European Journal of Psychology of Education
2009, Vol. XXIV, n° 4, 499-512

Preliminary study on the role of alternative educational pathways in promoting the use of problem-focused coping strategies

Rebecca Shankland
Pierre Mendès France University, Grenoble, France

Lionel Riou França
Paris 6 University, France

Christophe M. Genolini
Paris 5 University / Paris 10 University, France

Julien-Daniel Guelfi
Paris 5 University, France

Serban Ionescu
Paris 8 University, France

Coping styles are generally considered to be environmentally driven. Up to now, research has mainly focused on family influences. However, some studies underline the effect of educational settings on the development of problem-focused coping strategies. Consistently with previous reports on the enhancement of autonomy and problem-solving in alternative schools, and the relationship established by self-determination theory between autonomy-supportive climates and positive coping, we hypothesized that alternative school students develop more problem-focused coping styles. This hypothesis was tested on 80 traditional school students and 50 alternative school students (Steiner, Montessori and New schools), during their last secondary school year, using the Coping Inventory for Stressful Situations (Endler & Parker, 1990a). We also assessed psychological factors which can influence coping styles measures (anxiety and depression), using the State-Trait Anxiety Inventory (Spielberger, 1983), and the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The proportion of problem-focused coping strategies was compared in traditional and alternative settings,

adjusting for potential confounding factors, using logistic regression. Results show that the proportion of students using predominantly problem-focused coping strategies is higher in the population of alternative schools. Directions for further research on alternative schools are highlighted concerning coping as well as autonomy-supportive class climates.

Introduction

Coping is considered as a cognitive and behavioral response to a stressful situation (Lazarus & Folkman, 1984). As coping has been proved to mediate the effects of stress on mental and physical health (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Seiffge-Krenke, 1995; Spirito, Francis, Overholser & Frank, 1996; Spirito, Stark, Grace & Stamoulis, 1991; Steiner, Erickson, Hernandez & Pavelski, 2002; Wolchik & Sandler, 1997), it has become an extended field of research. According to the review made by Bruchon-Schweitzer (2002), the use of problem-focused coping strategies is negatively correlated to anxiety and depression symptoms. More recent studies have also underlined that the use of emotion-focused coping strategies predicts depression in student populations (Dunkley, Zuroff, & Blankstein, 2003; Grebot & Barumandzadeh, 2005; Hatchett & Park, 2004). Furthermore, this type of coping strategies has also shown positive correlations with physical health symptoms (Bruchon-Schweitzer, 2002; Suls & Fletcher, 1985).

In their review on childhood and adolescence coping, Compas and colleagues describe coping as "conscious volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (2001, p. 89). These regulatory processes are closely linked to the biological, cognitive, social and emotional development of the individual (for a review see Fields & Prinz, 1997). Thus an individual's developmental level both contributes to the resources that are available for coping and limits the coping strategies the individual can use (Compas et al., 2001). According to the studies carried out by Endler and Parker (1990a), it is possible to assign coping styles into three main categories: (1) the problem-focused coping with an active problem-solving approach (attempts to regulate the situation), (2) the emotion-focused coping which implies focusing on cognitive thinking about the emotional reactions induced by a given situation (attempts to regulate the emotion), (3) the avoidance coping which aims at avoiding the stressful situation.

Various studies have shown that personality traits are related to coping styles (see Compas et al., 2001), as well as genetic factors (Busjahn, Faulhaber, Freier, & Luft, 1999; Kendler, Kessler, Heath, Neale, & Eaves, 1991). However, coping is often assumed to be a learnt behavior, environmentally driven (Cianciolo, 1965; Busjahn et al., 1999), particularly by family influences (Hardy, Power, & Jaedicke, 1993; Kliewer & Lewis, 1995; McKernon, Holmbeck, Colder, Hommeyer, Shapera, & Westhoven, 2001; Ruchkin, Eisemann, & Hagglof, 1999). In line with social cognitive theory (Bandura, 1977), family influence occurs mainly through modeling (children following parents' overt coping strategies), but also through coaching (parental coping suggestions), and family context (relationships, socioeconomic status, etc., Kliewer, Fearnow, & Miller, 1996). Two parental behaviors studied extensively in relation to child coping are responsiveness, defined as the degree of parental acceptance and ability to adapt to children's needs, and demandingness, defined as the degree to which parents supervise their offspring and have expectations for mature behavior (McKernon et al., 2001). Researchers found that responsiveness and demandingness were positively correlated with greater use of problem-focused coping strategies (Dusek & Danko, 1994; McIntyre & Dusek, 1995).

Some researchers consider that the central mediator in this relation between rearing practices and coping dispositions may lie in perceived competence and control (Compas, Banez, Malcarne, & Worsham, 1991; McIntyre & Dusek, 1995). Hence, responsiveness and demandingness promote perceptions of competence, which are related to perceptions of

control in stressful situations (Weisz, 1986), and perceived control, in turn, has been shown to relate to the use of problem-focused coping (Compas et al., 1991). Parent responsiveness and demandingness would thus have an indirect effect on coping styles through perceptions of competence.

Although research about the influence of parenting on the development of coping styles has come up with significant data, authors underline the lack of research considering the influence of other environmental factors, such as school (teachers, peers, educational methods), on the development of coping styles. They suggest that this field of study should be expanded in order to better understand how coping styles develop, and hence to foster adapted interventions increasing the efficacy of coping strategies used (Kliewer, Parrish, Taylor, Jackson, Walker, & Shivy, 2006; McKernon et al., 2001). Indeed, little has been researched about the influence of school educational settings on the development of coping styles. Out of the 689 articles referenced by PsycINFO on coping styles, none appeared to be focused on the impact of other factors than genetics and family environments on coping styles. However, some studies have revealed that particular teaching methods can enhance the use of problem-focused coping strategies (De Anda et al, 2000). Specific programs aimed at developing problem solving skills and coping with stress are also reported (Garmezy & Rutter, 1983). The results of these studies underline the efficacy of such devices and encourage their development as part of mental health prevention programs (Pfohl, 1980; Spivack & Shure, 1974; Stone, Hindz & Schmidt, 1975). The literature about alternative educational settings (mainly Montessori and Waldorf/Steiner schools), also underlines the development of autonomous management of work and transferable skills such as problem-solving and creative thinking (Boehnlein, 1997; Kendall, 1992; Lillard & Else-Quest, 2006; Ogletree, 1996). As defined before in terms of parental rearing practices, the studies on alternative schools appear to underline a similar pattern of education which comprises high levels of responsiveness as well as demandingness (Boehnlein, 1997; Kendall, 1992; Lillard & Else-Quest, 2006). Consistent with the findings about parental rearing, we hypothesized that alternative school settings promote a greater use of problem-focused coping strategies.

This assumption can also be supported by a research carried out on Montessori *vs.* traditional education schools (Castellanos, 2003) in the framework of self-determination theory (Deci & Ryan, 2002). According to self-determination research in the field of education, class climate, and in particular teacher behavior (autonomy-supportive or controlling), has an important impact on students' intrinsic motivation which, in turn, affects other components such as competence perceptions and school performance (e.g., Boggiano, Flink, Shields, Seelbach, & Barrett, 1993; Flink, Boggiano, & Barret, 1990; Trouilloud, Sarrazin, Bressoux, & Bois, 2006; for a review see Reeve, 2002). Reeve (2002) defines autonomy-supportive teachers as being responsive (spend time listening), supportive (praise quality of performance), flexible in the sense that they allow students to work their own way with the time they need, and they motivate through interest. This type of behavior appears to be frequent in alternative schools where children are invited to choose their own way of working, the time allocated, and the teacher's role is to support this autonomy and provide environments which encourage autonomous behavior and responsibility (Spodek, 1992, cited in Castellanos, 2003). Controlling teachers use directives, shape students towards the answer they should give, motivate through pressure (evaluations, peer comparisons...). Controlling teacher behaviors appear to be the most frequent type in traditional school settings as teachers report to be most familiar with this behavior (Boggiano, Barrett, Wheiher, McClelland, & Lusk, 1987). Deci, Spiegel, Ryan, Koestner, and Kauffman (1982) argue that this observation could be related to the administration pressure for academic assessments. Contrary to this, in alternative educational settings, teachers are required to use more alternative forms of assessment through observation, individual projects, portfolios (Roemer, 1999); assessment tools which further encourage autonomy-supportive behaviors.

According to Deci and Ryan (2002), the positive impact of autonomy-supportive climates is linked to the fact that it corresponds to the individual's essential needs: need for competence, relatedness and autonomy. These needs are precisely those which alternative

educational settings aim to attend. Research carried out on alternative schools underline the development of intrinsic motivation, as well as perceptions of competence and autonomy (e.g., Shankland, 2007; for a review see Castellanos, 2003). These perceptions of competence are assumed to be linked to processes of control (Bandura, 1997), and hence, to greater use of problem-focused coping strategies (Folkman, 1984). In the same way, perceived autonomy was found to have unique effects on positive coping (problem-solving and self-comforting), even over and above the significant effects of perceived competence and relatedness (Wellborn et al., 1989, cited in Skinner & Edge, 2002).

Following the findings which underline (1) the development of perceived autonomy and competence in alternative educational settings (Castellanos, 2003; Shankland, 2007), (2) the high levels of teacher responsiveness as well as demandingness (Boehnlein, 1997; Kendall, 1992; Lillard & Else-Quest, 2006), which are components of autonomy-supportive behaviors (Deci & Ryan, 2002), and (3) the relation between these characteristics and the use of problem-focused coping strategies (Folkman, 1984; Skinner & Edge, 2002), the present study aimed at testing the hypothesis according to which alternative school students use problem-focused coping strategies more frequently than students from the traditional school system.

We thus tested the following assumption: a greater number of alternative school students preferentially use problem-focused coping strategies when facing a controllable situation (here the preparation for the baccalaureate), compared with other students. This type of coping style is considered as being more effective in controllable situations (Aldwin, 1994; Endler & Parker, 1990a; Jones and Frydenberg, 1999; Lazarus & Folkman, 1984; Mikulincer & Solomon, 1989; Miller, 1992; Parkes, 1984; Schmidt, 1988; Steiner et al., 2002).

Method

Participants

The present study included 130 participants who were followed-up for the purpose of a longitudinal study (for more details see Shankland, Genolini, Riou França, Guelfi, & Ionescu, submitted): 50 alternative school students from Steiner, Montessori and New schools, and 80 traditional school students. These students were recruited on a voluntary basis, the selection criteria being that they planned to continue their studies after the baccalaureate and, for the alternative school population, that they had been at least 5 years in an alternative school setting (as some alternative settings only have an elementary school). Participation rates are: 85% for alternative schools students (7 alternative schools out of the 22 selected accepted to give their address files for the purpose of this study, and as these files lacked recent date, only 59 students out of the 140 could be contacted, of which 50 accepted to take part), and 30% for traditional school students (80 out of 270 students contacted).

The participants from alternative schools were significantly older than the others (18.5 compared with 17.5; $p<0.001$), mainly because the curriculum is one year longer in Steiner schools. There were also significantly fewer females in that population: 50.0% compared with 77.5% in the traditional school population ($p<0.01$). There were no significant differences concerning their region of residence (around Paris or other regions of France, $p=0.27$), their selected orientation (Human sciences, Sciences, Trade and administration, Arts, social work and others, $p=0.08$), nor their parents' socioeconomic status (see Table 1, $p=0.46$ for fathers and $p=0.051$ for mothers).

Procedure

Measurements concerning the coping styles (problem-focused, emotion-focused and avoidant coping), as well as the demographic (age, gender, region of residence, parent socioeconomic status) and psychological characteristics (levels of anxiety and depression) of both groups were made during the last year of secondary school. We chose to carry out the

study during the students' last year in secondary school for two main reasons: (1) scientific literature shows that all the coping styles are developed by the end of adolescence (Compas et al., 2001); (2) this year is considered as a stressful situation for many students because of its important final examination which gives access to higher education. We assumed that this situation would help teenagers in completing the coping measures, as they were experiencing a current stressful situation.

Table 1

Baseline characteristics of the sample

Initial characteristics	Traditional school students	Alternative school students	*p*-value
Age			
(mean)	17.5	18.5	$p<0.01^b$
Gender			
Male	22.5%	50.0%	$p<0.01^c$
Female	77.5%	50.0%	
Residence region			
Paris	35.0%	46.0%	*ns.*[c]
Other regions	65.0%	54.0%	
Father's socio-economic class			
Managerial staff and professions	57.6%	70.0%	
Employee	36.2%	28.0%	*ns.*[c]
Inactive	6.2%	2.0%	
Artists	3.8%	6.0%	
Mother's socio-economic class			
Managerial staff and professions	25.3%	48.0%	
Employee	59.0%	36.0%	*ns.*[c]
Inactive	15.0%	16.0%	
Artists	3.8%	6.0%	
Selected orientation			
Human and social sciences	41.25%	38.0%	
Sciences	31.25%	18.0%	*ns.*[c]
Trade and Administration	16.25%	16.0%	
Arts, social and others	11.25%	28.0%	
Trait anxiety			
(average score)	44.26	40.90	*ns.*[a]
State anxiety			
(average score)	42.38	36.64	$p<0.05^b$
Depression			
(average score)	5.31	3.46	$p<0.01^b$

Note. [a]Student's *t* test; [b]Mann Whitney's test; [c]Fisher's exact test.

An informed consent was signed by the participants and the parents of students under 18. The records of each participant were anonymous, as each one was given a code which represented them. The participants completed the tests individually in the research team's office, and handed them in to the examiner.

Measures

The selected measuring instruments aimed at testing the assumption according to which the proportion of students predominantly using problem-focused coping strategies is higher in the alternative school population. As this outcome measure was considered as an effect of past school pathways, we chose an instrument measuring "trait" coping (coping styles) rather than "state" coping (coping strategies used for specific situations). The evaluation of coping styles

was carried out using the French version (adaptation by Rolland, 1998) of the Coping Inventory for Stressful Situations (Endler & Parker, 1990a). The questionnaire is composed of 48 items, including 16 items of each coping style (Problem-focused or "Task", Emotion-focused or "Emotion" and Avoidant coping or "Avoidance"). The French validation of the questionnaire carried out on students and adult all-comers, revealed satisfactory internal consistency for the 3 factors (Cronbach's alpha: 0.88 for Task, 0.87 for Emotion and 0.86 for Avoidance). Test-retest reliability for this instrument is also satisfactory, ranging from 0.55 to 0.73 (for a review of the validation studies see Rolland, 1998). In our study, Cronbach's alpha for the 3 scales of the Coping Inventory for Stressful Situations also showed satisfactory internal consistency: 0.90 for Task, 0.86 for Emotion, and 0.81 for Avoidance. To test our assumption, we studied the proportion of students for whom the "Task" score was higher than the other two scores, "Emotion" and "Avoidance".

According to Lazarus and Folkman (1984), the efficacy of a coping strategy can be measured through levels of anxiety and depression (subjective well-being). However, these psychological characteristics have also been proved to affect coping styles (Billings & Moos, 1985; Cheng, 2001; Endler & Parker, 1990b; Marx & Schulze, 1991). The results of the studies show that anxiety and depression symptoms are negatively correlated to the use of problem-focused copings strategies. Anxiety and depression were thus measured in the present study as baseline characteristics in order to control for potential confounding factors.

The level of anxiety was recorded by using the French-Canadian version of the State-Trait Anxiety Inventory (STAI by Spielberger, 1983, adapted by Gauthier & Bouchard, 1993). The STAI is composed of two distinct parts – state and trait anxiety – of 20 items each, scored from 1 to 4 (maximum total for each scale=80). The state anxiety scale evaluates the current emotional state of the participant, and the trait anxiety scale evaluates the dispositional level of anxiety. Test-retest reliability is higher for the trait scale (0.65-0.75 compared with 0.34-0.62). However, internal consistency for both scales is superior to 0.90 (Spielberger, 1983). As in the original validation, the internal consistency of the State-Trait Anxiety Inventory was satisfactory in our study: Cronbach's alpha of 0.90 for the Trait Anxiety Scale and 0.92 for the State Anxiety Scale.

The presence and the intensity of depression symptoms was assessed by the French short version of the Beck Depression Inventory (BDI by Bourque & Beaudette, 1982; Pichot & Lemperière, 1964), with 13 items scored from 0 to 3 (maximum total=39). This tool has been extensively used in research studies, and already showed satisfactory psychometric characteristics when Beck, Steer, and Garbin carried out their meta-analysis of the properties of this instrument in 1988. The internal consistency estimates yielded a mean coefficient alpha of 0.86 for psychiatric patients and 0.81 for non-psychiatric subjects. The concurrent validities of the BDI with respect to clinical ratings and the Hamilton Rating Scale for Depression (HRSD) were also high. The mean correlations of the BDI samples with clinical ratings and the HRSD were 0.72 and 0.73, respectively, for psychiatric patients. Mean test-retest correlations are superior to 0.60. The correlations between the original BDI and the short form (13 items) range from 0.89 to 0.97 (for more details see Beck, Steer, & Garbin, 1988). The psychometric qualities of the short form were also satisfactory in the present study (same internal consistency as in the original French validation, Cronbach's alpha=0.80, Bourque & Beaudette, 1982).

Statistical analyses

We compared the differences between traditional and alternative students among the baseline characteristics using Fisher's exact test for categorical variables (due to the sample size, the chi-square test validity conditions were not always fulfilled), Student's *t* test for normally distributed continuous variables, and Mann-Whitney's nonparametric test for non-normally distributed continuous variables.

To assess the link between problem-focused coping strategies, a logistic regression model was used. The outcome variable was the use of problem-focused coping strategies, defined as having a maximum coping score for this strategy, as compared to emotion-focused or avoidant coping strategies. The explanatory variables were selected using backwards selection, starting

from the model with all possible predictors and removing sequentially all non-significant variables.

As the alternative schools presented some differences concerning their curriculum (Montessori and new schools only go up to fifth grade, whereas Steiner schools go up to high school) and the type of educational methods (Steiner uses more formal learning devices), we tested for an effect of type of school (educational methods and curriculum length) on the use of coping strategies by separating the students from the Steiner system from the other alternative schools, and refitting the logistic regression model with this new variable.

Analyses were performed with R version 2.6.0. The significance level used is of 5%.

Results

The results show that task-oriented coping styles are most used by all the students of our population, but in a significantly higher proportion by the students from alternative schools: 78.0% compared with 54.0%. Table 2 presents the distribution of the students concerning the coping style they report using most.

Table 2

Distribution of the preferential coping styles among the two groups of students

Type of school / Coping style	Task %	Emotion %	Avoidance %	*p*-value
Traditional schools	54	29	17	$p<0.01$
Alternative schools	78	8	14	

The potential confounding variables studied were the sociodemographic and psychological characteristics presented in the method section. In what concerns trait anxiety, no significant difference was observed (Table 1), as opposed to state anxiety which appears to be more present in traditional school students (average score of 42 compared with 36.5) as well as depression symptoms (5.30 compared with 3.46).

According to our model only the type of school, the orientation selected and state anxiety were associated with the distribution of coping styles (Table 3). The results reveal that the effect of the type of school is significant ($p=0.01$). The corresponding Odds Ratio is 3.33, indicating that the students from alternative schools have more chances than those from the traditional school system to have a maximum score of problem-focused coping style, when adjusting on state anxiety and on orientation. The results of the model are presented in Table 3. They underline that the higher the level of state anxiety, the lower probability the subject has of using problem-focused coping strategies preferentially. The results also highlight that the students having selected scientific, human sciences, trade and administration orientations have more chances of using problem focused coping strategies than students having chosen artistic, social work and other orientations for their studies.

Table 3

Logistic regression model of the correlates of problem-focused coping styles

Variable	Coef. (OR)	Standard Error	Wald statistic	*p*-value
Alternative school vs. *Traditional school students*	1.20 (3.33)	0.49	2.44	$p<0.05$
State anxiety	-0.07 (0.93)	0.02	-3.30	$p<0.01$
Orientation (ref=Arts, social & others)				
Human and social sciences	0.86 (2.37)	0.63	1.37	*ns.*
Sciences	1.88 (6.58)	0.70	2.69	$p<0.01$
Trade and administration	1.64 (5.16)	0.75	2.20	$p<0.05$

The results of this same regression model applied to the three groups of school (Steiner, traditional schools, Montessori and New schools) showed no significant difference between the 2 groups of alternative schools. Steiner school students use significantly more problem-focused coping strategies compared with traditional school students (OR=4.73, p=0.02), but do not use these strategies significantly more than Montessori and New school students (OR=1.85, p=0.43) when adjusting for state anxiety and orientation.

Discussion

Although previous research has shown the impact of family environment on the development of coping styles (Hardy, Power, & Jaedicke, 1993; Kliewer & Lewis, 1995; McKernon et al., 2001; Ruchkin, Eisemann, Hagglof, 1999), our focus in the present study was limited to the influence of school environments. Based on the literature about alternative educational settings which highlight a more autonomy-supportive context, we hypothesized that alternative school students tend to use problem-focused coping strategies more often than emotion-focused and avoidant strategies compared with other students. The results of our research confirm this hypothesis within the population of this study: for a similar level of state anxiety and a similar orientation, alternative students have more chances of reporting a preferential use of task-oriented coping strategies compared with traditional students. This observation is consistent with the studies showing that coping skills can be developed through specific training (Pfohl, 1980; Spivack & Shure, 1974; Stone, Hindz, & Schmidt, 1975). The results also corroborate some recent studies which, although not yet published in peer-reviewed journals, have shown a better adjustment of alternative school students to controllable situations (Bartz & Randoll, 2007; Dahlin, Langman,n & Anderson, 2004; Mitchell & Gerwin, 2007; Shankland et al., submitted). However, it would be necessary to compare the quality of adjustment of these 2 groups (alternative students *vs.* traditional students) by measuring the use of coping strategies in specific situations (controllable or uncontrollable) with an instrument that does not measure dispositional coping styles, but also situational coping strategies as adapted processes when facing a given problem. A recently published article reports the validation of the Coping with School-related Stress Questionnaire (Wrzesniewski & Chylinska, 2007). This instrument enables the investigation of both dispositional and situational aspects of coping. Further studies could be conducted with this instrument.

One of the variables which appeared to be linked to coping styles, apart from school pathways, was state anxiety. The more the students experienced anxiety, the less they reported having a task-oriented coping style. Even though dispositional instruments measuring coping styles have been proved to show test-retest reliability (Rolland, 1998), this finding suggests that, with a small sample (130 subjects), some situational characteristics might influence testing – state anxiety in our research being related to coping styles reports rather than trait anxiety. These results confirm other research studies having underlined the impact of anxiety on the use of coping strategies which are more emotion-oriented or avoidant (Billings & Moos, 1985; Cheng, 2001; Endler & Parker, 1990b; Marx & Schulze, 1991).

Contrary to the difference observed between the alternative and traditional group, the statistical analyses did not show any significant difference inside the alternative schools group (Steiner *vs.* Montessori and New schools, p=0.43). This is consistent with the theoretical model according to which alternative educational pathways, have a similar effect on the development of coping styles which could be mediated by autonomy-supportive climates (Deci & Ryan, 2002). However, we must bear in mind that the absence of significant differences within the alternative schools group could be due to the limited number of subjects included in the present study. Further research should be continued in the field of alternative schools with reference to self-determination theory in order to evaluate teacher behaviors as well as student perceptions of competence, relatedness and autonomy with standardized instruments during the actual school pathway.

This first study, to the authors' knowledge, on the relationship between school pathways and coping styles needs further research to confirm the role of alternative education, by analyzing both situational and dispositional coping. Furthermore, the fact that the participants were recruited on a voluntary basis, and the greater proportion of females in the traditional population, may not give the possibility to generalize the results, as they are not representative of the general high school population. The main limitation of our research, as in numerous studies assessing the effect of school on child development (for a review see Rutter, Maughan, Mortimore, & Outson, 1979), remains in the population selection bias, as it was not possible to randomize the selection of school pathways in the first place. Thus the differences observed in this research could be related to other factors not measured in this study, such as social support – as it appears to have an impact on coping strategies (Lazarus & Folkman, 1984; Thoits, 1986; Valentiner, Holahan, & Moos, 1994) – and the type of education given within the families; this environment having been proved to affect coping styles (Busjahn et al., 1999; Cianciolo, 1965).

Further research on the influence of alternative schools on child development could look into perceptions of control, as this has also been shown to be correlated with coping styles (Compas et al., 1991). In the same way as we hypothesized that alternative educational methods enhance the use of task-oriented coping styles as an effect of their specific teacher behaviors, it could be argued that perceptions of control (internal or external locus of control) are also influenced by these same autonomy-supportive characteristics. Indeed, the fact that problem-solving skills are promoted in these schools could contribute to the development of students' perceptions of control over situations and self-efficacy (Bandura, 1977). Perceptions of control, coping skills and self-efficacy being important factors of mental health prevention (Hertog, Finnegan, Rooney, & Viswanath, 1993; Rimal, 2000; Van de Laar & Van der Bijl, 2001), research should be continued in the field of alternative schools concerning their role in child and adolescent development.

References

Aldwin, C. (1994). *Stress, coping, and development.* New York: Guilford Press.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Bartz, H., & Randoll, D. (2007). Absolventen von Waldorfschulen: Eine empirische Studie zu Bildung und Lebensgestaltung. Wiesbaden: VS-Verlag.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 12*, 57-62.

Billings, A.G., & Moos, R.H. (1985). Psychosocial stress, coping, and depression. In E.E. Beckman & W.R. Leber (Eds.), *Handbook of depression: treatment, assessment and research* (pp. 940-974). Homewood, I.L.: Dorsey Press.

Boehnlein, M.M. (1997). Montessori research: recent trends. *AMI/USA annual meeting*, 25-28 July 1997, 71-83.

Boggiano, A.K., Flink, C., Shields, A., Seelbach, A., & Barrett, M. (1993). Use of techniques promoting students' self-determination: Effects on students' analytic problem solving skills. *Motivation and Emotion, 17,* 319-336.

Boggiano, A.K., Barrett, M., Weiher, A.W., McClelland, G.H., & Lusk, C.M. (1987). Use of maximal-operant principle to motivate children's intrinsic interest. *Journal of Personality and Social Psychology, 53,* 866-879.

Bourque, P., & Beaudette, D. (1982). Etude psychométrique du questionnaire de dépression de Beck auprès d'un échantillon d'étudiants universitaires francophones. *Revue Canadienne des Sciences du Comportement, 14,* 211-218.

Bruchon-Schweitzer, M. (2002). *Psychologie de la santé: Modèles, concepts et méthodes*. Paris: Dunod.

Busjahn, A., Faulhaber, H.-D., Freier, K., & Luft, F.C. (1999). Genetic and environmental influences on coping styles: A twin study. *Psychosomatic Medicine, 61*, 469-475.

Castellanos, A.G. (2003). *A comparison of traditional* vs. *Montessori education in relation to children's self-esteem, self-efficacy and prosocial behavior.* Doctoral thesis, Carlos Albizu University, Florida.

Cheng, C. (2001). Assessing coping flexibility in real-life and laboratory settings: A multidimensional approach. *Journal of Personality and Social Psychology*, *80*, 814-833.

Cianciolo, P.J. (1965). Children's literature can affect coping behavior. *Personal and Guidance Journal, 43,* 897-903.

Compas, B.E., Banez, G.A., Malcarne, V., & Worsham, N. (1991). Perceived control and coping with stress: A developmental perspective. *Journal of Social Issues, 47,* 23-34.

Compas, B.E., Connor-Smith, J.K., Saltzman, H., Thomsen, A.H., & Wadsworth, M.E. (2001). Coping with stress during childhood and adolescence. Problems, progress and potential in theory and research. *Psychological Bulletin, 127,* 87-127.

Dahlin, B., Langmann, E., & Anderson, C. (2004). Kunskaper i Svenska, Engelska och Matematik samt attityder till undervisninger. En jämförelse mellan Waldorfelever och elever i den kommunala skolan. Karlstad: Institutionen för Utbildningsvetenskap, Karlstads universitet.

De Anda, D., Baroni, S., Boskin, L., Buchwald, L., Morgan, J., Ow, J., Gold, J.S., & Weiss, R. (2000). Stress, stressors and coping among high school students. *Children and youth services review, 22,* 441-463.

Deci, E.L., & Ryan, R.M. (2002). *Handbook of self-determination research.* Rochester: The University of Rochester Press.

Deci, E.L., Spiegel, N.H., Ryan, R.M., Koestner, R., & Kauffman, M. (1982). The effects of performance standards on teaching styles: The behavior of controlling teachers. *Journal of Educational Psychology, 73,* 642-650.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*, 234-252.

Dusek, J.B., & Danko, M. (1994). Adolescent coping styles and perceptions of parental child rearing. *Journal of Adolescent Research, 9*, 412-426.

Endler, N.S., & Parker, J.D.A. (1990a). Coping Inventory for Stressful Situations (CISS). Manual. Toronto: Multi-Health Systems Inc.

Endler, N.S., & Parker, J.D.A. (1990b). State and trait anxiety, depression and coping styles. *Australian Journal of Psychology, 42*, 207-220.

Fields, L., & Prinz, R.J. (1997). Coping and adjustment during childhood and adolescence. *Clinical Psychology Review, 17*, 937-976.

Flink, C., Boggiano, A.K., & Barret, M. (1990). Controlling teaching strategies: Undermining children's self-determination and performance. *Journal of Personality and Social Psychology, 59,* 916-924.

Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology, 46,* 839-852.

Garmezy, N., & Rutter, M. (1983). *Stress, coping and development in children*. New York: McGraw-Hill Book Company.

Gauthier, J., & Bouchard, S. (1993). Adaptation canadienne-française de la forme révisée du State-Trait Anxiety Inventory de Spielberger. *Revue Canadienne des Sciences du Comportement, 25*, 259-278.

Grebot, E., & Barumandzadeh, T. (2005). L'accès à l'Université: une situation stressante à l'origine de certaines stratégies d'ajustement dysfonctionnelles. *Annales Médico Psychologiques, 163*, 561-567.

Hardy, D.F., Power, T.G., & Jaedicke, S. (1993). Examining the relation of parenting to children's coping with everyday stress. *Child Development, 64*, 1829-1841.

Hatchett, G.T., & Park, H.L. (2004). Relationships among optimism, coping styles, psychopathology, and counseling outcome. *Personality and Individual Differences, 36*, 1755.

Hertog, J, Finnegan, J, Rooney, B, & Viswanath, K. (1993). Self-efficacy as a target population segmentation strategy in a diet and cancer risk reduction campaign. *Health Communication, 5,* 21-40.

Jones, B., & Frydenberg, E. (1999). Who needs help and when: Coping with the transition from school to university. *Annual Conference of the American Educational Research Association*, 19-23 of April 1999, Montreal, Canada.

Kendall, S. (1992). The development of autonomy in children: An experiment of the Montessori educational model. Doctorat Thesis, Waldon University, United-States.

Kendler, K.S., Kessler, R. C., Heath, A.C., Neale, M. C., & Eaves, L.J. (1991). Coping: A genetic epidemiological investigation. *Psychological Medicine*, 21, 337-346.

Kliewer, W., & Lewis, H. (1995). Family influences on coping processes in children and adolescents with sickle cell disease. *Journal of Pediatric Psychology, 20,* 511-525.

Kliewer, W., Fearnow, M.D., & Miller, P.A. (1996). Coping socialization in middle childhood: Tests of maternal and paternal influences. *Child Development, 67*, 2339-2357.

Kliewer, W., Parrish, K.A., Taylor, K.W., Jackson, K., Walker, J.M., & Shivy, V.A. (2006). Socialization of coping with community violence: Influences of caregiver coaching, modeling, and family context. *Child Development, 77*, 605-623.

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer Publishing.

Lillard, A., & Else-Quest, N. (2006). Evaluating Montessori education. *Science*, *313*(5795), 1893-1894.

Marx, E.M., & Schulze, C.C. (1991). Interpersonal problem-solving in depressed students. *Journal of Clinical Psychology*, *47*, 361-367.

McIntyre, J.G., & Dusek, J.B. (1995). Perceived parental rearing practices and styles of coping. *Journal of Youth and Adolescence, 24*, 499-509.

McKernon, W.L., Holmbeck, G.N., Colder, C.R., Hommeyer, J.S., Shapera, W., & Westhoven, V. (2001). Longitudinal study of observed and perceived family influences on problem-focused coping behaviors of preadolescents with spina bifida. *Journal of Paediatric Psychology*, *26*, 41-54.

Mikulincer, M., & Solomon, Z. (1989). Causal attribution, coping strategies and combat related post-traumatic stress disorders. *European Journal of Personality, 3,* 269-284.

Miller, S.M. (1992). Individual differences in coping process: what to know and when to know it. In B.N. Carpenter (Ed), *Personal coping: theory, research, application* (pp. 77-91). Wesport CT: Praeger.

Mitchell, D., & Gerwin, D. (2007). Survey of Waldorf graduates, phase II. *Research Institute for Waldorf Education,* www.awsna.org, 19 February, 1-3.

Ogletree, E.J. (1996). The comparative status of the creative thinking ability of Waldorf education students: A survey. Unpublished, but accessible in ERIC data base.

Parkes, K.R. (1984). Locus of control, cognitive appraisal, and coping in stressful episodes. *Journal of Personality and Social Psychology, 46*, 655-668.

Pfohl, W. (1980). Children's anxiety management programs: A broad based behavioral program teaching children to cope with stress and anxiety. *Dissertation Abstracts International, 41*, 3424-A.

Pichot, P., & Lemperière, T. (1964). Analyse factorielle d'un questionnaire d'auto-évaluation des symptômes dépressifs. *Revue de Psychologie Appliquée, 14*, 15-29.

Reeve, J. (2002). Self-determination theory applied to educational settings. In E.L. Deci & R.M. Ryan (Eds.), *Handbook of self-determination research* (pp. 183-203). Rochester: University of Rochester Press.

Rimal, R. (2000). Closing the knowledge-behavior gap in health promotion: The mediating role of self-efficacy. *Health Communication, 12,* 219-237.

Roemer, K.L. (1999). Assessment practices used by Montessori teachers of kindergarten through sixth grade students in the United States. Doctorate thesis, University of Memphis.

Rolland, J.-P. (1998). *Manuel de l'Inventaire de Coping pour Situations Stressantes.* Paris: ECPA.

Ruchkin, V.V., Eisemann, M., & Hagglof, B. (1999). Coping styles in delinquent adolescents and controls: The role of personality and parental rearing. *Journal of Youth and Adolescence, 28*, 705-717.

Rutter, M., Maughan, B., Mortimore, P., & Outson, J. (1979). Fifteen thousand hours: secondary schools and their effects on children. London: Open Books.

Schmidt, L.R. (1988). Coping with surgical stress: Some results and some problems. In S. Maes & C.D. Spielberger (Eds.), *Topics in health psychology* (pp. 219-227). New York: John Wiley.

Seiffge-Krenke, I. (1995). *Stress, coping, and relationships in adolescence.* Mahwah, NJ: Erlbaum.

Shankland, R. (2007). Adaptation à l'enseignement supérieur. Les pédagogies nouvelles: Aide à l'adaptation ou facteur de marginalisation? Doctoral thesis, University Paris 8.

Shankland, R., Genolini, C., Riou França, L., Guelfi, J.-D., & Ionescu, S. (submitted). Student adjustment to higher education: The role of alternative educational pathways in coping with the demands of student life.

Skinner, E., & Edge, K. (2002). Self-determination theory applied to educational settings. In E.L. Deci, & R.M. Ryan (Eds.), *Handbook of self-determination research* (pp. 297-337). Rochester: University of Rochester Press.

Spielberger, C.D. (1983). *Manual for the State-Trait Anxiety Inventory* (STAI). Palo Alto, CA: Consulting Psychologists Press.

Spirito, A., Stark, J., Grace, N., & Stamoulis, D. (1991). Common problems and coping strategies reported in childhood and early adolescence. *Journal of Youth and Adolescence*, *20,* 531-544.

Spirito, A., Francis, G., Overholser, J., & Frank, N. (1996). Coping, depression, and adolescent suicide attempts. *Journal of Clinical Child Psychology, 24,* 147-155.

Spivack, G., & Shure, M.B. (1974). *Social adjustment of young children.* San Francisco: Jossey-Bass.

Steiner, H., Erickson, S.J., Hernandez, N.L., & Pavelski, R. (2002). Coping styles as correlates of health in high school students. *Journal of Adolescent Health. 30*, 326-335.

Stone, G., Hindz, W.C., & Schmidt, G.W. (1975). Teaching mental health behaviors to elementary school children. *Professional Psychology, 6*, 34-40.

Suls, J., & Fletcher, B. (1985). The relative efficacy of avoidant and non-avoidant coping strategies: A meta-analysis. *Health Psychology, 4*, 249-288.

Thoits, P.A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology*, *54*, 416-423.

Trouilloud, D., Sarrazin, P., Bressoux, P., & Bois, J. (2006). Relation between teacher's early expectations and students' later perceived competence in physical education classes: autonomy-supportive climate as a moderator. *Journal of Educational Psychology, 98,* 75-86.

Valentiner, D.P., Holahan, C.J., & Moos, R.H. (1994). Social support, appraisals of event controllability, and coping: An integrative model. *Journal of Personality and Social Psychology*, *66*, 1094-1102.

Van de Laar, K., & Van der Bijl, J. (2001). Strategies enhancing self-efficacy in diabetes education: A review. *Scholarly Inquiry for Nursing Practice, 15,* 235-248.

Weisz, J.R. (1986). Contingency and control beliefs as predictors of psychotherapy outcomes among children and adolescents. *Journal of Consulting and Clinical Psychology, 54,* 789-795.

Wolchik, S.A., & Sandler, I.N. (1997). *Handbook of children's coping: Linking theory, research, and intervention.* New York: Plenum.

Wrzesniewski, K., & Chylinska, J. (2007). Assessment of coping styles and strategies with school-related stress. *School Psychology International, 28,* 179-194.

Les recherches concernant l'impact de l'environnement sur le style de coping se sont principalement intéressées à l'influence de la famille. Cependant, quelques études soulignent l'effet de méthodes pédagogiques sur le développement des stratégies de "coping". A partir des études concernant le soutien de l'autonomie (théorie de l'autodétermination), nous avons émis l'hypothèse selon laquelle les élèves d'écoles alternatives utilisent davantage un coping centré sur le problème. Cette hypothèse a été testée sur une population de 130 élèves (80 du système scolaire traditionnel, 50 d'écoles alternatives), au cours de leur dernière année de lycée, en utilisant l'Inventaire de Coping pour Situations Stressantes (Endler & Parker, 1990a). D'autres facteurs psychologiques pouvant influencer la mesure du style de coping (anxiété et dépression) ont été évalués, à l'aide de l'Inventaire d'Anxiété Trait et Etat (Spielberger, 1983), et l'Inventaire de Dépression de Beck (Beck et al., 1961). La proportion d'élèves utilisant des stratégies de coping centrées sur le problème est comparée (écoles traditionnelles vs. alternatives), après ajustement sur les facteurs de confusion, par régression logistique. Les résultats montrent que la proportion d'élèves utilisant majoritairement des stratégies de coping centrées sur le problème est plus importante dans la population des écoles alternatives. Des pistes de recherche sont proposées concernant le coping ainsi que le climat de classe.

Key words: Alternative schools, Anxiety, Coping styles, Depression, Self-determination theory.

Received: November 2007

Revision received: July 2008

Rebecca Shankland. Psychology Department, EA4145, Pierre Mendès France University, Grenoble, 1251 Avenue Centrale, BP47, 38040 Grenoble Cedex 9, France. Tel/Fax: 0033(0)438020643. E-mail: rebecca.shankland@upmf-grenoble.fr

Current theme of research:

Coping. Alternative educational settings. Self theories. Health promotion.

Lionel Riou França. INSERM U669, PSIGIAM (Paris Sud Innovation Group in Adolescent Mental Health), Maison de Solenn, 97 boulevard de Port Royal, 75679 Paris Cedex 14, France. E-mail: leonel@worldonline.fr; Web site: www.u669.idf.inserm.fr/

Current theme of research:

Adolescent substance use. Evaluation of prevention campaigns among higher education students. Statistical methods in observational studies. Health economics.

Christophe M. Genolini. INSERM U669, PSIGIAM (Paris Sud Innovation Group in Adolescent Mental Health), Maison de Solenn, 97 boulevard de Port Royal, 75679 Paris Cedex 14, France.

Current theme of research:

Clusterization of longitudinal data (http://christophe.genolini.free.fr/kml)

Julien-Daniel Guelfi. University René Descartes, Paris 5 University, CMME, Sainte-Anne Hospital, 100 rue de la santé, 75674 Paris Cedex 14, France. E-Mail: jd.guelfi@ch-sainte-anne.fr

Current theme of research:

Personality disorders. Methodology of controlled trials:psychopharmacology and evaluation in psychotherapy. Academic books for students.

Serban Ionescu. Laboratory of Traumatism, Resilience and Psychotherapies, EA2034, Paris 8 University, 2 rue de la Liberté, 94200 Saint-Denis, France. E-mail: serban.ionescu@iedparis8.net

Current theme of research:

Traumatism. Resilience. Psychotherapy assessment. Coping.