CHAPTER 17

INTELLECTUAL HELPLESSNESS

DOMAIN SPECIFICITY, TEACHING STYLES, AND SCHOOL ACHIEVEMENT

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INTRODUCTION

When recalling experiences of difficulty in school, many people produce frightening tales of mathematical problems involving two trains simultaneously leaving two different stations, or continual rewrites of essays labeled ‘awkward’ or ‘weak.’ Such stories frequently end with the comment: ‘I am completely stupid at that subject.’

In this chapter we suggest that the cognitive deterioration in people we refer to as “intellectually helpless” in a given domain of knowledge cannot be reduced to lower aptitude in those areas. Instead, we propose that such people might be underachievers who cease to use their normal cognitive potential to solve those tasks. Before discussing assumptions of the theoretical model and supporting research, it is worth noting several symptoms that are frequently observed among intellectually helpless students. First, such students may fail to use common sense in their reasoning. For example, a student may give without hesitation a completely absurd answer (say, a negative number) as a response to a physical prob-
lem asking for the calculation of an amount of time. This does not imply that he lacks the necessary ability to learn physics; it more clearly indicates that he no longer thinks "normally" about physics. Second, students may recurrently guess at answers. The teacher asks a question and the student immediately replies, carefully observing the teacher while doing so. If the teacher nonverbally signals that the answer is wrong, the student immediately shoots another answer in the hope that she will "hit" this time. A third common feature of intellectually helpless students is their tendency toward faithful, concrete reproduction of information and a complete lack of ability to modify or reorganize the response depending on the specific demands of the problem.

One of the most intriguing features of this intellectual helplessness is its specificity. Why should a student who is capable of demonstrating logical, analytic thinking in history classes respond quite nonsensically in chemistry? We believe that one significant cause of this domain-specific simplen-mindedness may be traced to some period in the student's academic career during which he or she had repeated experiences of completely ineffective intellectual effort with respect to the subject in question (i.e., the student's effort produced no progress in the comprehension of that subject).

Therefore, we here propose to explain this phenomenon within the framework of an information-processing model of helplessness developed by Kofka and Sedek (Kofka, 1993; Sedek & Kofka, 1990; Sedek, Kofka, & Tyszka, 1993). This model claims that the critical factor in the development of helplessness is long-lasting cognitive exertion without progress in problem understanding. Specifically, it is postulated that in an uncontrollable situation people engage in intensive but inefficient cognitive work. However, because of the event's uncontrollability, their cognitive efforts do not result in any reasonable task solutions. We hypothesize that after a prolonged experience of this kind, people regress to the state of cognitive exhaustion. The essential quality of this transitory state is a generalized impairment of constructive information processing (inhibition in the generation of mental models): Subjects' ability to form new ideas and generate hypotheses is diminished. When confronted with a new problem situation, they resort to relatively simple schemas of information processing and behavior control. The development of cognitive exhaustion is seen as directly responsible for the cognitive, motivational, and emotional deficits following unsolvable problems, the typical finding in learned helplessness research (Maier & Seligman, 1976; Seligman, 1975). More generally, the state of cognitive exhaustion seems especially destructive when the problem situations require nonschematic, flexible activities. In line with this approach, just after people have been exposed to uncontrollable events, they show cognitive demobilization, lack of task involvement, inhibited generation of ideas, and difficulties with attentional focus (Sedek & Kofka, 1990; Sedek et al., 1993; Sedek & McIntosh, 1996). These symptoms of cognitive exhaustion are accompanied by behavioral deficits in performance of new cognitively demanding tasks (for more detailed presentation of this theory and supporting research, see Kofka and Sedek, Chapter 16, this volume).

We believe that understanding of the intellectual helplessness phenomenon can be gained by extending the informational model to an academic setting. In the main sections of this chapter, we describe the intellectual helplessness model in school and discuss studies testing key assumptions of this model. This includes operationalization of the construct and examination of causes and consequences of intellectual helplessness. We specifically address the cognitive (rather than motivational) bases of the phenomenon, and evaluate the extent and nature of emotional and performance sequelae to the state of intellectual helplessness. Finally, we consider and evaluate the phenomenon's context specificity throughout.

INTELLECTUAL HELPLESSNESS IN SCHOOL:
ASSUMPTIONS OF THE MODEL

The model presented here was developed by applying the cognitive exhaustion view of uncontrollability to the acquisition of school knowledge. To do so, the following assumptions were adopted (for a review of the preliminary model, see Sedek & Kofka, 1992):

1. States of intellectual helplessness at school are caused by (1) faulty instruction (e.g., lack of lucidity in the presentation of new material that hinders thought about the concepts, demanding verbatim reproduction of school materials); (2) dysfunctional teacher-student interaction (e.g., the teacher does not allow students to ask questions); and (3) inadequate studying strategies. In other words, we attribute intellectual helplessness primarily to environmental factors and the acquisition of inadequate behavior patterns, not to deficiencies in general aptitude.

2. The inability to understand new material in class (or when studying at home) despite prolonged mental effort is naturally conducive to states of helplessness. We call this type of experience "cognitive helplessness training."

3. This experience may lead to intellectual helplessness. Basically intellectual helplessness consists of a blocking of the tendency toward active problem thinking (i.e., cognitive exhaustion). As in laboratory experiments, prolonged effort with no progress leads
to deterioration of the capacity to solve cognitively demanding problems involving reasoning, comparison, and generating ideas. Eventually, knowledge structures in that domain may become disorganized or dysfunctional, and thus the ability to assimilate information is inhibited and deteriorates qualitatively.

4. When repeated many times in the same educational context (e.g., during math class) transitory states of intellectual helplessness may stabilize. Due to processes such as priming or classical conditioning, cues specific to a given domain (e.g., formal symbols for math) may acquire potency for triggering this state without immediately prior helplessness training.

We hypothesize that this state of intellectual helplessness consists of both a formal cognitive component (cognitive exhaustion, which massively reduces the ability for controlled processing of cognitively demanding problems involving reasoning, comparison, and the generation of ideas), and a content-specific component (the grossly disorganized knowledge schema in that domain). As a consequence, when one is in this state, integrated and functional representations of knowledge (e.g., effective metastructures, Gallagher, 1994; mental models, Brewer, 1987; Johnson-Laird, 1983) cannot be developed, because assimilating and reorganizing incoming information demands highly effective controlled processing and the existence of prior consistent knowledge structures. More generally, when a student is in a state of intellectual helplessness it is nearly impossible for him or her to study with comprehension. At the same time mechanical or imitative learning may remain intact. Instead of learning with understanding, intellectually helpless students frequently develop survival strategies like guessing or giving any (even a mindless) answer, verbatim reproduction of written text, and the like, with the goal of obtaining some minimally passable grade. To conclude, states of intellectual helplessness contribute significantly to low academic achievement because they block the capacity to learn with comprehension.

5. By extrapolating the findings of laboratory experiments (Sedek & Kofta, 1990) to school situations and referring to recent investigations in the psychology of academic instruction it is possible to predict that states of intellectual helplessness should be accompanied by loss of intrinsic motivation (Deci, 1975; Deci & Ryan, 1985), meaning no interest in the subject in question, and absence of spontaneous readiness to study and to produce intrinsic academic goals (Ames, 1992; Elliott & Dweck, 1988; Harackiewicz & Elliott, 1993; Meece, Blumenfeld, & Hoyle, 1988).

6. Intellectual helplessness is not a personality trait. It is a state, and is specific for a given cognitive domain (e.g., a school subject). A student may be cognitively helpless at one subject and show mastery orientation at another.

ASSESSING DOMAIN-SPECIFIC INTELLECTUAL HELPLESSNESS

The first objective of the present study was to construct a scale measuring intellectual helplessness with regard to various school subjects (math, physics, Polish language) and to analyze its psychometric properties. The basic items are the same across content areas, as the psychological state is the same regardless of area. Assessment of this state can then be applied to different subjects. Great effort was taken to write a simple scale that taps familiar school experiences. The 20-item Intellectual Helplessness Scale (IHS) includes items referring to generalized cognitive difficulties in class, and to difficulties in understanding the lesson and keeping track of the teacher. Also, questions dealing with the sense of cognitive demobilization and accompanying symptoms of drowsiness and apathy were included (see Table 1).

Two samples were used to assess the reliability of the IHS. The first (N = 104) was composed of four classes of second-year high school students from several institutions. (Note: in Poland a class is a stable group of approximately 25 students who are taught together by different teachers for each subject. The classes used in these studies were "general profile" groups, meaning that no specific subject was of particular interest or disinterest for any of them.) In this first sample, participants completed all three intellectual helplessness scales, one for each subject (math, physics, Polish). Because completing all scales together might have inflated their internal consistency, students in the second study (N = 243, 10 classes) completed only one of the scales each.

First, it was determined that the IHS is internally consistent. Cronbach's alpha coefficients, calculated separately for each school subject, ranged from .92 to .95 across samples. Despite the mix of types of items on the scale, it appears quite reliable.

Second, the issue of domain specificity was addressed. According to theoretical assumptions, the IHS should be context specific. It should not measure a general aversion to schoolwork, for example. Does the present scale allow for such differentiation, and is it contextually related to intellectual functioning in particular school classes?

We begin with the simplest correlational analysis: If the IHS measures a general construct, correlations among the three school subjects
TABLE 1 Intellectual Helplessness Scale (IHS)

On mathematics (or physics, or Polish language): never / rarely / sometimes / often / always

1. I feel I can think clearly.
2. When called on to speak I forget almost everything I’ve learned.
3. I understand perfectly what the teacher is saying when he or she lectures on a new topic.
4. I find I don’t understand what I’m writing in my notes.
5. I glance at my watch to check how much time is left to the end of the lesson.
6. I feel helpless.
7. I learn new concepts with great ease.
8. I feel sleepy.
9. It almost takes a physical effort to keep my mind on the lesson.
10. I feel tired.
11. I knew which parts of a new lesson are important and must be memorized and which are not essential.
12. I can judge at once whether what I’m saying (or writing) makes sense or not.
13. I feel empty-headed.
14. The topic of the lesson really gets me thinking.
15. I feel my thoughts are stuck in a dead end.
16. It feels like it is all Greek to me.
17. I have difficulty keeping track of what the teacher is saying.
18. I have difficulty concentrating on the topic of the lesson.
19. I feel I couldn’t care less.
20. I easily follow the lesson.

Note: The asterisk before an item denotes the item was reverse scored.

should be very high. Instead, the correlation between IHS scores for math and physics was significant but low ($r = .33$), and the correlations between IHS scores for Polish and math ($r = .11$) and language and physics ($r = .15$) were nonsignificant and negligible.

Beyond relative independence of intellectual helplessness across domains is the question of discriminant prediction. Does the IHS in a given domain predict domain-specific outcomes? First, academic consequences were examined. The correlations between IHS scores for the different lessons (collected at the middle of the first semester) and grades at the end of the school year clearly suggest that it does (see Table 2). The helplessness level for particular subjects correlate negatively and significantly with the grades for that subject, whereas the correlations with the other two subjects are usually much weaker.

The positive correlation between helplessness at physics and the final grade for Polish is an interesting case and suggests a compensatory mechanism—helplessness in one cognitive domain may motivate the student to achieve high grades in another domain.²

<table>
<thead>
<tr>
<th>Intellectual Helplessness in</th>
<th>Grades in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Math</td>
</tr>
<tr>
<td>Math</td>
<td>-.55**</td>
</tr>
<tr>
<td>Physics</td>
<td>-.21</td>
</tr>
<tr>
<td>Polish</td>
<td>.09</td>
</tr>
</tbody>
</table>

**$p < .01$; *$p < .05$}

It is conceivable that the cognitive consequences are specific to subject, but affective reactions are more general. Difficulty in one area might stimulate a generalized sense of intellectual helplessness at school, manifesting in a tendency toward negative emotional responses to all subjects. To evaluate emotional responses, students rated the frequency with which they experienced negative emotions (anxiety, depression, hostility, and aversion toward the subject in question) during class. To determine whether emotional responses to subjects are influenced by general negative feelings toward school or, as postulated here, are context specific, we compared the two competing models using linear-structural equations.

The first model (see Figure 1A) assumes that intellectual helplessness is a general construct (a latent variable), defined by sense of helplessness (observable variables 1, 2, and 3) in different topics. In this model, this generalized helplessness affects the second latent variable (path 1)—negative emotions in class—defined as negative emotions experienced with respect to three academic subjects (observable variables 4, 5, and 6). This model assumes that both intellectual helplessness and negative emotions in classes are global and form related latent variables.

According to the second, rival model (see Figure 1B), both intellectual helplessness and negative emotions experienced in different classes are specific and do not combine into one common construct. This model assumes that (1) helplessness at math correlates with helplessness at physics (line IV with the two arrows describes variable covariance), whereas there is no covariance of helplessness at Polish, on the one hand, and helplessness at physics and math, on the other (mathematical computations and symbolic formulae are involved in both math and physics; skill in composition, grammar, literary interpretation and the like as taught in language class is more independent); (2) helplessness in each given domain and negative emotions in that domain are strongly related (paths I, II, and III); (3) the relations between helplessness and negative emotions experienced during other classes are much weaker (dotted lines with arrows 1 to 6); and (4) (a very strong assumption) there are no relations what-
soever between the negative emotions experienced with respect to different academic subjects (as we can see in Figure 1B, there are no arrows connecting the emotions experienced at different classes).

Linear-structural analyses of the two models (EQS [Bentler, 1991], was used in these and subsequent analyses) revealed that the first model reflects the actual structure of relations between the variables very poorly and should be rejected (the Bentler-Bonett’s Goodness of Fit Index, GFI, was very low, .18). The second model accounted for the observed relations much better (GFI = .99). An additional measure of the goodness of the model solution (chi square) was nonsignificant ($p < .40$), suggesting almost perfect fit between the model and the data. A closer inspection of this model reveals strong and significant ($p < .001$) interconnections between intellectual helplessness and negative emotions within each given subject (standardized alpha coefficients were .66, .61, and .63 for math, physics, and Polish respectively—see paths I, II, III in Figure 1B), and very weak relations between domains.

The findings reported to this point attest strongly that the IHS is a reliable measure of subjectively experienced intellectual helplessness relative to specific topics. Both the correlational analyses and the structural modeling confirm the hypothesis that intellectual helplessness is a domain specific phenomenon.

CAUSES AND CONSEQUENCES OF INTELLECTUAL HELPLESSNESS: A LONGITUDINAL STUDY

The objectives of this study were (1) to evaluate some potential determinants of intellectual helplessness and (2) to analyze the effects of intellectual helplessness and other psychological variables on academic achievement. In particular, the study was aimed at determining whether the state of helplessness is merely a consequence of academic difficulties or whether it contributes significantly to further academic achievements.

OVERVIEW OF THE LONGITUDINAL STUDY

These questions were evaluated in a two-year longitudinal study. Data were collected from 15 general-interest profile classes of first-year students in Warsaw high schools. Each class was in a different school, and the three subjects of interest (math, physics, Polish) were taught by different sets of teachers in each school. First-year classes were selected on the assumption that states of intellectual helplessness are more likely to emerge at educational thresholds, when the student arrives at a new school with new teachers and is confronted with new (usually greater)
cognitive demands. Indeed, research in the United States reveals the difficulties of the transition to secondary school. Adolescents making this change often experience a decrease in ability self-concepts (Marsh, 1989) and academic intrinsic motivation (Harter, 1981), as well as an increase in anxiety and depressive symptomatology (Hirsch & DuBois, 1991). Further, most students experience a decline in grades following the transition to secondary school (Blyth, Simmons, & Bush, 1978). These symptoms are reminiscent of outcomes related to cognitive exhaustion and intellectual helplessness. Thus, this population is an important one in which to study this phenomenon, and seems a likely one to provide insight into the causes of the condition.

**MAIN DEPENDENT MEASURES: ACADEMIC ACHIEVEMENT AND EMOTIONAL RESPONSE**

The level of academic achievement was the basic variable to be explained. The criteria of academic achievement were grades at the end of the academic year for the subject in question and the level of performance on an achievement test created for this project by outside teachers of the specific topics. These tests were used for two purposes: to assess the level of basic knowledge in a given domain and to assess the ability to use this knowledge in a relatively new, nonstandard context.

We were interested not only in the purely intellectual aspect of the students' functioning but also in their pattern of emotional response. This outcome was diagnosed with an adjective checklist measuring four factors: depression, anxiety, irritation, and positive affect. We wanted to know whether intellectual helplessness was accompanied by any characteristic pattern of emotional response to the particular school subject.

**STYLE OF INSTRUCTION AND INTELLECTUAL HELPLESSNESS**

**ASSESSMENT OF TEACHER BEHAVIOR**

The first objective of the longitudinal study was to evaluate some probable causes of intellectual helplessness. According to the first assumption of the proposed model, an inadequate style of instruction in class may contribute to helplessness in students. In the lab, cognitive exhaustion is created when an individual makes repeated efforts to solve a problem with no progress toward an answer; one determinant of such conditions in the classroom may be teacher behaviors. Thus, we attempted to determine which aspects of instructor conduct contribute to the emergence of symptoms of intellectual helplessness. This information assists in understanding the nature of intellectual helplessness, as knowing specific causes of the phenomenon suggest essential elements. Moreover, knowing which specific behaviors cause the condition has practical import for teacher training and structuring of educational environments.

Several questionnaires were constructed to test this problem. The first instrument asked students directly the extent to which the teacher promoted understanding of the topic. This Promotion of Understanding Scale describes those teacher behaviors that are conducive to learning with comprehension and independent thinking. It was directly inspired by the assumptions in the model of intellectual helplessness: Intellectual helplessness with respect to a given school subject may be caused by an inadequate style of introduction of new material in class. We wanted to know whether the teacher makes sure that students get a good grasp of the new concepts, encourages students to ask questions and signal their doubts, indicates those points where it is easy to go wrong, carefully analyzes the factors underlying incorrect answers, etc. In other words, the scale tests whether the teacher "promotes" understanding when introducing new material. According to the assumptions of the model proposed here, if the teacher does not take care to help students understand the material that is being taught, this may contribute seriously to symptoms of intellectual helplessness with respect to the subject in question.

The second was a scale with eight factors, each based to some degree on Murray's (1983) work isolating separable teaching behaviors that can be rated by students easily and without need of extensive inference. These are stimulating creativity and curiosity, maintaining discipline, "grilling" the students using a criticizing questioning style, expecting verbatim answers and rote learning, using an animated communication style with vivid expressions, stimulating individual student activity, using concrete examples and pictures or diagrams, and making evaluative statements about students' ability.

The third questionnaire simply had students indicate how many minutes are typically taken in lessons by various activities, such as lecturing, prompting students to ask questions, allowing students to voice opinions, explaining how to do homework, and discussing unrelated topics. Cognitive exhaustion is caused by repeated exposure to a particular type of situation. This measure allowed us to examine what types of situations were related to the occurrence of intellectual helplessness.

**EFFECTS OF INSTRUCTION STYLE ON INTELLECTUAL HELPLESSNESS**

The data collection procedure presents a significant difficulty in testing effects of teaching style on the development of helplessness. The same
students simultaneously assessed various aspects of teacher behavior in class and made self-assessments of their intellectual helplessness with regard to these subjects. One cannot trust the validity of simple correlations between these two variables: In each class those students who had trouble mastering a subject cognitively may have had a tendency to depreciate the teacher of that subject (give lower ratings of that teacher's ability to explain and transmit information interestingly, etc.). Therefore, we applied a maximally conservative strategy that greatly reduced the amount of information but allowed us to avoid the distortion of the above-mentioned relation. Scores were averaged within classes and correlational analyses were performed on aggregated data, with the mean scores for each class being the units of analysis. The classes were rank-ordered with respect to their level of intellectual helplessness with regard to a particular subject. The teachers who taught these classes were rank-ordered with respect to their mean scores on the teaching style measures. Because 15 classes participated in the first year of the study and 14 in the second year, this was a risky strategy; the resultant small frequencies decreased the power of the tests.

However, several of the correlations for the aggregated data proved to be quite strong, and the findings for the second year of the study replicated the findings for the first year. Note that we limit our analyses in the longitudinal study to math and Polish, as they were previously determined to be independent, and because the difficulty of the physics test created a floor effect, limiting the usefulness of analysis in this domain. Table 3 displays the significant correlations for math and Polish for both years. For math and Polish, the more the teacher was rated, on average, as promoting understanding, the lower the students' levels of intellectual helplessness. Two of the eight scales in the second questionnaire were related to intellectual helplessness for both math and Polish. The more the teachers stimulated creative thinking about the topics, and the more individual student activity they generated, the less helplessness was evident in their students. Finally, for math only, the more frequently instructors (1) asked students whether there was something they did not understand and settled their doubts, and (2) allowed students to voice their opinions in unrestricted discussion of new topics, the less intellectually helpless the students were. The results are highly consistent with the claim that certain styles of instruction play a crucial role in the development of intellectual helplessness.

An alternative view of the above findings is that it is variance in the abilities of the classes that causes the results, not variability in teaching style. For example, one class may incorporate a large group of gifted and highly motivated students, whereas another class may incorporate many low-achieving and lazy students. This suggests that classes would be di-visible into those that are prone to intellectual helplessness with respect to all academic subjects and those who will manifest excellent intellectual functioning in every domain. In other words, it is irrelevant which type of instructor teaches a particular subject. What is important is the structure of the class: whether the students in that class are gifted or not. If this reasoning is correct, the correlational analysis for the aggregated data should reveal a strong positive correlation between intellectual helplessness with respect to math and Polish. In fact, we find a correlation of only $r = -.07$. The level of "class" helplessness with respect to one subject is unrelated to the level of class helplessness with respect to a different subject. When combined with the results of the previous analyses this outcome shows that the teacher contributes greatly to the development of the syndrome of intellectual helplessness.

Table 3: Teaching Style Predictors of Intellectual Helplessness

<table>
<thead>
<tr>
<th>Teaching style</th>
<th>Math</th>
<th>Polish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion of Understanding Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>-.75***</td>
<td>-.62*</td>
</tr>
<tr>
<td>Second year</td>
<td>-.74**</td>
<td>-.57*</td>
</tr>
<tr>
<td>Factors from Teacher Behavior Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulation of creative thinking: Year 1</td>
<td>-.65*</td>
<td>-.71**</td>
</tr>
<tr>
<td>Stimulation of creative thinking: Year 2</td>
<td>-.76**</td>
<td>-.62*</td>
</tr>
<tr>
<td>Stimulating student activity: Year 1</td>
<td>-.68*</td>
<td>-.63*</td>
</tr>
<tr>
<td>Stimulating student activity: Year 2</td>
<td>-.80**</td>
<td>-.62*</td>
</tr>
<tr>
<td>Amount of time in activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asking students about understanding: Year 1</td>
<td>-.69**</td>
<td>n.s.</td>
</tr>
<tr>
<td>Asking students about understanding: Year 2</td>
<td>-.62*</td>
<td>n.s.</td>
</tr>
<tr>
<td>Allowing students to voice opinions: Year 1</td>
<td>-.51*</td>
<td>n.s.</td>
</tr>
<tr>
<td>Allowing students to voice opinions: Year 2</td>
<td>-.56*</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; *** p < .001; n.s. not significant.

Note: Based on data aggregated within classes: First year n=15; Second year n=14.

Instruction Style, Intellectual Helplessness, and Achievement

Earlier in the chapter, we showed a connection between intellectual helplessness and grades. The current finding demonstrates an influence of teaching style on intellectual helplessness. Given this pattern, a question naturally arises: Is it teaching behavior that is responsible for both helplessness and achievement, with the connection between the latter two variables being spurious? We investigated this using scores on the Promotion of Understanding Scale to predict academic achievement.
Because this is a class-level variable, and achievement and helplessness are individual-level variables, testing their interrelations required some changes in the data. Specifically, in order to generate variability in the promotion of understanding, classes were randomly split into three groups (see Marsh, 1994, for a similar procedure). The averaged scores from these three groups were used as observed measures of the underlying construct of teacher’s behavior, thus providing variability, yet still having the mean differ for different teachers. Using this method, a structural equation model was used to evaluate the relations among teachers’ behaviors, intellectual helplessness, and achievement. See Figure 2 for the model.

The path coefficients for this model are presented in Table 4. As can be seen, promotion of understanding influences both helplessness (path 1) and achievement (path 2). Meaningfully for our model, helplessness significantly alters achievement (path 3) beyond the effects caused by the mutual influence of teacher behavior on helplessness and achievement. Taken together, the indirect effects demonstrate that teaching style and intellectual helplessness influence both grades and scores on the achievement tests. This model provides a clear path from teacher behavior, through helplessness, to achievement.

**CONCLUSIONS**

In reviewing the types of teacher behaviors that predict later helplessness, a pattern appears to emerge. When instructors do not promote understanding, do not stimulate creative thinking about, or active engagement of, the concepts, or, for math, do not allow for discussion of new topics, then students appear prone to become intellectually helpless in that domain. Teacher behaviors that seem more motivational or affective in nature (e.g., an animated teaching style, vocally evaluating students’ abilities) are unrelated to students’ development of helplessness. This pattern suggests that the nature of the phenomenon is cognitively based rather than emotional or motivational. Its root appears to be lack of comprehension. Of course, as noted in the model, such difficulties in understanding
likely lead to aversive emotional outcomes. The next section provides further information on cognitive versus motivational bases of intellectual helplessness.

PSYCHOLOGICAL THREAT AND INTELLECTUAL HELPLESSNESS AS PREDICTORS OF ACADEMIC ACHIEVEMENT AND STRESS

PSYCHOLOGICAL THREAT

The cognitive model of intellectual helplessness presented here differs radically from some popular conceptualizations in educational psychology. The latter emphasize the role of emotional and motivational factors in academic underachievement such as test anxiety and sense of psychological threat (Covington, 1985; Meece, Wigfield, & Eccles, 1990; Sarason, 1980) or generally low academic motivation (Ainley, 1993; Ames & Ames, 1984). The above described relations of teacher behaviors to helplessness suggest, on the other hand, that the more cognitively based intellectual helplessness is responsible for difficulties. Of course, it might be that motivational or emotional factors cause both academic problems and intellectual helplessness. One goal of this longitudinal study was thus to determine whether subjective intellectual helplessness in class may be a significant predictor of later academic failure when the level of subjective threat in that class is controlled.

Extant instruments (e.g., Sarason, 1980) assessing anxiety in scholastic settings focus primarily on responses to written tests. We were interested in negative emotions in a broader range of classroom situations. So, a measure of psychological threat in class was developed for this study (eight items, with alphas ranging from .88 to .93). Many potentially threatening aspects of the student-teacher interaction were taken into consideration: the fear that the teacher might criticize the student’s responses, fear of negative grades, fear of being unexpectedly called on to answer a question, feeling tense when summoned to the blackboard, and the like.

PSYCHOLOGICAL THREAT, INTELLECTUAL HELPlessness, AND ACADEMIC PERFORMANCE

In our initial causal analyses we evaluated the degree to which subjective threat or intellectual helplessness in class was responsible for later poor school achievement.

The subjective scales were administered in the middle of the first semester, whereas the level of school achievement was assessed at the end of the academic year, thus allowing for a stronger causal statement to be possible.

First we tested the very simple model of causal relations presented in Figure 3. This model assumes (1) covariance (without indicating the direction of the causal relation) to some degree between scores on the Intellectual Helplessness Scale and the Psychological Threat Scale (path 1); (2) the causal effect of Intellectual Helplessness on Academic Achievement (path 2); (3) the causal effect of Psychological Threat on Academic Achievement (path 3), (4) definition of School Achievement (a latent variable) in terms of grades at the end of the academic year (path 4) and the scores on achievement tests (path 5). Comparison of the magnitude and significance of paths 2 and 3 for math and Polish allowed us to determine the relative contribution of the two theoretical constructs to low school achievement with respect to these subjects.

The goodness of fit indices were very high for both math and Polish. The standardized values of several of the most important path coefficients (the significance of these coefficients was tested using the z test) are presented in Table 5. We describe the outcome of linear-structural modeling for math first.

If we look at the various elements of the model one by one we see that (1) the Intellectual Helplessness Scale and the Psychological Threat Scale are strongly correlated ($r = .74$) and (2) intellectual helplessness is a signifi-
TABLE 5 Standardized Effects of Intellectual Helplessness and Psychological Threat on Achievement: Results from Structural Modeling

<table>
<thead>
<tr>
<th>Path</th>
<th>Mathematics standard coeff</th>
<th>Mathematics t test</th>
<th>Polish standard coeff</th>
<th>Polish t test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Int. Helpless—Threat</td>
<td>.74</td>
<td>10.13***</td>
<td>.64</td>
<td>9.27***</td>
</tr>
<tr>
<td>2 Int. Helpless—Achievement</td>
<td>-.47</td>
<td>3.87***</td>
<td>-.28</td>
<td>2.73**</td>
</tr>
<tr>
<td>3 Threat—Achievement</td>
<td>-.11</td>
<td>ns.</td>
<td>-.10</td>
<td>ns.</td>
</tr>
<tr>
<td>4 Achievement—Grades</td>
<td>.55</td>
<td>ns.</td>
<td>.65</td>
<td>ns.</td>
</tr>
<tr>
<td>5 Achievement—Test</td>
<td>.24</td>
<td>2.31*</td>
<td>.57</td>
<td>3.33***</td>
</tr>
<tr>
<td><strong>Indirect effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Int. Helpless—Grades</td>
<td>-.31</td>
<td>3.87***</td>
<td>-.18</td>
<td>2.73**</td>
</tr>
<tr>
<td>Int. Helpless—Test</td>
<td>-.12</td>
<td>2.11*</td>
<td>-.16</td>
<td>2.50*</td>
</tr>
<tr>
<td>Threat—Grades</td>
<td>-.07</td>
<td>ns.</td>
<td>-.06</td>
<td>ns.</td>
</tr>
<tr>
<td>Threat—Test</td>
<td>-.03</td>
<td>ns.</td>
<td>-.06</td>
<td>ns.</td>
</tr>
</tbody>
</table>

Note: Mathematics: Bentler-Bonett Goodness of Fit Index = 1.00, Polish: Bentler-Bonett Goodness of Fit Index = .99.

*p < .05, **p < .10, ***p < .01; ns., nonsignificant.

ment in that subject. This factor contributes considerably more strongly than subjective psychological threat to the deterioration of academic achievement (both factors are positively correlated). Note that this has been confirmed in two independent analyses, performed separately for math and Polish.

PSYCHOLOGICAL THREAT, INTELLECTUAL HELPLESSNESS, AND AFFECTIVE STATES

Our proposed approach indicates that the state of intellectual helplessness in classes is the result of prolonged cognitive uncontrollability at school lessons. Since the classic studies of Lazarus and Folkman (Folkman, 1984; Lazarus & Folkman, 1984), studies of various processes of adaptation to stressful situations have put increasing emphasis on the dimension of event controllability/uncontrollability, which is viewed as a significant determinant of the type of coping response applied in a given situation (Terry, 1994; Valentiner, Holahan & Moos, 1994). When the situation is beyond control, negative emotional responses (depression, anxiety) and emotion-focused coping responses are more likely to appear. On the other hand, when the stress situation is perceived to be controllable, the more likely responses are solution-focused coping and, once a successful solution has been found, considerable goal-directed effort aimed at managing the threatening situation.

These ideas lead us to expect an interactive relation between intellectual helplessness and psychological threat in predicting negative affective states in class. When intellectual helplessness is severe (i.e., in cases of prolonged exposure to cognitive uncontrollability), psychological threat should evoke a more intense depressive emotional response than when intellectual helplessness is relatively benign. Threat will lead to depression when control is lowest. In order to test this hypothesis, hierarchical regression analyses were carried out for the different affect scales. In this model intellectual helplessness is a moderator (cf. Baron & Kenny, 1986) of the relation between psychological threat and depression at classes. As usual, the principal predictors were analyzed first and the interactions were analyzed in the next step. Psychological threat was found to be a generally more powerful predictor of depression than intellectual helplessness. However, the interaction of the two variables was also a significant predictor of depression for all the academic subjects studied.

The interactions work in the expected direction: An increase in psychological threat leads to a dramatic increase in reported depression but only in those students who are intellectually helpless at the particular classes. An increase in psychological threat does not lead to any significant increment in depression in those students who are not intellectually hel-
less. (We may therefore predict that if a teacher who is strict but very lucid increases his or her demands, those students who have no trouble understanding the lessons will respond with increased academic motivation, not depression).

Results for anxiety and irritation were similar to those of depression, but not as strong. The experience of positive emotions also evinced an interaction between threat and helplessness, but in a way different than those for the negative emotions. It appears that only students who were not at a state of intellectual helplessness were responsive to the degree of threat in the class. Helpless students simply experienced very few positive feelings. Nonhelpless students experienced positive feelings when threat was low, with the amount decreasing as the degree of threat increased. Only under situations of low threat, and only for nonhelpless students, did participants report a large number of positive feelings.

EXPERIMENTAL EVIDENCE OF CONTEXT SENSITIVITY AND THE COGNITIVE NATURE OF INTELLECTUAL HELPLESSNESS

The previous analyses of intellectual helplessness used questionnaire data. Based on these results, we have proposed that the underlying deficit in intellectual helplessness is cognitive, not motivational. Further, we have argued that this is a context-bound phenomenon, occurring only when cues evoke the state. We tested these ideas more directly in a recent laboratory study (Sedek & McIntosh, 1996). First, we evaluated performance in two tasks varying on cognitive demand (using a version of the dual-task procedure developed by Necka, 1996). Generalized motivational deficits, which are central to both the classic model of learned helplessness (e.g., Maier & Seligman, 1976; Seligman, 1975) and an egotism explanation of helplessness (Frankel & Snyder, 1978), should cause decrements in performance in both the single- and dual-processing tasks, regardless of how cognitively demanding each is. Cognitive deficits, on the other hand, should occur only when more cognitive resources are needed for proper performance (i.e., during the dual-processing task; cf. Pashler, 1994). Second, we tested the hypothesis that persons who are helpless in a specific cognitive domain will manifest deteriorated controlled processing only when that domain is cued.

From the entire sample of 216 high school students who completed the Intellectual Helplessness Scale with respect to Polish and math, 40 students manifesting clearly contextual helplessness were selected: 20 students reported helplessness at math classes and quite good functioning at Polish classes, the remaining 20 students reported just the opposite—they were only intellectually helpless at Polish lessons.

The laboratory experiment had a $2 \times 2 \times 2$ design (person $\times$ situation paradigm): Domain of Helplessness (Polish or math), Task Context (Polish or math, invoked using a 5-min test on material recently discussed in either Polish or math classes), and Cognitive Demand (single vs. dual task). The latter was a within-subjects factor. Subjects who were helpless in either Polish or math completed the Task Context quiz, which covered topics either relevant or irrelevant to their domain of helplessness. After completion of the quiz, subjects engaged in tests of attentional resources within the dual-task paradigm. They were given two series of tasks, first single then dual (the structure of this part of the experiment was identical with the structure of Study 3 reported by Kośta and Sedek, Chapter 16, this volume). The single, primary task involves repeatedly determining whether a target lowercase letter presented on a computer screen (e.g., a) is the same as a previously presented capital letter (e.g., A); it is an easy task and requires only motivation to perform well. The dual task is more demanding, and requires not only motivation, but also greater cognitive resources. During the dual-task segment, subjects must complete not only the primary task, but must also simultaneously use computer mouse controls to keep a horizontal line, presented on the screen beside the letter field, from drifting out of a defined area (when it drifts out, an unpleasant noise is generated). Outcome is measured in accuracy (number of correct hits) for the primary task.

A significant interaction among Domain of Helplessness, Task Context, and Cognitive Demand would provide confirmation of our hypothesis. Math-helpless students should demonstrate worse performance only in the math context, and only for the dual task. Polish-helpless students should show poorer performance only in the Polish context and only for the dual task. No cross-domain effects should occur (e.g., math-helpless students should have no trouble solving the dual—cognitively demanding—task when that task is preceded by a Polish language test).

This interaction was found. Performance on the main task showed a clear-cut $2 \times 2 \times 2$ interaction: Task Context $\times$ Domain of Helplessness $\times$ Cognitive Demands, $F(1, 36) = 5.13, p < .05$ (see Figure 4).

It is obvious that the predicted disturbance in attention allocation emerged only for the dual tasks; activation of a mathematical context was followed by a clear-cut deterioration of performance in persons manifesting intellectual helplessness with respect to math and, mirroring this, activation of a Polish-language context was followed by deterioration in performance only in persons manifesting intellectual helplessness in this domain.

To summarize, this study demonstrates the power of contextual cues to evoke intellectual helplessness, and the significance of cognitive per-
performance as the primary deficit. These domain-specific findings differ from the generalized effects usually found in studies of learned helplessness (or cognitive functioning in depression). We have obtained powerful experimental confirmation of the contextual nature of the phenomenon under discussion. Performance on cognitively demanding, dual-task problems (requiring flexible allocation of cognitive attention resources) only deteriorated following previous activation of the cognitive domain for which specific intellectual helplessness had developed.

GENERAL CONCLUSIONS

The research program presented here was inspired by our previous experimental work on learned helplessness in the psychological laboratory (Kofa & Sedek, 1988; Sedek & Kofa, 1990; Sedek et. al., 1993; Sedek & McIntosh, 1996). The model of intellectual helplessness at school was based on the assumptions of the informational model and postulated that cognitive helplessness training may also take place in class, at school, when the student, despite intensive cognitive effort, is unable to understand new material.

The presented results demonstrate that intellectual helplessness is neither an "artificial laboratory entity" nor a negligible subjective experience, but that it may develop as a very significant disturbance of the educational process. If such intellectual helplessness develops in a given domain it may curtail the development of intellectual potential in that domain, leading to low achievement for specific academic subjects and later to severe consequences, blocking the realization of vital goals and plans (Cantor & Langston, 1989). This chapter provides an overview of longitudinal and experimental data showing domain specificity of the phenomenon, its cognitive basis, and causal relations between specific aspects of teaching style, intellectual helplessness, and academic achievement.

NOTES

1. Note that there are similarities between this conceptualization and Hasher and Zacks's (1988) discussion of difficulties in learning with comprehension among the elderly.
2. For a more detailed discussion of the mechaniss of intersubjective compensation, see Marsh, 1990, 1992; also consider the self-esteem processes discussed by Steele, 1988.

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REFERENCES


