest that the confinement had a significant positive effect in students' performance, as they began studying on a more continuous basis (as opposed to before the outbreak) and thus improved their self-efficacy.

Positivity

Positivity is the tendency to view life and life experiences in a positive perspective (Caprara et al., 2012). Positive orientation is the basis of self-concept,

life satisfaction and optimism (Alessandri et al., 2012). Positivity in university students positively correlates with better general health (Jenaabadi et al., 2015), personality trait energy and emotional stability, and negatively correlates with depression (Caprara et al., 2012). The more positive students are, the more they are satisfied with the quality of college life (Tho et al., 2020). Students are also more academically and socially successful, as positivity enables them to perceive themselves as being able to cope with challenges in the academic context (Barbaranelli et al., 2019). Students who report greater optimism at the beginning of the first semester at university report smaller increases in stress and depression at the end of the first semester, which shows that optimism also supports better adjustment to stressful live events (Brissette et al., 2002).

Aim of the Present Research

The main aim of the present research was to determine the predictive value of students' self-regulation and positivity for a better experience in the extreme situation of the Covid-19 pandemic. We posed three questions: How did students self-regulate during the Covid-19 pandemic in the spring semester of 2019/20? How were the students' experiences of ERT during the Covid-19 pandemic associated with cognitive emotion regulation, SRL strategies and a positive attitude towards life? What were the important predictors of students' constructive pandemic experience?

Method

Participants

The sample included 337 participants (92.6% female), all pre-service teachers at the Faculty of Education of the University of Ljubljana in the 2019/20 academic year (17.8% of the student population). Most of the students attended first-cycle study programmes (88.7%) and were fairly evenly distributed by year of study (i.e., 26.7% first-year students, 22.6% second-year students, 19.3% third-year students and 17.8% fourth-year students), but second-cycle students (9.4%) and part-time students (4.2%) were also among the participants. Most of the students were enrolled in Primary Education (26.1%), Special and Rehabilitation Pedagogy (19.0%), Two-Subject Teacher (18.4%) and Social Pedagogy (15.4%). Students from other majors were underrepresented. The age of the participants ranged from 19 to 29 years ($M = 21.61$; $SD = 1.82$). The students' mean overall academic performance was relatively high, ranging from 6 to 10 ($M = 8.48$; $SD = .72$).

Instruments

In the present study, three instruments were used that had previously been translated into Slovenian using forward translation (see Brislin et al., 1973; Weeks et al., 2007).

The Cognitive Emotion Regulation Questionnaire – CERQ – short (Garnefski & Kraaij, 2006) is a short form of the longer version of the questionnaire (Garnefski et al., 2001). It measures the individual's style of cognitive response to stressful events or the use of cognitive emotion regulation strategies in a particular stressful event or situation. It consists of nine scales with 18 items: Self-Blame, Blaming Others, Rumination, Catastrophising, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, and Acceptance. The items are in a 5-point Likert response format (1– almost never, 5 – almost always). We first confirmed an adequate fit of the model to the predicted factor structure (χ^2 (99) = 185.60; RMSEA = .05; CFI = .96; TLI = .93) and verified the acceptable reliability of the scales (.61 < α < .85).

The Online Self-regulated Learning Questionnaire – OSLQ (Barnard et al., 2009) measures the use of self-regulation strategies in an online learning environment. It consists of six scales with 24 items: Goal Setting, Environment Structuring, Task Strategies, Time Management, Help Seeking, and Self-Evaluation. The items are in a 5-point Likert response format (1 – strongly disagree, 5 – strongly agree). We first confirmed an adequate fit of the model to the predicted factor structure (χ^2(174) = 434.54; RMSEA = .07; CFI = .89; TLI = .86) and verified the acceptable reliability of the scales (.65 < α < .79).

The Positivity Scale (Caprara et al., 2012) measures positivity, defined as an orientation to view oneself, one's own life and the future in a positive perspective. It consists of 8 items, which are in a 5-point Likert response format (1 – strongly disagree, 5 – strongly agree). We first confirmed an adequate fit of the model to the predicted factor structure (χ^2(9) = 64.94; RMSEA = .14; CFI = .93; TLI = .88) and verified the acceptable reliability of the scale (α = .85).

The Pandemic Experience Questionnaire measures the experience of studying during the Covid-19 pandemic. It consists of eight items, four of which were adapted from Ristić Dedić (2020). They refer to trusting in one's capabilities, emotional experience, level of energy and the ability to focus on studying during the Covid-19 pandemic. The other four items – about being adequately informed, trusting in completing study duties, negative thinking, and having the support of academic staff – were added for the purpose of this study. The response format is a 5-point Likert scale (1 – strongly disagree, 5 – strongly agree).

We first confirmed the one-factor structure of the questionnaire using exploratory data analysis (KMO = 0.86, Bartlett $p < .001$, one factor explains 44.6% of the variance) and verified the acceptable reliability of the scale ($\alpha = .84$).

Procedures

The data were collected over a three-week period from April to May in the spring semester of 2019/20 with an online questionnaire made in the Slovenian open source application 1KA. Participation was anonymous and voluntarily.

The data were analysed with IBM SPSS Statistics (version 22) and R (version 4.0.3). The main part of analysis was multiple regression (method Enter). Preliminary analyses showed that the assumptions for multiple regression were met: linear relationship, multivariate normality, homoscedasticity, and no multicollinearity (1.11 < VIF < 2.21).

Results

Students' Self-Regulation during the Covid-19 Pandemic

Table 1 presents descriptive statistics for all of the included variables. The most used cognitive emotion self-regulation strategies were positive reappraisal (e.g., thinking about giving a positive meaning to the situation in terms of personal growth), acceptance (e.g., coming to terms with what had happened), and refocus on planning (e.g., thinking about what measures to take to deal with the situation), which are considered as adaptive strategies. The least used were less adaptive strategies, such as blaming others and catastrophising (e.g., a strong emphasis on fear about the situation). The third least used strategy was positive refocusing (e.g., thinking about other, pleasant matters instead of the actual situation). The most used academic self-regulation strategies during ERT were environment structuring (e.g., choosing a comfortable space without distractions) and goal setting (e.g., setting short- and long-term goals and standards). On the other hand, task strategies were the least used during ERT (e.g., preparation of more detailed notes and questions, performing additional tasks). On average, the students reported a positive outlook on life and the future, as well as a relatively constructive experience of the current situation of ERT during the pandemic.

Table 1

Scale Properties of the Cognitive Emotion (CERQ) and Academic (OSLQ) Self-Regulation Strategies, Positivity and Pandemic Experience

	Scale	Item example	N	M	SD	Skew	Kurt
CERQ	Self-Blame	*I feel that I am the one to blame for it.*	314	3.18	.95	−.06	−.69
	Acceptance	*I think that I have to accept the situation.*	314	3.69	.78	−.36	−.32
	Rumination	*I dwell upon the feelings the situation has evoked in me.*	314	3.48	.96	−.24	−.74
	Positive Refocusing	*I think about pleasant experiences.*	314	2.68	.94	.47	−.36
	Refocus on Planning	*I think about a plan of what I can do best.*	314	3.58	.83	−.33	−.29
	Positive Reappraisal	*I think I can learn something from the situation.*	314	3.71	.91	−.49	−.41
	Putting into Perspective	*I think that it all could have been much worse.*	314	3.16	.92	.03	−.52
	Catastrophising	*I continually think how horrible the situation has been.*	314	2.47	1.04	.72	−.23
	Blaming Others	*I feel that others are responsible for what has happened.*	314	2.00	.64	1.07	3.09
OSLQ	Goal Setting	*I set standards for my assignments in online courses.*	303	3.65	.74	−.43	.18
	Environment Structuring	*I choose the location where I study to avoid too much distraction.*	303	4.06	.70	−.88	1.50
	Task Strategies	*I do extra problems in my online courses in addition to the assigned ones to master the course content.*	303	2.88	.88	−.10	−.48
	Time Management	*I allocate extra study time for my online courses because I know it is time-demanding.*	303	3.10	.95	−.19	−.45
	Help Seeking	*I am persistent in getting help from the instructor through e-mail.*	303	3.38	.80	−.40	−.10
	Self-Evaluation	*I ask myself a lot of questions about the course material when studying for an online course.*	303	3.41	1.05	−.37	−.47
Positivity		*I have great faith in the future.*	322	3.88	.67	−.66	.58
Pandemic Experience		*I feel competent to cope with the difficult situation I'm in.*	303	3.68	.72	−.40	−.11

Note. SE(Skew) = .14, *SE*(Kurt) = [.27 − .28].

The Relationship between Students' Pandemic Experience and Cognitive Emotion Regulation, SRL Strategies and Positivity

The correlations between the included variables are presented in Table 2. Correlations between the CERQ subscales ranged between –.01 and .53. Low positive correlation was present between the use of self-blame strategies with rumination, catastrophising and refocus on planning; between the use of putting into perspective strategies with refocus on planning, positive reappraisal and positive refocusing; and between the use of positive reappraisal strategies with refocus on planning and acceptance. The highest positive correlation was between two less adaptive cognitive emotion strategies: catastrophising and rumination.

All OSLQ subscales correlated positively and statistically significantly, with a mean correlation coefficient of .38. The highest associations were found between time management, task strategies and goal setting, and between help seeking and self-evaluation.

Positivity statistically significantly correlated with the use of goal setting strategies during ERT and cognitive emotion regulation strategies such as catastrophising, positive reappraisal and refocus on planning. More frequent use of these strategies was associated with a more positive outlook towards life and the future, except for the use of the catastrophising strategy, which was negatively correlated with positivity.

A statistically significant moderate positive correlation was found between positivity and the experience of ERT during the Covid-19 pandemic. More use of goal setting strategies and less use of catastrophising strategies were associated with a more constructive Covid-19 experience. Other statistically significant but low positive correlations were with SRL strategies (i.e., environment structuring, help seeking, time management, task strategies) and cognitive emotion strategies (i.e., positive reappraisal, refocus on planning); a statistically significant low negative correlation was with the rumination coping strategy.

Table 2

Correlations between the Cognitive Emotion (CERQ) and Academic (OSLQ) Self-Regulation Strategies, Positivity, and Covid-19 Experience

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CERQ Self-Blame[a]																
CERQ Acceptance																
CERQ Rumination[a]	.33***	.14*														
CERQ Positive Refocusing[a]	−.04	.19**	−.09													
CERQ Refocus on Planning	.30***	.21***	.09	.14**												
CERQ Positive Reappraisal	.08	.33***	.01	.21***	.42***											
CERQ Putting into Perspective	.21***	.28***	.04	.34***	.36***	.36***										
CERQ Catastrophising	.31***	−.02	.53***	−.02	−.07	−.28***	−.02									
CERQ Blaming others[a]	−.16**	−.02	.12*	.11*	−.09	−.11	.04	.27***								
OSLQ Goal Setting	.03	.04	.03	.04	.30***	.29***	.10	−.09	−.10							
OSLQ Environment Structuring[a]	.01	.10	.06	.05	.14*	.18**	.13*	.06	−.04	.44***						
OSLQ Task Strategies	.00	−.01	.12*	.20***	.19**	.26***	.13*	.07	.06	.54***	.34***					
OSLQ Time Management	−.05	.00	.01	.15*	.18**	.20**	.06	.06	−.02	.57***	.40***	.67***				
OSLQ Help Seeking	−.06	.06	−.02	.17**	.08	.18**	.07	−.05	−.05	.33***	.25***	.36***	.35***			
OSLQ Self-Evaluation	.02	.08	.10	.19**	.07	.04	.05	.12*	.02	.15**	.17**	.26***	.21***	.58***		
Positivity	−.06	.14*	−.15**	.16**	.30***	.32***	.10	−.37***	−.08	.38***	.23***	.20***	.17**	.25***	.15**	
COVID-19 Experience	−.09	.07	−.17**	−.02	.15**	.18**	.04	−.40**	−.06	.45***	.28***	.14*	.15**	.19***	.04	.51***

Note. [a] The Spearman correlation coefficient was used, as the distribution of the variables was not normal.
*p < .05; **p < .01; ***p < .001.

Predictors of Students' Constructive Pandemic Experience

With multiple linear regression, the features of self-regulation and positivity that contribute to a more constructive experience of ERT in the exceptional situation of the Covid-19 pandemic were analysed. The results are shown in Table 3. Regression-diagnostic procedures confirmed that the model was appropriate ($F(10, 302) = 20.89$; $p < .001$). Ten predictors explained 40% of the variance in pandemic experience ($R = .65$; $R^2_{adjusted} = .40$). Goal setting, positivity, catastrophising and environment structuring statistically significantly influenced the overall experience of ERT during the Covid-19 pandemic. The probability of a more constructive experience is increased by the frequent use of goal setting and environment structuring strategies and is more pronounced positivity, while decreasing with the use of the catastrophising coping strategy.

Table 3

Regression Coefficients of Cognitive Emotion (CERQ) and Academic (OSLQ) Self-Regulation Strategies and Positivity, on Pandemic Experience

	B	SE(B)	β	t	p
CERQ Rumination	.01	.04	.01	.22	.823
CERQ Refocus on Planning	−.04	.04	−.04	−.90	.370
CERQ Positive Reappraisal	−.04	.04	−.05	−1.13	.258
CERQ Catastrophising	−.18	.04	−.25	−4.49	< .001
OSLQ Goal Setting	.36	.06	.37	5.75	< .001
OSLQ Environment Structuring	.11	.06	.10	1.98	.048
OSLQ Task Strategies	−.06	.05	−.07	−1.11	.266
OSLQ Time Management	−.06	.05	−.08	−1.18	.237
OSLQ Help Seeking	.02	.05	.02	.48	.633
Positivity	.31	.06	.29	5.26	< .001

Note. N = 303.

Discussion

The first aim of the present research was to gain a better understanding of the characteristics of students' cognitive emotion regulation and SRL during ERT in the Covid-19 pandemic. Control over emotions is influenced not only by self-regulatory behaviours, but also by the context in which the emotional experience occurs (de la Fuente, 2020). However, individuals who use emotional

regulation strategies respond more resiliently to stressful life events (Troy & Mauss, 2011; Tugade & Fredrickson, 2004). In general, the students in the present study use more adaptive coping strategies (e.g., positive reappraisal) and less maladaptive ones (e.g., blaming others), which suggests more positive-focused cognitive emotion regulation (Garnefski et al., 2001; Garnefski & Kraaij, 2006). This could help students to better cope with ERT during the pandemic, as better regulated students might be more resilient despite experiencing stressful events (Troy & Mauss, 2011; Tugade & Friedrickson, 2004). The students' coping strategy of putting the negative situation into perspective, which is mainly aimed at reducing the seriousness of the situation or emphasising its relativity, was associated with the use of other more adaptive cognitive emotion strategies. This implies that students should acknowledge negative aspects of ERT during a pandemic, but that they need support to further implement more adaptive cognitive emotion regulation strategies to change their perspective on these aspects (e.g., acceptance, refocus on planning, positive reappraisal). Consequently, they might experience more positive emotions, which could have a positive impact on learning in the distance education setting (D'Errico et al., 2018).

Regarding SRL strategies, the results show that students most often turned to environmental structuring and goal setting, which emphasises the importance of structured study and the living environment, and of setting achievable short- and long-term goals in remote education during stressful situations. Task strategies were used the least, suggesting that students spent more time and energy planning their study process and structuring the appropriate study environment than they did on actual assignments and study tasks. The change from face-to-face study to remote study was sudden, unexpected and never experienced before, which may explain why students felt the need to address these problems first in order to successfully tackle the actual study material (see also Biwer et al., 2021).

In the present study, students' general positive orientation towards life and the future correlated positively with use of positive reappraisal and refocussing on planning, and correlated negatively with catastrophising, which implies that overall positivity correlated with the frequent use of more adaptive strategies and the less frequent use of less adaptive strategies. Similarly, Carver et al. (1989) found that the use of emotion regulation strategies in general stressful situations correlated positively with optimism and perceived control over the stressor.

In addition, we assessed the predictive value of these characteristics for a more constructive experience of the emergency situation of distance learning during the pandemic. As many researchers note, the pandemic led to changed living and study conditions (Carter et al., 2020; Sahu, 2020), which could

influence the experience of negative emotions (Bozkurt et al., 2020; Mudenda et al., 2020). The use of adaptive coping strategies (Troy & Mauss, 2011; Tugade & Fredrickson, 2004) and different SRL strategies (Bradley et al., 2017; Eom & Ashill, 2016), in addition to a more positive outlook on life (Brisette et al., 2002; Yang et al., 2020), could contribute to adaptability and a more constructive experience of the completely new situation (Tenney et al., 2016). This was also confirmed in the present study. The important predictors of a constructive experience of the pandemic and ERT were more frequent use of goal setting and environment structuring SRL strategies, a more positive outlook on life, and less frequent use of the catastrophising coping strategy. Goal setting strategies might have helped students to cope with the situation in a more effective manner, since most of the problems other students faced in a similar situation stemmed from lack of planning, coordination and communication (Bozkurt et al., 2020). Since the online learning environment provides students with more autonomy, a particularly important SRL strategy is environment structuring (Barnard et al., 2009). Students who lack the skills to organise the time and place for studying may have difficulty avoiding various distractions (e.g., social media, texting, television), which can negatively affect students' experience with ERT and their academic performance. Catastrophising positively correlated with rumination, self-blame and blaming others, and negatively correlated with positive reappraisal. This could mean that students who focused on horrific and other negative aspects of ERT during the pandemic were also more focused on thinking about their emotional and cognitive experience of the situation and on putting blame on themselves and others, and less focused on positive aspects of the event. This is in line with other research that included students or the general population: findings show that the use of maladaptive strategies was associated with lower adaptation ability, a more stressful perception of the situation, and higher levels of emotional problems, depression and anxiety (Garnefski & Kraaij, 2006; Sullivan et al., 1995). The third important predictor of a more constructive experience of ERT during the pandemic was positivity, which was also associated with use of positive reappraisal and refocus on planning, and negatively associated with catastrophising, which means that a general positive outlook correlated with frequent use of more adaptive strategies and less frequent use of less adaptive ones. This is in line with other studies that suggest positivity strengthens students' academic self-efficacy (Barbaranelli et al., 2019) and supports adjustment to stressful events (Brissette et al., 2002).

Conclusion

The results of the present study provide further insight into students' experiences of ERT during the Covid-19 pandemic. Specifically, they imply that students who successfully met the challenges of ERT were more likely to use goal-setting and environment structuring strategies, were generally more positive about life, and were less likely to use the catastrophising coping strategy.

These results must nevertheless be interpreted with caution, particularly due to the online data collection and the associated sample selection. Despite the advantages of an online survey during lockdown, the validity of the results and their generalisability might remain questionable (Wright, 2005); specifically, the recruited students, who were predominately female, represented approximately 17% of the population and were high-achieving students on average. One might therefore assume that they are more conscientious and regulate their learning better; on the other hand, we lack information about the 83% of students who are probably not so. Moreover, when discussing the results of this study it is important to keep in mind that we do not have a direct comparison with the measured variables before the pandemic.

Implications for further research may therefore arise from the presented facts, addressing both methodological and contextual variables, such as focusing on individual differences between students, as well as replication of the survey and longitudinal monitoring of students' lived experiences during the next waves of the Covid-19 pandemic and beyond.

Finally, we must not overlook the important role of academic staff, who need to be aware of the various factors that influence ERT (Bozkurt et al., 2020) and adapt their teaching methods to successfully support and guide students in the learning process. A supportive ERT environment includes regular electronic communication with students about subject content and goals, monitoring students' use of learning strategies, providing consistent support and formative feedback on students' progress, and modelling and encouraging students to use appropriate learning and coping strategies (Wandler & Imbriale, 2017). In addition, it is important to help students learn and apply metacognitive learning strategies, such as planning or adapting learning goals, which are particularly valuable in emergency situations with weak external structure and guidance (Dabbagh & Kitsantas, 2004). Overall, this provides a reasonable starting point for examining the quality of higher education organisation in emergencies through the systematic promotion of student self-regulation in learning (Rasheed et al., 2020; Tuckman & Kennedy, 2011).

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References

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, *30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

Alessandri, G., Caprara, G. V., & Tisak, J. (2012). The unique contribution of positive orientation to optimal functioning: Further explorations. *European Psychologist, 17*(1), 44–54. https://doi.org/10.1027/1016-9040/a000070

Amaral, A., Soares, M., Pereira, A., Bos, S., Roque, C., Bajouco, M., & Macedo, A. (2015). Stress, cognitive emotion regulation, and sleep in university students. *European Psychiatry*, *30*, 934. https://doi.org/10.1016/S0924-9338(15)30732-X

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability*, *12*(20), 8438. https://doi.org/10.3390/su12208438

Barbaranelli, C., Paciello, M., Biagioli, V., Fida, R., & Tramontano, C. (2019). Positivity and behaviour: The mediating role of self-efficacy in organisational and educational settings. *Journal of Happiness Studies*, *20*, 707–727. https://doi-org.nukweb.nuk.uni-lj.si/10.1007/s10902-018-9972-4

Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S. L. (2009). Measuring self-regulation in online and blended learning environments. *The Internet and Higher Education*, *12*(1), 1–6. https://doi.org/10.1016/j.iheduc.2008.10.005

Beer, N., & Moneta, G. B. (2012). Adaptive metacognitive self-regulation and functional resilience-related assets in the midst of challenging tasks: A qualitative analysis. In V. Barkoukis (Ed.), *Psychology of self-regulation* (pp. 1–36). Nova Science Publishers.

Biwer, F., Wiradhany, W., oude Egbrink, M., Hospers, H., Wasenitz, S., Jansen, W., & de Bruin, A. (2021). Changes and adaptations: How university students self-regulate their online learning during the COVID-19 pandemic. *Frontiers in Psychology, 12,* 642593. https://doi.org/10.3389/fpsyg.2021.642593

Bortoletto, D., & Boruchovitch, E. (2013). Learning strategies and emotional regulation of pedagogy students. *Paidéia (Ribeirão Preto)*, *23*(55), 235–242. https://doi.org/10.1590/1982-43272355201311

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S. R., Al-Freih, M., Pete, J., Olcott, Jr., D. Rodes, V., Aranciaga, I., Bali, M., Alvarez, Jr., A. V., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coëtlogon, P., ... Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, *15*(1), 1–126. https://doi.org/10.5281/zenodo.3878572

Bradley, R. L., Browne, B. L., & Kelley, H. M. (2017). Examining the influence of self-efficacy and self-regulation in online learning. *College Student Journal, 51*(4), 518–530. https://eric.ed.gov/?id=EJ1162424

Brislin, R. W., Lonner, W. J., & Throndike, R. M. (1973). *Cross-cultural research methods*. John Wiley & Sons.

Brissette, I., Scheier, M. F., & Carver, C. S. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology, 82*(1), 102–111. https://doi.org/10.1037//0022-3514.82.1.102

Browning, M. H. E. M., Larson, L. R., Sharaievska, I., Rigolon, A., McAnirlin, O., Mullenbach, L., …, & Alvarez, H. O. (2021). Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. *PLoS ONE 16*(1), e0245327. https://doi.org/10.1371/journal.pone.0245327

Caprara, V. C., Alessandri, G., Eisenberg, N., Kupfer, A., Steca, P., Caprara, M.G., Yamaguchi, S., Fukuzawa, A., & Abela, J. (2012). The positivity scale. *Psychological Assessment, 24*(3), 701–712. https://doi.org/10.1037/a0026681

Carter, R. A., Rice, M., Yang, S., & Jackson, H. A. (2020). Self-regulated learning in online learning environments: Strategies for remote learning. *Information and Learning Sciences, 121*(5/6), 321–329. https://doi.org/10.1108/ILS-04-2020-0114

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267–283.

Cleary, T. J., Dong, T., & Artino, A. R., Jr. (2015). Examining shifts in medical students' microanalytic motivation beliefs and regulatory processes during a diagnostic reasoning task. *Advances in Health Sciences Education, 20*(3), 611–626. https://doi.org/10.1007/s10459-014-9549-x

Dabbagh, N., & Kitsantas, A. (2004). Supporting self-regulation in student-centered web-based learning environments. *International Journal on E-learning, 3*(1), 40–47. https://www.learntechlib.org/primary/p/4104/

de la Fuente, J., Verónica Paoloni, P., Vera-Martínez, M. M., & Garzón-Umerenkova, A. (2020). Effect of levels of self-regulation and situational stress on achievement emotions in undergraduate students: Class, study and testing. *International Journal of Environmental Research and Public Health, 17*(12), 4293. https://doi.org/10.3390/ijerph17124293

DeCuir-Gunby, J. T., Aultman, L. P., & Schutz, P. A. (2009). Investigating transactions among motives, emotional regulation related to testing, and test emotions. *Journal of Experimental Education, 77*(4), 409–436. https://doi.org/10.3200/JEXE.77.4.409-43

D'Errico, F., Paciello, M., De Carolis, B., Vattanid, A., Palestra, G., & Anzivino, G. (2018). Cognitive emotions in e-learning processes and their potential relationship with students' academic adjustment. *International Journal of Emotional Education, 10*(1), 89–111. https://www.learntechlib.org/p/188344/

Efklides, A. (2011). Interactions of metacognition with motivation and affect in self-regulated learning: The MASRL model. *Educational Psychologist, 46*(1), 6–25. https://doi.org/10.1080/00461520.2011.538645

Eisenberg, N., Smith, C. L., Sadovsky, A., & Spinrad, T. (2004). Effortful control: Relations with emotion regulation, adjustment, and socialization in childhood. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory and applications* (pp. 259–282). The Guilford Press.

Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social network and mental health before and during the COVID-19 crisis in Switzerland. *PLoS ONE, 15*(7), 1–22. https://doi.org/10.1371/journal.pone.0236337

Eom, S. B., & Ashill, N. (2016). The determinants of students' perceived learning outcomes and satisfaction in university online education: An update. *Decision Sciences Journal of Innovative Education, 14*(2), 185–215. https://doi.org/10.1111/dsji.12097

Extremera, N., Sánchez-Álvarez, N., & Rey, L. (2020). Pathways between ability emotional intelligence and subjective well-being: Bridging links through cognitive emotion regulation strategies. *Sustainability, 12*(5), 2111. https://doi.org/10.3390/su12052111

Frenzel, A. C., Goetz, T., Stephens, E. J., & Jacob, B. (2009). Antecedents and effects of teachers' emotional experiences: An integrated perspective and empirical test. In P. A. Schutz & M. Zembylas (Eds.), *Advances in teacher emotion research* (pp. 129–151). Springer. https://doi.org/10.1007/978-1-4419-0564-2_7

Garnefski, N., & Kraaij, V. (2006). Cognitive emotion regulation questionnaire–development of a short 18-item version (CERQ-short). *Personality and Individual Differences, 41*(6), 1045–1053. https://doi.org/10.1016/j.paid.2006.04.010

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and depression. *Personality and Individual Differences, 30*(8), 1311–1327. https://doi.org/10.1016/S0191-8869(00)00113-6

Gonzales, T., de la Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PLoS ONE, 15*(10), 1–23. https://doi.org/10.1371/journal.pone.0239490

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Gustems-Carnicer, J., & Calderón, C. (2013). Coping strategies and psychological well-being among teacher education students. *European Journal of Psychology of Education, 28*(4), 1127–1140. https://doi.org/10.1007/s10212-012-0158-x

Hamza, C. A., Ewing, L., Heath, N. L., & Goldstein, A. L. (2020). When social isolation is nothing new: A longitudinal study psychological distress during COVID-19 among university students with and without preexisting mental health concerns. *Canadian Psychology/Psychologie canadienne, 62*(1), 20–30. http://doi.org/10.1037/cap0000255

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review, 27.* https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Jenaabadi, H., Ahani, M. A., & Sabaghi, F. (2015). Examining the relationship of optimism and emotion regulation strategies with general health among students of University of Sistan and Baluchestan. *Health*, *7*(07), 865–872. https://doi.org/10.4236/health.2015.77102

Karabenick, S. A., & Newman, R. S. (Eds.). (2011). *Help seeking in academic settings: Goals, groups and contexts.* Routledge.

Lee, M., Pekrun, R., Taxer, J., Schutz, P., Vogl, E., & Xie, X. (2016). Teachers' emotions and emotion management: Integrating emotion regulation theory with emotional labor research. *Social Psychology of Education, 19*(4), 843–863. https://doi.org/10.1007/s11218-016-9359-5

Li, H. Y., Cao, H., Leung, D. Y. P., & Mak, Y. W. (2020). The psychological impacts of a COVID-19 outbreak on college students in China: A longitudinal study. *International Journal of Environmental Research and Public Health, 17*(11), 1–11. https://doi.org/10.3390/ijerph17113933

Li, Y., Wang, Y., Jiang, J., Valdimarsdóttir, U. A., Fall, K., Fang, F., Song, H., Lu, D., & Zhang, W. (2020). Psychological distress among health professional students during the COVID-19 outbreak. *Psychological Medicine,* 1–12. https://doi.org/10.1017/S0033291720001555

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543–562. https://doi.org/10.1111/1467-8624.00164

Mechili, E. A., Saliaj, A., Kamberi, F., Girvalaki, C., Peto, E., Patelarou, A. E., Bucaj, J., & Patelarou, E. (2020). Is the mental health of young students and their family members affected during the quarantine period? Evidence from the COVID-19 pandemic in Albania. *Journal of Psychiatric and Mental Health Nursing, 2020,* 1–9. https://doi.org/10.1111/jpm.12672

Mudenda, S., Zulu, A., Phiri, M. N., Ngazimbi, M., Mufwambi, W., Kasanga, M., & Banda, M. (2020). Impact of coronavirus disease 2019 (COVID-19) on college and university students: A global health and education problem. *Aquademia, 4*(2), 1–2. https://doi.org/10.29333/aquademia/8494

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences, 36*(COVID19-S4), 27–31. https://doi.org/10.12669/pjms.36.COVID19-S4.2785

Odriozola-González, P., Planchuelo-Gómez, Á., Jesús Irurtia, M., & de Luis-García, R. (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Research, 290,* 1–8. https://doi.org/10.1016/j.psychres.2020.113108

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, *25*(1), 104–112. https://doi.org/10.1080/02673843.2019.1596823

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: The achievement emotions questionnaire (AEQ). *Contemporary Educational Psychology, 36*(1), 36–48. https://doi.org/10.1016/j.cedpsych.2010.10.002

Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education*, *144*. https://doi.org/10.1016/j.compedu.2019.103701

Ristić Dedić, Z. (2020). *Pilot istraživanje učeničkih potreba i suočavanja s izazovima online nastave u*

ožujku 2020. godine (Preliminarno izvješće) – Serija IDIZ-ovi vidici 003 [Pilot survey of student needs and coping with the challenges of online learning in March 2020 (Preliminary Report)]. Institut za društvena istraživanja u Zagrebu.

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus, 12*(4), 1–6. https://doi.org/10.7759/cureus.7541

Schunk, D. H., & Greene, J. A. (2018). Historical, contemporary, and future perspectives on self-regulated learning and performance. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed., pp. 1–15). Routledge.

Seli, H., & Dembo, M. H. (2020). *Motivation and learning strategies for college success: A focus on self-regulated learning* (6th ed.). Routledge.

Shawaqfeh, M. S., Al Bekairy, A. M., Al-Azayzih, A., Alkatheri, A. A., Qandil, A. M., Obaidat, A. A., Al Harbi, S., & Muflih, S. M. (2020). Pharmacy students perception of their distance online learning experience during the COVID-19 pandemic: A cross-sectional survey study. *Journal of Medical Education and Curricular Development, 7*, 1–9. https://doi.org/10.1177/2382120520963039

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the United States: Interview survey study. *Journal of Medical Internet Research, 22*(9), 1–14. https://doi.org/10.2196/21279

Sullivan, M. J. L., Bishop, S. R., & Pivik, J. (1995). The Pain Catastrophizing Scale: Development and validation. *Psychological Assessment, 7*(4), 524–532. https://doi.org/10.1037/1040-3590.7.4.524

Tenney, E. R., Poole, J. M., & Diener, E. (2016). Does positivity enhance work performance?: Why, when, and what we don't know. *Research in Organizational Behavior*, *36*, 27–46. https://doi.org/10.1016/j.riob.2016.11.002

Tho, N. D., Trang, N. T. M., & Gregory, S. (2020). Positivity and quality of college life of business students: The mediating role of learning approaches. *Studies in Educational Evaluation*, *66*, 1–8. https://doi.org/10.1016/j.stueduc.2020.100908

Troy, A. S., & Mauss, I. B. (2011). Resilience in the face of stress: Emotion regulation as a protective factor. *Resilience and Mental Health: Challenges across the Lifespan*, *1*(2), 30–44. https://doi.org/10.1017/CBO9780511994791.004

Tuckman, B. W., & Kennedy, G. J. (2011). Teaching learning strategies to increase success of first-term college students. *The Journal of Experimental Education*, *79*(4), 478–504. https://doi.org/10.1080/00220973.2010.512318

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320–333. https://doi.org/10.1037/0022-3514.86.2.320

Turner, J. E., & Husman, J. (2008). Emotional and cognitive self-regulation following academic shame. *Journal of Advanced Academics*, *20*(1), 138–173. https://doi.org/10.4219%2Fjaa-2008-864

Usher, E. L., & Schunk, D. H. (2018). Social cognitive theoretical perspective of self-regulation. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed.,

pp. 19–35). Routledge.

Yang, D., Tu, C.-C., & Dai, X. (2020). The effect of the 2019 novel coronavirus pandemic on college students in Wuhan. *Psychological Trauma: Theory, Research, Practice and Policy, 12*(S1), 6–14. https://doi.org/10.1037/tra0000930

Zimmerman, B. J. (2005). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. P. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation: Research, theory and applications* (pp. 13–39). Academic Press.

Zimmerman, B. J. (2013). From cognitive modeling to self regulation: A social cognitive career path. *Educational Psychologist, 48*(3), 135–147. https://doi.org/10.1080/00461520.2013.794676

Wandler, J., & Imbriale, W. (2017). Promoting undergraduate student self-regulation in online learning environments. *Online Learning, 21*(2), 1–16. http://doi.org/10.24059/olj.v21i2.881

Weeks, A., Swerissen, H., & Belfrage, J. (2007). Issues, challenges, and solutions in translating study instruments. *Evaluation Review, 31*(2), 153–165. https://doi.org/10.1177/0193841X06294184

Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3). https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

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