Journal of Educational Sciences

An XXI Nr. 2(42) 2020

ISSN 2457 – 8673 (Online)

Journal published by

WEST UNIVERSITY OF TIMISOARA,
DEPARTMENT OF EDUCATIONAL SCIENCES
and
ROMANIAN INSTITUTE FOR ADULT EDUCATION (IREA)

Bd. V. Pârvan, no. 4, 300223 – Timişoara, Romania Tel. 0040 256 592
Tel/Fax: 0040 256 592 960 (Romanian Institute for Adult Education)
e-mail: resjournal@e-uvt.ro, **https://rse.uvt.ro/**

Contents

Do cartoons trigger an influence on children's altruism?

Claudiu Lulciuc[•] , Mihaela Minulescu[•], Laurenţiu Maricuţoiu[•]

Abstract

The present study evaluated children's prosocial behavior (M = 7.39, SD = 0.93) (i.e., specific altruism) under the influence of three types of cartoons (neutral, prosocial, or antisocial). Subjects (N = 140) were randomized and exposed to treatment with pre- and post-intervention measurements. The results didn't confirm the hypothesis that children who will watch prosocial cartoons will have increased altruism proving a higher volume of donations. The second hypothesis regarding the inhibitory effect of antisocial cartoons on altruism by decreasing the volume of donations was not confirmed either. No significant gender effects were recorded. No significant general age effect was found either, however, we found that donations tend to increase with age, a statistically significant effect being recorded for children age 8 years old compared to those of 6 years old. The implications of the statistical data are discussed together with the possibility of registering a "moral licensing" effect.

Keywords: cartoon, children, prosocial behavior, altruism, media

Improving the quality of life, finding the positive feature for human life and continuous research for the development of prosocial behavior is a topic of great interest nowadays and it is indeed a great need (Seligman & Csikszentmihalyi, 2000; Beilin, 2013). Positive psychology research manages to shift the balance in the proper direction by giving great importance to positive subjective experience, positive traits, and other aspects of life and human psychology in order to improve individuals' life. Indeed, just as Seligman was saying, we need "more than fixing what is wrong with them. It is about identifying and nurturing their strongest qualities" (Seligman & Csikszentmihaly, 2000, p. 6). We believe that this concept needs to be applied in relation to media, meaning not just to identify what is negative in media but to identify and disseminate what is good and helpful for human psychological development, this approach being in concordance with Seligman & Csikszentmihalyi, who were hoping that our century "will see a science and profession that will come to understand and build the factors that allow individuals, communities, and societies to flourish" (Seligman & Csikzentmihalyi, 200, p. 5). This is necessary to

• PhD student, Doctoral School of Psychology, West University of Timişoara, Romania, claudiu.lulciuc83@e-uvt.ro
• PhD, Professor at the Faculty of Communication and Public Relation, National University of Political Studies and Public Administration, Romania, The Romanian Association of Analytical Psychology, mirunaminulescu@gmail.com
• PhD, Associate Professor, Department of Psychology, West University of Timişoara, Romania, laurentiu.maricutoiu@e-uvt.ro

develop prosocial behaviors, and we need to focus not just on the factors that determine antisocial behavior as this is just "one side of the coin".

The motivation for prosocial acts can vary considerably, and we need to know what are the factors that predetermine prosocial behavior. For this present study, we will distinguish between prosocial behavior (generally speaking) and altruism (a certain type of prosocial behavior) in the terms of Eisenber & Mussen (1989). Generally, a prosocial behavior "is an act designed to help or benefit one or more people" (Eisenber & Mussen 1989, p. 3) and can often be motivated from the outside (reward, approval from others, etc.). On the other side, "altruism" is "a voluntary action intended for the benefit of another person, being *intrinsically* motivated - namely, an act *motivated by internal motives* such as concern or sympathy for others or internal values and self-reward to the detriment of personal gain" (*Ibidem*). This definition is following Carlo's research where he also regards altruism as a behavior manifested without rewards expectations for the benefit of others, which is internally motivated (Carlo et al., 2010; Carlo et al. 2007).

Although it is often difficult to identify the motivation behind the prosocial act, Eisenberg (1983) suggests that more attention should be paid to empathy and its development, with more researchers agreeing that empathy is indeed an important factor for prosocial behavior, including altruistic behavior. Sometimes empathy is responsible for acts of great sacrifices (Spinrad & Eisenberg, 2009; Batson et al., 1981; Hoffman, 1982). The development of empathy for children, along with other methods, can be done through a real model (e.g., parent) or virtual (T.V.). Various studies have captured this fact where the role model for developing help was either an adult (Yarrow et al., 1973) or a virtual character (Coastes et al., 1976; Forge & Phemister, 1987), including prosocial acts such as a donation (Teachman & Orme, 1981). Childhood (8-11 years) remains the age sector with the most significant influence on prosocial behavior (Foulkes et al., 2018).

The prosocial behavior of interest of the present study, altruism manifested through the act of donation, is known to be an act devoid of external reward motivation, an intentional, voluntary behavior (Eisenberg et al., 2015; Underwood & Moore, 1982). Based on these facts, in this study, the motivation for donation was presented as an aid given to a boy who has a health issue and, for this reason, he can't be with the class. The money that they will donate will be used to buy him some sweet treats in order to ease his recovery time. To keep an act of donation as internal motivation, the act should not be rewarded in any form. Children need to manifest their will freely for the behavior to be registered as altruistic and not in terms of gain and loss. For this present study, the act of donation received no promise of future reward. It has been presented just in terms of helping a child.

Age effects on displaying prosocial behavior

After an analysis of different studies Wilson (2008) underlines the fact that children's empathy and altruism seems to be higher among those children of higher age. Zarbatany et al. (1985) also captures the same effects regarding generosity, children from 5th grade are more generous than thouse from 1st grad. Skarin and Moely (1976) also recorded a

higher level of altruistic for ages 10-12 years compared with those of 7-9 years, and similar results have been found by other researchers (Peterson, 1983, Evans et al., 2013, Brocas et al. 2017). Fehr et al. (2011) found that starting age 8 years old, children tend to become more altruistic. Kogut (2012) also analyzed altruistic behavior and satisfaction among children and recording similar results. Because age tends to influence children's altruism we have taken this variable into consideration as it can affect the results.

Gender effects

In the case of children, altruistic behavior has a certain plasticity (Lozada et al., 2014), is subject to different factors (Madsen et al. 2010) and can be learned or improved even as a result of trauma (Staub & Vollhardt, 2008). Various research studies reported gender differences regarding children altruism. Skarin and Moely (1976) reported that girls obtained higher altruism scores than boys, but also that among age 7-9 years old, girls seemed to be low in altruism. Angerer et al. (2015) found that altruism seems to increase with age and that girls have higher values than boys. Also children that have older brothers seem to be subjects of less altruistic behaviors. The act of manifesting more prosocial behaviors among girls compared to boys could be due to the fact that girls tend to place more importance on prosocial values than boys (Baillargeon et al., 2011; Betuel & Johnson, 2004). These differences are taken into consideration to manifest under present research design.

The present research

This study uses Teachman and Orme's (1981) model to measure children's generosity prosocial behavior. The method chosen to measure the prosocial behavior of generosity was already used in similar measurement procedure by Rushton (1975, 1976) and others (Rushton & Teachman, 1978, Rusthon & Wiener, 1975). The primary interest of this study is to highlight the role that the prosocial cartoons can play in the prosocial development of children (altruism) and also to observe if cartoons have an inhibition effect (for altruism), as a result of watching the cartoons with antisocial content. The major difference is given by the target group of children, where, unlike Teachman and Orme (1981), the subjects' age was 8-10 years old. For this present study, we have included children between 6-9 years, as it is known that at this age children can already distinguish between fiction (virtual) and reality (Bjorkqvi & Osterman, 2001, Downs 1990, Weaver et al., 2011). Also, several experimental studies have included same age group to record different effects of cartoons (Hapkiewicz & Roden, 1971, Frydman 1999, Ellis & Sekyra, 1972).

The interest of this present study is given by means of the need to observe possible influences on psychological health and behavioral implications for children who watch different types of cartoons. This experiment has an improved method of measuring the prosocial act (altruism) given the fact that the donation is made in an empty bowl - the act of donation not being stimulated a priori by the presence of golden coins (as in the Teachman and Orme experiment where there were already 12 coins in the donation

bowl). The act of generosity in the present experiment is measured in isolation, possible mediating factors that can be anticipated being eliminated by design. The design of this study, unlike Teachman and Orme, is built to measure children's prosocial behavior - altruism as a result of watching a cartoon where prosocial behavior is presented as intrinsically good. This fact is different from the study of Teachman and Orme, where children were exposed to a cartoon whose morality, prosocial act, is associated with religious teachings. In his study, Teachman and Orme used an episode from Davy & Goliath where moral behavior is taught and strengthened in the light of religious teachings, this cartoons presenting religious moral tales. The 2 hypotheses of the present study are:

H1: Children exposed to prosocial cartoons will experience increased altruism, recording a higher volume of donations than those who watched antisocial cartoons.

H2: Children exposed to antisocial cartoons will register lower altruism, recording a smaller volume of donations than those who watched cartoons with a prosocial character.

Method

Participants

Subjects (N = 140) were children enrolled in primary school (age 6 - 9 years old) from Cluj city (Romania). The children's average age was 7.39 years (*SD* = 0.93), in a ratio of 44.3% girls and 55.7% boys. According to the self-report data collected from the questionnaire and the consent given by the parents, the economic status of the study participants is mostly classified as "good", recording a percentage of 80.0%, and a percentage of 15.7% of families declared to have a "very good" economic status.

The subjects are from the same school in Cluj, the experiment taking place in both educational locations of the institution. The children's age distribution was as follows: 19.3% of students age 6 years old, 35% of students 7 years old, 33.5% of students 8 years old, and 12.1% of students were 9 years old. Children corresponding these ages are enrolled in preschool classes, both first and second grades of this preschool. The distribution by school classes was 37.1% students in the preschool class (52 students), 32.9% students in 1st grade (46 students), and 30.0% students in the 2nd grade (42 students). All data are displayed in Table 1. The distribution of subjects by age indicated no significant differences between groups [F (1, 139) = 1,583, p = 0.209]. Also, no significant difference between groups was identified based on subjects [$\chi 2$ (2, N = 40) = 0.166, p = 0.920]. Prior to applying the experiments, parental consent was requested for each child included in the study, parents giving their consent within 1 week before the study was performed.

Table 1 – Demographic characteristics of the study sample

Variable	Frequency (%)	M (S.D.)
Gender		
Girls	62 (44,3%)	,56 (,49)
Boys	78 (55,7%)	
Class		
Preparatory class	52 (37,1%)	
1st class	46 (32,9%)	
2nd class	42 (30,0%)	
Child age		7,39 (,93)
6 years	27 (19,3%)	
7 years	49 (35,0%)	
8 years	47 (33,5%)	
9 years	17 (12,1%)	
Daily screen time dedicated to cartoons		
0-15 min	32 (22,9%)	
15-30 min	33 (23,6%)	
30min-1h	45 (32,1%)	
1h-1h 30 min	17 (12,1%)	
1h 30 min – 2h	5 (3,6%)	
2h-3h	6 (5,3%)	
>3h	1 (,7%)	
Parents financial status*		
Low-income family	0 (0%)	
Middle-income family	112 (80,0%)	
High-income family	22 (15,7%)	

* Missing 6 entries for financial status (4,3%)

Procedure

To apply the study, the approval of the school management was obtained together with the parent's consent for each child. For the present experiment, 154 (92.3%) parents expressed their agreement to participate in the experiment, 13 parents (7.7%) refusing to give their consent. Out of the total of 154 subjects for whom the agreement was offered, 14 subjects (8.3% of the total number of subjects) were unable to participate in the experiment due to different health problems. Because of these health problems (i.e. varicella virus) children had to stay home. Thus the study included a final number of 140 subjects. The experiment took place at the end of March (2019), 1 week after the parents' consent and lasted for 4 school days, determined by the school time intervals.

The experiment stages were divided into 5 sequences for each session, keeping the same intervention scheme throughout all the sessions. The students were randomized and led to the experimental room where the intervention took place. On average, 11 children participated in each session, and the duration of each session was approximately 45 minutes.

The evaluator made introduction to the study by presenting the fact that they will participate in a puzzle game type "find the pair". For this, each child was placed in front of a tablet with a screen size between 8-10 inches, where the children were to play a game in which they had to find the pair of each fruit under one of the 16 cards (8 pairs of fruits). The activity was used to distract children from the interest assessment of the experiment.

The experiment of interest aimed at evaluating altruism by measuring the donation that each child was willing to make after watching a cartoon (neutral vs. prosocial vs. antisocial). For this, the subjects were offered a number of 10 gold coins, money with which they finally had the opportunity to get a surprise prize. They were informed that if they have more money they will have the opportunity to get a special prize. Before moving on to the "find the pair" game, the children were informed that a little boy named Mihail would have really wanted to participate in order to win a special prize, but due to health reasons, he could not be present. A picture of Mihail was shown to the children and placed in front of their eyes in a photo frame throughout the experiment (this was done in order to help children empathize with Mihail). Mihail's appearance was naturalistic, presenting a school boy, a child aged about 8-9 years, relatively serious, who looks ahead, in a portrait-type picture, on his shoulders the straps of a backpack being visible. The children were presented with the opportunity to make a donation for Mihail, as per their own will. The donation was to be made out of the sight of the other children in order to not be constrained by peer pressure. In the arrangement of the experimental room was placed a panel that masks the act of donation, the donation being made behind a panel of sufficient size to mask the entire donation process.

The pre-test evaluation consisted of recording each donation made by the children. For this, the subjects were directed to go through the donation booth, one by one, behind the panel, where Mihail's photo was placed on the desk near the donation bowl. An empty bowl was at the disposition of the children to donate as much money as they wanted, withholding whatever sum of money they personally desired. The projection screen (similar to a 1.6 m white opaque panel) was used to protect them from the pressure of the other children's eyes at the specific moment of donation. Throughout the experiment, the children were forbidden to talk to eachother, in order to eliminate any possible influence upon the act of donation. After passing the table where Mihail's picture and the donation bowl were, each child returned to his or her place to play the promised game on the tablet.

Experimental exposure was presented as a recreational moment before starting a new "find the pair" game on the tablet. Each group was exposed to a specific cartoon (neutral, prosocial or antisocial). The cartoon presentation was done with the help of a video

projector and external speakers, such that both the image and the atmosphere of the cartoon (through the sound) would be pleasant, the attention being focused exclusively on the cartoon.

The post-test evaluation consisted of another session of donation in the same experimental design, children being motivated to win another special prize, which will also remain secret at that specific moment. Subjects were offered another set of 10 gold coins, reminding them that they have the opportunity to make a donation for Mihail so that he too may enjoy a prize. The donation was to be made under the same conditions as in the first instance, away from the eyes of peers through a separator, quietly and voluntarily, with the freedom to donate from 0 to 10 golden coins. Following the donation, the children were offered the opportunity to play a new game, "find the pair", as a reward for their collaboration.

The end of the session included congratulating the children for their collaboration and for the donation made to Mihail and assuring them that they will receive the award in a short time,. The children were taken to their classes. All children ended the experimental session with great enthusiasm, the children being out of any negative afect due to the experimental design. At the end of all the experimental sessions, the children were offered the promised prize within the entire team of each class. The prizes (special chocolate) were given only at the end of all the sessions, motivated by the possibility of losing the interest of other subjects if it would have been given before that specific time.

Research design

The present research has an experimental design and aimed at measuring prosocial behavior - altruism as a result of watching cartoons. Two hypotheses were formulated, which directly target prosocial behavior, the "altruism" component, under the influence of cartoons, with the expectation that the volume of generosity will either increase or decrease. The sampling was multistage random (cluster type randomization) the subjects being selected from the educational institution from all preparatory classes, 1st classes and 2nd classes, being made a subsequent division according to gender (b / f), with distribution within the 3 experimental groups (neutral, prosocial, antisocial). Thus, the number of subjects of each experimental group was controlled, the groups remaining in balance for gender and the total number of subjects (Fig. 1).

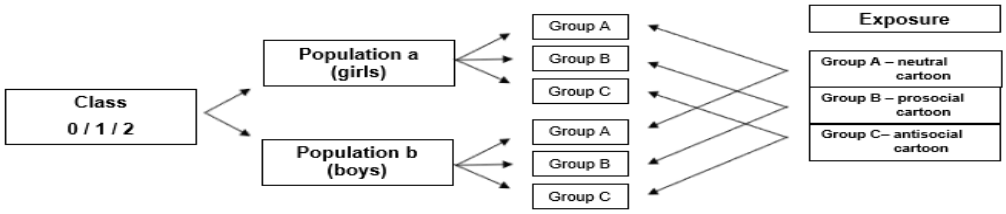

Fig. 1. Randomization process

The independent variable is the cartoon type (neutral vs. prosocial vs. antisocial). The average duration of the cartoons used in this experiment was 5 minutes and 23 seconds. The neutral group was exposed to the cartoon called "Alex in the sea" where the main

character, Alex, a child, discovers the underwater world and every time he meets new creatures, he makes a picture that he develops and analyzes later. The episode presented is a mix of 2 episodes in which Alex met a dolphin and an octopus separately. The duration of the cartoon is 5 minutes and 16 seconds.

The prosocial cartoon used in the experiment was "Kit and Keit: The Big Bouquet" where the 2 main characters go to a valley full of flowers. There they find a little dinosaur crying because he wants to make a present for his mother for her birthday. Together they start collecting flowers (empathy is present) for the dinosaur's mother (help), which they offer to the little dinosaur (generosity), but they find that they have ruined the valley by collecting them all. Following an explicitly presented morality (moral lesson), he starts picking flowers again, but only as much as he needs (lesson learned). Afterward the bouquet is offered to the mother, and everyone is happy. This cartoon aimed helping as a result of empathy, the characters gathering and offering flowers (generosity) out of self-interest, to make someone else happy. All the elements presented in this cartoon have a prosocial theme and are important in the act of donation. The total duration of the cartoon was 5 minutes and 19 seconds, and the dialog between cartoon characters was made in the subject's native language.

The antisocial cartoon was from the series of "Woody the Woodpecker", the episode titled "Short in the saddle". The cartoon shows the woodpecker Woody going to the western lands in search of gold. The whole scenario highlights the fight between a bandit and the woody woodpecker for a bag of gold, along the way there are shootings, blows, winning, and temporary loss of the bag of gold by each character. The end surprises the fact that the coveted bag is empty, ending with the specific laughter of the woody woodpecker. The duration of the cartoon is 5 minutes and 33 seconds. This cartoon was selected because it underlines the fight for so considered money and because the characters are determined to win the bag.

Child gender was the second independent variable taken into consideration in order to record different altruistic behavior among children as this variable has the potential to influence the results. Sometimes boys tend to copy cartoon characters' behavior more than girls (Ergun, 2012), but generally, girls tend to record higher scores on altruism than boys (Angerer et al. 2015).

Child age was the third independent variable, different studies recording that altruism increased with age (Evans et al., 2013, Brocas et al. 2017). Israely and Guttmann (1983) also recorded that older children (5th grade) tend to manifest higher altruism than younger ones after watching a puppets show. As it is largely known that this variable can influence the outcome, we have taken it into consideration as an independent variable.

The dependent variable was prosocial behavior-altruism, measured by the volume of donations recorded after watching the cartoon. In order to measure the act of donation, each subject received a number of 10 golden coins having the option to either keep all the money for themselves or donate as per their own will (0 - 10 golden coins). The motivation for keeping the money was the surprise gift whose value was considered to

be in direct relation to the number of golden coins kept: keeping a larger number of golden coins was considered to materialize in a bigger and more beautiful gift. Based on this fact, the children decided whether to donate to Mihail, a boy of their age who was not present because he was sick. In order to make it as realistic as possible a picture of Mihail was posted on a picture frame near the donation bowl. Children had the possibility of either donate or keep al the money for themselves. In order to eliminate any other unknown variable, such as peers' pressure for donating or not, children were asked to remain quiet throughout the experiment, and the donation was made behind the set (panel) specially installed to protect the donor from the eyes of other subjects.

Measures

The evaluation of the prosocial behavior was performed with the help of 10 golden coins that the children received before each measurement. Children started the session with an introduction to the experimental room and were informed that they would receive some golden coins and, based on the number of golden coins that they will keep, will receive a prize. After this instruction, the case of "Mihail" was introduced and also the possibility of donating for him in order to help him as he is in a special condition (ill), this way making things possible for him to receive also a special gift. After the donation took place, all subjects were given the possibility of playing a game ("find the pair") on tablets, which were displayed for each subject. After all, children have ended the game, the evaluator told them about a surprise that he has for them, a cartoon. Full of joy, children watched the cartoon designed specifically for each experimental group. Immediately after the exposer, the prosocial behavior was measured again, in a new act of donation, after which the session ended with a new game on the tablet (same "find the pair"). Following each donation, the remaining coins were collected, the subjects being assured of the fact that it was noted how many coins they kept for themselves in order to receive their prize. The two donation sessions were separated by an online game via tablets, in which children had the duty to find the pair of fruits presented on the screen.

Data analysis

Analysis of the data for altruism (a specific component within the prosocial behavior) was performed using repeated measurements of ANOVA. The independent variable was the type of cartoon (neutral Vs. prosocial Vs. antisocial), gender and child age, and the dependent variable was the volume of donations made by each group. Statistical analysis has been performed with the help of the program IBM SPSS Statistics, version 25.

Results

Main analyses

The volume of donation was measured for each group, results indicating the means of standard deviations of golden coins donated. The means and standard deviations for the initial state (pre-intervention) for the neutral group (boys & girls) was *M* = 3.55 (*SD* = 3.62), the prosocial group recorded *M* = 3.64 (*SD* = 3.19) and the antisocial group recorded *M* = 5.13 (*SD* = 3.61), total mean for pre-intervention was *M* = 4.12 (*SD* = 3.54). After intervention (post-exposure) the neutral group recorded *M* = 3.30 (*SD* = 3.37), the prosocial group recorded *M* = 3.62 (*SD* = 3.00) and the antisocial group recorded *M* = 3, 52 (*SD* = 3.33), the total mean for post-intervention stage was *M* = 3.48 (*SD* = 3.22). Overall girls manifested a higher altruism then boys recording a mean *M* = 4.31 (*SD* = 3.63) unlike boys mean *M* = 3.97 (*SD* = 3.48) in pre-exposure stage. Also after exposure girls recorded a mean *M* = 3.94 (*SD* = 3.48) and boys recorded a mean *M* = 3.12 (*SD* = 3.98). Descriptive statistics of donations made in each group and as per child age are presented in table 2.

Table 2 – Descriptive statistics of donations made in each group and measurement moment

Media type	Children age (N)	Pre exposure *M* (*S.D.*)		Post-exposure *M* (*S.D.*)	
		Girls	Boys	Girls	Boys
Neutral	6 years (N=12)	1.67 (1.86)	3.17 (3.54)	1.83 (1.83)	1.33 (1.51)
	7 years (N=18)	2.86 (3.80)	2.45 (2.42)	3.14 (3.80)	3.09 (2.55)
	8 years (N=11)	8.00 (3.37)	4.57 (4.24)	6.25 (4.35)	3.86 (4.38)
	9 years (N=6)	5.33 (4.51)	3.67 (5.51)	4.67 (4.73)	4.67 (4.62)
	Total (N=47)	3.90 (3.91)	3.30 (3.45)	3.60 (3.68)	3.07 (3.19)
Prosocial	6 years (N=9)	1.25 (1.50)	2.00 (2.55)	3.00 (2.94)	2.00 (2.00)
	7 years (N=13)	3.67 (3.98)	3.29 (3.20)	4.33 (3.78)	3.86 (1.95)
	8 years (N=21)	4.90 (3.70)	4.64 (2.87)	4.90 (3.93)	3.00 (2.86)
	9 years (N=2)	1.00 (.00)	3.00 (.00)	3.00 (.00)	3.00 (.00)
	Total (N=45)	3.67 (3.57)	3.63 (2.92)	4.29 (3.52)	3.04 (2.39)
Antisocial	6 years (N=6)	3.67 (1.53)	4.67 (5.03)	2.67 (2.52)	5.67 (4.04)
	7 years (N=18)	4.75 (3.01)	6.50 (4.38)	2.50 (1.60)	3.50 (3.84)
	8 years (N=15)	5.71 (4.03)	5.50 (3.02)	6.29 (4.50)	3.13 (3.27)
	9 years (N=9)	7.67 (4.04)	1.83 (1.72)	3.33 (2.89)	1.67 (1.75)
	Total (N=48)	5.33 (3.37)	4.96 (3.86)	3.90 (3.39)	3.22 (3.33)

To highlight the effect of different types of cartoons on the prosocial behavior of children (altruism) we have used ANOVA analysis method, the results indicating a general statistically insignificant time effect [F (1, 116) = 2.175, p = 0.143 , $\eta 2$ = 0.018] and also an insignificant time effect depending on subjects gender, results indicating [F (1, 116) = 0.068, p = 0.795, $\eta 2$ = 0.001]. Effect of time depending on child age was also insignificat statistically [F (1, 116) = 2.720, p = 0.615, $\eta 2$ = 0.015]. For time depending on media type the results recorded a proximal p value but still insignificant [F (1, 116) = 13.068 p = 0.060, $\eta 2$ = 0.047].

Table 3 – Results of the analyses of variance

	df	*Type III SS*	*MS*	*F*	*p*	*η2*
Within-group effects						
Time	1	9.838	9.838	2.175	.143	.018
Time * Gender	1	.307	.307	.068	.795	.001
Time * Child age	3	16.388	2.720	.601	.615	.015
Time * Media type	2	26.137	13.068	2.889	.060	.047
Error (within)	116					
Between-group effects						
Gender	1	6.103	6.103	.693	.407	.006
Child age	3	93.947	31.316	3.555	.017	.084
Media type	2	18.334	9.167	1.041	.356	.018
Gender * Child age	3	38.653	12.884	1.463	.228	.036
Gender * Media type	2	1.817	.908	.103	.902	.002
Child age * Media type	6	40.101	6.683	.759	.604	.038
Gender * Child age * Media type	6	28.081	4.680	.531	.783	.027
Error (between)	116					

Regarding the donation volume, the pairwise analysis, with Sidak correction, didn't indicated a significant effect for the multiple comparison nor in the prosocial group nor for the antisocial group. Compared to the neutral group, the group exposed to prosocial cartoon indicated M = -0.21, the standard error (SE) = 0.619, p = 0.982, 95% CI = [-1.71; 1.29] and the group exposed to antisocial cartoon indicated mean difference M = -0.90, the standard error (SE) = 0.609, p = 0.371, 95% CI = [-2.37; 0.58].

Post hoc analysis revealed for child age insignificant statistically effect for all ages except for the comparison between 6 years old and 8 years old where it has been recorded a mean difference M = -2.30, the standard error (SE) = 0.717, p = 0.010, 95% CI = [-4.22; -0.38].

Discussion

This study aimed to evaluate the prosocial behavior of children (specifically the altruism component) under the influence of different types of cartoons, and the evaluation is made through an act of donation to an unknown child whose situation and name has been presented to the children. The prosocial behavior targeted, altruism, was defined as an act devoid of personal benefits for the benefit of another person (Feigin et al., 2014). Research indicates that after exposure to different types of media, subjects may be influenced negatively (Friedrich & Stein, 1973) or positively (Poulos et al., 1975; Collins & Getz, 1976), including altruism (Wilson, 2008), children being in certain conditions under the influence of media messages from a very young age (Kaiser Family Foundation, 2006). Teachman and Orme (1981) highlighted the effect of cartoons on children (8-10 years) on prosocial behavior (altruism) manifested by donation, the antisocial cartoons having an inhibitory effect..

The hypothesis that children who will watch prosocial cartoons will have increased altruism, proving a higher volume of donations compared to those who watched antisocial cartoons has not been confirmed, the averages and standard deviations being approximately unchanged, pairwise analysis indicating no significant effect for the prosocial group. The second hypothesis that children who watch antisocial cartoons will have lower altruism proving a lower volume of donations compared to those who watched prosocial cartoons has not been statistically confirmed either. The experiment analyzed the effect of the cartoon and the gender of the subjects, the results indicating that there is no general significant difference between boys and girls, nor for the subject's age. However, there has been found a statistically significant difference for the age of 8 years old, children within this age category recording a higher volume of donation compared with those of 6 years old.

Our results recorded no significant effects of prosocial cartoons on children's altruism, similar to Teachman and Orme (1981). We have also recorded no gender effect, just as Teachman and Orme also found no significant gender influence. With regard to antisocial cartoon effects, we have recorded no significant influence whereas Teachman and Orme found a statistically significant inhibitory effect for this media type, recording a lower volume of donation. We suggest that the results should be carefully interpreted as the research paradigm has suffered minor changes and thus, we recorded a similar effect (no effect) for prosocial cartoons, whereas for antisocial cartoons we have recorded a different effect (also no effect), unlike Teachman and Orme who have recorded a statistically significant effect for antisocial cartoon. With regard to age, Teachman and Orme give no specific details, our general data being similar to Shing (1988) results who also found no age influence on altruistic behavior after exposer to cartoons. However, our data record a significant increase of donations for children age 8 years old compared to those of 6 years old.

In order to interpret the results, it was considered necessary to provide explanations due to 3 specific elements. 1) ANOVA analysis of variance indicated a proximal *p*-value

but still insignificant [F (1, 116) = 13.068 p = 0.060, $\eta 2$ = 0.047]; 2) the average donation for the antisocial group was initially M = 5.13 golden coins (SD = 3.61) reaching M = 3.52 golden coins (SD = 3.33) in the post-intervention stage and the fact that 3) in the initial stage (pre-exposure) we have a large number of extreme donations for 2 of the experimental groups (neutral and antisocial group).

Given the data presented above, we consider that the best way to interpret this data is due to the presence of a moderating factor (a confounding variable) and not necessarily due to the cartoons (Sava, 2013, p. 149), the confounded variable considered is "moral licensing" and with its direct and reverse effect. We consider that in this way, it is possible that a data prejudice has occurred through the intervention of a possible moderating factor. The concept was brought to attention by Monin and Miller (2001), and takes into account the fact that a person is able to have behaviors of dubious morality as a result of a first value / moral behavior. This valuable behavior is one according to one's own or social standards and becomes the reference point for the second behavior. The basic idea is that after a first act, after engaging in good deeds (act no. 1), for the benefit of others or without prejudice, the subject ends up feeling morally safe, in act number 2 (the second instance), and because he feels morally safe because of a good act that he has already done, the subject affords to express prejudices or different kinds of negative behaviors (Cascio & Plant, 2015).

The "moral licensing" effect has been of interest to researchers in different behaviors, and the results are indicating a "moral disinhibition" effect due to the presence of a variable that influences the outcome. The effect was observed in the act of donation in which the subject, motivated by self-interest, is permitting himself to become selfish, reducing the volume of donation (Merritt et al., 2010) or expressing different kinds of prejudices (Kouchaki, 2011), for example regarding racist attitudes (Mann & Kawakami, 2012). This behavior can manifest even in the concrete absence of an act of high morality, but only in the (own) evocation of the fact that he is a good person (Sachdeva et al., 2009), regardless of whether the good deed was determined from the outside or inside (Clot et al., 2011). The moral licensing effect and the studies regarding it are under certain limits (Blanken et al., 2015). This approach should be carefully taken into consideration with regard to children because most of the studies have used adult subjects. We suggest that studies like Miller, Brickman, and Bolen (Miller et al.,1975 cf. Merrit et al., 2010) who have taken into consideration the effect of labeling upon the moral licensing for children, are good support in order to suggest that moral licensing effect might have been activated, also because this theory seems to suggest best the effect and also because of the following issues listed below.

Because of this issue, we have analyzed the volume of donations made by each subject, as per group to which it was attributed in the pre-exposure stage (donation 1). The results indicated that there are two extreme values that belong to the neutral group and the antisocial group. A large number of subjects from the neutral group (11) refused to make any kind of donation (0 golden coins offered), eliminating any possibility to

reduce the donation volume. Within the group that was offered the antisocial cartoon, a large number of subjects (13) registered the maximum possible donation (10 golden coins), eliminating any possibility to increase the donation volume.

The present situation seems to be best explained by the "moral licensing" effect and its reverse, research indicating that the effect may be on both groups, the second behavior being compensatory for the first, leading to two opposite effect: "moral self-licensing" and "moral cleansing". "Moral cleansing" is also an effect presented in the research work of Branas-Garza et al. (2013). Bivariate analysis of the data indicates the possible existence of the licensing effect of morality and the fact that the calculated Pearson correlation indices show a negative association between the money initially offered and the volume of donation earned, r = -0.534, p <0.001, and a positive association between the money offered post-intervention and the volume of the donation gained, r = 0.372, p <0.001, where the volume of the final donation is the difference between the volume of post-intervention and pre-intervention donation. We conclude thus that present results might be recorded due to the existence of a moderating factor (moral licensing), this being argued by the distribution of the volume of donations and the correlation scores, further research having the possibility of doing best to eliminate this moderating factor.

Current limits and future study directions

Built according to the model of Teachman and Orme (1981), with the improvements already mentioned, this study has the limit of contamination risk (Sava, 2013, p. 115, Torgerson, 2001). This limit might have occurred due to the fact that the experiment took place on several days, enough time for the subjects to discuss the components of the experiment. We have asked children not to talk during the experimental sessions, and the teachers have assured us of their help, limiting as much as possible discussions between children during all school days. We admit that small chats might have occurred and that might have a possible influence on the results. Another limitation of the present study is the duration of exposure to cartoons, 5 minutes and 23 seconds being a relatively short time to obtain a modified behavior, especially if we take into account the fact that in order to measure altruism, it is important to empathize with the subject or a specific cause. Regarding the exposure time limit, it should be noted that many participants in to present experiment spent 30 – 60 minutes daily in front of the cartoons (cf. collected data), which is much more than the exposure time in the present experiment.

Another limitation of the study might be given by the evaluator, whose presence might have an influence upon the subjects. This possible limitation is a real one, even though the results do not indicate an increased volume as might have been expected because of the presence of an adult. The cartoon used must be introduced as another possible limitation, limitation justified by the fact that in our current study, for ethical reasons, we have applied a careful selection especially for antisocial cartoon, not to harm subjects' minds.

This research has an implicit limit when comparing it with Teachman and Orme experiment, the paradigm being slightly modified. If the results are interpreted only based on the present data, then this limit is not applied, but if compared with Teachman and Orme study, then we consider properly mentioning this limit because of issues listed above regarding research paradigm.

Last but not least, we consider that the main limitation considered for this study is given by the possibility of having a moderating factor: moral licensing. We believe that this is the main limit that future research should take into consideration regarding cartoons' prosocial effect.

It becomes more and more difficult to "navigate" in to the world of the 21st century due to hard times and also due to the fact that our life "will become more and more interconnected with the media" (Hogan & Strassburger, 2008). We consider that in this new climate, the attention of parents, teachers, and researchers must be directed to the "new media" (including social media, smartphones, and tablets) because it becomes a dominant force in children's lives (Strassburger & Hogan, 2013). The media universe has a good potential for sharing ideas, connecting people, and other benefits. They are indeed a portal for communication and entertainment if properly used by encouraging healthy use and offering good protection for small users (O'Keeffe & Clarke Pearson, 2011).

Finally, the need for more research in the field remains both in order to provide a scientifically substantiated answer to the extent of the effect and to answer the question of the Federal Communications Commission (FCC), which stated that television programs are indeed part of the educational program. The question that we have to answer even in our present times is what kind of teaching does it offer (?) (Liebert et al., 1973). Future research will be able to carry out research work through the best possible control of variables based on the entire literature.

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The organizational culture of innovative schools: The role of the Principal

Juan Carlos Riveras-León•, Marina Tomàs-Folch•

Abstract

Social and technological changes demand constant updating, this implies that schools must be prepared to face these changes. As a result, they need to have the capacity to innovate as part of their organizational culture. Although it is true, that not all schools are examples of innovative organizations, it is possible to identify some that have a more innovative organizational culture than others. In the generation of that capacity, the principal's leadership plays an essential role, they are ones called to face the challenge of developing competences and skills to lead the change. Existing research confirms the importance of the school's leadership in the development of educational centers, OECD reports already ratified this, stating how vital it is to have good principals to lead schools (2009). In this study, schools have been chosen that have certain characteristics that are considered stand out for the Chilean educational system. By applying a questionnaire, the innovative potential of the centers being studied and their organizational culture to favor this are analyzed, the latter from the point of view of the principal's actions. The results allow confirming the innovative potential the studied centers have, the most substantial practices of the principal's actions that favor innovation are identified, as well as the key role the principal's leadership plays within these centers. At the same time, questions arise that limit the development of certain innovative actions, such as, the search and pressure for results originated essentially from standardized testing, like SIMCE, which is applied in Chile.

Keywords: Leadership for innovation; Innovative schools; Organizational culture

Introduction

The social changes of the globalized world demand greater competences and challenges, which imply that school organizations must adapt themselves to this changing, demanding and challenging system. For this reason, it is necessary that school organizations have the capacity to innovate (Ramírez, García, & Cruel, 2017), that this capacity is institutionalized, that it forms part of their culture (Rubia, 2018), and corresponds to a collective effort (Ruay & Ferrada, 2017).

The key for a school that intends on having success, understanding this as achieving better educational results, is in the search for innovative solutions, modifying their practices (López-Vargas & Basto-Torrado, 2010), be these pedagogical or organizational,

• PhD candidate in Education, Autonomous University of Barcelona (UAB), Spain, juanriverasleon@yahoo.es

• PhD, Professor at the Department of Applied Pedagogy, Autonomous University of Barcelona (UAB), Spain, marina.tomas@uab.cat

transforming them into practices that directly and indirectly produce greater and better results. This implies that an institution which does not believe in or incorporate different ways of acting, adapted to the new demands, cannot be conceived today; this requires collective efforts and commitments, with a sense of community (Leithwood, 2009; Gairín, 2015), and not just mere decisions and individual adventures (Hargreaves & Fullan, 2014).

Although it is true, that innovations are not the same for all institutions, as no schools are alike, even though they are in places with very similar external conditions, the people and their relationships make them all different from one another. As a result, it is not possible to state that a school is innovative if it replicates one or another strategy, but it is possible to identify certain characteristics or elements that allow recognizing them as innovative schools or schools that have a potential to be guided along a path towards innovation. In this setting, principals play a determining role, because the challenge of developing competences and skills to lead the change falls upon them (Fullan, 2014).

Different research confirms the importance of the principal in the development of a school (Silva, Del Arco, & Flores, 2018), The OECD points out how vital it is to have good principals, and suggests that governments select and prepare those who will emerge with the greatest capacity to direct schools (OECD, 2009).

On the other hand, it also says that educational quality is closely tied to the capacity of the educational institutions to foster changes…" (Tomás et al., 2009); what is fundamental is knowing: what is the innovation potential of these schools and how does this contribute to their development? Understanding innovation potential as the capacity to evaluate, integrate and disseminate innovation processes (Tomás et al., 2009). As a result, the answers found through this research help or guide how to answer certain questions: Which aspects of the organization culture favoring innovation can be references for other educational contexts? Which elements must be considered to develop innovation processes in schools?

This article looks to get to know the organizational culture of schools in the Region of Magallanes, Chile, with the goal of inquiring about the possibilities of generating innovation, led from the action of the schools' principals. What is outlined leads us to seek answers and opens more questions, such as: Which actions of the principals of schools in the study contribute to the generation of a successful organization and promotor of innovation? Which actions of the principal and of organizational culture block school innovation? Or beyond the schools, which public policies encourage generating innovative schools? Which public policies limit school innovation?

This work considers the following hypothesis: "the democratic and participatory leadership of the principal is fundamental in the generation of a school culture favorable to innovation". Where certain managerial practices, for example, the promotion of collaborative work among teachers favors their involvement with change actions, which leads to sustaining innovative processes over time.

Theoretical guidelines

The current challenges of schools

Castells (2010) suggests that changes in education are key and must begin with a social commitment (Giroux, 2016) and that of the States, where the new organization and administration logic overcomes bureaucracy and that finally pedagogical innovation is achieved. As a result, educational institutions must be created where it is possible "to learn to learn". We outline the challenges schools have to face in the future, how these must be led to resolve the situations they are afflicted by and to collectively seek success, where the collaboration of teaching staff is essential to drive innovation processes in schools (Gairín, 2000; Hargreaves & Shirley, 2012; Krichesky & Murillo, 2018), even though this is not free from complexities, nor does it alone produce the desired effect of ensuring innovation and improvement.

The challenges and demands on educational systems today are enormous and these lead to aspirations of schools to respond to them. The school must take on these demands, and from this, many questions arise like: how to guarantee quality? What do you do to educate with quality and equality? What is the role of the school? How does the school organize to generate innovations that meet the social demands and challenges? Questions that must be answered, analyzed, reflected upon, jointly, from the institutional commitment. If we measure the quality today using the competences the students have or achieve in a given school, it is worth asking ourselves: are the quality demands the students need being met? Perhaps there are many answers, sometimes, to a greater or lesser extent, but surely, no school can guarantee an absolute yes.

Characteristics of school organizations with effective practices

The revision of the literature about the requirements of an educational organization to be effective, lead us to many coincidences: learning centered leadership, high expectations of the academic leadership (Schmelkes, 1998), the staff must be motivated and very committed, they must have proactive people, clear goals, a vision and mission that identifies them, develop people (Leithwood, 2009), collaborative work, continuous adaptation and development of the creativity considering the organization (Esteves, 2018; Hildreth & Kimble, 2004).

Due to the ever-growing complexity of problems organizations have, it is necessary that learning is done in a team, as it has been shown that learning and ideas generated collaboratively are more creative, innovative and have a better quality than those generated by people individually (Hargreaves & Shirley, 2012). This occurs, as by interacting in a team, allows contrasting mental models, perceptions, namely, opening up to contrasting the interpretations of the real world (León, Tejada, & Yataco, 2014). With the employers interacting, even though they perform different roles, they tend to improve performance, which leads to substantial improvements for the organization (Gittell, Seidner, & Wimbush, 2010). This becomes even more relevant nowadays where schools

have the challenge of generating school inclusion policies (Gallager, 2013; Parrilla, Sierra, & Fiuza, 2018).

Educational Innovation

Schools seek to innovate by transforming their practices, be these pedagogical or organizational, to convert these into practices that directly and indirectly produce greater learning achievements among the students. As a result, in the educational plane, one innovates to adapt, to better respond to society, to provide different solutions to real problems (Adams et al., 2017). Thus, to find answers, that lead the school organization to obtain improvements, a different way of doing things is a must, which implies making a change in the culture of the staff and in the roles of the institution's leaders (Santos, M. A. S., Jover, Naval, Álvarez, & Sotelino, 2017).

The term "innovate" is commonly related to change. To understand the differences of the two concepts, it is worth citing Tomás et al. "innovation means changing towards something that is completely new or somewhat new compared to the innovation target. Not all change is innovation, but innovation always means change and implies a willingness that favors change" (Tomás et al., 2009, p. 6). Etymologically innovate means "introducing novelty into something", "moving or altering things".

For Tejada (2008), talking about educational innovation "implies an action that brings about the introduction of something new into the educational system, modifying its structures and operations so that improvements are made in its educational results" (p. 94). All the aforementioned definitions of innovation leave it clearly established that innovating always means improving. Here is where "innovation" emerges as the key to improve education (Cantón, Turrado-Sevilla, & Santos-Lozano, 2017)

In summary, for this article, and using the aforementioned authors as reference, we will use the concept of educational innovation and the introduction of changes in the different processes; be these pedagogical, inclusive, administrative or promoters of healthy co-existence; that are done in the school and that necessarily produce an improvement for the institution, having positive repercussions, at the end of the day, on the education of students.

Factors to consider in educational innovation

So that an institution can end up being innovative, it must incorporate certain characteristics that foster and ground the guidelines to institutionalize innovation, incorporating these into the institutional culture, just as Krichesky & Murillo (2018) mention: "staff collaboration is an essential condition to foster innovation and improvement processes in educational centers" (p. 135). An educational institution that seeks improvement, will try to form a learning community that collectively seeks innovative solutions. Schools have to have innovation, teamwork, the formation of a learning community, as a characteristic, where the members support each other. This will aid the task of innovating, where there are spaces for reflection, self-assessment and

participation (Tejada, 2008). The pretensions of educational organizations must head in this direction, building teams with the due participation and collaboration of their members (Chaljub, 2010).

To create an innovative school, the first thing is being open to change. For this reason, the individualism that has characterized schools must be overcome. Motivation, communication and openness to new learning are key; "if the teachers act as a team, if they dialog, project and work as a community, if they are open to learning, they will enjoy their profession and will be more motivated to improve themselves" (Santos, 2001, p. 79). It is very relevant for the institutions to have personnel that are open to change, that constantly seek new ways to work. De la Torre says that "so that a problem becomes a principle of innovation and change, it is necessary that there are people with initiative, with concrete proposals and with a certain recognition among the teachers", cited by Tomás et al. (2009, p. 28). The relational system of a school plays a central role in this entire process, where once again, there are close ties with the leadership. Here is where the school's principal has a central role in the generation of a favorable climate for the school's culture, just as the different typologies of leadership mention (Blanchard, Blanchard, Zigarmi, & Zigarmi, 1986; Wrigley, 2007).

For an action to have success, it is necessary to consider the environment and the context it will take place within. On not considering these elements, the intended innovations will just be a good idea, no different to many that start in organizations, especially in schools. There are programs that start up, but the limited planning, the lack of follow-up, the failure to evaluate weakens them, leaving them as a fruitless idea, one that began enthusiastically, but ends up dying away. All these good intentions die out and often leave more setbacks than creations. The members of the organization enter a state of skepticism about new projects, because they have an accumulated experience of failures leading them to think the same that happened before, will happen again. These initiatives are not always internal. The same happens with public policies led by different governments, which fall by the wayside or are replaced by other visions or new ideas. From this perspective, innovation processes, require being managed to reduce possibilities of failure, showing the role of the principal at the core of the improvement processes, facilitating team meetings, systematizing different actions, monitoring, evaluating and supporting a climate based on respect and professionalism (Crawford, 2012; Muijs & Rumyantseva, 2014).

Importance of leadership for innovative schools

There is no doubt that the improvement of education quality in schools, among other factors, depends on the school principal they have (Northouse, 2004). Educational leadership is the most important internal factor of a school, to achieve student learning, after the teaching staff's teaching, according to the McKinsey (Barber & Mourshed, 2008) and OECD reports (Pont, Nusche, & Moorman, 2009). Therefore, looking deeper at further

education and seeking the way to perform leadership actions, is crucial for better education in schools and as a result, educational systems.

School leadership is a pending task in current pedagogical leadership models (Bolívar, 2007). This phenomenon is characteristic of many educational systems, with the Chilean version being a very patent example of this. Fortunately, actions have strongly started developing, both nationally and internationally, that aim at giving school direction, the importance that it merits regarding the effect it has on educational results. OECD (2008) states, that school leaders exercise a measurable influence, mainly indirectly, over learning results. This means that the impact of school leaders on student learning, is generally measured by other people, events and organizational factors. As such, the principal's leadership contributes indirectly, creating the most suitable conditions for teaching processes, also affecting the people and the organization.

Leadership is very important for educational organizations, connected to the school principal, where the latter is key in the generation of an institution that is effective in achieving the improvements in educational quality that are sought today (Ríos, Maturana, Almonacid, Shink, & Jaramillo, 2010). "Nobody doubts the importance of leadership for three situations: to facilitate change and innovation; to provide a vision of the organization; to encourage the first steps" (Bolívar, 2007, p. 17). Apart from the positive impact on student learning, starting from the principal's action, this can affect the transformation of the teaching practices (Day, Gu, & Sammons, 2016), strengthening the work of the teachers (Bolívar, 2010). Furthermore, the leadership can be much more of a determining factor in schools in vulnerable and poverty contexts (Horn & Marfán, 2010; Weinstein, 2009), which implies that leadership is crucial there to improve the quality of the teaching (Robinson, Hohepa, & Lloyd, 2009).

Method

This article is a descriptive study of a quantitative nature, that seeks to get to know the innovation potential of schools, identifying the leadership actions of the principal that aim towards generating a school culture that favors innovation, getting to know the actions that allow the involvement of teachers in innovation and displaying the characteristic leadership style of the schools that have been recognized by the Ministry of Education with the Excellent Performance Grant in the Magallanes Region. A questionnaire is used as the tool to collect information.

Construction and Validation of the Tool

The instrument was designed with closed questions and a single scale, Likert type, for the entire instrument. Where option "1" corresponds to being "strongly in disagreement" with the statement made; "2" "disagree"; "3" "agree" and option "4" "strongly agree"; in this way, the bias of the response to the central alternative is avoided. The preparation was made from an exhaustive review of research related to the subject and about similar tools. Alongside this, the research goals, the choice of dimensions, the formulation of

variables for each dimension and the later validation and filtering were defined, until obtaining the final version of the tool (Sierra, 2013). The structure of the questionnaire includes in the first part, the data on the characterization of the sample. Then it considers various variables grouped into the following topics: innovation potential; managerial influence, managerial importance in innovation; leadership styles and institutional leadership practices.

To validate the questionnaire, to generate greater quality, expressed in the validity and reliability of the items, two fundamental procedures were considered: the judgment of experts and statistical analysis made based on a pilot test (Osterlind, 1989). The first validation step was studying the content using the judgment of experts, a procedure often used in this type of filtering (Barroso & Cabero, 2010). It was sought to determine, in this way, whether the 86 variables of the tool cover the content that is sought to be measured (Ruiz, 2002). For the first case, once the tool was developed, it was sent to 10 judges chosen on being expert researchers in research method and professionals with knowledge on the administrative and organization context of the schools under study, including academics from Chilean and Spanish universities, civil servants from the Ministry of Education and outstanding teachers from the Chilean education system, 8 of whom generated their reports. The revision of each evaluator was made regarding univocality, pertinence and importance regarding the goal. 12 items were eliminated as a result of this first validation, another 12 were modified and 1 was set in another goal.

Later the tool was applied in a pilot test to 166 teachers to make an internal consistency test of the questionnaire. The Cronbach coefficient was used for this, through the SPSS statistical program. For this case in particular, after having removed 8 items, a Cronbach Alpha reliability of 0.877 was obtained. After the construction and filtering of the tool, it was applied in this work.

Population and Sample

The questionnaire was applied to teachers belonging to schools that have been recognized by the National Performance Evaluation System of educational establishments subsidized by the State, whose acronym is SNED, of schools in the Magallanes region, Chile. The schools that are best evaluated by this System become creditors, for two years, of the Excellence Performance Grant designed to grant remuneration incentives to teachers and paraeducators. In accordance with current regulations, a SNED performance index of schools is calculated, based on the measurement of six factors: Effectiveness, Improvement, Initiative, Improvement of working conditions, Equal opportunities, and Integration and participation.

From the total population, corresponding to 611 teachers, a probabilistic representative sample was taken, of a stratified type, considering as strata: socioeconomic level of the students they attend; seniority of teachers in schools; urban-rural schools and their enrollment. For which, the proportional calculations of elements that are required of each stratum were made to respond to the representativeness of the

population under study, applying the instrument to a population of 186 teachers, obtaining a response of 126 teachers, equivalent to 20.6% of the total population.

Results

Characterization of the Sample

According to gender, 66.7% correspond to women and 33.3 to men; 74.6% of the teachers belong to urban schools and 25.4% to rural ones; 80.2% belong to public (municipal) schools and 19.8% to private schools, but which receive funding from the State; 100% of the teachers have a degree in education; the average age is 41.1 years; 42.9% have a bachelor's degree as the maximum academic degree and 9.5% a master's degree, none of the participants has a doctorate; They have been working in the same school for an average of 9 years and the average age is 41.2 years.

Innovative potential of the studied schools

The first items of the questionnaire look to identify the "innovative potential" of the schools being studied. The overall result for the set of items has an average of 3.13, expressing being "in agreement" with the claims that imply having an "innovative potential". If it is observed by the areas the questions are structured into, it can be seen that they all have a high valuation, where the lowest is the "diagnosis" with 3.03 and "integration of innovation" with 3.05. The standard deviations of the items are minimal which shows a low spread of responses, as a result, there is a very similar perception of the teachers who answered the questionnaire.

Table 1. Total Sample Innovative Potential

	N		**Mean of**
Items Average	Valid	Lost	**Valid**
"Diagnosis"	118	8	3.03
"Definition of Problems	125	1	3.21
"Planning of Solutions	125	1	3.16
"Closing of Plans	120	6	3.20
"Assessment of Results	124	2	3.13
"Integration of Innovation"	124	2	3.05
"Projection of Innovation	125	1	3.18
Overall Result	**118**	**8**	**3.13**

Source: SPSS Statistics

Relationship of "innovative potential" variables

The Pearson Correlation Test was run to see the relationships between the different variables that measure innovative potential, analyzing the following variables: "diagnosis

of the innovation", "integration of innovation", "projection of innovation", and "assessment of results".

Table 2. Correlations of Variables

		"Innovative potential diagnosis"	**"Integration of innovation**	**"Projection of Innovation**	**"Assessment of Results**
"Innovative potential diagnosis	Pearson Correlation	1	.360(**)	.230(*)	.(**)
	Sig. (bilateral)		.000	.012	.001
	N	118	118	118	118
"Integration of Innovation"	Pearson Correlation	.360(**)	1	.118	.369(**)
	Sig. (bilateral)	.000		.193	.000
	N	118	124	124	124
"Projection of Innovation"	Pearson Correlation	.230(*)	.118	1	.190(*)
	Sig. (bilateral)	.012	.193		.034
	N	118	124	125	124
"Assessment of Results"	Pearson Correlation	.305(**)	.369(**)	.190(*)	1
	Sig. (bilateral)	.001	.000	.034	
	N	118	124	124	124

** The correlation is significant at the 0.01 level (bilateral).

* The correlation is significant at the 0.05 level (bilateral).

The table above shows us a significant correlation at a level of <0.05 regarding "projection of innovation" and a significant correlation to <0.01 regarding the rest of the variables. Therefore, the results show that, when innovation is assessed, the institution is also included, is projected and the results are assessed.

Relationship between the "innovative potential" and the "actions of an organizational culture that is favorable for innovation"

The Pearson correlation calculation has been made to determine the correlation there is between the variables "innovative potential" and "actions of an organization culture that is favorable for innovation".

As seen in the following table, there is a high correlation between the two variables, at a level of >0.01, which is why it can be confirmed that there if there is an innovative potential, there are also practices of the organizational culture that favor innovation in these schools.

Table 3. *Correlations of Variables*

		Innovative Potential (General)	**Leadership practices favoring innovation (General)**
Innovative Potential (General)	Pearson Correlation	1	.449(**)
	Sig. (bilateral)		.000
	N	116	105
Leadership practices favoring innovation (General)	Pearson Correlation	.449(**)	1
	Sig. (bilateral)	.000	
	N	105	113

*** The correlation is significant at a level of 0.01 (bilateral)*

Influence of the principal in the involvement of teachers with innovation

Regarding the dimension, "influence of the principle in the involvement of teachers with innovation", it can be seen through the results of the questionnaire, that leadership actions like: "valuation of the staff", "promotion of a good working environment", "stimulation of collaborative work" and "principle's action is example of commitment", favor the involvement of teachers.

Table 4. *Means of Highlighted Variables*

	N		**Mean of**	**Stand. Dev.**
Variables	**Valid**	**Lost**	**Valid**	**Lost**
"Valuation of the staff	126	0	3.37	.635
"Promotion of a good working environment"	126	0	3.27	.698
"Stimulation of collaborative work"	122	4	3.18	.643
"Principle's action is example of commitment	124	2	3.29	.609
"Clear information for everyone"	126	0	3.08	.744

Source: SPSS Statistics

Relationship of "democratic leadership" with "principal's influence in the involvement of teachers with innovation"

On making the Pearson Correlation Test for the variables "democratic leadership of the Principal" and "principal's influence on teacher involvement", we find a statistically significant correlation, with a coefficient (r=.000 and p=117) as shown in the table, which allows stating that the actions of a democratic leadership style favor the involvement of teachers with innovation.

Table 5. *Correlation of Variables*

Variables		Democratic Leadership	Principal's influence in teacher involvement (General)
Democratic Leadership	Pearson Correlation	1	.620(**)
	Sig. (bilateral)		.000
	N	122	117
Principal's influence in teacher involvement (General)	Pearson Correlation	.620(**)	1
	Sig. (bilateral)	.000	
	N	117	119

** The correlation is significant at a level of 0.01 (bilateral).

Importance assigned by teachers to principals in the generation of innovation

The opinion of teachers from the studied schools, gives great importance to the principal, as the variables "recognition of the community of the principal's action" and "the importance of the principal's action for innovation", have means of 3.22 and 3.27 respectively, marks that are between "agree" and "strongly agree" in the statements.

Means of the Variables

Table 6. *Means of the Variables*

Variables	N Valid	N Loss	Mean Valid Lost	Stand. Dev.
"Recognition of the community of the principal's action"	125	1	3.22	.633
"Importance of the principal's action for innovation"	126	0	3.27	.670

Source: SPSS Statistics

Relationship between "principal's influence in teacher involvement" with "importance of the principal for innovation".

On making the Pearson Correlation Test between the variables "principal's influence in teacher involvement" with the "importance of the principal for innovation", we find a statistically significant correlation, with a coefficient (r=.000 and p=116), which implies a statistically significant correlation of 0.01.

Table 7. Correlations of Variables

Variables		Principal's influence in teacher involvement	Importance of the Principal for innovation
Principal's influence in teacher involvement (General)	Pearson Correlation	1	.686(**)
	Sig. (bilateral)		.000
	N	119	116
Importance of the Principal for innovation (General)	Pearson Correlation	.686(**)	1
	Sig. (bilateral)	.000	
	N	116	123

** The correlation is significant at a level of 0.01 (bilateral).

This shows us that, the importance that teachers assign to the school's principal, is directly related with the influence the school's principal exercises in teacher involvement in innovation.

Leadership practices that contribute to instilling an organizational culture that is favorable for innovation

The questions of this section of the questionnaire look to identify leadership practices that have contributed to instilling an innovation culture. Among the principal's practices and the organizational culture that have the greatest presence in the studied schools, are: "stimulating institutional environment", "promotion of new teaching practices", "conviction to make the changes that are required", "focus on student learning", "planning meetings", "identification with the institution", "meetings with opportunities for reflection", "further education for staff", "management of external resources". All the variables with means over 3.20.

Correlations between Variables

Table 8. Correlations between variables

Variables	N Valid	N Lost	Mean Valid Lost	Stand. Dev.
"Responsibility facing achievements and failures"	123	3	3.14	.605
"Stimulating institutional environment	126	0	3.29	.605
"Promotion of new teaching practices"	125	1	3.33	.669
"Conviction to achieve the changes that are required	126	0	3.25	.656
"Focus on student learning"	126	0	3.37	.576
"Identification with the institution"	125	1	3.41	.540
"Meetings are opportunities for reflection	121	5	3.25	.674

Source: SPSS Statistics

Discussion and conclusions

The results of this work show with clarity, that the action of the principal is essential in the generation of an innovative organization. These results are similar to those obtained previously in several research projects in other contexts (Bolívar, 2007; Fullan, 2008; OECD, 2009; Ríos et al., 2010). The collaborative work entails a teacher involvement that contributes towards generating an organizational culture that favors, and a participative and democratic leadership is mainly related with an organizational culture that promotes innovation in schools.

The current theory aims towards these constructs, but it is necessary to check in a close and particular context that the findings of the research can be evidenced in a given context, with the pretension of setting examples for other schools that still are not driven to start innovation processes.

It is concluded that, the schools in the study have a high innovation potential, which does not imply that they are, but does confirm the presence of the basic elements to define that have the profile for it. Regarding the influence of the principal in teacher involvement with innovation, it is concluded that, the elements of the principal's action most valued by the teachers, are: feeling considered in decision-making, responsible and capable of assuming challenges; making them feel at all times that they are a core part of the institution; promoting collaborative work within the school in a healthy environment of co-existence; the valuation and consideration of opinions; the high expectations; the involvement of the principal; the emphasis on teaching and the constant motivation.

Regarding determining the importance assigned by teachers to principals in the generation of innovation, the results encourage concluding, that teachers think that the principal is key in the school's development and for driving innovation in the schools being studied. Regarding the leadership that principals exercise in the studied schools, it

is concluded that the prevailing and most valued style corresponds to democratic characteristics, where dialog and participation in decision-making are fundamental.

Regarding the leadership practices that contribute towards instilling a culture of innovation, and that have a high valuation are: being responsible for results, the existence of clear goals, change management, the search for creative solutions, the vision that achievements are the result of collective efforts and the generation of opportunities for reflection.

Finally, some considerations that it is advisable to continue studying in greater depth from these results are: although it is true, it is conclusive to confirm that school innovation is needed to improve school equality and quality, to generate inclusion processes, to development transversal values among students, and to foster new methodologies. The principal's leadership in this task is also vital, but at the same time, and considering some educational systems, like the Chilean case, it is advisable to emphasis or at least suggest some questions like: what are the limitations for educational innovation? How can the incorporation of innovation processes affect the search and pressure from results in standardized tests like SIMCE? Are school principals prepared to lead, assume and handle change processes? Are suitable candidates being chosen to face this challenge? Which public policies are needed to encourage innovation processes? Is there a real concern of intermediary agents for authorities to promote change and innovation? As a result, different challenges emerge for the educational systems which can be investigated in more depth in later studies.

Study limitations

A limitation arises from the application of the instrument, since the results may have been affected, considering that giving an opinion on the management of the the staff is a sensitive issue, and that many times causes mistrust.

Another limitation emerges in the generation of variables, where with the intention of identifying the leadership styles within the study, new variables were generated by grouping different items of the questionnaire, therefore, an equivalent value of each of them is assumed, in circumstances that the weight of each one is different, which means that they should have a different weighting.

Also as a limitation of the study, in the construction of the instruments, it can be noted that, in the characterization of each leadership style, a reduced sample of particularities that define them was considered, even though they are the most important traits, there are other characteristics that were not considered.

The study covers directive management from the individualized point of view of the director, but directive management linked to the management team has emerged with great force. Even though in the application of the instruments it was explained that the referred study focused on the directors, on the responses of the informants, when thinking about the "directive action", it is possible that they linked it to the management team.

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The Specificity of Professional Learning Communities in Romania

Anca Luştrea•, Mariana Craşovan•

Abstract

Romanian educational system is in a constant search for reform, due to one of the highest rates of students` underachievement in basic skills and lack of qualified teachers among EU member states. It is well established that professional learning communities (PLCs) can be a solution for both problems, aiming to enhance students` results by teacher collaboration in learning and professional development.

This study aims to determine the specificity of Romanian PLCs in relation with some contextual factors - school size, school environment (urban or rural), type of school (general or special school), professional development procedures at school level, and the individual factors that can impact the PLC, represented by teachers` personality structure. To answer the research question, reflecting on what contextual and individual factors determine the specificity of PLCs, two online questionnaires and a demographic survey were distributed to teachers across Romania. First, the School Professional Staff as Learning Community Questionnaire (SPSLCQ) was validated on the 253 participants, the original five-factor structure of SPSLCQ adequately fit the sample and proved to be a reliable instrument in the Romanian population.

The results showed the Romanian PLCs` do not significantly differ from other countries: the most representative PLC dimension is shared vision, the organizational factor which explains best the PLC is the existence of strong at-school-level professional development procedures. School size best describes the differences between PLCs, but they do not differ in terms of school environment and school type. The personality factor that correlates the most with PLC is conscientiousness, but the correlation is non-significant.

These results suggest that for functionally stronger PLCs, the school should implement professional development procedures at school level, based on collaboration and mutual learning in small groups of teachers.

Keywords: professional learning communities, teaching, professional development, SPSLCQ

Introduction

The main purpose of the study is to determine the characteristics of Romanian professional learning communities (PLCs). In the context in which there is an increased need of qualified teachers combined with one of the highest rates of students` underachievement in basic skills among EU countries (European Commission, 2017), we aim to investigate the collaborative professional development practices in Romanian schools.

• PhD, Associate Professor, Department of Educational Sciences, University Clinic for Therapies and Psycho-Pedagogic Counselling, West University of Timisoara, Romania, anca.lustrea@e-uvt.ro
• PhD, Associate Professor, Department of Educational Sciences, West University of Timisoara, Romania, mariana.crasovan@e-uvt.ro

Implementing PLCs has become a definitory feature of school reform (Diehl & Diehl, 2019). The professional learning communities (PLCs) are an important factor for professional learning and development (Bolam et al., 2005, Stoll, Bolam, McMahon, Wallace & Thomas, 2006), quality of teaching (Darling-Hammond & Richardson, 2009; Stewart, 2014; Gore et al., 2017) and positive student`s learning outcome (Loucks-Horsley & Matsumoto, 1999; Vescio, Ross & Adams, 2008; Doppelt et al., 2009; Lomos, Hofman, & Bosker, 2011; Ratts et al., 2015; Dogan & Adams, 2018). Also, PLC improve the quality of teachers, for example by helping them to keep their expertise up to date and to improve practices in their schools. (Dogan at all, 2016)

Each organization, including schools, should permanently aim to achieve high quality standards and improved performance. These aims can be achieved through developing and implementing strong PLCs at school level. DuFour (2004) describes three core principles of the PLC: guaranteeing students` learning, establishing a culture of collaboration and focusing on results. Traditional professional development (PD) practices, lecture-based, such as courses and seminars, are teacher-centred, trying to fulfil the teacher`s professional growth needs. Traditional PD practices are formal and unrelated to classroom reality, abstract and followed in an individual manner (Lieberman, 1995). Modern practices, described as "collaborative professionalism" (Hargreaves & O`Connor, 2018) should focus on collaboration and need to be in direct relation with the classroom and the student`s needs. The direct result of teacher`s PD is indeed the increase of teacher`s knowledge and skills, but the true beneficiaries of teacher's PD should be the students (Berry, 2011). So, we can measure the quality of PD by the student`s learning outcome and the functional dimension of their learning.

The quality of teachers is not only about fulfilling mandatory professional standards but also about improving quality through continuous professional development (CPD). In Romania the CPD is mainly linked to the formal aspect of compulsory training stages (Dumitriu, Dumitriu, & Timofte, 2014) that do not specifically nurture a collaborative school-level and student-centred professional development. The collaborative PD practices at school level are represented in Romania by the methodical-scientific and psycho-pedagogical activities carried out at unit level (methodical committees, departments and pedagogical circles) (Eurydice, 2018). These practices often address teachers` needs and not students` learning. PLCs` by their nature address students` learning and collaborative practices among teachers (DuFour, 2004). In their book, *Learning by doing*, DuFour at all (2016) make a difference between interest and commitment to PLC. Even if a significant number of studies address PLCs, the number of educators that have moved from interest to commitment has not increased. "It is time to move from thinking about PLCs and talking about PLCs to doing what PLCs actually do and getting better at it." (p.3)

The quality of students` learning and their results depend to a significant extent on the continuous PD of teachers and on the standardization of their teaching practices. PLCs can be a solution to this problem, and we aim to investigate it further.

Our intercession is in line with the PLC research agenda proposed by Hairon, Goh, Chua and Wang (2015), where a research gap in theorization of PLC condition and context was asserted.

In this study we analyse some contextual factors that can influence the functioning of the PLC: school size, school environment (urban or rural), type of school (general or special school), and professional development procedures at school level. Also, we take into consideration the individual factors that can impact the PLC, represented by the teachers` personality structure.

Theoretical background

The idea of professional learning community first appeared in the USA in the 1960s but the its' conceptualization was crystalized in the 1990s along with the contributions of Hord (1997), Dufour and Eaker (1998).

The concept of PLC has various definitions but mainly refers to "inclusive and mutually supportive group of people with a collaborative, reflective, and growth-oriented approach toward investigating and learning more about their practice in order to improve students' learning " (Stoll, 2010, p.151).

Doğan and Adams (2018) report five common traits in PLC definitions across scientific literature: emphasis on collaboration, shared vison and purpose, focus on student learning, reflective dialogue and support conditions to make teacher`s work public.

Our research is based on Hord`s (1997) view on the PLC. She identified five main characteristics of PLCs: supportive and shared leadership, collective creativity, shared values and vision, supportive conditions and shared personal practice. Collaboration is the main aspect of the PLC. Collaboration takes place both at school level through shared leadership, shared vision and creating supportive conditions and at an individual level by collective creativity and peer-review. The fundamental purpose of teamwork is student-centred, aiming to grow the students` learning outcome. In this context, it is known that although the teaching profession is one of the most sociable based on multiple interactions with students, colleagues, parents, and the community as a whole, it is one of the most solitary professions. Most of the time, teachers design instruction, teach and assess alone.

Hairon et al. (2015) have identified three main directions in PLC research: defining the construct, studying the PLC context and determining its effects. Our research is embedded in the PLC context research framework. The school size, school environment (urban or rural), type of school (general or special school), and professional development procedures at school level were taken into consideration.

Other studies (Leithwood & Jantzi, 2009; Bellibas et al., 2016; McNeely, Nonnemaker & Blum, 2002) have investigated the relation between school size and PLC. The majority found that in smaller schools there is a greater sense of community and cohesion and that`s why they could sustain stronger PLCs. The school environment can also be an

influencing factor. Wang et al. (2017) found differences between rural and urban schools PLC, rural schools being smaller can have stronger PLCs. Special schools have a stronger culture of collaboration (Waldron & Mcleskey, 2014) thus the school type could have an impact on the PLC. The research on professional development practices (Chapman & Muijs, 2013; Ho, Lee & Teng, 2016; Blackburn & Williamson, 2015) established an important link between PD at school level and PLC.

To our knowledge no research on the specificity of Romanian PLCs` was yet published. Most articles focus on traditional PD for pre-service (Potolea & Toma, 2015) or university teachers (Duță & Rafaila, 2014).

Our research aims to investigate the characteristics of Romania PLCs and study if in Romania the contextual factors described above have the same influence on PLC as in other countries and to which extent.

Methodology

Based on the above arguments the following research question was advanced:

Which contextual and individual factors determine the specificity of Romanian professional learning communities (PLCs)?

Research hypotheses

1. Peer-review is the best perceived PLC dimension.
2. There will be a negative correlation between school size and the perceived PLC.
3. There will be a positive correlation between professional development procedures and the perceived PLC.
4. There will be a difference in perceived PLC between teachers from rural and urban schools.
5. There will be a difference in perceived PLC between teachers from special and general schools.
6. There will be a correlation between personality factors and the perceived PLC.

Participants and procedure

Data were collected from a convenience sample made up of 253 Romanian school teachers from different levels, types of education and specialities (Table 1). The age of participants ranged from 25 to 60 years (M=40.83, SD=8.71). Participants were 21 (8.3%) men and 232 (91.7%) women. The teaching tenure of participants ranged from 3 to 35 years (M=16.93, SD=9.52). The participants were from 16 different counties, teaching in urban (86.2%) and rural (13.8%) schools. From all participants 150 (59.3%) teach in general education and 103 (40.7%) in special education schools. There were 69 primary teachers (27.3%), 66 secondary and tertiary teachers (26.1%), 49 special educators (19.4%), 37 psychologists (14.6%), 17 education specialists (6.7%) and 15 preschool teachers (5.9%).

Table 1

Descriptive summary of the participants

Category	Frequency	%
Gender		
Male	21	8.3
Female	232	91.7
School environment		
Urban	218	86.2
Rural	35	13.8
School type		
General education	150	59.3
Special education	103	40.7
Major		
Primary education	69	27.3
Secondary and tertiary education	66	26.1
Special education	49	19.4
Psychology	37	14.6
Education specialist	17	6.7
Preschool education	15	5.9

Two online questionnaires and a demographic survey were distributed to 1600 teachers from all Romanian regions. There was also a letter where the aims and the conditions of the study were explained. The teachers' answers indicated their agreement to be part of the study. 253 responses were received.

Research instruments

The survey combined two questionnaires - School Professional Staff as Learning Community Questionnaire (SPSLCQ) and International Personality Items Pool (IPIP 50) and a survey for school demographics and professional development practices.

School Professional Staff as Learning Community Questionnaire (SPSLCQ), developed by Hord (1996), was used to assess teachers` perceptions about their school as a learning community. There are five dimensions: shared leadership, shared vision, collective creativity, peer review, and supportive conditions/capacities. It is a 17 item instrument with a 5 point Likert response scale. SPSLCQ was not yet validated on Romanian population. The agreement for SPSLCQ usage for this study was obtained from the developer (Southwest Educational Development Laboratory, SEDL, merged with American Institute for Research, AIR). The Romanian form was obtained after a Romanian translation followed by a back to English translation was approved by The Legal Comity of AIR. In the result section, we will present the validation procedure that we undertake for SPSLCQ on Romanian population.

Personality dimensions were assessed with the International Personality Items Pool (IPIP 50– Goldberg, 1999). Based on the Big Five model, the instrument measures the five dimensions of personality: Openness, Extraversion, Emotional Stability, Conscientiousness and Agreeableness. Teachers were asked to respond on a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). The instrument was adapted to the Romanian culture by Rusu, Maricuţoiu, Macsinga, Vîrgă, & Sava (2012). The Alpha Cronbach coefficient value was found satisfactory (between .73 for agreeableness and .84 for extraversion and emotional stability).

The school demographics and professional development practices were investigated with a survey consisting of 16 questions about the size and school type, number of students in the classroom, number of teachers in the methodical committees, number of meetings during a school year, the domains of collaboration, and 8 questions about teachers' continuing professional development practices at school level.

Results

This study was designed to determine teachers` perceptions about the characteristics of Romanian PLCs` at-school-level. To do so in a valid manner, firstly we need to validate the School Professional Staff as Learning Community Questionnaire (SPSLCQ) on Romanian population.

SPSLCQ was developed by Hord (1996) as an instrument "that can be used as a screening, filtering, or assessment tool to ascertain the maturity of staff as a learning community" (Hord, Meehan, Orletsky, & Sattes, 1999, p.3). Other mentioned purposes for the instrument are: use in diagnosis of the implementation space of a PLC in a given school and in assessing the sustainability of an intervention to implement a PLC in a new school, as well as in research studies. The instrument was included by Blitz and Schulman (2016) in a compilation of 49 instruments used for assessing the performance of a PLC.

The validity of the instrument was presented only in terms of internal consistency - Cronbach`s Alpha for the entire scale of .92, test-retest reliability of .94 and concurrent validity with School Climate Questionnaire of .82 (Hord et al., 1999). A subsequent research for assessing SPLCQ validity presents Cronbach's Alpha of .93 and all measures of internal reliability significant at the .0001 level (Meehan, Orletsky, & Sattes, 1997).

Other researchers used SPSLCQ in their studies but do not re-assess the validity of the instrument. Most of them (Yarbrough, 2010; Shetzer, 2011; Kohl, 2014, Topper, 2016; Higgins, 2016) only present the reliability coefficients reported by the developers, others verify alpha Cronbach`s per entire scale and per factors (Cassity, 2012; Spiller, 2013) and some consider SPSLCQ as a valid instrument that does not need more validation and do not present validity data at all (Boone, 2014).

Because SPSLCQ is not yet validated on Romanian population we conducted a validity analysis for the questionnaire, assessing reliability coefficients and conducting a Confirmatory Factor Analysis (CFA).

We assessed the normality of the data set for the SPSLCQ total score and subscales. Teachers` perception about school as a PLC was normally distributed, with skewness of -.79 (*SE*=.15) and kurtosis of .32 (*SE*=.30). Four subscales were also normally distributed: shared leadership with skewness of -.92 (*SE*=.15) and kurtosis of .31 (*SE*=.30); collective creativity with skewness of -.79 (*SE*=.15) and kurtosis of .26 (*SE*=.30); peer review with skewness of -.27 (*SE*=.15) and kurtosis of -.74 (*SE*=.30) and supportive conditions with skewness of -.65 (*SE*=.15) and kurtosis of -.18 (*SE*=.30). Shared vision subscale was non-normally distributed, with skewness of -1.31 (*SE*=.15) and kurtosis of 2.04 (*SE*=.30).

A reliability analysis for the entire scale and per subscale (Table 2) was conducted. Internal reliability exceededs > 0.80 for all subscales. The SPSLCQ was found to be highly reliable (17 items, α=.95). Cronbach's α per subscales ranged from .81 to .93 indicating a good reliability per scale and per subscales.

Table 2:
Reliability Coefficients for SPSLCQ and its subscales

	Mean	SD	Cronbach's α
PLC	3.79	0.82	0.95
Shared leadership	3.69	1.0	0.87
Shared vision	4.15	0.79	0.81
Collective creativity	3.77	0.94	0.93
Peer-review	3.41	1.10	0.89
Supportive conditions	3.77	0.93	0.90

A Pearson correlation matrix between SPSLCQ items was calculated. The correlation matrix was constructed using SPSS 19. All items correlate strongly with each other, from .39 to .85.

Also, a split-half reliability analysis was conducted. Guttman Split-Half Coefficient was .92, indicated a good internal consistency of the scale. The Part 1 of the scale`s items consisted of 9 items (α=.93), and The Part 2 of the scale`s items consisted of 8 items (α=.92).

Originally, Hord (1996) presented a five factors model, but Meehan et al. (1997) report that the best solution for the factor analysis data is a unitary factor, consisting of all 17 items of the questionnaire.

We tested a Replication of original SPSLCQ model with one factor, as suggested by Meehan et al. (1997) but also the original model with 5 factors, through Confirmatory Factor Analysis (CFA) using Jamovi version 0.2.9.8.

In order to test the model, we considered Model Chi Square (χ2, p-value> 0.05 for the null hypothesis) relative chi-square (χ2 /df) values lower than 5 (Arbuckle, 2007);

Comparative Fit Index (CFI) values higher than .90 (CFI ≥.90), and Root Mean Square Error of Approximation (RMSEA) lower than .08 (RMSEA < 0.08) (Hooper, Coughlan, Mullen, 2008).

Table 3

Test for Exact Fit for SPSLCQ in one and five factors models

Model	χ^2	df	P
One-factor	952	119	<.001
Five-factor	501	109	<.001

The original five-factor structure of SPSLCQ adequately fit the sample ($\chi 2 / df$ = 4.62, χ^2=501, p<0.01 for the null hypothesis) but the one-factor presents lower exact fit coefficients ($\chi 2 / df$ = 8, χ^2=952, p<0.01) (Table 3).

Model fit statistics for both models is reported in Table 4.

Table 4

Test for Exact Fit for SPSLCQ one-factor and five-factor models

				RMSEA 90% CI	
Model	CFI	TLI	RMSEA	Lower	Upper
One-factor	0.790	0.760	0.166	0.157	0.176
Five-factor	0.901	0.877	0.119	0.109	0.130

The five-factor model fit adequately CFI = 0.90, TLI = 0.87, RMSEA = 0.11, proving acceptable fit of the model. The one-factor model did not fit to the same extent as the five-factor model, CFI = 0.79, TLI= 0.76, RMSEA = 0.16.

Although the factors seemed to have high correlations (Table 5), they were not high enough to combine all factors into one single factor. Therefore, in the subsequent analyses each subscale of the SPSLCQ was considered as a unique factor.

Table 5

Correlation matrix for SPSLCQ five factors

	1.	2.	3.	4.	5.
1.Shared leadership	—	0.662	0.633	0.623	0.527
2.Shared vision		—	0.774	0.721	0.572
3.Collective creativity			—	0.810	0.673
4.Supportive conditions				—	0.678
5.Peer-review					—

To determine if there is difference between the five dimensions of PLC in teachers` perception the means and standard deviations for the PLCs` dimensions were calculated. The obtained hierarchy of PLCs` dimensions (Figure 1) is: shared vision (M=4.15,

SD=.79), collective creativity (*M*=3.77, *SD*=.94), supportive conditions/capacities (*M*=3.77, *SD*=.93), shared leadership (*M*=3.68, *SD*=1.05) and peer review (*M*=3.41, *SD*=1.09). In the research hypothesis we stated that peer-review is the best perceived dimension. In the obtained hierarchy peer-review is the lowest ranked from all five dimensions. The first hypothesis is rejected.

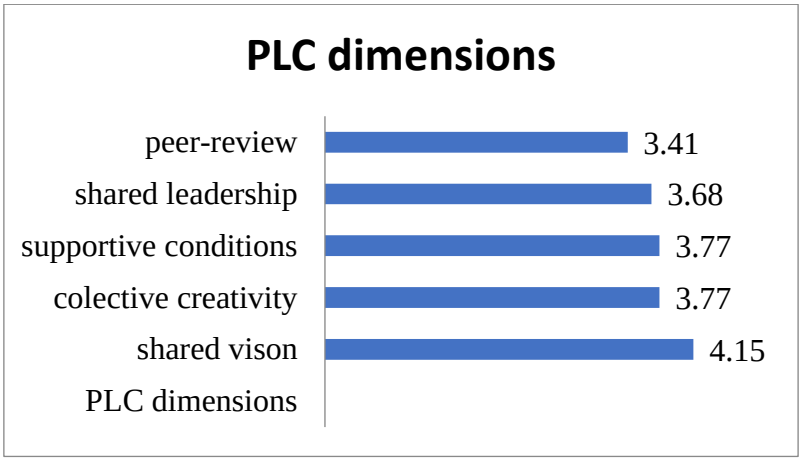

Figure 1: Bar chart for PLC dimensions

To determine if there is a negative correlation between school size and the perceived PLC we calculated Spearman`s rho at one-tailed level between the school size (measured by the number of students) and PLC`s dimensions (Table 6). The school size negatively correlated with perceived PLC r_s (253) =-.17, *p*=0.02. Also, significant negative correlations were obtain between school size and collective creativity r_s (253) =-.21, *p*=.00 and school size and supportive conditions r_s(253) =-.19, *p*=0.001. The research hypothesis 2 is accepted. However, the effect size, r^2=0.02, indicates a poor coefficient of determination between school size and perceived PLC, school size explain only 2.89% of PLC variance.

Table 6

Correlations Between Five PLC Dimensions and School Size

Measure	PLC	Shared leadership	Shared vision	Collective creativity	Peer-review	Supportive conditions
School size	-.17**	-.06	-.14*	-.21**	-.10	-.19**

**. Correlation is significant at the 0.01 level (1-tailed).

To determine if there is a positive correlation between professional development procedures at school level and the perceived PLC we calculated Pearson Correlation at one-tailed level between the professional development procedures (measured by an eight-item survey) and PLC dimensions (Table 7). The professional procedures at school level positively correlate with perceived PLC *r* (253) =.36, *p*=.00 Also, significant correlations were obtained between professional development procedures at school level and all PLC dimensions: shared leadership *r*(253) =.35, *p*=.00, shared vision *r*(253) =.22, *p*=.00,collective creativity *r* (253) =-.36, *p*=.00, peer-review *r*(253) =.31, *p*=.00 and

supportive conditions $r(253) = .31$, $p = 0.001$. Research hypothesis 3 is accepted. However, the effect size, $r^2 = 0.12$, indicates a relatively poor coefficient of determination between professional development procedures and perceived PLC, professional development procedures explain only 12.25% of PLC variance.

Table 7

Correlations Between Five PLC Dimensions and Professional Development Procedures at School Level

Measure	PLC	Shared leadership	Shared vision	Collective creativity	Peer-review	Supportive conditions
Professionalization procedures	.36**	.35**	.22**	.36**	.31**	.31**

**. Correlation is significant at the 0.01 level (1-tailed).

To determine if there is a difference in perceived PLC between teachers from rural and urban schools an independent sample t-test was conducted (Table 8). Given a violation of Levene's test for homogeneity of variances, $F(1,251) = .14$, $p = .70$, a t-test not assuming homogeneous variances was calculated. The results of this test indicated that there was no significant difference in perceived PLC observed between the two groups, $t(45.05) = -1.34$, $p = .18$. These results suggest that there is no significant difference between perceived PLC in urban schools` group ($M = 63.87$; SD = 14.02) and rural schools` group ($M = 67.37$; $SD = 14.35$). Research hypothesis 4 is rejected.

Table 8:

Independent t-test Results Comparing Urban and Rural PLC Perceptions

	Urban		Rural		
	M	*SD*	*M*	*SD*	*t-test*
PLC	63.87	14.02	67.37	14.35	-1.34
Shared leadership	3.65	1.05	3.87	1.08	-1.08
Shared vision	4.12	.80	4.32	.70	-1.53
Collective creativity	3.73	.94	3.99	.88	-1.59
Peer-review	3.37	1.09	3.65	1.09	-1.43
Supportive conditions	3.75	.92	3.87	1.00	-.66

To determine if there is a difference in perceived PLC between teachers from general and special education an independent sample t-test was conducted (Table 9). Given a violation of Levene's test for homogeneity of variances, $F(1,251) = 2.12$, $p = .14$, a t-test not assuming homogeneous variances was calculated. The results of this test indicated that there was no significant difference in perceived PLC observed between the two groups, $t\ (240.96) = -.99$, $p = .32$. These results suggest that there is no significant difference between perceived PLC in general education schools' group ($M = 63.65$; SD =

15.02) and special schools' group (*M* = 65.38; *SD* = 12.61). Research hypothesis 5 is rejected.

Table 9:

Independent t-test Results Comparing General and Special Education Teachers` PLC Perceptions

	General education		Special education		
	M	*SD*	*M*	*SD*	*t-test*
PLC	63.65	15.02	65.38	12.61	-.99
Shared leadership	3.73	1.05	3.61	1.05	.88
Shared vision	4.09	.85	4.22	.67	-1.32
Collective creativity	3.69	.99	3.87	.85	-1.55
Peer-review	3.42	1.13	3.38	1.00	.27
Supportive conditions	3.70	.97	3.86	.86	-1.29

To determine if any individual factors correlate with the perceived PLC a Pearson Correlation between the Big Five personality factors and perceived PLC was conducted (Table 10).

Table 10

Correlations Between Big Five Personality Factors and Perceived PLC

Measure	Openness	Extraversion	Agreeableness	Conscientiousness	Emotional Stability
Perceived PLC	-.02	.00	.04	.11	.02

None of the personality factors significantly correlate with PLC (Table 10): openness *r* (253) =-.02, *p*=.70, extraversion *r* (253) =.00, *p*=.91, agreeableness (253) =.04, *p*=.44, emotional stability, *r* (253) =.02, *p*=.70. Conscientiousness correlates the most with PLC *r* (253) =.11, *p*=.06 but not at a significant level. Research hypothesis 6 is rejected.

Discussion and conclusions

In the context of a growing need of highly qualified teachers we aimed to investigate which of the PLC`s dimensions are most representative for Romanian schools and observe what individual and organizational factors influence it.

Our research is embedded in the PLC research agenda proposed by Hairon et al. (2015). Specifically, it addresses the third research gap identified: the lack of theorization on the PLC context. Also, through our effort we can add knowledge to understanding the cultural specificity of PLCs, by analysing the specific contextual factors that can influence Romanian PLCs.

We designed a quantitative methodology, in which 253 teachers responded on-line to 2 questionnaires: SPSLCQ and IPIP-50 and a survey for school demographics and professional development practices.

SPSLCQ has not been previously validated on Romanian population, so a reliability analysis and a CFA were conducted. Very good internal consistency coefficients were obtained for the entire scale (17 items, α=.95) and per factors.

Originally, Hord (1996) presented a five factors model, but Meehan et al. (1997) report that the best solution for the factor analysis data is a unitary factor, consisting of all 17 items of the questionnaire. We tested a replication of the original SPSLCQ model with one factor, but also the original model with 5 factors, through Confirmatory Factor Analysis (CFA). Unlike the one-factor model, the five-factor model indicated a better model fit in which all fit indices were closer to the desired criteria. Therefore, in the subsequent analyses each subscale of the SPSLCQ was considered as a unique factor.

The first purpose of our research was to identify the specificity of Romanian PLCs` in terms of the best perceived PLC dimension. We presumed that peer-review is the most well-perceived dimension of all five dimensions, also being the most traditional in the Romanian context. In terms of professional development practices, class observation and analysis of teachers` work are some of the most used (OM 3367/2017 These traditional PD practices characteristic of the Romanian context correspond in the SPSLCQ to the concept of peer review. Nevertheless, the analyzed data shows that shared vision is one of the most appreciated features. These findings are congruent with the results of other studies. (Spiller, 2013; Lokman Mohd Tahir, 2013; Ward, 2015; Bellibas, Bulut, Gedik, 2016; Wilson, 2016). The items of the shared vision scale refer to a common vision about improvement, centred on students, learning and teaching. So, the teachers perceptions indicate a common aim, centred on students` learning. However, the shared vision subscale was the only one of the scales non-normally distributed, with skewness of -1.31 (*SE*=.15) and kurtosis of 2.04 (*SE*=.30). Further research is needed to clarify if the responses for this dimension were due to the social desirability response bias or not. In spite of our assumption, the least represented PLC dimension was feed-back; teachers do not observe each-others' classes, nor do they work with each other in teaching. Through subsequent qualitative research, we need to clarify if teachers emphasize more the student-centred dimension of the PLC, rather than the collaborative one. Traditionally, in Romania teachers are used to being alone throughout the teaching process, in planning, implementing and evaluating the teaching.

The second purpose of this research was to identify the contextual factors that impact the Romanian PLC. From the organizational-contextual factors we examined the school size, professional development procedures at school level, school type (mainstream or special) and school environment (rural or urban).

Studies (Leithwood, Jantzi, 2009; Bellibas et al., 2016) have shown that in smaller schools there is a greater sense of community between teachers and that smaller schools

provide more interaction and participation opportunities for teachers (Newman et al., 2006).

In our findings, school size negatively correlates with perceived PLC (r (253) =-.17, *p*=0.02), which means that the bigger the school is, the lower the perception about PLC. These findings are similar with other author's research (McNeely, Nonnemaker, Blum, 2002; Leithwood, Jantzi, 2009; Bellibas et al., 2016). However, school size explains only 2.89% of PLC variance, so is not a determinant factor. In large schools the communities of professional development can be divided in smaller groups of teachers to increase the power of collaborative learning practices.

We also assumed that schools with strong professional development procedures are more likely to develop better collaboration for teaching and learning practices. Chapman and Muijs (2013) found that administrators that imposed strong professional development practices at their schools fostered a collaborative environment and increased students` outcomes.

Our results show that professional development practices positively correlate with the perceived PLC (*r* (253) =.36, *p*=.00). If good professional practices are being implemented in the school, the PLC is stronger. The professional development procedures explain 12.25% of PLC. The results are congruent with other findings. Ho et al. (2016) found that there is a strong relationship between PLC and school-level teachers' qualification. Thomson and Holloway (1997) ascertain that educational change occurs in schools where teachers support each other and that staff development and educational change are interdependent. Blackburn and Williamson (2015) consider that the most effective schools are those in which teachers believe in the power of professional development.

So, for stronger PLCs school administration have to implement at-school-level professional development procedures.

The relationship between PLC and school environment was examined by other authors (Wang, Wang, Li, & Li, 2017) reporting qualitative differences between schools. Rural schools are often small schools with teachers from the local community. They come from traditional communities where collaboration and helping each other are adopted values. Urban schools are often larger and with a not so high sense of cohesion.

In special schools, practices of collaboration are more common than in general education. Special educators work in the case management framework and are used to finding solutions together. In special education, teachers participate in professional development and decide which practices best fit the student needs (Hartman, 2011).

Non- significant differences were obtained between PLC at urban and rural schools (*t* (45.05) =-1.34, *p* =.18) and between general and special education schools (*t* (240.96)=-.99, *p* =.32). Rural and special schools record better PLC levels but not significant. Similar results were reported by other authors. Hallinger and Liu (2016) found no significant differences between urban and rural schools, albeit weaker PLC was found in rural schools.

From the individual factors we take into consideration the Big Five` personality factors in relation with PLC. Benoliel and Schechter (2017) advanced that Big Five personality traits have an influence on PLC through tendencies for relation building and knowledge sharing.

In our findings, none of the personality factors significantly correlates with PLC, however conscientiousness is the most influential factor (r (253) =.11, p=.06).

In conclusion, Romanian PLCs` do not significantly differ from those in other countries. Our findings are similar with research conducted in other national contexts, the most representative PLC dimension being a shared vision, centred on students` learning. The organizational factor which explains best the PLC is the existence of strong school-level professional development procedures. School size is a factor that correlates with PLC but not very strongly, the smaller the school, the stronger the PLC is. For stronger PLCs, teachers must be divided in small groups for professional learning. PLCs do not differ in terms of school environment and school type. The personality factor that correlates the most with PLC is conscientiousness, but the correlation is non-significant.

Limitations of the study and further research directions

The main limitation of this research is the number of organizational and individual factors taken into consideration. From our findings the best explanation for PLC with only 12.25% of the variance explained are the professional development practices at school-level. Other factors to be analysed can be the managing style of the school administration, the theoretical approach to learning promoted by teachers or school culture. Another limitation of the study is the relatively small number of participants; an increase in numbers of responding teachers must be achieved. Also, this study did not assess specific schools and did not group the responses per school to obtain a clearer image of the PLC. In further research, we intend to deepen the knowledge on this subject through a mixed methods study design, combining qualitative and quantitative research focused on analysing the effects of PLCs on student learning.

Authorship statement

The authors of this paper take public responsibility for the content and have had equal contribution in concept development, design, analysis, writing, or revision of the manuscript.

Acknowledgments:

The authors express sincere gratitude to Professor habil. Simona Sava for her scientific support and inspiring discussions; we thank Daniel Iancu and Velibor Mladenovici for the useful feedback of the methodological section; we thank Leyla Safta Zecheria for the English text revision.

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Self-concept, interpersonal processes, exploratory and health risk behaviors in adolescents – a study regarding student engagement with school

Mugur Ciumăgeanu•, Raluca Sfetcu•, Florina Suditu•

Abstract

Adolescence is by definition an "age of risk", irrelevant if you substantiate such a claim experientially or empirically. Mid-adolescence is the period where the processes of both neural and socio-emotional maturation are linked with an increase in both exploratory and health-risk behaviors. The present study, using a cross-sectional approach, investigates aspects of intra and interpersonal processes in relationship to risk behaviors and risk perceptions, and tries to link these constructs to student engagement. The study-sample consisted of 107 9th to 12th graders from three Romanian counties. The measures used were self-reports, appraising intrapersonal configurations (Beck Self-Concept Test), interpersonal problems (Inventory of Interpersonal Problems), and social and school adjustment (Social Adjustment Scale – Self Report). Risk behaviors and perception were measured with the Adolescent Exploratory and Risk Behavior Rating Scale (AERRS). The main research finding was that student engagement with school is in direct relationship with a better self-concept, more exploratory risk behaviors and a more adequate social adjustment. A puzzling result, explained probably better by the dual-process theory of behavior, is the relationship of risk perception to self-concept and interpersonal problems (id est – a greater risk perception is correlated with a more fragile self-concept and more interpersonal problems).

Keywords: adolescence; risk behaviors; self-concept; student engagement with school; interpersonal functioning.

Introduction

There is a large body of research that links adolescence with risk and risk behavior. Although risk behaviors are also present in different displays during adulthood, adolescence is the one to be referred as the "age of risk". Defined generally, risk implies three components 1) exposure to both potential rewards and costs; 2) awareness of the likelihood of the potential outcomes; and 3) uncertainty about these outcomes (Holton, 2004). Neuroeconomics and its outlook on the developing brain of the adolescents situates risk behavior in the general framework of decision-making processes, implying a proclivity towards risky choice, an increased sensitivity to gains and losses and a graduate increase in social perspective taking (Van Duijvenvoorde & Crone, 2013).

Such comprehensive and integrative perspectives on risk behaviors (and their inner drives) are generally new. Traditionally, the focus of both theory and preventive interventions relied on behavioral studies and models, intra-personal or inter-personal features of the risk-experience being regarded more as epiphonema of the overt

• MD, Lecturer, Department of Psychology, West University of Timişoara, mugur.ciumageanu@e-uvt.ro
• PhD, Associate Professor, Spiru Haret University Bucharest, Raluca.sfetcu@hotmail.com
• MA student, Department of Psychology, West University of Timişoara, florina.suditu94@e-uvt.ro

behavioral display. Classical authors in the field, as Arnett (1992) or Jessor (1992), shaped a developmental and psychosocial framework for understanding the construct of risk behavior in adolescence, but recent additions, both empirical and theoretical, expand the focus and shift more on inner drives and dynamics.

The present study, even if not harmonized with neuroeconomics or with modern research paradigms (relying on neuroimagery or on multimethod assessment), contributes with an eclectically and open approach, including a socio-clinical perspective on this psychosocial phenomenon. In this first part of our article , we intend to outline the behavioral aspects of risk behavior, expanding afterwards the outlook towards neuro-developmental approaches and socio-cognitive theories. The introduction part will be continued with some inquires on the pragmatic use of theory and its possible application in the field of engagement in school.

1. Two types of behaviors?

From an observational vantage point, there are at least two large families of behaviors that delineate the categories of risk behaviors. The obvious "dangerous" and "maladaptive" side, such as addictive behaviors, reckless conducts or aggressive displays, fall under the coverage of *health risk behaviors*. On the other side, equally risky behavior, but with more "adaptive" or at least "pro-social" outcomes, such as standing up for someone's rights or asking a person for a date, can be coined *exploratory risk behaviors*. Although there are no clear-cut boundaries between the two categories, especially because of the personal and interpersonal outcomes of these conducts, which can largely vary, we go along with the recommendation of the literature, and use the descriptors as such.

Health risk behaviors – the realm of health risk behaviors, originating mainly in adolescence, covers conducts linked over the life course with illness, injury, mortality or other negative outcomes. In the juvenile stage, compared to the adult one, there is a high co-occurrence of delinquency, substance use and sexual risk behavior, to name only the main displays of such behaviors, with a usual clustering of such behaviors and their possible increase and subsequently decline towards the adult period, with a peak in mid-adolescence – Doran, et al, (2012); Hair, et al, (2009); Jackson, Sweeting, & Haw, (2012). Two theoretical approaches attempt to explain this aggregation of risk behavior in adolescence. The *gateway theories* imply that one form of risk behavior leads to the potential experimentation of other behaviors, either due to increased exposure or to the lowering of risk perception for other risk conducts (Pudney, 2003). The second theoretical approach, considered a classic psychosocial theory, is Jessor's *problem behavior theory*. Jessor – for an overview, read Jessor, (2016) – posits that problem behaviors rise at the boundaries between social conventions and the interplay of risk and protective factors. Jessor's theory represents today a framework that explains adolescent behavior and health in a developmentally informed manner. Both theories received some support from longitudinal studies, with the mention that co-occurrence and link between

health risk behaviors *diminish* through adolescence, with multiple risk behavior usually being at the pinnacle in mid-adolescence (Hale & Viner, 2016). Even if the two (somehow) complementary approaches draw attention on the aggregation of risk and problematic behaviors in adolescence, there is a cautionary tale attached to their conclusions – preventive policies that target juvenile populations should not only focus on reducing risk factors (and behaviors), but more on promoting protective factors and supportive environments for safe experimentation (Jessor, Turbin, & Costa, 1998). Especially problematic are policy actions aiming at the reduction of substance use (mainly soft drugs) in order to decrease the likelihood of hard drug consumption – there is a weak empirical support from gateway approaches that such policies are appropriate (Pudney, 2003).

Exploratory risk behaviors – although adolescence can be coined as an age of risk, it is also a critical period in acquiring both the adequate set of health relevant behaviors, habits, and life skills that allow adults to be functional and ever-adapting beings. A lot of the scientific effort has focused on health risk behaviors, suggesting that there is an implicit flaw of the adolescence ethos, its "correction" being a legitimate goal in order to yield the well-functioning adult. But there is also the other side of risk, irrelevant if one calls it prosocial, positive or exploratory. Risk behaviors that lead to potential skill acquisition and contribute to a positive psychosocial development are traditionally called exploratory risk behaviors (Irwin & Vaughan, 1988). Terminology is diverse and still not steadied, although recent reviews insist upon the use of *positive risk behaviors* (Duell & Steinberg, 2018). In the present study, we consider that the term 'exploratory risk behaviors' is more suited not only because it avoids the positive vs. negative dichotomy (placing all health risk behaviors in the maladaptive realm as 'negative'), but also because the term 'exploratory' is not related automatically and systematically to a semantic node that implies only positive outcomes.

2. Some explanatory (theoretical) attempts

The mere existence of such risk behaviors asks for an explanatory framework, both for their development and for their vanishing away. One simplistic opinion is that the vanishing (or, at least, diminishing) part belongs to the maturation process, seeing the presence of such behavior as a necessary "evil" in adolescence. Evolved learning theories attribute risk behaviors to a struggle for rationality. Even if general theoretical approaches such as the *theory of reasoned action – TRA* (Fishbein & Ajzen, 2010) or the *theory of planned behavior* – TPB (Ajzen, 1991) try to explain human conduct, commonsense empirics say that adolescents are not "human" at all. Irrationality, impulsivity, enthusiasm, fad-dependence and other characteristics describe them better, both in positive, affectionate terms, but also in negative and maladaptive ones. As adults, we know that whole array of adolescent interactions experientially, and we are bystanders of this sometimes-exhausting rollercoaster. We demand, though, (from them) rationality and reason and center the largest corpus of studies dealing with risk behavior

at this age on some variation of the EV (expectancy-value) approach, which is the "linchpin" of both TRA and TPB. The EV approach sees behavior as the result of a deliberative process that takes into account a series of antecedents such as outcome expectancies, feelings about the behavior as such, perceptions of other's intentions etc. In the meantime, behavioral intentions (BI) – and their explicit statements – are seen as a legitimate goal that can shape future behaviors (Gollwitzer, 1999).

Including this reason-demanding conditions, both TRA and TPB, or derived theories, prove useful in explaining virtually all features pertaining to health and ill-health behaviors and health behavior change – for a review, see Armitage & Conner (2000). The only field these theories fail to have enough predictive power is adolescence – both in health (risk) behaviors but possibly also in the area of the exploratory ones (de Ridder & de Wit, 2006; Reyna & Farley, 2006).

This is one of the reasons that researchers started to include dual-process formulations in the attempts to explain the peculiarities of risk behaviors in adolescence. Dual-process theories rely on the heuristic-systematic model of action (for an overview, see Sherman, Gawronski, & Trope, 2014), assuming two independent information-processing systems that work in parallel: one rational, central system that implies effortful and intentional processing, which could be functioning based on EV rules; and a second, peripheral system, which involves more superficial processing based largely on heuristics, which is quick and experiential. For the moment, there is a general agreement that young people use more heuristic systems than adults, and that the dual processing framework is more appropriate in describing and explaining adolescent behavior (Gibbons, Houlihan, & Gerrard, 2009).

Dual process theories are also in line with neurodevelopmental theories and confirm the swiftness of reactions and changes that occur in the interpersonal and intrapersonal field for the majority of adolescents. Normative adolescent impulsivity, risk-taking and substance-use are associated with changes in brain development suggestive of synaptic refinement and myelination, especially pertaining the prefrontal and limbic system (Casey & Jones, 2010). The neural regions that make adolescents prone to risk-taking are the very one that, through maturation, seem to limit the risk-taking behavior, explaining the decline of such behaviors at the beginning of adult life (for the role of the ventral striatum, see Telzer, et al, 2013).

Paralleling the dynamics of (risk) behaviors, the self of the adolescent is also thorned between rationality and heuristic passion. The self is both a construct and a process (but more an *organizing* process), that mediates both intrapersonal and interpersonal processes (Heinz, Bermphol, & Frank, 2012). Adolescence represents a key developmental age for the everlasting representational negotiation process that constitutes self-image and self-esteem structuring. Mid-adolescence is the busiest construction site, where new cognitive developments set the stage for more mature and adaptive self-processes (for a synthesis, see Harter, 2012). Hormonal and neurological maturation processes overlap with the intensification of key developmental contexts

such the spiraling of social and emotional experiences and the increase of influence of peers and social contexts (Crone & Dahl, 2012). The development of a mature self-concept depends largely on comparative interpersonal processes, focused on friends and peers mainly, with impact on the neural functioning (Romund, şi alţii, 2017).

As a synthesis of this short incursion in theories, risk behaviors are best explained in the larger context of a social and neural maturation process based mainly on a disbalance between reasoned actions and heuristic ones. Intrapersonal and interpersonal processes are part of this formulation, and not by-products of the adaptation struggle of adolescents.

3. Student engagement with school vs. risk behaviors

The focus on risk/problem behavior of adolescents is of uttermost importance when we take into account the phenomenon of student engagement with school. Comprehensive and multidimensional analysis of the student engagement construct implies a relationship between *self-regulatory processes* and *academic, social* and *emotional outcomes* (risk behaviors included), postulating a mediating role of different forms of engagement (cognitive, behavioral and emotional) between the two aforementioned categories – see Appleton, Christenson, & Furlong, 2008.

Our study uses the generic framework of the Self-processes Model applied to Educational Settings (Appleton, Christenson, & Furlong, 2008, p. 380), advancing several research assumption (see Figure 1): 1) self-concept, as identified by the Beck Self-Concept Scale (BSCS, see below), is a generic descriptor of self-system processes, and it hypothetical influences both risk-perception and school adjustment; 2) social adjustment, as described by the Social Adjustment Scale – Self-report (SAS-SR, see below), approximates some aspects both of the autonomy/relatedness component, but also of the behavioral engagement as dimensions of the student engagement with school; 3) risk perception is a main feature of the cognitive engagement component (with a possible effect on both academic and social/interpersonal outcomes); 4) interpersonal problems (as measured by the Inventory of Interpersonal Problems – IIP, see below) can be considered an outcome variable in the social outcomes domain of the model, partially explained both ty risk perception and school adjustment (as we will try to prove in a regression analysis).

The choice of the model complied also with some theoretical concerns, which we will explore in further studies, especially related to a dual processes approach in explaining both exploratory and health risk behaviors and their link to school engagement. The present study focuses mainly on drafting some correlational links between intrapersonal processes (as the consolidation of self-concept) and interpersonal processes (as social adjustment and relational features), and their general links with risk perception and behavior.

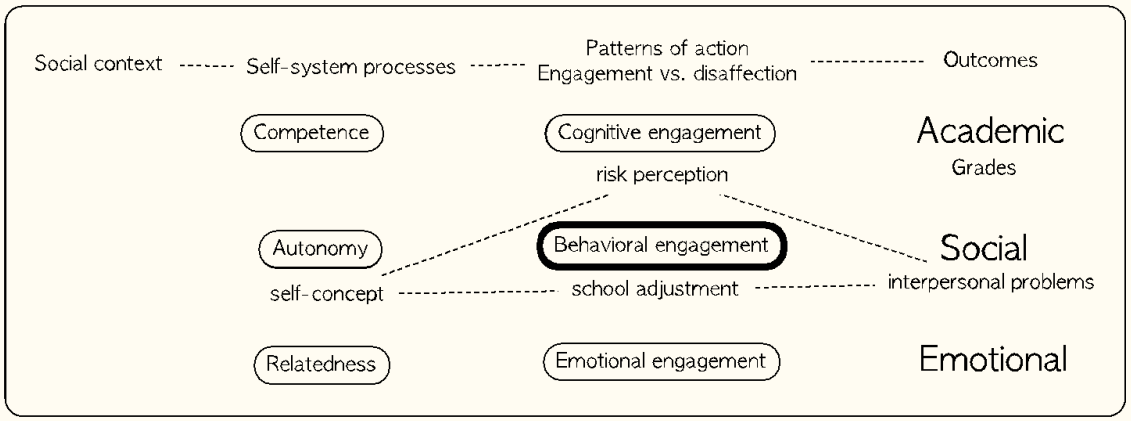

Figure 1 - Putative links between components and dimensions of the Self-processes Model applied to Educational Settings - Appleton, Christenson, & Furlong (2008), as used in the present study. Emotional outcomes and emotional engagement features were not included in the present study.

4. Method

The main objective of our study is to assess the dynamics between two categories of risk behaviors (exploratory vs. health risk) in relation with intrapersonal (self-concept) and interpersonal processes (social adjustment & interpersonal functioning). The primary hypothesis is that the engagement with school (even in the context of the COVID-19 pandemic) is correlated with increased risk perception, higher exploratory risk behaviors and a more positive self-concept.

4.1. Sample

The study was conducted in three local schools from three different Romanian counties, Timiş, Gorj and Dolj. Subjects were all consenting 9th to 12th graders (n=107), participating voluntary with no extra incentives. The sample was predominantly feminine (n=93), with ages ranging from 14 years (n=4) to 18 years (n=38), the majority of them being around 17 (n=41). Most students reported that they live with their parents (n=94), only 4 of them reporting that they live alone. One special comment is that the data collection took place during the partial lock-down due to the COVID-19 pandemic (May-June 2020), with all the students being enrolled in online courses.

4.2. Procedure

The present study has a cross-sectional, correlational design. The questionnaires were administered online in a Google-forms format. Apart from ensuring confidentiality, no special validity check was performed. All data were analyzed using SPSS version 22.00, generating descriptive and correlational reports. For each of the self-report instruments, alpha coefficients (Cronbach's Alpha) were calculated for both the scales and the subscales. A regression analysis was performed in order to test the link between social adjustment and risk perception, on the one hand, and the intensity of interpersonal problems, on the other hand.

4.3. Measures

All measures used for the present study were self-reports, including a self-reported global academic attainment rating. Basic socio-demographic data were obtained, including the profile of the school and the background of the student's family (urban vs. rural). The self-report measures used in the study were:

Adolescent Exploratory and Risk Behavior Rating Scale (AERRS) – (Skaar N. R., 2009) – the scale explores both participation in risk behaviors, and, on the same 43 items, risk perception of both health and exploratory risk behavior. AERRS uses for risk behaviors a Likert scale from 1 (never) to 4 (often), with higher scores meaning increased participation in risk behavior. For the risk perception scale, the instrument uses a Likert from 1 (not risky) to 4 (very risky), with higher scores reflecting a higher perception of risk. The author reports solid coefficient alphas of .93, .96, and .89 for the total score, respective health risk and exploratory risk scale. For the present study, we obtained similar alphas, ranging from .912 to .86. The author published more recently an abbreviated screening instrument based on the AERRS (Skaar, Christ, & Jacobucci, 2014), but there is a shift from exploratory risk behaviors towards prosocial risk behaviors, which was not in agreement with our study, and we decided to keep the initial form of the scale. The scale was translated into Romanian by the first and third author special for this study. Back-translation was assured by an independent translator and the correspondence of items was evaluated by the first author.

Beck Self-Concept Test (BSCT) - (Beck, et al, 1990) is a 25-item measure that invites the respondents to compare themselves to other people they know using a five-point ordinal semantic differential scale, with ratings from 25 to 125. There are 16 items where higher scores mean a more negative self-concept – with (1) *better than nearly anyone I know* and (5) *worse than nearly anyone I know*. The other 9 items use an increasing degree of the characteristic. For the present study, we used a direct scoring system, with a higher score meaning a more negative self-concept. The coefficient alpha for the present study was .84, similar to the alpha reported in other studies. The scale was translated into Romanian by the first author as part of another study. Back-translation was assured by an independent translator and the correspondence of items was evaluated by the first author. As a special mention, BSCT was validated on clinical samples. Nowadays, its principal author (Aaron T. Beck) recommends for self-concept scales for adolescents the use of Beck Youth Inventories of Emotional and Social Impairment (BYI) - (Beck, Beck, & Jolly, 2001). Since there are no known translation in Romanian of the BYI and due to possible copyright infringements, we decided to use the more classical measure, the BSCT.

Inventory of Interpersonal Problems (IIP) - (Horowitz, et al, 1988) – is an instrument used mainly in the therapeutical-clinical context, measuring distress associated to interpersonal sources. There are several variants of the instrument (with 64, 48, 40, 32 items), and a circumplex scoring system attached to it (developed initially by (Alden, Wiggins, & Pincus, 1990). For the present study we used the 40 items form. IIP includes

items that begin with the phrase "it is hard for me to…" and items that have as heading "things that you do too much". Each item is rated on a Likert scale ranging from 0 (not at all) to 4 (extremely). Eight specific interpersonal problems (or styles) result, that are arranged in a circular manner within a two-dimensional circumplex space. Octants include the following – Domineering, Vindicative, Cold, Socially Inhibited, Nonassertive, Overly Accommodating, Self-Sacrificing, and Intrusive/Needy. Several studies showed that both the long and shorter forms of the study have acceptable to good reliability, strong internal structure and good discriminant and convergent validity. Higher scores are indicative for an increased strain in interpersonal functioning. For the present study, we mention an excellent alpha coefficient of .923 for the entire scale, with alphas ranging from .68 to .91 for the subscales. The scale was translated into Romanian by the first author as part of another study, and the translation was revised by the third author. Back-translation was performed by an independent translator and the correspondence of items was evaluated by the first author.

Social Adjustment Scale – Self-report (SAS-SR) (Weissman & Bothwell, 1976) is a classic instrument assessing social adjustment. The scale was developed for clinical use, linking poor adjustment to proclivity towards emotional disorders both for adults and adolescents. The scale has 54 items, measuring expressive and instrumental performance over the past two weeks in six role areas: (1) work or study; (2) social and leisure activities; (3) relationships with extended family; (4) intimate relationship; (5) parental role; (6) role within the family unit, including perceptions about economic functioning. For adolescents, there is a mention to skip the non-relevant role areas. Even if shorter forms are in use (Gameroff, Wickramaratne, & Weissman, 2011), we opted for the use of the initial scale, since it brings more detail in school functioning, relevant for the engagement in school model we are testing. Internal consistency for the entire scale was acceptable (.784), in accordance with the research data. Alpha coefficient was higher for school functioning (>.85) subscale. For the SAS-SR, higher scores mean a poorer social adjustment and reduced role performance. Translation in Romanian of the scale was assured by the first and third author. An expert back-translated the scale in English and an external reviewer checked for the correspondence of items of the original scale with the translation.

5. Results

All responses were considered valid. The descriptive statistics regarding the scores for the scales are presented in table 1. At first glance, there is a (somehow) expected discrepancy between exploratory and health risk behaviors, in favor of the former. In other words, the students seem to engage (or report?) more exploratory risk behaviors than health risk ones. Taken into account the composition of the sample (mainly girls from "good" schools), as well as the context of the assessment (the COVID-19 restriction measures reducing the mobility and experimentation space for risk behaviors), such a discrepancy is not unexpected.

Table 1 - Descriptive statistics on the instruments. Subscales of the IIP are not reported due to space restrictions. (AERRS = Adolescent Exploratory and Risk Behavior Rating Scale; SAS-SR = Social Adjustment Scale – Self-report; BSCT = Beck Self-Concept Test; IIP = Inventory of Interpersonal Problems).

	N	Min	Max	Mean		Std. Deviation
AERRS Risk Perception	107	0	158	81.00	2.287	23.662
AERRS Risk Behavior	107	0	113	49.93	1.929	19.954
AERRS Health Risk Behavior	107	0	52	13.93	1.192	12.326
AERRS Exploratory Risk Behavior	107	0	52	30.56	1.090	11.275
SAS-SR School	107	1	5	2.26	.074	.771
SAS-SR Leisure	107	1	4	2.38	.060	.621
SAS-SR Family	107	1	4	2.18	.063	.654
SAS-SR Family unit	107	1	5	1.50	.088	.915
SAS-SR Total	107	1	4	2.08	.050	.518
BSCT Total	107	25	106	66.46	1.133	11.722
IIP Total	107	40	149	91.36	2.250	23.275
Valid N (listwise)	107					

If we analyze the inferential statistics, there are even more noteworthy results (see table 2). We assumed that an increased risk perception (as measured by AERRS) would correlate with fewer interpersonal problems and a more positive self-concept. As one can see, the results show the opposite – a higher risk perception is correlated with a more negative self-concept and with more interpersonal problems. Such a finding should be put into perspective. Self-concept is highly unstable and volatile in mid-adolescence, and self-reflective processes (such as risk perception) can be "protective" for some of the subjects in not engaging in risk behaviors, especially health risk behavior. If we refer to the dual-processes theory, increased risk perception for the subject means a possible engagement in deliberative processes (the 'reasoned' pathway), which prevents the engagement both in exploratory and health risk behaviors (the correlations between risk perception and exploratory or health risk behaviors are not statistically significant). The findings support also the alternative pathway of action (the heuristic one), by not linking health risk behaviors neither with interpersonal nor intrapersonal processes (see the non-significant correlation of the total behavior score measured by AERRS both with the total scores of BCST, SAS-SR and IIP).

Table 2 - inferential statistics on the total scores of the scales (AERRS = Adolescent Exploratory and Risk Behavior Rating Scale; SAS-SR = Social Adjustment Scale – Self-report; BSCT = Beck Self-Concept Test; IIP = Inventory of Interpersonal Problems).

		AERRS P	AERRS B	SAS Total	BSCT Total	IIP Total
AERRS Perception Total	Pearson Correlation	1	-.065	.182	**.298****	**.436****
AERRS Behavior Total	Pearson Correlation		1	.038	-.108	-.015
SAS Total	Pearson Correlation			1	**.386****	**.624****
BSCT Total	Pearson Correlation				1	**.513****
IIP Total	Pearson Correlation					1

**. Correlation is significant at the 0.01 level (2-tailed).

On the other hand, if we look more in detail to the inferential statistics, we can see that there is a significant correlation between self-concept and exploratory risk behavior (-.285**, significant at the 0,01 level 2-tailed), which means that a more positive self-concept correlates (only) with engagement in exploratory risk behaviors and not in health risk ones. Further inquiry into results confirm a more predictable pathway – a good self-concept is correlated both with a better social adjustment and a better interpersonal functioning (as can be inferred from table 2).

To test which of these variables have a significant impact on the interpersonal problems self-reported by the adolescents, we performed a regression analysis. The results of the regression indicated the two predictors explained 31.8% of the variance of IIP scores (R2=.56, F(2,104)=24.21, p=.000). It was found that SAS-SR significantly predicted IIP (β = .47, p<.00), as did AERRS-risk perception (β = -.22, p=.007).

6. Limitations/discussion

One of the obvious limitations of this study is related to the trustworthiness of responses. Direct questions relating to drug use, suicidal thoughts or interpersonal risk behaviors could lead to the suspicion of response biases. On the other hand, such questions could be considered upsetting or offensive. Studies on adolescence shed another light on this issue – under the protection of confidentiality, adolescents are neither upset, nor reluctant to answer straight, except a minority which is heavily traumatized or derived from very problematic backgrounds (Langhinrichsen-Rohling, et al, 2006). Our sample could be considered, if we take into account family background and school adjustment, rather straight answering, and supplementary validity inquiries were not performed, even if AERRS has such validity checks.

Being a preliminary study, we march along with the limitation of a convenience sample – our sample both disbalanced regarding gender and representativeness of the

respondents for the entire adolescent population. Further studies, implying also an experimental (or, at least, quasi-experimental) approach and multimethod assessment procedures, would presumably bring more nuanced results regarding the interconnection of different risk behaviors and intra- and interpersonal processes.

Another limitation is related to the age of the respondents – we selected the mid-adolescence stage as the most representative level, since both risk-behaviors and intra- and interpersonal processes are well represented. Future research should analyze both the early and late phases of adolescence, since personality and risk dynamics are very along the whole period.

7. Conclusions

Our research opens up some novel perspectives on risk behaviors in adolescents. The study of two different species of risk conducts (health risk vs. exploratory risk) shows a somehow different behavior of these constructs related to interpersonal and intrapersonal functioning. There is an urgent need to develop models that can predict better such behavioral reactions in adolescence, and dual-processes theory could provide more insights into a puzzling area of research. Regarding engagement with school, the process of increasing meta-cognitive abilities in the field of risk perception could lead, in the context of a good general social adjustment, to less interpersonal problems and an acceleration of the maturation process. In the meantime, programs aiming the increase in quality of school engagement should focus, especially in extraordinary times such the COVID-19 pandemic, on building up contexts for the deployment of exploratory (risk) behaviors.

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Challenges experienced by teachers regarding access to digital instruments, resources, and competences in adapting the educational process to physical distancing measures at the onset of the COVID-19 pandemic in Romania

Leyla Safta-Zecheria•; Sebastian-Aurelian Ştefănigă •; Ioana-Alexandra Negru•; Francisca-Hortensia Virag•

Abstract

Emergency remote teaching replaced face-to-face education almost everywhere in the world at the onset of the Covid-19 pandemic. Romania switched to online teaching in March 2020 as a recommendation that became an obligation to teach online in late April 2020. Teachers saw themselves confronted with the need to adapt to a completely new infrastructure for teaching and learning in the digital sphere. Building on qualitative data (interviews and focus groups), collected as part of a participatory action research project aiming to support school teachers in adapting to online education, we explore the question: How did teachers understand and respond to the challenges brought about by using digital instruments and resources in the educational process? Our findings show that teachers faced challenges in accessing technological and digital infrastructures, as well as in ensuring that pupils had access to online teaching and learning activities. Moreover, teachers were faced with the need to rapidly develop the digital competences necessary for online teaching. This prompted exchanges between teachers, pupils and parents, as well as the setting up of support structures within and outside school structures.

Keywords: digital competences, emergency remote education, access to education, digital resources, educational technologies

Introduction

The spread of the Covid-19 pandemic led governments across the world to take policy measures to minimize the spread and protect the lives and health of their citizens. Around the world, the suspension of face-to-face education has been a common feature of the first policy responses. This was visible, for example, at the peak of anti-Covid 19 preventive measures in the fact that more than 65% of the world's learners in 160 countries amounting to over 1 billion learners had had their face-to-face activity suspended by the beginning of May (UNESCO data, 2020a, for the 3rd of May).

In Romania, the suspension of face-to-face education on the 11th of March was decided by the by National Committee for Special Emergency Situations and was initially supposed to last only until 22nd March (Guvernul României, 2020). Yet, as it became clear that the situation was not to be solved within days, the State of Emergency was decreed

• PhD, Educational Sciences Department, West University of Timişoara, leyla.safta@e-uvt.ro
• PhD student, Computer Science Department, West University of Timişoara, sebastian.stefaniga@e-uvt.ro
• MA student, Educational Sciences Department, West University of Timişoara, ioana.negru97@e-uvt.ro
• MA student, Educational Sciences Department, West University of Timişoara, francisca.virag76@e-uvt.ro

on the 16th of March. The decree also provided for a temporary and reasonable restriction on the right to education (Art. 2 and Art. 49 of the Decree instating the state of emergency, Decretul nr.195/2020). This framework created some confusion, since it involved a recommendation by the Minister of Education to continue the educational process online but without introducing new curriculum content (Ministerul Educației și Cercetării, 2020). More than one month later, on the 21st of April another approach was proposed that instilled an obligation to take part in online teaching, the parents and legal guardians are assigned responsibility for ensuring that pre-schoolers and pupils have access to online educational activities (OMEC 4135. 21.04.2020, especially Art. 11, available here).

Although formally acknowledging, as well attempting to solve the problem of access to education in the online environment, the policy response left many questions unanswered: How is the shift to online teaching and learning experienced on the ground? What are the challenges in terms of ensuring access to quality education online that teachers are confronted with? Are digital resources and instruments available and accessible to teachers and pupils? And how are they understood and used by them?

In this paper, we answer these questions by looking at qualitative data generated as part of a participatory action research project based at the West University Timișoara. Specifically, we focus on seven semi-structured interviews with teachers, as well as two focus groups with teacher participants. The participatory action research project aimed to support teachers in the transition to online learning by responding to their needs as they arise. All support and research activities were carried out at a distance, mostly online, but also on the phone.

Ensuring access to education during the suspension of face-to-face activities in schools as a measure to limit the spread of Covid-19

The educational policy measures put in place to slow down the spread of Covid-19 have given rise to significant challenges to educational systems and practitioners across the world. UNESCO estimates that 24 Million learners across the world are in danger of not returning to school in 2020 (UNESCO, 2020b). Of these, many are university students, nevertheless, a significant proportion is made up of school-aged children and young people. Significantly, those with no access to education during physical distancing measures are more at risk of not returning to school (UNESCO, 2020b). Moreover, physical distancing measures and the sudden switch to online teaching and learning are likely to have a negative impact widening already existing socio-emotional, as well socio-economic gaps between pupils (Pietro et al, 2020).

While, for pupils the risk of not returning to school because of loss of contact with the school environment persists, teachers need to rise to the challenge of ensuring quality remote education in an emergency context. As has been recently pointed out, emergency remote teaching (Hodges et al, 2020) is very different from distance education and should not be assessed according to the same criteria. The challenges of re-organizing school-

based educational activities in a remote manner, when they were explicitly designed to be carried out in a face-to-face environment, requires setting up innovative support structures for teachers (Pietro et al, 2020). In Romania, this has meant teachers and students have been faced with the absence of a technological infrastructure, the lack of digital competences and the lack of access to educational software platforms (Botnariuc et al, 2020). The lack of guidance as to which software platforms to use and the lack of a unitary approach to the transition to online learning have also been a marker of stress for many teachers (Edumanager, 2020). Recent research in Romania has nevertheless also shown that students of educational sciences programs across the country have a significant level of competences relevant for digital education and therefore can constitute a significant resource base for facilitating the transition to online education (Alexandru et. al, 2020).

Digital competences proved to be essential in the transition to online education. As has been previously pointed out (Røkenes & Krumsvik, 2014) it is useful to understand digital competences for teachers and students/ pupils broadly as "skills, knowledge, creativity, and attitudes that everybody needs in order to use digital media for learning and functioning in the knowledge society" (Erstad, Kløvstad, Kristiansen, & Søby, 2005 translated in Røkenes & Krumsvik, 2014, pg. 252). This definition allows to investigate digital competences not just as digital literacy, but as a wide range of competences that may incorporate pedagogical, as well as sociological competences relevant for using technology in education (Røkenes & Krumsvik, 2014).

Methodology

Participatory Action Research Design

The present paper is based on a participatory action research addressing the challenges faced by teachers while adapting the educational process to physical distancing measures imposed by the Covid-19 pandemic.

Participatory action research is a research methodology that involves investigating a relevant and pressing issue for a community together with its members and has been used successfully to improve education since the 1950s (Paz Morales, 2019). Although participatory action research has worked as a complement to professional learning and development for teachers (Paz Morales, 2019), it is only now beginning to be used to understand and facilitate the active learning and professional development of educators as they adapt their practices to the exigencies of transitioning to online learning (Avgerinou & Moros, 2020).

The present project started from the impulse to offer support to teachers in view of the challenges that they were facing in adapting to online teaching and learning. At the onset, all interested students of the department of Educational Sciences at the West University of Timişoara (WUT) were offered webinars about adapting the educational process to online learning and in how to use specific software programs for online

education (Zoom, Kahoot, etc.). After two intense webinar sessions (held in several series to accommodate multiple participants), the students were then asked whether they wanted to participate as volunteers in a tutoring program offering support to teachers in transitioning to online learning. Around twenty students of the more than one hundred total webinar participants agreed to take up this role, with around ten students engaging over a period of several months. At the same time, principals were contacted from schools in the wider educational community around WUT and offered the opportunity to advertise the tutoring program to teachers in their school that could need support. A number of thirty-seven teachers were initially registered for the program and more than half of them participated actively throughout the tutoring process. The teachers came from very different schools including well equipped downtown schools in Timișoara, as well as schools in the rural area. The teachers that participated in the tutoring program were of different ages, levels of seniority and genders, and catered to differently aged children (from primary school to high-school) and came from different Romanian counties, mostly in the North-West region.

Parallel to and connected to the tutoring program, we also set up a research initiative. All student tutor-volunteers were invited to take part in the research component, but only seven students consented to be involved in this process. The point of the data collection was to identify the challenges teachers were faced with in order to better respond to their learning needs, as well as identify potential medium and long term challenges, and issues that needed to be addressed through different interventions (policies, learning and professional development, etc.).

Research instruments

To document the challenges, tutors were invited to submit anonymous reflexive journal entries through a google form after offering support. Moreover, two focus groups with tutored teachers were organized virtually in May 2020 where we took stalk of how the challenges of transitioning to online had been experienced by teachers and how the program could improve its response to these challenges. After the end of the school year, in summer 2020, seven teachers and four school principals, as well as four tutors were interviewed about their understanding of the transition to online learning, the challenges they experienced and how they had experienced the tutoring program.

The interviewees and focus group participants had all been involved with the project and therefore a trust relationship had been established with them through the tutoring program, contributing to their willingness to participate in this process. The interviews were semi-structured and took place virtually (only one interview was carried out over the phone, since the interviewee did not have access to a proficient internet connection). The duration of the interviews was approximately ninety minutes and all interviews were (audio) recorded with the permission of the interviewee. The interviews were either transcribed during the interview by another member of the research team and edited retrospectively or were transcribed after the interview based on the recording. The

transcripts were then anonymized. Only the written anonymized transcripts were used for the analysis.

Two types of instruments were used in collecting the data analyzed here: semi-structured interviews with teachers and focus groups with teacher participants. We interviewed seven teachers aged between 20 and 55 as follows: two teachers aged between 20 and 40, three teachers aged between 40 and 50 and two teachers aged between 50 and 55.

Of those mentioned three have a seniority in education of up to 10 years, one of 14 years and three over 20 years. The teacher with the least seniority in education has 2 years of experience in education and the most experienced teacher has 33 years. From the perspective of the subjects taught, five of them teach at the primary school level, one teaches Romanian Language and Literature, and one teaches Mathematics, Physics and Chemistry. We need to mention that four teachers teach in urban areas and three in rural areas.

The semi-structured interviews were made up of five sections each addressing a different topic. The topics were: (1) the challenges of physical distancing measures applied to education, (2) the timeframe of online teaching experiences, (3) online teaching methods, (4) classroom management and (5) learning and professional development. A total of 21 open-ended questions were asked, each was operationalized through a series of follow-up questions that depended on the interviewees responses. Some of the main questions were followed by no less than 10 follow-up questions, while others were followed by only 2 additional questions.

Two focus groups were carried out online via Zoom and through incorporating questions in the interactive software Mentimeter: in the first focus group, five teachers participated, in the second, four. Tutors participated in the focus groups as well, but their answers were not relevant to our present inquiry. All teachers that received support as part of the tutoring program were invited to both interviews and focus groups. Nevertheless, some only participated in the interviews and some only in the focus groups with a small number that likely participated in both. Each focus group had different participants, except for the three focus group facilitators, faculty members of the Department of Educational Sciences at West University of Timişoara. The focus group duration was 90 minutes for the first focus group and 100 minutes for the second focus group. The focus groups were based on each participant presenting their experience during the program and the transition to distance learning, elaborating on certain issues through follow-up questions from the facilitators (such as the difficulty of conducting online assessment, modifications in the legal framework etc.), a number of questions were administered via the interactive software mentimeter to capture the reactions to transitioning to online, as well as the assessment of the tutoring program, and the way in which teachers plan to use technology in an educational in the future. Teachers engaged with each other's answers throughout the focus groups, complementing or contradicting each other with examples from their own everyday experience.

Research objectives and questions

The (entire) research project had as its main objectives to document:

O1: How teachers experienced challenges of adapting to physically distanced educational activities

O2: How teachers understood (or made sense of) these challenges.

In this research paper, we engage with a series sub-issues that were proved to be particularly salient during the data analysis phase. For this paper we thus set the following objectives:

Objective for this research paper 1(ORP1): To document how teachers viewed the way in which the educational process was affected by the question of access to digital instruments and resources for the educational process.

ORP2: To document how teachers viewed the way in which the educational process was affected by the question of access to digital competences necessary for conducting and participating in online educational activities.

Although potentially relevant, the data concerning how teachers perceived the support offered during the tutoring program is not analyzed here, as it will likely form the object of future analysis.

In the following we explore the research questions:

RQ1: How did teachers understand the challenges brought about by using digital instruments and resources in the educational process?

RQ2: How did teachers respond to these challenges?

Coding and analysis

We have chosen to focus on the teachers' perspective that is why we have selected for analysis the two focus groups, as well as the seven interviews with teachers. The chosen data was coded (Saldana, 2013) inductively in a first round that was organized collaboratively. The emerging codes were discussed at weekly meetings, after each meeting everyone in the small research group that worked on this paper was invited to revisit portions of the data to apply the collectively agreed upon codes.

For the present analysis, the team first decided on a common topic that had come up in the data and has significant relevance for understanding present challenges: the sudden digitalization of the educational process in the early days of the pandemic. We decided to explore this topic and see which codes appear in relation to it. Based on a subsequent round of coding and discussion, we agreed to explore the issue of challenges for access to the educational process as mediated by two different processes: (1) the access to technological and digital infrastructure and (2) developing digital competences of teachers, pupils and parents.

The relevant data was then analyzed and written-up collaboratively. The collaborative process was organized at a distance, through using video conferencing software and collaborative document editing platforms.

Findings

As mentioned above, here we present our analysis of how teachers perceived the challenges for access to the educational process as mediated by two different processes: (1) the access to technological and digital infrastructure and (2) developing digital competences of teachers, pupils and parents. Our analysis connects to our two research objectives outlined in the methodology section: (1) refers to ORP1 and (2) refers to ORP2. The objectives for this paper were developed inductively after first coding the qualitative data that we had set out to explore starting from the research questions proposed in this paper. Therefore, the research objectives and research questions relate in a transversal way: the objectives are the result of an inductive coding process and not the starting point of a deductive hypothesis-testing inquiry.

1) Challenges regarding the access to technological and digital infrastructures necessary for participating in the educational process

The access to technological and digital infrastructure refers to how the challenges of getting pupils and teachers connected online made visible the disparities of technological infrastructure and those of access to digital resources.

(a) Access to technological infrastructure

Technological infrastructure involved both the hardware (phones, laptops, etc) and the technical infrastructure of connectivity (internet access, electricity, etc.). Teachers were confronted with difficulties in ensuring that all pupils (can) attend their classes because of problems with the technological infrastructure. This was understood as happening either because the pupils' families did not have the means to provide them with access to technology during the day (while at work) or at all or because of connectivity (mainly internet access) and other technological issues. In the focus group, those teachers that were teaching pupils that had both access to a laptop and internet considered themselves to be lucky pointing to the fact that they considered this to be the exception rather than rule. In some cases, even half of the class could not attend online educational activities on a regular basis. One of the teachers interviewed mentioned that lack of technological access wasn't the only reason some pupils could not attend but saw the lack of participation as connected with instances of poverty. Another teacher mentioned lack of intrinsic motivation, stating also that the lack of an obligation to attend online classes might have had an impact on certain pupils' willingness to attend.

Another teacher participating in one of the focus groups mentioned pupils in her class that couldn't attend online classes:

'[The] girl doesn't have the technology, she doesn't have the means for it, the mother has four children and she couldn't do it [have them attend online classes] for all of them, so she decided none of them should attend. But we work on WhatsApp. We go on, I send things

on WhatsApp and she is not excluded from the lessons and from what happens in the online school.' (participant in focus group)

Other teachers even mentioned working with different software platforms that required less technological infrastructure as a strategy for reaching a higher number of pupils, as this teacher who works in a rural area mentioned during the focus group:

'Yes, there are some [pupils] that we couldn't connect to via Zoom, but we did via messenger, we keep messages, sometimes we work on Zoom and messenger, work from the laptop but also from the phone, this is how we tried to reach as many children as possible.'(participant in focus group)

Moreover, even when the online connection between pupils and teachers was possible, the technological infrastructure negatively affected the communication process, influencing how much the teacher could understand from what was actually going on, on the other side of the pupils' screens:

'It happened that they couldn't hear me or that they would hear me in a loop, they couldn't follow what I was saying, there are many pupils, I couldn't monitor them very well, when they should have been working, they would disconnect their images [cameras] and I wouldn't know what they were doing. I would mention [muting] the microphone, but they would also disconnect the [camera] images and I don't know what they were doing, probably they were also doing other things." (P_MB_AM_17072020)

This problem also existed the other way around: if teachers' own personal technological equipment was not up to date, this would affect the communication process, a problem shared by several teachers. A young teacher (aged twenty-five) described this as follows:

'I have one [a smart phone] that I work from, but the camera is not very good. Since I work from my phone, I cannot see all of them at once. I only worked from my phone; I didn't work from the [a] laptop.' (P_IN_VF_15072020)

This issue was connected mainly to the personal resources that the teachers had access to. For example, one teacher received a laptop from her son to be able to teach online, while her daughter (with whom she previously shared a laptop) attended online classes:

'The first time, I admit, we had only one laptop that my daughter and I were fighting over. She is a student and she started online classes immediately [...] and I would say, give [the laptop] to me, I also need to hold my classes. And then my son also bought me a laptop [...] so that we wouldn't fight over it anymore." (P_VO_VF_14072020, aged fifty-three, teaches math and physics in a rural area)

Another teacher mentioned in the interview that she was glad that she had everything she needed to work from home, including a scanner and a copy machine (P_TM_AM_28072020). Yet, it is unclear how many teachers benefitted from comparable technological infrastructures necessary for carrying out online educational activities.

(B) Access to digital infrastructure

The question of digital infrastructure was often articulated by our interviewees together with that of digital competences. Teachers chose to refer to access to digital resources for teaching and learning together with the need to develop the necessary skills to use these applications. In some instances, teachers could choose the resources they wanted to work with, but needed to identify these resources on their own, in other cases the schools' principals decided what platforms should be used, but did not always provide guidance on how to use them. Even when teachers identified adequate resources online, they were not always satisfied with the results:

'I used Zoom, Google Classroom, WhatsApp, [the] phone, I used everything that could be used. I identified the resources myself on the internet, [taking advice] from the school, from my colleagues. I also used videos found on the internet. I consider that digital resources responded only as educational material, but I wasn't satisfied with what happened and what I had to use.' (P_TM_AM_28072020)

Later in the interview, the same teacher explained that she felt a significant difference in communication between talking to pupils and parents face-to-face and just sending different materials and worksheets online.

Another issue mentioned in relation to this was that of a perceived need for official guidance in selecting appropriate resources that should also be recognized administratively by the school leadership or by the Ministry of Education as adequate for use in transferring the educational activity to online. This was felt by some (but not all of the teachers), as this teacher explained:

'I didn't want to learn too many [online platforms and resources that can be used in education]. It's better if I learn one or two, but those should be really good. There was no point in using ten platforms at once and overwhelming everyone and the kids [...] It was a problem to install so many apps on their phones, it was difficult. [....] It was important that what we do is official. Because until everything was official since the 11th of March [the onset of the recommendation but not obligation to teach online] each of us [teachers] did what (s)he could: used WhatsApp, Skype, Messenger. My phone was full of photos of homework.' (P_VO_VF_14072020)

Another teacher from an urban area saw this lack of official guidance as both an opportunity, as well as a problem since it could be misused to avoid carrying out educational activities:

'It was a total transition to the digital [sphere]. Part of it was more searching, exploring. We were not really guided very much… at least at the level of the school we were not asked "do this, do that". There was a lot of freedom and this was good in a way because there was no pressure and no strict control. But it was also bad in a way because I had colleagues that did absolutely nothing. I mean they sent some [learning] material and then sent again some [learning] material and then [it was time for] holiday.' (P_MP_VF_15072020)

Nevertheless, in some cases teachers built their online activities on previously used apps, such as WhatsApp, as well as on newly identified educational platforms that they started using after consulting with the tutors in our program:

I tried at each class to use videos about the lessons, I also received a lot of advice from the tutor. With [their] support, I identified the [online] resources. I worked on my phone, laptop by using Google Classroom, [...] Google Meet, and WhatsApp, which I also used before the pandemic. The school provided us with Google services for virtual classes. The school's resources were useful as an emergency solution, unfortunately these were not very useful for primary school pupils [First Grade]. The pupils don't have their own devices, but they use their parents' devices. [...] I was online everyday with them [pupils] and I had 6-7-8-9 [pupils] at the time set in the schedule. Besides them [pupils], during the classes, parents and grandparents and neighbors were also present and it wasn't the ideal learning environment. I say that in the case of primary school it [online learning] is not the ideal solution, only in the emergency situation [of the pandemic it is acceptable]. (P_TM_AM_17072020)

The same teacher also mentioned using the digital version of school textbooks and its extra online features such as videos as very useful. On the opposite end, another teacher mentioned not using the school textbooks as an advantage in adapting her educational activities to online:

'To me it was really helpful that I had [educational material I had developed previously]. I do not use the textbook almost at all. I create a lot of worksheets that I find more appropriate or more fitting to the [skill] level of my pupils. And then, since they study at a technical school, the level is very low and sometimes textbooks require very abstract things or too boring things to them, and everything needs to be simplified. The fact that I had all these resources ready for years helped me very much, because I didn't need to make new ones, and even though I did make new ones, it helped me enormously that I already had some resources ready. And a teacher that works with handwritten notes or the textbook, practically, (s)he starts from scratch with no materials and this is a big barrier.' (P_MP_VF_15072020)

Conclusions on (1) access to technological and digital resources

Teachers were faced with needing to adapt not only to teaching online, but also to the different technological possibilities available to pupils in the same class or school. This meant providing differentiated educational materials through different software platforms depending on whether they were more or less resource intensive. Teachers also had to use their own technological resources to carry out the educational activities and their access to these resources varied greatly and depended mostly on their personal networks. All teachers interviewed were not only concerned with adapting their activities to the online environment but also with identifying adequate digital resources and platforms that were also accessible to their pupils. In switching to online education not only educational activities, but also worksheets and supporting materials needed to be adapted.

(2) Developing digital competences of teachers, pupils, and parents

From the perspective of digital competences of teachers, pupils and parents, an important issue that was perceived as a challenge for teachers was using software and online platforms for educational purposes. In this respect the tutoring program wanted to create an open learning environment in which the teachers' concrete action and learning needs would be addressed. Many of the participating teachers in interviews and focus groups mentioned learning how to use digital platforms from their tutors. Here we address other forms of competence transfers and learning processes that were mentioned by the teachers.

The underdevelopment of digital competences both in the case of teachers and pupils, but also in the case of parents, posed significant challenges to the teachers in their attempts to adapt their activity to online teaching and learning. Parents' digital competences were also important since they played a key role in facilitating access to the educational processes.

(a) Teachers' digital competences

Understanding which digital resources to use in online teaching was perceived as a challenge, also in view of planning and structuring the educational process. Some teachers saw adapting to online teaching and learning as a necessary measure in the crisis situation brought about by the onset of the pandemic and considered the need to acquire new digital competences as part of this process of adapting to the crisis situation by hard work and being able to teach yourself the necessary skills, as well as by further developing communication skills:

'Digital pedagogy is suitable in the pandemic context. It was appropriate to replace face-to-face education. […] A teacher should have more digital skills [for online teaching]. I believe that anything can be learned if the teacher is truly involved in the process. He needs to know the minimum to be able to use the computer and I don't think it's so complicated to use it. Anyone and any teacher can learn if he/she wants. I consider that communication competences in the online environment are particularly necessary [at the present time].' (P_TM_AM_28072020)

Another teacher spoke of digital pedagogy as a field that was difficult to understand, she also complained about the differences between face-to-face and digital communication:

'The difference between digital and physical [teaching] is face-to-face personal communication and physical contact. Everything is impersonal [in the digital sphere].' (P_TM_AM_17072020)

Teachers came to be concerned whether parents and pupils would be overwhelmed by the number of digital resources needed for the educational process and by the competence demands that these involved:

'It was a challenge to learn how to work online at the beginning of my teaching career, to learn so many things on [online educational] platforms, to structure all my lessons in this

way, to teach, to evaluate. It was a challenge to communicate with parents. I was afraid in the beginning that they wouldn't understand so many things: the WhatsApp group and getting all the children's phone numbers that I didn't have, the Google Classroom platform, setting up all the accounts, then working on Zoom and so much more.[...] I was surprised how fast and flexible the parents were." (P_IN_VF_15072020, twenty- five years old, four years of teaching experience, primary school teacher, in an urban school)

During the transition to online learning the planning of educational activities was affected, as time management came to be increasingly unpredictable:

'In online teaching I would think one day in advance what I will teach, I would make a sketch of my classes, I would do the math exercises to not have difficulties the next day and know how to explain them, but I did not have a lesson plan [....].' (P_IN_VF_15072020)

In a similar vein, another teacher mentioned that time had come to be a significant problem in online teaching since it was harder to anticipate what was going to happen during class:

'Firstly, a lot of time is wasted [in adapting educational activities to the online environment], because you can't control the part [what is going on] behind the screen and you can expect unforeseen things. I say that time is the resource that is lost the most [in this process].' (P_TM_AM_17072020)

One of the teachers connected the challenges of developing the digital competences necessary for online teaching to their perceived lack of skills in other fields, for example, English language skills. In this instance, the need arising from the present situation is seen as an opportunity to develop digital competences despite these impediments, as is apparent from this quote from another interview:

'I think basic [digital competences are necessary to be able to teach online]. You can see how easily I can speak now [in an online environment]. But had you asked me three months ago, I wouldn't have known which button to press. Instead of turning on the camera, I would turn it off, and so on. Because I don't know English, [...] I needed to pick up the words as I went on. Anyone can 'turn on', 'access', 'share' [word in English in original], maybe there are competences that I didn't discover, but these are enough for me.' (P_VO_VF_14072020)

Challenging as it was, developing digital competences during this period was also perceived as an opportunity for learning and development by several of the teachers interviewed. For example, this forty-two year old primary school teacher perceived this time as follows:

' [I learned] very many things, especially connected to IT [software]. Like making short movies, putting information together and here I am not speaking of assignment sheets, since I would do those anyway. From creating tutorials to the social experience that I acquired in the educational system.' (P_AB_VF_15072020)

While many teachers spoke of their newly developed digital competences, some mentioned formal training they received in this field that goes back as far as the year 2000 and that they could successfully incorporated into the educational activities online. (P_TM_AM_28072020) One of the teachers mentioned already having some of the

competences necessary for transitioning to online. Nevertheless, she still had to adapt to new resources and instruments and learn how to use them when the school introduced its own set of instruments to be used:

'As a Teach for Romania alumna, I knew Zoom and we were already using Zoom for different meetings with alumni and such things. So, using Zoom came quite naturally and in the first part I used Edmodo because it was already being used. After that the school moved, so we all moved, Microsoft Team[s] accounts were set up. That took some time. We only got to use them after Easter [when the obligation to teach online was in effect]. But when everyone was on [MS] Office, [...] basically, I replaced Edmodo with Microsoft Office.'(P_MP_VF_15072020)

The same teacher even mentioned being overwhelmed by the amount of online support that was coming from everywhere. Although this was in no way typical of other people's experience, nevertheless it is an interesting perspective:

'[Support] came from everywhere. You would barely open Facebook and you'd see 10 tutoring videos, course advertisements and the like.' (P_MP_VF_15072020)

Developing digital competences and setting-up the digital infrastructure gave rise to support structures within the school as well. In one of the schools, where the teachers we worked with were working, the educational-methodological commission at school level set up a virtual group, where members could share resources:

'We had a group that was part of our school's educational-methodological commission that would send us all sorts of links, whatever they would find and even at school level we had links being sent in our teachers' group. Every one of us would bring something new to the group.' (P_AB_VF_15072020)

In another school, the digital infrastructure was set up with the help of administrative staff from the school:

'The school's IT specialist helped us set up our Google Classroom accounts and then I learned how to work on Zoom.' (P_IN_VF_15072020)

Furthermore, teachers started to become aware of opportunities to develop digital competences relevant to conducting educational activities online through informal learning by observing other educational practitioners and how they teach online:

'I take part in [a teacher training course, name was rendered anonymous], it is not about digital resources. [...] It is helpful since the trainer uses many apps that we [the participants] have never even heard of, and we keep asking her "Mrs., where did you find them?" I made an entire list and after her class is over, we just navigate through them and think, oh, I will use this. Apps are very important, to me at least.' (P_VO_VF_14072020)

Nevertheless, not all exchanges and experiences regarding carrying out online activities were positive. One of the teachers even felt that some people felt threatened by other teachers' online educational activities:

'In the teachers' office [meaning the teachers from the respondent's school] it didn't really exist. There people were trying to do the bare minimum and when they would see other people posting and you could tell they were doing something; I think they felt

threatened and they were wondering why are people trying to do more than what is required at the minimum level.' (P_MP_VF_15072020)

(b) Pupils' and parents' digital competences

The necessity to adapt to teaching and learning online has brought an impulse to unexpected forms of transfer of competences between pupils and teachers and back. As this science teacher from a rural area explained in the interview:

'They [the pupils] use technology and this is the present and the future. Children are very skilled, they adapt quickly. They were even teaching us [teachers]. They would say Mrs. [teacher] press that button that's the one you need.' (P_VO_VF_14072020)

At another moment during the same interview, the teacher mentioned the reverse process in terms of competence transfer:

'All the kids from the school would ask me and after I had learned, you guess how good that felt, "Mrs., how can I register an account here? Mrs., I can't get in", "Did you get a Gmail account? blah, blah". So, after I learned this, I was a very good… teacher.' (P_VO_VF_14072020)

Pupils' digital competences and infrastructures are not always compatible with those necessary for online educational activities, as this teacher explained:

'First of all, you need to have and to know how to use an email address. This might appear as a small thing, but the majority of pupils do not have email addresses, because they don't need them. Already on the social media networks they are using, they can set up an account using their phone numbers or who knows what and many do not have an email address and do not use it either. They set up an email address once to do who knows what, they forgot the password and that was it. No one sends them emails'. (P_MP_VF_15072020)

A teacher referred to the way in which pupils were developing digital competences as 'learning through trial and error' (P_TM_AM_28072020). Nevertheless, the optimism surrounding the competence development should not be overstated. While online teaching and learning is understood as enabling digital competence development, it is also seen as potentially creating gaps in assimilating the regular curriculum that may become visible when face-to-face learning replaces online learning once more. Some teachers were also explicitly concerned about the lack of preparedness of pupils for online forms of teaching and learning (P_TM_AM_17072020).

Another point that was mentioned as a potentially problematic aspect of online teaching and learning and the digital competences this process requires is connected to younger primary school pupils that lack digital competences and need parental support to attend classes online, in the words of a focus group participant:

'It was quite difficult since I teach first graders, children depend on the phones, they don't do the work, they are helped by parents, mothers, which is not ideal. You cannot replace what is happening in the classroom, especially when it comes to small children. [...] They don't know how to use all the functions of the apps, they send me a wave, a flux of homework.' (focus group participant)

Parents' aid was crucial not only for helping pupils participate in online educational activities, but also in helping teachers set them up. One of the teachers even mentioned that a parent was the person who set up her Google Classroom account during one of the focus groups. This points to the issue of how online teaching and learning has reconfigured the relationship between teachers, pupils, and parents, an issue that we cannot explore at length here.

Conclusions of the (2) teachers', pupils', and parents' digital competences

The switch to online educational activities involved a need to rapidly develop basic digital competences of teachers, pupils, and parents. This meant an increase in parental involvement in school learning needed especially for online educational activities in the primary school. It also meant that teachers needed to learn from pupils, as well as the other way around and that all groups needed to support each other to ensure that online educational activities could happen. Nevertheless, some teachers still perceived the online environment as impersonal and communication, and more specifically feedback as more difficult to carry out online.

To facilitate the process of acquiring digital competences, support structures were created both within and outside schools. Nevertheless, some teachers still felt they received too little formal guidance on what digital resources to use and how. Among the less predictable challenges to adapting to online, we can mention that some teachers felt time management (in terms of lesson planning) to be increasingly difficult and the fact that other skills (such as English language skills) were also sometimes a necessary prerequisite to developing digital skills.

Conclusions

Teachers experienced several challenges in adapting the educational process to physical distancing measures at the onset of the COVID-19 pandemic in Romania. Significantly, they were faced with challenges regarding access to technological and digital instruments. They needed to use their own personal equipment, and infrastructures, and these were not always proficient and the access to them depended on their own personal networks. But even those teachers that did have access to equipment and a good internet connection faced challenges in ensuring that all the pupils in their classes could attend online educational activities. This resulted in teachers adapting not only to online teaching, but also to using multiple software platforms at the same time, ensuring that educational content could be accessed by only using a (smart) phone to those students that did not have access to proficient technological infrastructures.

The fact that the educational process was accessible to different pupils through different platforms should not create the impression that the same quality of education could be provided to all. It should be understood that merely a very important form of

basic inclusion and connection to the educational environment of the school was maintained. Access to high quality technological infrastructure for teachers, pupils and parents and respectively the lack thereof is very likely to create inequitable outcomes in respect of how much learning could occur during the phase of physical distancing in education. These outcomes may also occur between highly motivated pupils and pupils that are less motivated in the process of learning, irrespective of their access to technological infrastructure. These forms of inequities will be especially relevant when thinking about national and standardized international (PISA, TIMSS, etc) examination outcomes in future years regarding the cohorts that are now in schools.

Besides having access to technological infrastructures, teachers needed to identify and learn which digital resources to use for education and how to manage the online learning process. This involved developing basic digital competences under pressure. This process meant that both teachers and pupils learned from each other how to use technology for education and that parents became increasingly involved in constantly offering support to pupils and occasionally to teachers. This process of mutual learning also opens up the question of what happened in the environments were neither teachers, nor pupils or parents had basic digital competences at the beginning of physical distancing measures. We have not encountered such perspectives in our research, but this likely due to the fact that our participatory action research project also offered precisely the kind of support needed to develop the necessary skills for online teaching and learning while these competences were being transformed into a necessity.

Other online support networks developed during this period, both in schools and outside of them. Nevertheless, teachers felt they needed more formal and informal guidance in how to use technology and digital resources for education. Teachers felt they needed to adapt their teaching and assessment styles, to restructure their courses and to find solutions to motivate pupils to participate in their classes. If teaching methodologies appeared to be relatively easy to rethink, the absence of an online assessment methodology that would either be framed as a requirement or a suggestion was very strongly felt by teachers.

At the onset of the pandemic in Romania, the recommendation to continue teaching in an online environment that coincided with the suspension of face-to-face activities in schools (mid-March) brought about very different reactions on the side of teachers. Some of the teachers wanted to continue teaching online by using video-conferencing software and other technological infrastructures that allowed similar interactions to those that would happen face-to-face in a school setting, while others preferred just to send learning materials online, while others did not consider they needed to continue teaching in any way. This increased the insecurity experienced by teachers that continued teaching and they came to ask themselves whether what they were doing was alright or not. In the absence of clearly disseminated online teaching and assessment methodologies, teachers were left to evaluate the learning outcomes of their practices on their own. These

heterogonous practices are also likely to create inequitable outcomes in terms of learning for their pupils.

Summing up, the challenges experienced by teachers in transitioning to emergency remote teaching were multidimensional and multifaceted, and involved both access to technological and digital infrastructures for both teachers and pupils, as well as the development of digital competences for teachers, pupils and parents. The ways in which teachers and the educational environment (the school leadership, parents, pupils) responded to these challenges is likely to have an impact on how equitable the educational outcomes for pupils will be in the future and this point is of immense importance for educational equality in Romania and worldwide.

Acknowledgements

We would like to thank prof. PhD Simona Sava for her involvement in the project, as well as comments on previous drafts of this paper. We would also like to thank senior lecturer PhD Mihaela Mitescu Manea for her involvement in the project, especially in developing the research methodology underlying the present project. We thank senior lecturer PhD Claudia Borca for her help in setting up the tutoring project and keeping in touch with the schools. We would also like to thank the other members of the research team: Flavia Curtuț, Anca Mărgineanu, Nicoleta Iacobescu and Cristian Haraşnuic, as well as all the tutors, teachers and principals involved in the project.

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An analysis of curricular innovation in higher education: challenges and a possible solution

Iulia Gonta • Cristina Tripon •

Abstract

Curricular innovation in university education allows teachers to make use of a wide range of changes. What do teachers mean by "curricular innovation", how do they apply it and what are the factors that mobilize or block them in this process? These issues were analyzed based on the answers given by university teachers. Hence, we found that, although, at a theoretical level, teachers clearly formulate the needs of curricular development, at a practical/applied level, the action of curricular innovation is associated with uncertain objectives. A balance regarding variety/freedom of change in education would stimulate a more efficient innovation process (because excessive variety causes uncertainty and hinders action). Following the analysis of the teachers' answers, we found that they would be helped by the promotion of (only) successful innovative models, in which the possible application variants (and the results obtained depending on the local specifics, domain specifics, etc.) are specified. We believe that in this way, teachers will take be more active with respect to curricular innovation.

Keywords: curriculum, innovation, higher education, local specifics, teaching practices.

Introduction

Lately, the importance of modernizing education for the development of society is being mentioned more and more often, the process of innovation in the field of education becoming natural and necessary.

Recent social challenges have confirmed the urgent need to adapt the education system. The modernization of education is necessary both to keep pace with the development of scientific branches, the necessities of the labor market, and modern technologies.

To modernize education means to approach it innovatively and to generate solutions in line with society's present and future needs.

Innovation in the context of Education

The term "innovation" comes from Latin and means "renewal, novelty or change".

• Lecturer PhD, Polytechnic University of Bucharest, Romania, iuliagonta@gmail.com.
• Lecturer PhD, Polytechnic University of Bucharest, Romania, cristina.tripon@upb.ro. Both authors have an equal contribution to the publication

Hassenforder (1974) defines the innovation of education as an attempt of any kind to consciously and deliberately aims to introduce a change in the education system in order to improve it.

Leithwood (1981) introduces the term curriculum innovation as the teachers' ability to use a new program, according to the changes required at different stages of development.

It turns out that, in the educational context, innovation involves the introduction of new and useful elements in the pedagogical activity, changes to the content and technology of teaching/learning/assessing, designed to increase the effectiveness of education.

Usually, curricular innovation means redesigning the curriculum in order to adapt it to current requirements. These changes may have different perspectives.

In higher education, curricular innovation aims to modify one or more curricular components, through changes regarding the content of education, teaching methods, teacher-student interaction, the organization of activities.

Curricular innovation involves reconceptualizing, modernizing, and optimizing the university curriculum. This is referring to the organizational, methodological, and content side of the educational process.

Curriculum Innovation and Practices

In this article, curricular innovation is approached in the sense of reconceptualizing, modernizing, and optimizing the university curriculum. This is referring to the organizational, methodological, and content side of the educational process.

The analysis of the literature on this subject shows that curricular innovation has been and is being studied in terms of changes in methods, forms, techniques, means, contents, objectives, etc.

Studying curricular innovation by defining and creating the curriculum serves to develop and implement educational policies. Studies that approach curricular innovation from this perspective aim to develop effective, sustainable, and developmental strategies such as that of Bovill and Woolmer (2019) on how conceptualizations of the curriculum in higher education influence student-staff co-creation or the studies of Franco, Saito, Vaughter and al. (2019), which argue about the influence of higher education in sustainable development: introducing global goals in policy, curriculum, and practice. Other authors, like Fishman and Krajcik (2003), talk about the process of creating sustainable science curriculum innovations. Voogt, Pieters, and Handelzalts (2016) analyze teacher collaboration in curriculum design teams: effects, mechanisms, and conditions. UK researchers Kirk, Newstead, Gann et al. (2018) have studied the benefits offered by the internationalization of the curriculum, as well as its related practices. This research indicates that the success of curricular policies depends to a large extent on the understanding of regional specificities, local problems, and needs.

Davis and Krajcik (2005) have researched the great influence that designing educational curriculum materials has on promoting teacher learning while Cheng-Man Lau (2001) studies the curriculum development process by using three models: the modern model, the postmodern model, and the model suggested by the actor-network theory. Wall and Ryan (2010) described the design process of curriculum innovation in terms of learning styles, policies and procedures, curriculum tools, collaboration resources, social networking tools.

According to Ponnusamy (2019), the role of knowledge in curriculum innovation creates unique learning trajectories, in which teacher capacities and the contexts for curriculum innovation plays an important role.

Another type of approach to the research curriculum is related to the study and experimentation of new methods and technologies in education. Chee-Kit, Daner et al. (2018) describe the impact of a professional development model for a mobilized science curriculum from the teachers' perspective. Xiaolan, Yiwei, and Ying (2018) were concerned with the quality of the Chinese curriculum and studied how to streamline learning by using the MOOC teaching method. Also to this end, Cui (2018) designed and implemented an online platform to improve the quality of training, part of a successful curricular innovation.

Other researchers like Drake, Land and Tyminski (2014) suggest that using educational curriculum materials will support the development of prospective teachers' knowledge. About the process of curriculum design, Huizinga (2014) argues the importance of collaborative teams in developing curriculum design expertise through teacher design teams. This type of research offers teachers opportunities for continuous development, improvement, and advancement from a didactic point of view.

In 2018, Chediak, Bizelli, and Ryymin published the article "Brazil-Finland Dossier: Trends, Perspectives and Challenges of Education for The 21st Century", in which they justify capitalizing on the experiences of teachers in Brazil and Finland. It is this collaborative approach that has generated for the two countries the development strategy of their education for the 21st century.

In this context, we can state the importance of our research, which collected, systematized, and analyzed the experiences of university teachers and generated a prospective strategy for curricular innovation.

Method

Research Objectives

The objectives of our research followed two main directions of analysis, one in terms of current practice and the other in terms of proposals to improve the process of curricular innovation at the level of higher education. Hence, we defined the following directions:

1. Identifying the current situation, from the teachers' perspective regarding curricular innovation, in the context of challenges within higher education.

2. Development of directions of curricular improvement following the specifics, objectives, and problems that exist in higher education.

Participants

The study was conducted between September 2019 and June 2020, with university teachers, participants in the project "Innovative Teachers - Student Entrepreneurs - PISA!", co-financed by the European Social Fund through the Operational Programme Human Capital 2014-2020.

In the first stage, the research group included a number of 102 teachers, all students in teaching training programs. Their selection was not made according to any criteria, but rather they became a research group because they expressed their anonymous interest. Subsequently, some respondents refused to answer all questions. In the final form, the selection of participants was made from the perspective of active involvement in the research (the refusal to answer a question entailed the elimination of the respondent). Thus, the new target group was outlined: 75 university teachers, working in the following fields: mechanics and technology, economics, law, electronics, communications, computers, physical education, computer science, educational sciences, social sciences, psychology, theology, languages, history, arts (Fig. 1). The respondents were between 29 and 52 years old, had a seniority of between 1 and 25 years (Fig. 2).

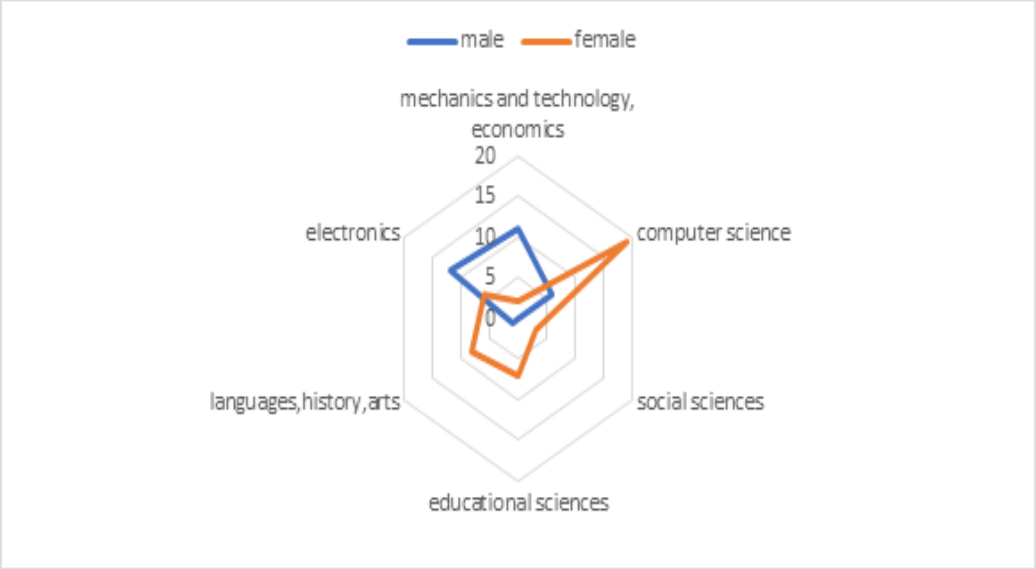

Figure 1: Respondents' gender and teaching distribution

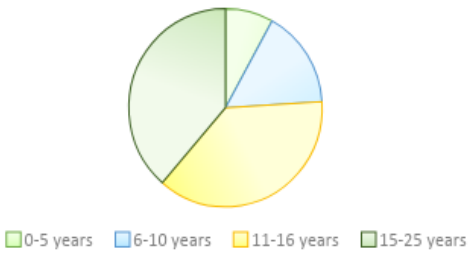

Figure 2. Respondents' seniority of education (in years)

Instruments and Procedure

The first stage of the research involved the use of questionnaires to collect the teacher's personal data.

Subsequently, in order to identify the current situation regarding curricular innovation, from the teachers' perspective, in the context of challenges within higher education, the university teachers completed a set of online questionnaires (through Moodle). The following questionnaires were used:

1. Questionnaire on the "Factors that Influence the Process of Curricular Innovation in Higher Education" (multiple choice). The questionnaire included 4 questions, namely: What are the resources needed to initiate and implement the innovation process in higher education? What factors motivate the innovation process? What barriers are there to becoming a teacher-innovator? What helps in solving the problems (barriers) that appear during the innovation process?
2. Questionnaire on how teachers understand the curriculum innovation process: "Is innovation an adaptation or an essential change?" (binary choice)

The procedure of data collection, analysis, and synthesis was performed by independent researchers, precisely to avoid the hindering of the quality of the data obtained. Before the actual application, the questionnaire was pre-tested and analyzed for the removal of non-compliant items, the final internal consistency coefficient Alpha Cronbach (Cohen, 1988) being 0.76, which means that the data obtained have high validity (Table 1).

Table 1. Reliability of research instrument (questionnaire)

Variable	Number of items	Reliability (Cronbach`s alpha)	Comment
Resources needed to initiate and implement the innovation process in higher education	12	0.78	Accepted
Factors that motivate the innovation process	11	0.71	Accepted
Factors that hinder the rise to become a teacher-innovator	9	0.81	Accepted
Limits to problem-solving (blockages) which appear during the innovation process	7	0.76	Accepted

After the primary processing of the data obtained from the questionnaires (which have been completed online), the respondents' answers were discussed in focus groups.

These were created in order to outline in the context of a group of teachers common opinions on the perspectives of curricular development and conceive new directions of curricular improvement following the specifics, objectives, and problems that exist in higher education. The teachers' answers (within the focus groups) implied the directions of action that they associate with the innovation of university curricula.

Then individual interviews with teachers were organized, which were necessary to understand the teachers' answers. Thus, we excluded the mutual influence of the participants from the focus groups and we deepened the qualitative research, to outline conclusions (quotes belonging to the interviewees are presented in the section "Results on How University Teachers Understand Innovation: Teachers' Directions of Action")

Conducting interviews was the stage that required a large number of researchers involved, given its complexity. The analysis of the data obtained from qualitative research was performed by independent researchers with experience in social sciences and humanities, other than those involved in data collection, this being necessary for a more transparent and objective selection of data of interest, without them being prone to reinterpret the meaning or reorganize the content.

In this way, we obtained qualitative data that captured perceptions and opinions, but also directions for the development and improvement of the university curriculum.

Analysis of the Results

Results regarding the attitude of university teachers towards the process of curricular innovation

During the research, the teachers completed a questionnaire with questions on what are the resources needed to initiate and implement the innovation process in higher education, what factors favor or block the innovation process. The answers to these questions showed the following:

- In order to initiate and implement the process of curricular innovation, it is necessary for teachers, first of all, to have an openness towards change/innovation.
- The most motivating factor in the implementation of curricular innovation is considered by teachers to be the awareness of the importance of modernizing education (more important than the freedom to express oneself personally or to carry out activities based on common interests).
- To become a teacher-innovator you have to give up passivity and the feeling of self-sufficiency.
- Innovation bottlenecks can be solved, firstly, by clearly formulating objectives and, secondly, by motivating working conditions and a team of people with a similar way of thinking.

Details regarding the results of this questionnaire are included in the table below (Table 2 and Table 3).

Table 2. Responses to the questionnaire on "Factors that Influence the Process of Curricular Innovation in Higher Education" (mean assigned importance in %)

Question	*Mean (%)*
What are the resources needed to initiate and implement the innovation process in higher education?	
- Openness to innovative experiences	42,76
- Following examples of innovation	20,11
- Research and experimentation skills	37,13
What factors motivate the innovation process?	
- Freedom of expression	28,73
- Awareness of the role of innovation in the development of the so	39,32
- Common activities and interests	32,86
What hinders the rise to become a teacher-innovator?	
- The feeling of self-sufficiency	23,49
- Previous failed attempts	19,11
- Superficially substantiated conclusions	21,75
- Passivity	25,68
- Wishes impossible to fulfill	10,87
What favors solving the problems (blockages) that appear during the innovation process?	
- Psychological support	17,85
- A team of people with a similar way of thinking	28,63
- Clarity in formulating objectives	30,99
- Motivating working conditions	23,52

From table 2 we notice the following:

- for the question "What are the resources needed to initiate and implement the innovation process in higher education?" university teachers preferred the answer “Openness to innovative experiences” (43%);
- to the question "What factors motivate the innovation process?" in the first place is the answer "Awareness of the role of innovation in the development of society" (39%);
- the most frequently answered answer to the question "What hinders the rise to become a teacher-innovator?" is "Passivity" (26%);
- to the question "What favors solving the problems (blockages) that appear during the innovation process?" university teachers preferred the option “Clarity in formulating objectives” (30%).

Table 3. Responses to the questionnaire on "Factors that Influence the Process of Curricular Innovation in Higher Education" (when ranked by assigned importance)

Question	*Mean Rank*
What are the resources needed to initiate and implement the innovation process in higher education?	
- Openness to innovative experiences	1.619718
- Following examples of innovation	2.845070
- Research and experimentation skills	2.028169
What factors motivate the innovation process?	
- Freedom of expression	2.394366
- Awareness of the role of innovation in the development of th society	1.985915
- Common activities and interests	2.014085
What hinders the rise to become a teacher-innovator?	
- The feeling of self-sufficiency	3.253521
- Previous failed attempts	3.563380
- Superficially substantiated conclusions	3.070423
- Passivity	2.873239
- Wishes impossible to fulfill	4.647887
What favours solving the problems (blockages) that appear during the innovation process?	
- Psychological support	3.619718
- A team of people with a similar way of thinking	2.774648
- Clarity in formulating objectives	2.492958
- Motivating working conditions	2.816901

The processing of the raw data involved the following steps: first, each answer was given a rank between one and the number of questions in the respective group. For example, if Q1 were assigned a weight of 10%, Q2 - 70%, and Q3 - 20%, then Q1 would be ranked in the 3rd place, Q2 - 1st place, and Q3 - 2nd place. The next step consisted of averaging the rank for each question over every participant. Thus, a smaller rank represents a higher importance.

N.B.: In case two or more questions were assigned the same weight, the following formula was used to calculate their rank: number of questions in the group - number of questions whose weight is less than the analysed question's weight.

The results of this questionnaire show that university teachers consider it important not only to be aware of the role of curricular innovation for society and the desire to innovate, but also to clearly formulate objectives (which allow for getting out of passivity). This fact reminds us of a more directive teaching approach by offering clear and concrete solutions, coming from specialists and authorities.

Results regarding teachers' responses to what innovation is: an adaptation or a total change?

University teachers were asked to answer the question "Do you think that the Romanian university curriculum needs only an adjustment/adaptation to socio-cultural development or is an essential and radical change necessary?"

Following the collection of answers, it was found that the vast majority of teachers feel the need for a change in education (88% chose adaptation and 12% - radical change in the university curriculum).

Next, we will show the significance that university teachers assign to the change of the curriculum, grouping their answers in the following innovative directions: adapting the university practices to the needs of society, continuous curriculum improvement, modern technologies for adapting students to the labor market, adaptive teaching methods, adapting the curricular contents according to the skills required in the 21st-century, adapting successful practices from other countries, teaching both students and teachers reflective practice, teacher training for their new roles.

Results on How University Teachers Understand Innovation: teachers' Directions of Action

1. Adapting the University Practices to the Needs of Society. Participants in the interview supported curricular adaptation to the challenges of contemporary society, which is much different from the one in which they specialized and trained as teachers. From this perspective, they support the training of students, both in the direction of professional skills and in the direction of personal development. Thus, there exists a direction that would imply the modification of the curricular contents and the professional competences derived from the university programs, following the competencies required of the students on the labor market: entrepreneurial, transversal, and other competencies.

> "*The Romanian university curriculum needs to be adapted to the reality in which we live. Today's society is completely different from the society in which we trained, personally, and professionally. Professional development must be accompanied by personal development and emotional development. The university curriculum must integrate content and methods that develop transversal skills and knowledge, entrepreneurial skills, and attitudes to help the students to easily integrate into the labor market.*"

Often, teachers agree that the university training of students is not in line with the requirements of the employers, this requiring clear regulations, especially due to the dynamics of the skills needed for the active integration of the students into the labor market:

> *"University programs/curricula should prepare future specialists for the needs of the labor market, but often the needs and requirements of the job market are not found in the educational offer of the faculties/universities. One can identify the lack of*

correlation of university training programs/curricula with the labor market through the employment rate of graduates if university programs were correlated with the needs and requirements of the labor market, then the employability of the graduates would no longer be a problem"

Also, the university teachers suggest alternatives to solve this problem.

"A first step is to perform a situational analysis, through which it is desired to identify the degree of correlation and adaptation between the curricula, the degree of applicability of information accumulated during training, the quality of teaching methods and techniques, objectivity of evaluation, student involvement in activities (academic and scientific), the relevance of the internships, the opportunities offered by the faculty/university, the contacts with the key people in the field, the attractiveness of the study programs, the demand for specialists by the labor market, the employment rate of the graduates."

2. Adapting the Curricular Contents According to the Skills Required in the 21st Century. All teachers agree that the change that can be discussed in university education is also related to updating the contents of university programs and changing the paradigm from knowledge to application.

"The curriculum should be reoriented from knowledge ("knowing") to practical application and problem-solving ("knowing how" / "doing" - including the "wanting to do" attitude component). As a result, the evaluation should be reoriented: from "I know", simply, to "I know" + "I can" + "I want" -

Also, the respondents agree with the introduction of new development skills among graduates, precisely due to globalization and the need for continuous adaptation for their integration as active citizens into the labor market.

"The world is changing around us from day to day, and new technologies and evolution of the global economy force us to modernize the education system as well. Children need to learn to think critically, to be creative, to work in a team, to be able to adapt as they go, because today's professions could be history tomorrow. Moreover, in school, we should learn and practice real-life."

3. Continuous Curriculum Improvement. According to the data obtained, the respondents believe that the development of the university curriculum should be carried out continuously, a necessary measure for the quality of the services offered by the university to its students. It should also be easy for universities to adapt, precisely because of their total autonomy from the education system (which is known for excessive bureaucratization, especially when it comes to curriculum development).

"The new economic and social context implies changes and performance in all fields of human activity. Ensuring the quality of education, in this sense, has consequences on the quality of human resources, social cohesion, economic competitiveness, and, ultimately, on the quality of life. In this regard, the quality of the curriculum and the management of the university curriculum are some of the most important requirements for higher education. Thus, any higher education institution,

in the context of university autonomy, is responsible - autonomously - for the development of institutional curricular policies. From my point of view, the university curriculum in Romania requires adaptation to the socio-cultural development by introducing new structural elements, by streamlining teaching technologies, by modifying the skills system, by introducing new content units, etc. I am not an adept of radical changes, but of keeping the good elements and adapting them to the new realities."

4. Adaptive Teaching Methods. From the results obtained, the continuous development of teaching and learning methods seems intensely discussed and seen as in an acute need for change. All the respondents touched on the subject of adopting teaching methods, either directly or through the need for continuous development of the teaching career, through professional development training in this direction. An important related point is the training of teachers in the context of each discipline/specialty and not in general (as is currently the case). The teachers complained that both the initial and the continuous training of the teachers have a general aspect, without a concrete specificity, and educational practice is deficient. It is also added that the development of these methods should be in line with research in the field of learning and relevant teaching practices and also considering the students' perspective (not just the teachers').

"Regarding teaching/learning methods, I believe that combining classical and modern methods, together with practical examples, can ensure a thorough understanding and awareness of fundamental principles and phenomena on which many of the applications of a field of study will be based."

"I think that there are many aspects to be improved in the Romanian curriculum and I also believe that any sustainable process/change must be done gradually, through modifications and adaptations/improvements, the addition of new teaching-learning methods and practices, but also keeping the old ones that have proven to be effective and have worked. By adding new, modern, attractive methods, along with the established and efficient ones, the degree of innovation and motivation of both parties involved in the educational process, teachers and students, will be increased."

5. Modern Technologies for Adapting Students to the Labor Market. Regarding the adaptation of the universities to the labor market, teachers think that it is a must to take into account technological and scientific progress, to keep pace with the development of scientific fields, to master the high level of complexity of modern technologies, and to generate a society in line with the specific needs of the time. Adaptation must also aim to develop the professional skills, required by employers or offered by the resources of each individual person. Socio-technological evolution imposes a new, much faster pace of skill acquisition and increased adaptability to the (ever-changing) demands of the labor market.

"Staying with the old methods and technologies of teaching, studying, and analyzing the classic situations of a field, is, in my opinion, a redundant issue, which can not keep up with the progress of these years in which we operate."

6. Adapting Successful Practices from Other Countries. From the data obtained from interviews and focus groups, it appears that teachers believe that the development of university practices should be done following the socio-cultural environment of the country. They think that it is very important to analyze the successful practices of other countries, but they do not see their integration in the Romanian curricular innovation without an adaptation to the socio-cultural level.

"If there are good things to borrow from others, let us borrow, of course, if this suits our teaching style and the disciplines we teach. Using a metaphor - when a house is relatively well built, the rationale is not to "give it away", but to consolidate and renovate it - of course, depending on one's "fashion", needs, possibilities, and taste. Adjustments to socio-economic and cultural-historical realities are, of course, necessary, because we have to relate to real life and because we will give the labor market graduates who have to deal with this reality."

7. Teaching Both Students and Teachers Reflective Practice. Most university teachers claim that there is no need for an "*essential and radical change*" of the Romanian university curriculum, but "*an adjustment/adaptation to socio-cultural development*" is necessary to critical reflection on ways to improve learning experiences for students (for example, the fact that the interactive method not only has the effect of making a learning activity more attractive but can motivate students and help to optimize learning); reporting on the learning contents from the perspective of competences; stimulating the participation in group activities, in educational projects to form participatory behaviors; supporting learning activities during classes through other activities carried out in non-formal educational contexts.

It is necessary to change the mentality of learning, just so that students no longer hate school, but collaborate within it.

"What needs to change fundamentally is how our students learn. Learning is what happens on the way to a goal. We don't have to ask students to learn. We need to ask them to solve specific case studies, which can be achieved using learning as a means. This is why children hate school. The school focuses on learning itself. If chemistry were focused on building fireworks ... all children would know chemistry."

8. Teacher Training and the New roles of Teachers. The interviewed teachers felt overwhelmed by the continuous changes and the adaptations on which these changes in education should be based. In a country that invests poorly in education (only 3% of GDP) and especially the fact that initial and continuing training is the individual responsibility of teachers (including its costs), respondents believe that the number of roles teachers have is increasing every year.

"Teachers fail to fully meet current requirements and are constantly looking for solutions in this regard. Unfortunately, teachers in the education system do not fully meet the current requirements. Teacher training institutions are constantly looking for solutions in this regard. Because universities must prepare students according to the

requirements of current and future society, teacher training must reflect the high demands of all stakeholders in education."

Therefore, the respondents claim that, from the moment of their initial teacher training until the current moment, many changes have taken place. Also, because of the new needs of education as well, teachers think that *"people and organizations are constantly becoming consumers and creators of media, and the level of interconnection generates behavioral patterns difficult to imagine in the recent past, and the training of the teachers becomes difficult"*.

Conclusions

The analysis of the data obtained from the research allowed us to identify the current situation and the teachers' perspective regarding curricular innovation, to understand the specifics and problems that exist in higher education.

Following the research, we found that university teachers have different definitions for curricular innovation. As a consequence, the plethora of innovation possibilities confuses university teachers and as a result, they prefer the position of the passive observer. In other words, the subjective and extremely different understanding of what innovation in education means is a factor that slows down change.

The university teachers suggested the following directions for curricular innovation: adapting the university practices to the needs of society and the curricular contents according to the skills required in the 21st century, improving continuous curriculum, introducing adaptive teaching methods and modern technologies for adapting students to the labor market, adapting successful practices from other countries, teaching both students and teachers reflective practice, and promoting teacher training.

The fact that there are many directions of innovation (the variety of directions of development was analyzed in the section "Curriculum Innovation and Practices"), leads to the idea that innovation must be approached holistically, permanently, from all perspectives.

Another idea that emerged during the research, derived from teachers' responses, states that curricular innovation must be accompanied by clear objectives. Moreover, we believe that teachers need not only clear goals, but also concrete examples of success and quality in education. We believe that in this way, teachers will take be more active with respect to curricular innovation.

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Dicţionar explicativ poliglot de termeni din domeniul educaţiei: (română, engleză, germană, franceză). Book review

Mariana Cernicova-Buca•

By

Simona ŞIMON, Anca DEJICA-CARŢIŞ, Claudia E. STOIAN, Andrea KRISTON – Timişoara: Editura Politehnica, 2018

ISBN: 978-606-35-0251-4, 230 pages

Multilingualism is the heart of Europe. At least, this is one of the prerequisites of building a coherent, borderless space, in which everyone would feel "at home" while traveling, working, training, learning or living anywhere from Cape Greco (Cyprus) to Cabo da Roca (Portugal), from Nuorgam (Lapland, Finland) to Punta de Tarifa (Straits of Gibraltar, Spain). It is ambitiously defined by the European Union as one of the eight key competences for lifelong learning (Council Recommendation 2019/C 189/03) and strongly recommended as the Northern Star of education for every literate European, who should master from an early age at least two foreign languages other than one's native one. "Learning languages enables people to both discover foreign cultures and to broaden their perspectives" – states the already quoted Council Recommendation, even while various studies and news reports deplore the low achievement of the tri- or multi-lingual skills of the Europeans, almost two decades after the goal of tri-lingualism was set (Harris, 2016).

In such a context, the intellectual journey proposed by four academics at Politehnica University Timisoara (Romania), Simona Şimon, Anca Dejica-Carţiş, Claudia E. Stoian and Andrea Kriston is both bold and tempting. Their proposal is to explore the field of education itself, from the point of view of the terms most employed in reference to educational and/or academic life, in Romanian, English, French and German. The choice and order of languages mirror the Romanian educational realities and practice. According to the results of the European Commission study for 2017 "Key Data on Teaching Languages at School in Europe – 2017 Edition. Eurydice Report" the most taught foreign

• Assoc. prof. PhD, Department of Communication and Foreign Languages, Politehnica University Timisoara, Romania, e-mail: mariana.cernicova@upt.ro

languages in Romania are, in order of frequency: English, followed by French and German, respectively. These are also the languages of international circulation recommended for the publication of the results of scientific research, providing authors with global impact exposure, recognition, and participation in the global scientific dialogue. Also, these are the most frequently used languages for academic mobilities, and a correct and standardized transcript of educational documents is vital for ensuring that the experiences accumulated by learners and/or teachers are recognizable in the common European Education Area. The four experienced authors combine their experience of translation-interpretation and of language pedagogy in an auspicious manner, demonstrating a strong ability to select relevant dictionary entries and to navigate on the multilingual environment without losing focus of the set forth objective: to offer a versatile and user-friendly tool for professors, academic administrators, translators, students-on-the move.

The dictionary contains 500 Romanian terms frequently used in the field of education, mainly related to the educational process. Each entry contains the term defined in Romanian, from the perspective of this field, followed by its' equivalents in the three selected international languages. In case the Romanian term has meanings that cannot be rendered by the English, German, and/or French translations, then only the meaning common to all four languages has been defined. The dictionary is organized in three parts: the body of educational terms, with definitions, and translations, annexes, and an alphabetical index of the translations of the Romanian terms. The seven annexes containing the sub-domains of education, the structure of the education system, the governing bodies, teaching and leadership functions in pre-university and university education and the important organizations in the field presented in the paper are valuable for the complex understanding of the area of Romanian and European education in the international context. Particularly useful is the alphabetical trilingual index (containing English, German and French terms translated from the Romanian entry), which increases the user's ability to identify the terms that are required for writing, proofreading, or translating a paper on education. The bibliography consulted for the extraction of terms is consistent and relevant, and the coherence of the work and the novelty of the proposed structure draw attention to this valuable contribution to the development of lexicographic practice.

Polyglot or multilingual dictionaries are a tradition for the Romanian-speaking area, dating from the 17th century (M. Seche, 1966). What differs, in time, is the choice of languages. Latin, Slavonic and/or Greek make room for English as the new Lingua franca of our days (M. Mocanu, 2016). While language is the most valued national phenomenon and an intrinsic part of national identity, mastering terms of a certain profession is considered the distinctive feature of an outstanding expert. However, globalization and internationalization not only of the economy but also of the education place additional pressure on the professional: to convey meaning and well-phrased content in languages other than one's native tongue. The reviewed dictionary, Dicţionar explicativ poliglot de

termeni din domeniul educaţiei (română, engleză, germană, franceză) is, in our opinion, a reference tool adequate for pupils, students, teaching, administrative and management staff, translators and interpreters working in the field of education or living its polyphonic realities.

Further work most probably will include an increased number of terms, in a next, revised, and augmented edition. It can prove useful for the compilers of this oeuvre to consult with the team of translators of the European Commission's Executive Agency for Education, Audiovisual and Culture to identify new areas to be covered in the area of information on the evolution of educational structures, to add terms specific for digital pedagogy and online or blended learning. However, these final remarks do not diminish the merits of the book. It is our belief that the polyglot dictionary will greatly contribute to the education and development of self-awareness of its users. Therefore, we urge users to rejoice in it with the same vitality in which it has been compiled and to discover the windows into the international perspective on education opened by this volume.

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