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Stress and Social Problem Solving: Another Wonderful Symbiosis

Abstract

This article is a literature review of stress and social problem solving skills. The authors emphasize the need for a joint consideration of stress and social problem solving. This article integrates some ideas and theoretical concepts from Goleman's theory of emotional intelligence, as well as Sternberg's theory of successful intelligence. The article contributes to knowledge regarding the relationship between cognitive (social problem solving) and affective (stress) processes. The information in this article is also useful for teacher education program reform. It should encourage student teacher educators to put an emphasis on certain emotional dimensions such as student teachers' stress and social problem solving before, during, and after student teaching.

Entering the professional workplace (professional insertion) is widely recognized as being an important source of stress in new employees in diverse fields (Katz, 1978; Nelson, 1987; Van Maanen & Schein, 1979). Pépin (2000) claims that up to 50% of Canadian workers feel very anxious at work, resulting in a host of health problems. Teaching has been deemed particularly stressful (Van Horn, Schaufeli, Greenglass, &Burke; Wisniewski & Gargiuko, 1997, as cited in Ben Ari, Krole & Har-Even, 2003), with teachers becoming increasingly susceptible to work dissatisfaction and burnout. From an international perspective, Canada had a turnover rate of young teachers as high as 32% in 1999/2000 in some geographic areas (ATA, 2004). Teacher suicides have made newspaper headlines in Hong Kong (Chan, 1998). These and other recent events and markers make it imperative to comprehend and monitor these trends carefully.

Student teaching may be considered to be the first exposure to professional insertion. It is the learning period when student teachers experience an array of emotions while attempting to apply theoretical knowledge to the actual practice of teaching. Although a certain degree of stress is expected at the beginning of any new learning experience, too

much stress can provoke disturbances that can undermine performance (Villeneuve, 1992), especially in the case of student teachers. In particular, unknown situations may lead to inadequate behavior; for example, fear may result in hyperactivity, paralysis, or learned helplessness (Bujold, Grenier, & Montgomery, 2000). An array of literature has also reflected robust relationships between stress and physical health outcomes. These reactions may even lead student teachers or beginning teachers to change their career choice (Montgomery, in press).

One may anticipate that the manner in which an individual resolves his or her social problems influences success or failure. D'Zurilla and Nezu (1990) and Kant (1992) have underlined the negative effects of daily stressful social situations. These effects may include, but are not limited to, personal problems, anxiety, depression, and a host of other related psychological problems that may be subsumed under stress.

In a landmark paper, Haywood (1992) presented the idea of a wonderful symbiosis between motivation and cognition. Haywood argued that enhancement of task-intrinsic motivation, that is, motivation that is inherent in engaging in an activity itself, improves the effectiveness of learning, and the improvement of cognitive structures leads to increases in intrinsic motivation. In his view, we should continue to examine motivational variables and cognitive variables as if they were qualitatively different psychological processes, but we must be aware all the while that they are interdependent. We argue similarly that a better understanding of psychological stress with optimal levels in appropriate circumstances will enhance social problem solving capacities that are inherently present in many human life events, especially teaching. Although the vast majority of articles come directly from the teacher and teacher education domains, the applicability of the relationship between social problem solving and stress should stretch out to other related fields of research, such as cognitive and social psychology. The following literature review demonstrates the importance of considering social problem solving skills (cognitive process) in relation to psychological stress (emotional process).

Stress

Stress has been identified as a determining factor of success in long-term teaching and is well known by mentors working with new teachers (Gold & Roth, 1993). Further, many authors have drawn a parallel between managing one's psychological stress and successful classroom management (Lewis, 1997; Sprick, 1993; Greenlee & Ogletree, 1993; Vacc, 1993; Yenchko & DeBeal, 1983). Broadening this idea to other fields, many mentors have witnessed new employees being unable to accomplish their tasks whether during internship or new employment. These mentors believe that these novices are not able to manage their psychological stress and thus will eventually experience some form of burnout (Bujold, Grenier, & Montgomery, 2000).

Within the teacher training domain, a recent study revealed that the act of teaching itself constitutes a particularly stressful experience for many novice and student teachers (Admiraal, Korthagen, & Wubbels, 2000). It is at this point that individuals will experience doubt regarding career choice (Montgomery, 2002). According to MacDonald (1993), student teacher assessment carried out by mentors or supervisors may

be perceived as negative when there is a high level of stress in the classroom or workplace that can undermine interaction among all involved actors. This situation may lead, once again, to failure or burnout.

A vast body of teacher stress literature exists in the areas of sources of stress and dissatisfaction, the effectiveness of teacher stress intervention strategies, and the psychological as well as physical effects of stress or burnout (Gugliemi & Tatrow, 1998). Montgomery (2001) and Cummings and Curtis (1992) observed that there are few studies that examine specifically the relationship between stress and social problem solving skills in teachers and student teachers. Considering the social nature of teaching and the many occasions in which one must resolve social situations, this relationship should be heeded because it may indeed have implications for other fields that also have many social interactions.

In search of a conceptual model of stress and coping

Several models of stress have dominated the literature since Selye's (1976) classic general adaptation syndrome model, which stresses an individual's adjustment to life situations. Other stress literature has focused on and reflected metamodels of stress in which stress is controlled by factors relating to individual differences (Gugliemi & Tatrow, 1998). Models of stress in the work environment literature have also emphasized the effects of job strain as it relates to physical effects, such as cardiovascular morbidity and mortality. Among the many models mentioned in the literature are the effort-distress model, the demand control model, the effort-control model, and the person-environment fit model, to name a few. The demand-control model, also known as the job strain model, has generated by far the largest volume of research (Gugliemi & Tatrow, 1998). This model proposes that the two factors that determine job strain are the individual's decision latitude (i.e., amount of autonomy) and the job demands (i.e. job workload) (Karasek, 1979; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981; Karasek & Theorell, 1990, as cited in Gugliemi & Tatrow, 1998). In this model, practical predictions about job success are drawn from a 2 X 2 table resulting in combinations of these two factors. While these models are representative of the spectrum of elements discussed in the work stress literature, a prospective model may require a more comprehensive focus.

A conceptual model of stress and coping

Another classic model of stress and coping is that of Lazarus and Folkman (1984), who examined the relationship between stress and coping and revealed that cognitive appraisal plays a pivotal role in terms of the perception of stressful events. Before a given problem, often stressful, an individual initially engages in primary appraisal. According to individuals and situations, an event may be deemed as problematic or benign, whereas for others it may be perceived as very stressful. In essence, the individual asks: "Is this event positive, neutral, or negative?"

Larose (1996) extrapolated ideas from Lazarus and Folkman's theoretical model and suggested that problematic social events may be seen as stressful and/or negative when they imply: (a) an injury and/or physical/psychological loss (the dissolution of one's

social network or separation), (b) a threat of an injury and/or physical/psychological loss (eventuality of failure), (c) a challenge requiring the investment of efforts but that could mean a gain for the individual (e.g., passing the first semester). Negative expectations/cognitions of or about an event, are then linked to negative emotions.

Lazarus and Folkman's model also postulates that the individual will engage in secondary appraisal, that is, cognitive appraisal of one's personal and environmental resources in order to cope with loss, threat, or challenge. Here, the individual asks: "What are my resources?" and "Given my resources, can I deal effectively with this situation?" According to Lazarus and Folkman's model, the intensity and nature of behavioral, cognitive, and emotional responses before a problematic situation will be conjointly determined by primary and secondary appraisal processes. Primary appraisal allows the individual to assess the stressful character of the situation, whereas secondary appraisal allows the assessment of one's personal capacity or personal resources to confront the situation. Personal distress will be maximal when the situation is perceived as being stressful in these two assessments.

The model also predicts that an individual will put into action cognitive and behavioral strategies that the authors qualify as an adjustment process when an individual is confronted by a problem. These strategies may facilitate or undermine problem solving associated with the given problem. An individual may either be centered on the problem itself, focused on the problem solving strategies, or centered on the emotions that the stressful situation has created. The number and diversity of the expression of strategies varies according to the individual and the nature of the event. Table 1 summarizes Folkman and Lazarus' theories.

Table 1.
Cognitive appraisal of stress (Lzarus & Folkman, 1984; adaptation by Larose, 1999.

Life events or stressors: nature and co-occurrence
Zone of impact: personal et interpersonal
Primary Appraisal: the individual appraises the event **The event is seen as preoccupying if it is perceived as:** **a) harmful or containing a loss** **b) threatening, harmful, or containing a loss** **c) containing a challenge**
Secondary Appraisal: **The individual appraises his personal and environmental resources** **Distress is maximal when events are perceived negatively and personal and environmental resources are considered insufficient**
Adaptation strategies deployed by the individual: **a) cognitive or behavioral** **b) adapted or maladapted** **c) centered on the problem, strategies, or emotions**

We used Lazarus and Folkman's model in order to understand and classify stress and social problem solving in our literature review. The constructs of primary and secondary appraisal, as well as the adjustment process, provided us with a solid framework for appreciating the stressful situations of teachers in particular. Specifically, this model also allows us to classify the principal components of stress (personality mediators, emotional response, and environmental events) and social problem solving. Based on this model, and the studies to follow, we formulated the following questions:

Question 1: What is the present state of knowledge on stress in teachers and student teachers?

Question 2: What is the present state of knowledge on social problem solving in teachers and student teachers?

Question 3: What is the present state of knowledge on the link between stress and social problem solving in teachers and student teachers?

Literature Review

We searched the scientific literature with our 3 research questions in mind. We consulted electronic data banks such as Eric, Current Contents, Psychlit, and Dissertation Abstracts. We also consulted university data banks such as those of Laval University, University of Montreal, and the University of Quebec. We used the following descriptors: stress, social problem solving, coping, teachers, and student teachers. We kept all articles having a direct or indirect link with these themes.
Operational Definition of Stress

Our understanding of stress originated in the empirical research conducted by Derogatis (1987), who based his research on Lazarus' (1966) social interaction theory. Globally, stress is defined as a particular interaction between the person and the environment, appraised by the person as being taxing or exceeding his or her personal resources, and, as a consequence, disrupting daily routines (Lazarus & Folkman, 1984). According to this theory, stress is defined as a state of psychological pressure influenced by three main sources: (a) personality mediators (composed of time pressure, driven behavior, attitude posture, relaxation potential, and role definition); (b) environmental factors (composed of vocational satisfaction, domestic satisfaction, and health posture); and (c) emotional responses (composed of hostility, anxiety, and depression). According to Lazarus & Folkman's theory, these three sources must be studied interactively to develop a comprehensive account of stress.

Primary Appraisal: appraisal of the event and perceived causes of teacher stress

Primary appraisal of an event is related to life events that are perceived as more or less stressful. This type of appraisal involves a complex cognitive evaluation by an individual in which information is weighed and thereafter assessed in terms of the given situation's level of harm, threat, loss, or challenge to one's well-being. The notion of cognitive vulnerability to stress has shed some additional light on understanding the impact of primary appraisal. As an example, Bibou-Nakou et al (1999) had examined the endorsement of self-defeating beliefs in primary school teachers and found beliefs to be significantly associated with high stress levels.

Another parallel concept has been that of trait anxiety (Eysenck, 1997). This construct is viewed as a dimension of personality and is often defined as the difference between how one views the world in terms of being threatening or dangerous, and the frequency of how it is experienced. Eysenck (1997) postulated that individuals who possess high levels of trait anxiety process information about their behavior, cognitions, and even their physiological activities, with cognitive biases, leading to an exaggerated perception of the degree of threat. Moreover, Houkes et al. (2003) argued that it is not a question merely of

what personal characteristics may be influencing the perception of an event, but also of *how* those characteristics exert their effect.

According to Jarvis (2002), substantial evidence exists on the cognitive factors underlying stress. It is now important to turn our attention to documented teacher stressors. The literature reveals that teacher stressors range from in-class variables to the organizational structure of the working environment. Some of the in-class variables revolve around interactions with students, including misbehavior or disciplinary problems, while others focus on difficulties with the school environment, such as lack of administrative and/or technical support (Greenglass, Burke, & Konarski, 1997; Smith and Burke, 1992; Travers & Cooper, 1993, as cited in Ben-Ari, Krole & Har-Even, 2003). In his classic study, Phillips (1932) argued that entering teachers are specifically stressed regarding student discipline, inadequate equipment, social context of the school, teaching place, depressing effects of the neighbourhood, and aggressive attitudes of parents towards them. This study was addressed exclusively to external elements rather than internal elements (personality traits included) in teachers, including motivation, personal efficacy, and self-esteem (Doherty, 1980). Several years later, Gabriel (1957) reported a different type of stress in teachers related to classroom management and inspections by administrators. This study, once again, looked only at pedagogical or teaching related elements when considering stress.

Another study that also focused on pedagogical elements rather than internal elements when considering stress was a recent study by Ben-Ari et al. (2003). In this study, simple versus complex teaching strategies were investigated in relation to teacher stress, in which the simple strategy focused on the same curriculum for all children, and the more complex strategy emphasized working together in small groups within a heterogeneous group of children. The results indicated that the complex teaching strategy, referred to as complex instruction strategy (CIS), was found to correlate negatively with stressors and eventual burnout, and positively with satisfaction in teachers.

Still other researchers have delineated the major sources of stress facing teachers (Travers & Cooper, 1996; Benmansour, 1998; Pithers & Soden, 1998, as cited in Kyriacou, 2001). These include teaching students who lack motivation, work overload and time pressures, being evaluated by others, maintaining discipline, dealing with colleagues, administration and management, self-esteem and status, poor working conditions, and role conflict and ambiguity.

Several authors have found inconsistencies in the appraisal of the level of stress in student teachers occasioned by teacher education programs (Fuller & Bown, 1975; Adams, 1982; Adams & Martray, 1981; Pigge & Marso, 1990, 1987; Kagan, 1992; Rogan, Borich, & Taylor, 1992). In other words, the debate continues whether or not certain teacher education programs are more stressful on student teachers than others. Other researchers underline that the contemporary student teacher population is more heterogeneous than were those of the sixties and seventies. It is therefore difficult to pinpoint stressful events for student teachers because of this heterogeneity (Bray, 1995; Cruickshank, Armaline, Reighart, Hoover, Stuck, & Traver, 1986). An important suggestion that comes out of these studies is that teacher educators study adult

psychology more closely, as well as that of novice teachers or young adults, in order to reach a better understanding of which events are perceived as stressful in the new teacher education programs. In this literature review, we take the position that it is important to study the relationships between cognitive and affective variables.

Some authors claim that student teaching is the most stressful event of teacher education programs (Admiraal, Korthagen, & Wubbels, 2000; Aitken & Mildon, 1991; Bowers, Eicher, & Sacks, 1983; Kalekin-Fishman & Kornfeld, 1991; MacDonald, 1992; MacDonald, 1993; MacDonald, Mackinnon, Joyece, & Gurney 1992; Tardif, 1985; Veenman, 1984; Wideen & Holborn, 1986). We believe that it is important to understand which specific components are stressful instead of regrouping stress under one large event (student teaching).

In terms of daily life events in teaching, difficulty with classroom discipline is a recurrent source of stress for teachers and student teachers (Blase, 1986). This author revealed that this source of stress is associated with the need to assume several roles at the same time; for example, participants in this study used descriptors such as "guard, police officer, or someone who deals exclusively with discipline," and then the word "teacher" in defining their job. The students of this population are therefore the principal stressful element. Four principal sources of stress were identified in this study: discipline, apathy, poor academic results, and absenteeism. Student discipline, this being the most cited category, encompasses problems such as verbal abuse, fighting, yelling, vandalism, cheating, and sudden violence. Stress due to discipline problems was high in teachers when these problems interfered with teaching processes and when they affected the teachers' and students' performance.

Veenman (1984) found in his literature review of beginning teachers' problems that classroom discipline, student motivation, and individual differences comprised the major problems for this group of teachers. This author underlined, however, that even experienced teachers had difficulties in these areas, but discipline problems were indeed more problematic for beginning teachers. Veenman proposed that these problems are not due exclusively to the fact that they just entered the teaching profession. Bressoux and Dessus (2003) and Durand (1996) explained that student teachers are going through a learning process when doing the student teaching practicum in which they must master a multitude of tasks in order to manage the class itself. Earlier studies by Kounin (1970, 1976) offer a list of classroom management strategies that may be reviewed by the interested reader. What is important here is the consideration that knowing certain classroom management strategies (cognitive processes) may be related to stress management (affective processes).

MacDonald (1993) studied some of the causes of stress in student teachers and examined some of the strategies they used to combat their stress. She stated that student teaching is the most stressful element of the teacher education program and then identified the following categories as being stressful during student teaching: clarifying roles, expectations, conformity, time management, assessment, assignments, discussion with peers, and feedback.

More recently, research has identified sources of stress similar to Fuller's model (1969), but the sequence of concerns (source of stress) arose at different times (Adams, 1982; Adams, Hutchinson, & Martray, 1980; Adams & Martray, 1981; Cohen, 1982; George, 1978; Hynoski, 1988; Kazelskis & Reeves, 1987; Maxie, 1989). In fact, several observations pointed to a higher degree of stress regarding the impact of interventions on the results of students earlier in the student teaching practicum than Fuller had initially predicted. Other results are of a more general nature, stating that student teachers experience stress coming from a multitude of sources and that they do not decrease as student teaching progresses (Costin, Fogarty, & Yarrow, 1992; Hourcade, Parette, & McCormack, 1988; Fogarty, Andrews, Beer, Costin, Kelk, Massey, Williams, & Yarrow, 1985; Montgomery, 2002). In fact, results point to affective variables as stressful elements as their experience progresses.

Davis (1990) found that student teachers with a part-time job while doing their student teaching practicum claim that they experience more stress as well as a greater variety (sources) of stress compared to those who do not have a part time job. Interestingly, however, having a part- time job does not seem to be associated with greater intensity of stress than does not working at the same time as their student teaching practicum. Moreover, this study stood out from others because it claimed that student teachers do not experience "excessive" stress. Stress was classified into the following categories in this study: (a) time pressure (not having enough time to finish the necessary); lesson planning, test construction, corrections; (b) classroom situation (student discipline and students with learning disabilities); (c) cooperating-teacher (a lack of orientation, expectations, interruptions, personality conflict). Another stressful element in this study, although less frequently observed, was the experience of a new situation (unknowns regarding the school, teachers, students, and rules). Subjects who did have a part time job at the same time as their student teaching practicum in this study also revealed stressful elements outside of student teaching, such as: (a) time and work demands; (b) personal life; (c) other university course demands than those of the student teaching practicum. Those who did not have another job at the same time as student teaching cited the following factors as being stressful: (a) other university course demands than those of the student teaching practicum; (b) personal life; (c) time demands in university courses other than those of the student teaching practicum.

Secondary Appraisal (appraisal of personal and environmental resources)

Secondary appraisal involves individuals' judgement about available resources when confronting a stressor. In this section, we briefly examine the area of emotional intelligence, as well as examining some studies that have treated individuals' perceptions of personal resources (e.g. self-efficacy) and environmental resources (e.g. social support from supervisors during student teaching).

In our analysis, we find that the area of emotional intelligence, as presented by Goleman (1995), blends well with the concept of secondary appraisal, especially as it relates to personal resources or self-efficacy. According to Goleman (1995), the primary components of emotional intelligence (EQ) are self awareness, behavior and thought

regulation, and motivation. The latter two components are treated further in the social problem solving section to follow.

Goleman (1995) had argued that self-awareness can be defined as one's ability to recognize one's feelings. In addition, it relates to self-assessment (knowing one's strengths and weakness) and self-confidence (knowing one's sense of capabilities). These specific elements of EQ speak of one's level of insight and self-reflection into one's own capabilities, and, according to Goleman, constitute an important precursor to understanding our thoughts and actions. We discuss his contributions in more detail in the following section.

The concepts of secondary appraisal and self-awareness and assessment, are evident in several studies. Fuller (1969) showed that student teachers experience stress not only regarding control of the class, their mastering of course content, and varying teaching situations, but also assessment by their supervisors, students, and their own assessments. Fuller (1969) began to analyze stress in a more specific manner in what she considered as "concerns" that evolved in the following sequence: (a) pre-teaching phase: non concern; (b) beginning of teaching phase: concern centered on self; (c) later concern phase: concerns centered on students.

Kinnunen (1987) studied the relationship between stress levels as reported by the individual and catecholamine levels. Anxiety, depression, psychological pressure, and sexual passivity were examined with his own questionnaire. Results of the study show that there is a weak association between stress, as measured by the four sub-scales, and catecholamine level. Interestingly, however, correlations were generally negative early in the school year, in the fall, and later rose by the end of the school year.   Stress levels rose over the course of the session, whereas catecholamine levels decreased.   In a Swedish study, Brenner, Sorbom, and Wallius (1985) attempted to find the link between learning difficulties and general stress in teachers. Learning difficulties do indeed affect general stress defined as the individuals' perception of working conditions.

Operational definition of social problem solving

Social problem solving is an important adjustment factor, and the rehearsal or training of this type of problem solving is a promising way of assuring smooth professional insertion. In teachers, social problem solving comprises classroom management and a vast array of other intervention practices. In fact, literature on teacher education refers to classroom management when referring to social problem solving. We, however, inverted this conceptualization by regrouping classroom management under the superordinate class of social problem solving. Social problem solving is thus a rational and conscious activity that is a part of adjustment or coping that requires short- and long-term effort and objectives (D'Zurilla, 1986; D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1982). A problematic situation may be a daily life event in which there is not immediate adaptation and that requires specific behavior to resolve the problematic situation, such behavior being defined as social problem solving abilities and/or problem orientation (D'Zurilla & Goldfried, 1971). With the previous definition of social problem solving, a task does not represent a problem in and of itself, but rather it is the interaction between the subject and

the task that gives it the status of a problem. A social problem is therefore one in which the response repertoire immediately available in an individual does not furnish an appropriate response.

Several authors in the social psychology domain have presented the social theory of social problem solving as an important adaptation strategy allowing personal and professional growth (e.g., *des symptômes psychologiques* ; D'Zurilla, 1986; Nezu, 1987a; Nezu & D'Zurilla, 1989; Nezu, Nezu, & Perri, 1989). Social problem solving competency inevitably reduces long- and short-term effects of stress. According to Lazarus and Folkman (1984), adjustment refers to behavioral and cognitive activities in which an individual attempts to cope with specific daily stressful situations and other negative emotions that may be generated, such as distress, anxiety, or burnout. With this definition, we may say that social problem solving is a part of an adjustment process, although not all adjustment processes are necessarily a part of social problem solving. A solution is the product or the result of social problem solving processes in a given specific situation. It is important, however, not to confuse social problem solving processes with the solution application process. This latter process refers to solution application in given specific situations in order to resolve daily life problems.

Social problem solving can also be viewed in terms of emotional intelligence, specifically as one's ability to regulate and monitor one's own, as well as others', feelings and thoughts, and to use this information in guiding one's behavior. The theory also implies that emotionally intelligent individuals possess strong social skills, by way of which they can induce desirable responses in others. These abilities are all essential in social situations, and in particular, in social problem solving situations, in which, for example, a teacher needs not only to manage emotions but also to read the emotions of others and manage relationships. Goleman (1995) added that self-awareness is a precursor of the regulation of behaviors and emotions that relate to social problem solving. He further argued that optimism or pessimism, or what we might refer to as primary appraisal, are the keys to motivation.

Social and emotional learning, as emotional intelligence abilities are often referred to in the educational psychology arena, has been applied to the workplace, especially in the field of education, by Goleman. In fact, schools of education are beginning to grapple with its integration, because they find it a useful tool in helping students to relate to others. EQ, with its components compatible with social problem solving, can be taught through several examples, including the analysis of dramatic conflict in literature, playing 'what-if' situations with preschool children, and/or discussion of different paths a character might have taken in a given play. Instruction in emotional intelligence may, thus, provide a valuable tool for novice teaching professionals, as well as for experienced teachers.

Whereas EQ involves social and emotional competencies, according to Sternberg (1997), successful intelligence is composed of *creative* (e.g. self-efficacy, perseveration in the face of obstacles, tolerating ambiguities), *practical* (e.g. application and use of what is learned, viewing problems in a real world context), and *analytic* thinking (e.g. comparing and contrasting, evaluating, explaining or defining problems). In addition to emotional

intelligence, social problem solving can also be viewed in terms of successful intelligence. This type of intelligence includes achieving success in terms of one's own personal standards within one's socio-cultural context, while capitalizing on strengths and compensating for or remediating weaknesses. Most importantly, it can be taught. This *triarchic theory* can be applied to social problem solving situations. An excellent example might be a graduate student's research project, which might reflect all of the analytical components (e.g., evaluating problems, comparing/contrasting, defining problems), but might lack the creativity component (e.g. lacking relevance to the field, unable to challenge the ideas of the majority of researchers) or it may simply lack practical value or application to the real world (practical component of successful intelligence). The two added components, creativity and practical intelligence, are unlike school-related analytic intelligence, which reflects a type of contextualized lab scenario and excludes the type of problem-solving necessary for everyday life. Instead, they reflect real world experiences in which individuals need to redefine problems and make the most of their strengths.

According to Sternberg (1997), individuals who are considered to possess successful intelligence adapt effectively and are capable of achieving, capitalizing on their strengths, and finding methods of working around their limitations. Further, these individuals have key personality attributes and possess the willingness to take risks and confront obstacles.

Coping

Coping with stressors, which may be deemed as intrinsic to the teaching profession, is an everyday occurrence for teachers. Kyiacou (2001) has argued that there are two ways in which teachers cope with stress: through direct action techniques and through palliative techniques. The latter deals with decreasing the stressor's impact, which in the long run, Kyriacou believes, is dysfunctional, since it is associated with behaviors such as drinking, smoking, and avoidance. Direct action techniques, on the other hand, include attempting to eliminate the actual sources of stress. This might include seeking colleague support, controlling feelings, taking the initiative to deal with problematic issues, having significant relationships with other adults, being competent (e.g., lesson preparation), and prioritizing and organizing tasks.

Research on the link between stress and social problem solving has increased over the last 10 years in general populations of university students and adults (Borkovec & Inz, 1990; Butler, Wells, & Dewick, 1992; Tallis, Eysenck, & Mathews, 1991). Three studies show that very stressed individuals take more to resolve categorization tasks when stimuli and responses are ambiguous (Dugas, Freeston, Blais, & Ladouceur, 1993; Metzger, Miller, Cohen, Sofka, & Borkovec, 1990; Tallis et al., 1991). Another study showed that stressed individuals have a strong need to see the final product or result (Borkovec, 1985). Davey, Hampton, Farrell, & Davidson (1992) revealed that high levels of stress affect social problem solving and are associated with lack of confidence, thus augmenting general anxiety levels. Finally, anxious individuals worry excessively and have a plethora of negative thoughts when having to resolve social problems, have more avoidance behavior, and, finally, have a tendency to avoid direct confrontation when

having to resolve social problems, compared to those who are less anxious (Pruzinsky & Borkovec, 1990; Davey, 1993; D'Zurilla, 1986; D'Zurilla & Goldfried 1971).

Most recently, Houkes, Jansse, Jonge, and Bakker (2003) assessed the longitudinal influence of personality on psychological outcomes. Personality was measured by growth need strength (need for self development), negative affectivity (focus on negative aspects of the world, others, and oneself), and upward striving (focus on one's career). The three psychological outcomes studied were emotional exhaustion (e.g. lack of social support, workload), turnover intention (e.g. career opportunities, salary), and intrinsic work motivation (e.g. autonomy, job feedback). The findings indicated that individuals high on NA displayed emotional exhaustion (an exaggerated strain response) to workload (stressors). In this study, it was unnecessary that the workers perceive the stressors differently. It was instead their response to the stressors themselves that was different. The fact that individuals with high NA expected negative stimuli and viewed positive stimuli in their environment as salient has strong implications for teachers in that they may begin their careers with high levels of negative affectivity, which can also be understood as negative primary appraisal.

One of the ways authors have been assessing coping in student teachers is by looking at how they cope with life outside of the classroom while undertaking student teaching (Blase, 1986; Brophy & McCaslin, 1992; Dewe, 1985; Freeman, 1987; Green & Ross, 1996; Kyriacou, 1980; Salo, 1995; Wood & Dorsey, 1989). One may ascertain certain adjustment or coping behavior in student teachers that is "centered on the problem" or "centered on the emotion," allowing them to relax after student teaching. This is in fact a major element leading to burnout if one is not able to let things go after work or student teaching hours. Moreover, an individual who is centered on the problem will view this process as tackling a challenge that will eventually allow him or her to gain knowledge, skill, or competency. Individuals believe that they have the personal resources to surmount the given challenge and are therefore "centered on the action" at a cognitive level (Kuhl, 1987).

When looking at coping strategies within the classroom, Blase (1986) found that teachers used direct confrontation strategies when trying to deal with stress related to students. Teachers aimed therefore at reducing or eliminating the stressful element by centering their strategies on the problem itself. Teachers in this study used other coping or classroom management strategies such as behavior modification, taking the child out of the classroom, reproaching the student, and discussing the given problem. Adaptation strategies centered on the emotions, such as ignoring the student or abandoning him or her, were used less frequently. Salo (1995) claimed that teachers were more inclined to use problem solving and supplementary work when confronted with stressful situations connected with course content related to teaching, working conditions, or school organization. Idealist thoughts (this being considered as "centered on the emotion") were used more frequently in this study when teachers were confronted by stressful situations involving students.

Although Kyiacou (2001) has shed some light on teacher coping strategies, there are still

inconsistencies regarding different coping strategies or techniques used by teachers (Admiraal, Korthagen, & Wubbels, 2000; Chan, 1998). In another longitudinal study, Salo (1995) found that frequent use of social problem solving strategies centered on the problem and social support did not affect the frequency of stress and distress in teachers. These authors concluded that social problem solving abilities are inefficient in the teaching profession. Other studies have proven otherwise, showing positive effects of social problem solving when they are centered on the problem (Chan, 1994; Green & Ross, 1996; Long & Gessaroli, 1989).

Other investigators have examined teachers' social problem solving strategies with discipline problems in children (Brophy & McCaslin, 1992). In general, teachers who have had the most success used techniques that were not intrusive but were still prescriptive, such as getting the students' attention by touching them, approaching problematic students, and reinforcing appropriate behavior. Teachers who used non-intrusive and more prescriptive strategies (for example, waiting rather than intervening immediately, thereby expressing discontentment regarding inappropriate behavior without reinforcing appropriate behavior) often failed to change inappropriate behavior. Finally, teachers who used a brusque or "tough" approach to intervention had difficulty managing inappropriate behavior and attaining the students' cooperation. Other studies have suggested the ineffectiveness of certain problem solving strategies in the workplace, such as reward substitution, positive comparisons, optimistic action, and active listening (Perlin & Schooler, 1978). More specifically, these authors did not find a relationship between these strategies and emotional distress. However, Needle, Griffen, and Svendsen (1981) used the same qualitative interview research design as Perlin and Schooler and found that positive comparisons, that is comparing one's work to that of others, was related to a reduced effect of emotional distress in teachers. Brenner, Sorbom, and Wallius (1985) found that social problem solving strategies, classified as "direct action," mitigated psychological distress. Schonfeld (1990) found that looking for advice and direct action were linked to symptomatic levels in teachers. These results suggest that the role the teacher plays is less impersonal than other roles in other professions. They contradict the idea that certain social problem solving strategies, as seen to this point, are inefficient in teachers.

Chan (1998) suggested a link between stress and problem solving skills, showing that the latter diminishes or reduces psychological distress, notwithstanding the type of stress one confronts. Chan's study reveals therefore that sources of stress may be conceptualized as sources that are influenced by problem solving, and vice versa.

According to Pulkkinen (1996) there is interaction between the degree of control over one's emotions and the process of inhibition and intensification. These two processes require a certain level of cognitive competency, thus a better understanding of the sources of stress. Kokkonen and Pulkkinen (1999) showed positive and significant correlations between aggressivity, impulsivity, anxiety, and emotional ambivalence. These variables were negatively correlated with sociability and cognitive control. These authors support the fact that more sociability is associated with less inhibition of aggressivity (obligation of repressing aggressivity), less impulsivity and anxiety. They also argued that better cognitive control (a better understanding of phenomena at the origin of emotions) is

associated with reduced aggressivity, and repression of aggressivity, anxiety, and emotional ambivalence. This study illustrates the importance of working on social integration and improving understanding and knowledge of phenomena at the roots of emotions in order to manage them more efficiently.

Conclusion

We have attempted to define stress and social problem solving operationally and to show the importance of studying both of these topics interactively in the teaching field, as well as in other related human science fields. We were also able to categorize research independently, basing our methodology on Lazarus and Folman's (1984) well-known model of the cognitive appraisal of stress. This allowed us to have a portrait of what is being done in the stress and social problem solving literature, especially in the teacher education field, and the possible link or lack thereof between these two phenomena.

The theories of Goleman and Sternberg were included as part of our analysis because we feel their contributions are invaluable in our search for further understanding of cognitive structures and how these relate to stress. The traditional concepts of intelligence were questioned by these two theorists, leading to a whirlwind of controversy in the fields of education and psychology. Goleman (1995), for example, believes that EQ matters more than IQ when predicting an individual's competence. As an interesting anecdote, Sternberg (1997) notes that intelligence tests used in the 1920's were given to assess thousands of children in an effort to identify those with high IQs. Although a high percentage of these children went on to become professionals in a variety of fields, the intelligence tests apparently missed two Nobel laureates in physics, one of whom later went on to invent the transistor.

Certainly Goleman's and Sternberg's contributions, together with the fact that Sternberg's theory, in particular, has received support in terms of improving learning outcomes (Sternberg, Torff, & Grigoreko, 1998), warrant much attention. Whereas Izard (2001), as an example, has argued that Goleman's emotional intelligence requires more research and that clinical and developmental investigations point more toward the idea of emotion-related abilities, as opposed to a specific form of intelligence, emotional intelligence continues to have popular appeal. In viewing Goleman's (1995) theory of emotional intelligence, we may also consider here that individuals, and in our case, teachers and student teachers, may still benefit from several aspects presented in his theory. We therefore consider Goleman's contribution to be highly constructive in helping us to comprehend the important role of stress and social problem solving.

Certain premises were used as a backdrop for much of our analysis. One important premise is that stressful situations are relative; that is, their threat value is in the eyes of the beholder. The other important premise is that a perceived stressor may be responded to with physiological systems. These two premises represent our strong support for both the cognitive structures underlying much of our responses, and the unequivocal interrelationship that exists between the mind and the body. Notwithstanding, we feel that cognitive appraisal and the accompanying motivational factors, as well as the body's response to potential stress, are certainly not the complete picture. We were impressed

with the results of the study of Ben-Ari, et al. (2003), in which the investigators compared simple versus complex teaching strategies in relation to teacher stress. The results indicating the superiority of the complex teaching strategy (CIS) in terms of its correlating negatively with stressors and eventual burnout, and positively with satisfaction in teachers, are factors that should be carefully considered. Moreover, CIS parallels the multidimensional perception of learners and learning environments (i.e., heterogeneity of the group in the classroom), which, in turn, parallels the type of multidimensional intelligence presented by Sternberg. In particular, CIS's emphasis on several lesson plans per class, as opposed to a single lesson plan, reflects the sensitivity necessary for a heterogeneous classroom. Of course, the study emphasizes that the more time the teacher has to prepare, the better the CIS lesson plans, the more effective the learning, and the less stress the teachers felt. In light of these findings, which particularly relate to objectively measured stress, this study may, together with the cognitive literature, point us in the right direction.

From our review, several problems in the stress literature as it relates to teacher education were noted, including the use of mostly self-report measures, cross-sectional retrospective designs, and lack of a coherent theoretical framework. It is hoped that authors of prospective studies will consider these aspects closely, in particular for the purposes of making recommendations for stress-related intervention strategies.

Whereas the teacher coping strategy literature has provided significant and valuable insight, we found some interesting and innovative research that focused on the applicability of the concept of resilience. Studies on resilience began investigating at-risk groups of children and how they have responded to stressors. Many studies often emphasize resilience in the face of grieving, loss, or trauma. Although stress may not necessarily result in loss or trauma, we believe that the concept should be considered within the teacher stress and coping literature, especially with milder forms of stress. We define resilience here as the ability to remain stable in the face of stressors, with disturbances in functioning viewed as being transient. Bonanno (2004) has challenged the common view that coping with loss or trauma in a resilient manner is rare and pathological, instead stating that it is more common than previously believed. Like Bonanno, we entertain the notion that resilience may represent a different trajectory from that of recovery.

To optimize research in this area, investigators may need to examine more closely the balance among cognitive structures, their physiological counterparts, and the role of evidence-based instruction, which promotes a healthier, happier classroom. An analysis of an individual teacher's strengths, and perhaps even resilience training, may be interesting options to contemplate. Most important, the potential integration of these theories has important implications for the fields of education and psychology. Further studies on stress and social problem solving that have these elements may help to orient teacher educators in their own interventions and strategies when developing courses and practicum work.

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Résumé

Stress et Resolution de Problèmes Sociaux: Une Autre Symbiose Merveilleuse

Cet article vise à faire une revue de la littérature relative aux relations entre le stress et la résolution de problèmes sociaux. On y insistera sur la nécessité de considérer simultanément le stress et la résolution des problèmes sociaux. Dans cet article nous articulons un certain nombre d'idées et de concepts théoriques issus de la théorie de l'intelligence émotionnelle de Goleman ainsi que de la théorie de l'intelligence gagnante de Sternberg. Nous pensons que cet article contribue à la connaissance des relations entre les processus cognitifs (résolution de problèmes sociaux) et affectifs (stress). Les informations présentées sont également utiles pour la réforme des programmes d'enseignement. Il devrait encourager formateurs des futurs maîtres a être attentifs à certaines dimensions émotionnelles telle que le stress et la résolution de problème social avant, pendant et après l'enseignement.

Resumen

Stress y Resolución de Problemas Sociales: Otra Maravillosa Simbiosis

Este artículo es una revisión de la literatura acerca del stress y de las habilidades para la resolución de problemas sociales. En el mismo se enfatiza la necesidad de unir consideraciones acerca del stress y la resolución de problemas sociales. El artículo integra algunas ideas y conceptos teóricos de la teoría sobre la inteligencia emocional de Goleman, así como de la teoría de la inteligencia para el éxito de Sternberg. El artículo contribuye al conocimiento con respecto a las relaciones entre procesos cognitivos (resolución de problemas sociales) y afectivos (stress). La información proporcionada en este artículo es también útil para la reforma de los programas de formación del profesorado. Debería alentar a los estudiantes que se están formando para llegar a ser profesores a poner énfasis en ciertas dimensiones emocionales, tales como el stress de los propios estudiantes y la resolución de problemas antes, durante y después de terminar sus estudios.

Zusammenfassung

Stress und soziales Problemlösen: Noch eine wunderbare Symbiose

Dieser Artikel ist eine Literaturübersicht zu Stress und Fertigkeiten des sozialen Problemlösens. Die Notwendigkeit einer gemeinsamen Betrachtung von Stress und sozialem Problemlösen wird betont. Der Artikel integriert einige Überlegungen und theoretische Konzepte aus Golemans Theorie der emotionalen Intelligenz wie auch von Sternbergs Theorie der erfolgreichen Intelligenz. Er trägt hiermit zum Wissensbestand bezüglich der Beziehung zwischen kognitiven (soziales Problemlösen) und affektiven (Stress) Prozessen bei. Die in diesem Beitrag vorgestellte Information ist darüber hinaus hilfreich für die Reform des Lehrerausbildungsprogramms. Sie sollte die Anleiter von in Ausbildung befindlichen Lehrern ermutigen, bestimmte emotionale Dimensionen wie den Stress und das soziale Problemlösen der Ausbildungslehrer vor, während und nach ihren Lehraktivitäten besonderes Gewicht zu legen.

Abstract Italiano

Stress e Problem-Solving Sociale: Una Nuova, Magnifica Simbiosi

Questo articolo propone un esame della letteratura riguardante lo stress e le abilità di problem solving sociale. Viene posto l'accento sulla necessità di considerare questi due elementi congiuntamente, a partire da alcune delle idee e degli spunti teorici tratti dalla teoria di Goleman sull'intelligenza emotiva e da quella di Sternberg sull'intelligenza efficace. L'analisi contribuisce ad approfondire le relazioni tra i processi cognitivi (problem solving sociale) e processi affettivi (stress). Le informazioni qui illustrate possono essere utili anche per la riforma del programma di formazione degli insegnanti, in quanto dovrebbero incoraggiare gli educatori a concentrare l'attenzione su dimensioni emotive quali lo stress degli insegnanti e il problem solving sociale prima, durante e dopo il processo di insegnamento.