Adolescents with Learning Disabilities: A Comparative Life-Stream Interpretation

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The subjective experiences of adolescents with learning disabilities (LD) were compared to those of their low-achieving and normally achieving peers. Three groups of juniors and seniors from one suburban high school district, 18 students with learning disabilities (15 males, 3 females), 17 low-achieving students (12 males, 5 females), and 20 average-achieving students (12 males, 8 females), were given electronic pagers and booklets for 1 week. They were signaled every 40 minutes during school hours, and every 2 hours after school. As soon as possible after receiving a signal, they responded to questions in their booklets. The questions provided subjective measures on levels of affect, activation, cognitive efficiency, self-esteem, motivation, and feedback from others. The students with learning disabilities reported feeling more positive and active than either of the other groups during school hours, while after school there were no differences on any of the subjective measures for the three groups. Specific LD school practices are highlighted for their probable impact on the heightened affect and activation of the students with learning disabilities.

> What must be admitted is that the definite images of traditional psychology form but the very smallest part of our minds as they actually live. The traditional psychology talks like one who should say a river consists of nothing but pailsful, spoonsful, quartsful, barrelsful and other moulded forms of water. Even were the pails and pots all actually standing in the stream, still between them the free water would continue to flow. It is just this free water of consciousness that psychologists resolutely overlook. Every definite image in the mind is steeped and dyed in the free water that flows round it. With it goes the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead. (James, 1985, p. 32)

Adolescence is a phase in the life span when critical development occurs relative to identity, autonomous social relations, and occupational choices. Psychologists have mapped this period via an assortment of research methodologies, such as clinical techniques (Blos, 1967; Erikson, 1980); questionnaires/interviews (Broughton, 1981; Offer, Ostrov, & Howard, 1981; Youniss & Smollar, 1985); experiential sampling (Csikszentmihalyi & Larson, 1984); and observational research (Coleman, 1961; Parson, 1954). Although results from these various methodologies have not yielded consensus regarding the nature of adolescent development, they have created a rich theoretical and practical terrain in which dialogues among professionals, academicians, and parents can occur on the multiple dimensions of adolescent life.

In contrast, the pluridimensionality of the life space of adolescents with learning disabilities has not been mapped. In large part this is because, until recently, most of the research in the field of learning disabilities was oriented to understanding the defining cognitive characteristics of individuals with learning disabilities. This research agenda has evolved from the field's recent positioning within the educational domain and the concomitant imperative to describe the cognitive processes that differentiate the individual with learning disabilities from other school-defined exceptionalities. Research on adolescents with learning disabilities has been constrained by this orientation, as well as by the field's assignment of priority to early identification and remediation.

However, the process of maturation, both in the field of learning disabilities and in individuals with school-defined learning disabilities, has required a shift in the research agenda. It has become apparent to professionals and parents that for the individual with learning disabilities, development differentially interacts with varying social practices. Additionally, specific kinds of learning disabilities affect the course of individual social, emotional, and occupational development. Researching this broad situation/person interactional perspective has presented a challenge to the field. From a theoretical perspective, decisions regarding the context in which this interaction occurs must be made; research tools different from the ones currently used in cognitive research must be developed.

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Furthermore, relationships between cognition and social-emotional development must be systematically explored. Adolescence is a particularly important period within which to investigate these critical interactional patterns, as significant and lasting life orientations seem to occur during this phase in the life span (Csikszentmihalyi & Larson, 1984).

Recognizing the need to understand the life space of adolescents with learning disabilities more broadly, researchers have addressed their personal and social situations through questionnaires (Alley, Warner, Schumaker, Deshler, & Clark, 1980; Deshler, Schumaker, Warner, Alley, & Clark, 1980; Pickar & Tori, 1986; Raviv & Stone, 1991); clinical investigations (Cohen, 1985); and interviews (Cruickshank, Morse, & Johns, 1980). Research from an epidemiological study of adolescents with learning disabilities (LD) and low-achieving (LA) adolescents (Alley et al., 1980; Deshler et al., 1980) indicated that on most of the social skill areas investigated, LA adolescents and adolescents with LD could not be differentiated from each other, but that both groups differed from their average-achieving peers. Adolescents with learning disabilities and low-achieving adolescents were inferior to their normally achieving peers on social-emotional behaviors and the ability to adapt to classroom and school demands. Pickar and Tori, employing an Eriksonian self-report questionnaire, found that adolescents with learning disabilities scored significantly lower scores on the industry scale of Erikson's fourth stage of "industry versus inferiority," suggesting that navigating adolescence would be more problematic for them. Also, Pickar and Tori, using the Piers-Harris Children's Self-Concept Scale, found no differences in overall self-concept between their groups of adolescents with and without LD but found lowered self-perceptions in the former on two of the clusters ("intellectual and school status" and "popularity"). Raviv and Stone, using the Self-Image Questionnaire for Adolescents, found that adolescents with learning disabilities scored significantly lower than their normally achieving peers on 4 of the 10 subscales. Adolescents with learning disabilities perceived themselves as being less capable of coping with the internal and external demands of their worlds and had poorer self-images of their bodies than their non-LD peers. In clinical therapy with a group of 15 adolescents with learning disabilities, Cohen found that they displayed an unusually high tendency to experience distress and anxiety and a low-level chronic depression relative to their non-learning disabled peers also in therapy. These psychological tendencies would contribute to poor adaptive coping strategies and ego rigidity. In Cruickshank et al.'s interview study of five male adolescents with learning disabilities, they found that the adolescents' adjustment to the postsecondary real, everyday world was constrained, albeit differentially, by their learning disabilities and disorders, in spite of having participated in a clinical teaching program in their elementary years.

Although these and other studies have yielded important information in such critical areas as self-concept, ego development, and general social adaptability, their results reflect primarily one kind of information about the life situations of adolescents with learning disabilities: The methodologies used in these studies rely on individuals' recollections of feeling/thinking states in past situations. This kind of information has been described by Freeman, Csikszentmihalyi, and Larson (1986) as "recollective interpretation," essentially a reflective cognitive process, in which past experiences are filtered through current interpretations. Undeniably, this is an important kind of knowledge and informative about the development of conscious processes in individuals, particularly as they relate to identity representations. However, this kind of knowledge objectification does not inform us about individuals' immediate, ongoing responses to myriad situations that have formed the living, experiential material out of which the recollective interpretation is in some part constructed.

Almost a century ago, James (1985) articulated a criticism of methods in traditional psychology on the grounds that individual consciousness in experience was not addressed. This issue has been addressed by other philosophers, sociologists, and psychologists critical of research that privileges decontextualized thought. Heidegger (1962) submitted that to understand someone, one had to observe his or her ways of "being-in-the-world." These modes of being represented his or her orientation toward the world and were the result of that individual's particular lived experiences. Bourdieu (1990), in a yet more extreme position, directed researchers' attention to the practices of human beings in ordinary, practical activities. His view was that the objectification of human beings' practical activity through standard social science research distorts the nature of their immediate, practical responses to ongoing life situations.

Epstein (1983, 1985) proposed that to understand someone, one must uncover his or her "cognitive-experiential self theories." These self-theories are implicit theories of reality that individuals develop in the course of living and that shape their perceptions and behavior. Organized as conceptual systems, these self-theories contain postulates about the self and the world that were originally derived from emotionally significant experiences. Epstein (1983) viewed individuals as possessing three broad conceptual systems: a rational system, an experiential system, and an associative system. The rational system has to do with intellectual life, the associative system with unconscious processes, and the experiential system with everyday practical living. Epstein (1983, 1985) saw the experiential system, in which self-theories develop, as most critical in creating the quality of one's daily life. Self-theories operate in a preconscious, automatic manner to

judge reality and direct behavior to that reality. Because these interpretive conceptual systems operate outside of conscious awareness, individuals cannot described them upon request. However, Epstein (1983) saw emotions and moods, as well as repetitive behavior patterns aggregated over time and situation, as markers for ascertaining the underlying postulates in individuals' self-theories. The aggregation of internal experiences and external behavior in the natural milieu has the advantage of being particularly sensitive to the impact of specific situations on response patterns.

The field of learning disabilities has been presented with a challenge. Recent research on adults with learning disabilities (e.g., Gerber & Reiff, 1991; Malcolm, Polatajki, & Simons, 1990; Scuccimarra & Speece, 1990; Siegel & Gaylord-Ross, 1991) indicates that problems related to learning may not disappear with termination of school but, rather, can be manifested in difficulties of management in ordinary adult arenas, such as work, independent living, and interpersonal relations. Although the impact of specific learning disabilities on postschool domains is dependent on the interaction of individual and social factors, the indisputable fact that problems of adaptation persist into adult life has created the need to understand adolescent and adult development in broader ways. Not only should we understand the ways adolescents and adults with learning disabilities objectify their life situations through processes that elicit conscious "recollection interpretation," but, also, it is important that individuals' immediate, preconscious responses to the flow of activities in their world be ascertained. It is in the immediate responses to life situations that individuals' values and motivations are revealed (Epstein, 1983; James, 1983). James articulated his position on these preconscious responses in the following way: "These psychic dispositions are the most enduring and intimate part of the self, that which we must verily seem to be" (p. 283).

Thus, exploring the self-theories of adolescents with learning disabilities could tell us who they seem to be, and what their values, motivations, and internal scripts seem to be. Comparing their everyday views to those of their low-achieving and average-achieving peers yields information on between-group similarities and differences and might inform us about the differential impact of life experiences on the preconscious self-development of the three groups. Furthermore, in this kind of analysis we could explore the issue of whether there are unique internal and external experiences for adolescents with learning disabilities that might characterize their adolescence and affect their future attitudes and capabilities in adult domains.

In the present study, adolescents with learning disabilities and low-achieving and average-achieving adolescents participated in the Experience Sampling Methodology (ESM) designed by Prescott, Csikszentmihalyi, and Graef (1976). Known as the "beeper" methodology, ESM allows for the collection of subjective data over time and situations. In this study, 55 adolescents were given electronic pagers and booklets containing subjective and objective questions. Over the course of 7 days, during and after school hours, they were sent random signals, and as soon as possible after receiving a "beep" they responded to the questions in their booklets. The questions provided subjective measures on levels of affect, activation, cognitive efficiency, self-esteem, motivation, and feedback from others in the context of the flow of their daily activities. For this phase of the study, subjective measures were analyzed for the two contexts of school and after school.

Method

Subjects

Subjects included 18 high school students with LD (15 males and 3 females), 17 low-achieving students (LA) (12 males and 5 females), and 20 average-achieving students (AA) (12 males and 8 females). All subjects were juniors or seniors in one suburban high school district in a large metropolitan area. Except for two LA males who were African American, all subjects were white and came from middle class families. Everyone spoke English as a first language. The students were introduced to the study in classrooms that were specifically designated special classrooms (i.e., LD resource or LD subject matter), or content classrooms classified as basic level or average level. Thus, the initial pool of subjects was derived from the primary school classification (i.e., LD, LA, or AA) that placed students in a particular course of study. Table 1 summarizes the descriptive data for the three groups.

A screening test of cognitive ability, The Brief Scale Cluster of the Woodcock-Johnson Psycho-Educational Battery–Tests of Cognitive Ability (Woodcock & Johnson, 1977), and three achievement assessments—Letter-Word Recognition, Passage Comprehension, and Mathematics Cluster from the Woodcock-Johnson Psycho-Educational Battery–Tests of Achievement—were administered to all of the students. A one-factor ANOVA indicated significant group differences, $F(2,52) = 16.0666$, $p < .001$, in cognitive functioning. Post hoc analyses using Fisher PLSD and Scheffe indicated that AA students received higher cognitive scores than the students with LD or the LA students. No differences on this cognitive measure were found between the students with LD and LA students. A one-factor ANOVA indicated significant group percentile differences for Letter-Word Recognition, $F(2,50) = 14.315$, $p < .001$, and for Passage Comprehension, $F(2,49) = 3.836$, $p < .05$. The AA students scored significantly better on both of these reading measures than the students with LD or the LA students. There were no differences on these reading measures between the students with LD and LA students. Results of a one-factor ANOVA of the three groups'

TABLE 1
Characteristics of the Learning Disabilities, Low Achievement, and Average Achievement Samples

Group	Sex	Age in years	Intelligence[a] (Std. scores)	SES[b]	Woodcock-Johnson achievement scores (percentiles)		
					Letter-word recognition	Passage comprehension	Math cluster
LD	F = 3 M = 15	18.22 (.88)	94.4 (9.7)	3.4 (1.0)	30.3 (19.1)	16.6 (14.4)	27.2 (19.8)
LA	F = 5 M = 12	17.12 (.33)	95.1 (10.8)	3.1 (0.8)	33.4 (19.1)	18.3 (19.2)	27.5 (25.8)
AA	F = 8 M = 12	17.7 (.66)	112 (11.8)	3.0 (1.1)	58.9 (15.9)	32.2 (24.2)	61 (29.2)

Note. The column entries represent means; standard deviations appear in parentheses.
[a]Woodcock-Johnson Brief Scale. [b]Two Factor Index of Social Position, Hollingshead (1965).

performance on the Mathematics Cluster indicated significant group percentile differences, $F(2,51) = 10.971$, $p < .001$. The AA students scored significantly higher than the students with LD or the LA students. No differences were found between the students with LD and the LA students.

All of the students with LD had been school identified with learning disabilities. The district used five criteria in its eligibility formula for learning disabilities: (a) classroom functioning, (b) a diagnosis of primary condition resting on exclusion of other factors, (c) IQ in the low-average range or above, (d) evidence of processing difficulties, and (e) 1 standard deviation below expectancy in at least two of the following areas—reading comprehension, mathematics calculation, mathematics problem solving, reading skills, written expression, oral expression, or listening comprehension. The high school students with learning disabilities were enrolled in the LD resource room for one or two periods a day and/or an LD self-contained classroom for one or two periods a day, or were on a monitor status. Monitor status was conferred on students with learning disabilities who had been previously scheduled in the resource room but now were mainstreamed. These students could choose to access the resource room upon need, either during class time when they needed individual assistance or during lunchtime. The low-achieving classes were designed for students who were achieving 2 years or more below grade level and/or below the third stanine in the primary skills of reading, language usage, and mathematics. The low-achieving students were enrolled in one to two basic-level classes and/or one to five vocational education classes, and were not receiving any special school services. The average classes were designed for students who were near grade level in subject achievement. All of the average-achieving students were enrolled in mostly average classes (three to five) and no basic-level classes, and also were not receiving any special school services. Only six AA students were enrolled in any type of vocational education classes, and five of the six classes were business related, rather than the more standard vocational training courses. Table 2 presents the schedules of the individual students by class type.

To select eligible subjects, we gave the criteria for the three groups to the directors of special services in each of the four participating high schools. Each director then recommended certain classrooms in which there was a preponderance of students who met the criteria. The study was presented to the students in the selected classrooms upon the consent of the classroom teachers. The students were told that the study was an invitation to "tell your story, to tell how things and events feel to you as they happen over the course of one seven-day week." Volunteer students were given a packet of materials that included a cover letter from the director of special services, a consent form, and a stamped, addressed envelope.

Instrument and Procedure

Each participating student was given an electronic pager, or beeper, and a booklet for one complete week. Signals were transmitted to them from 6:30 a.m. to 11:00 p.m. Sunday through Thursday, until 1:00 a.m. on Friday, and until 2:00 a.m. on Saturday. The signals were computer randomized every morning. Students received signals once in every 40-minute class period during school hours, and once every 2 hours during nonschool hours. Because of some telephone transmission difficulties and scheduling conflicts with students, some variability existed in the number of signals each student received.

The spiral-bound booklet was pocket-sized and contained a set of subjective and objective questions arranged in repeating three-page units. The questions were adapted from past ESM studies (Csikszentmihalyi & Larson, 1984; Freeman et al., 1986) and from suggestions made by M. Csikszentmihalyi (personal communication, 1987). The subjective categories were *Affect*, consisting of the four bipolar subscales of Cheerful-Irritable, Sociable-Lonely, Friendly-Angry, and Happy-Sad; *Activation*, consisting of the four bipolar subscales of Alert-Drowsy, Strong-Weak, Active-Passive, and Excited-Bored; and *Cognitive*

TABLE 2
Categories of Classes of Individual Students in Each Group and Numbers of Hours Per Day in Each Category[a]

Subject code	Resource and self-contained	Basic level class	Vocational ed.	Average level	Fast	Accelerated or honors	Off-campus work
LD							
BG01	1	1	2	2			
BG02	1	2	2	1			
H01	2		3	2			
H02	1		2	1			3
H04	1	1	2	2			
P03	1		2	2			
P10	1	2	3				
P13	Monitor		4	2			
P16	Monitor	2	3	1			
P17	1	1		3			
RM04	Monitor	1		3			
RM05	Monitor	1	1	2			3
RM07	2		3				
RM08	2	2	1				
RM10	1	3		1			
RM14	Monitor	1	5				
RM15	Monitor	1	2				
RM20	1	1		3			
Basic							
BG03		2	1	2			
BG07		1	1	2			3
BG076		1	1	2			
H05		1		3			
H06		3	2	1			
H07		2	1	1			
H12			1	3		1	
H14			5	2			
P02		1	2	2			
P04		2		2			
P11		2	1	2			
P14		1	1	3			
P15		2	1	1			
RM02			1	4			
RM06		1	1	3			
RM09		4	1				
RM11		1	1	3			
Average							
BG08				5			
BG14				4			
BG15				4			
BG17				4			
H13			1	4			
P01				4			
P06				5			
P09			1	3			
RM18			1	3	1		
RM19				3	1	1	
RM21				4			
RM22			1	3			
RM23				5	1		
RM24			1	4			
RM25				4		1	
RM26				3		2	
RM27			1	4			
RM28				5			
RM29				3	1		
RM30				5			

[a]Music, art, and physical education are not included.

Efficiency, consisting of a 9-point graduated scale for Concentration and Ease of Concentration and a bipolar Clear–Confused scale. All of the bipolar subjective measures were on a −3 to +3 scale. In addition, there were individual items probing Motivation, Challenges of the Activity, Positive or Negative Feedback From Others, and Self-Esteem. All of these subjective items were on a scale of 0 to 9, except for Feedback From Others, which had a range of −3 to +3. Figure 1 presents a replication of the three-page response unit from the booklet.

Before the study began, students met in small groups for an orientation session. The students with learning disabilities met in groups of two or three to facilitate their understanding and comfort with the beeper and the items in the booklet through individual attention. The other students met in groups of five. The primary purpose of this meeting was to introduce the students to the beeper and the booklet, and to allow them to actually respond to one signal. The items in the booklet were read to all of the students and briefly discussed. The students were told that after receiving a beep they were to turn off the beeper and, as soon as possible, respond to the questions in their booklets. They were instructed to respond very quickly to the subjective questions; this was to maximize the chances of obtaining their preconscious feelings rather than their conscious ones. After allowing time for questions, a trial run was executed. This was to allow the students to practice managing both the beeper and booklet, and to raise any additional questions that might have arisen during the course of responding. They were informed that the pager had a memory, so that if they were unable to respond because of circumstances such as sleep, test-taking, or employment, their beepers would have registered the received signal and they could respond to the questions in the booklet at a later time. They were provided the reseacher's telephone number and encouraged to call if they had any prob-

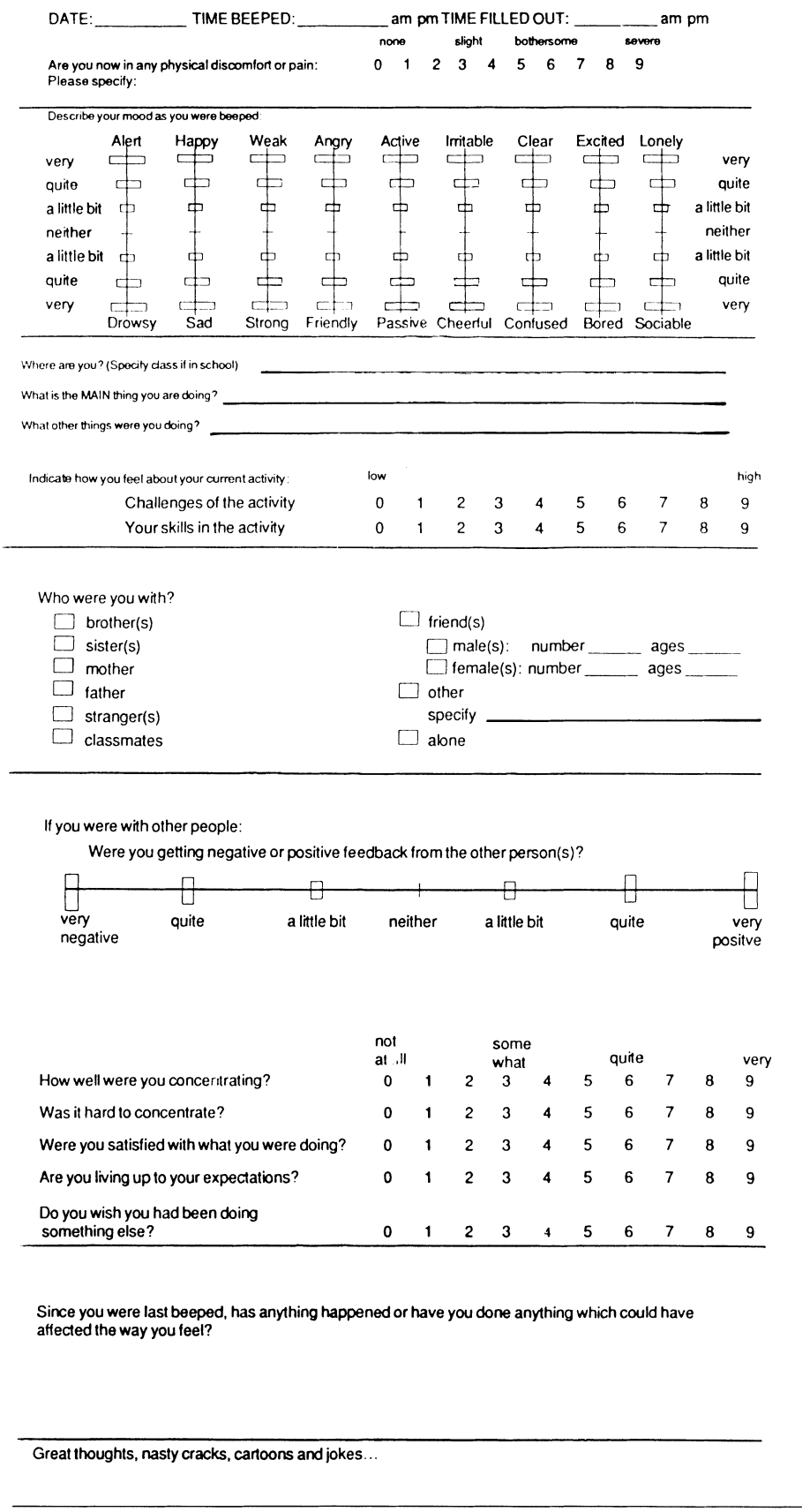

FIGURE 1. Response booklet.

lems during the week, such as beeper malfunction or booklet loss. Also, they were informed that the researcher would be in school during the entire first day of the study and part of the fourth, and would be available for addressing any problems that arose during the day. By design, the booklets contained only enough entries to last for 4 days. When turning in the first book and acquiring the second, the students and the researcher were able to meet personally for spontaneous discussion, as needed.

On the evening of the first day of the study, each participating student was telephoned to verify that she or he had received approximately the number of signals that had been programmed (design by Jones & Ksander, 1988) in the computer for that day. In addition, this conversation provided an opportunity for the students to ask questions or discuss any concerns that might have surfaced.

At the end of the week, the researcher returned to collect beepers and booklets and to conduct the individual intellectual and achievement testing described earlier. In addition, each student was interviewed regarding her or his reactions to the study.

Results

Two one-way analyses of variance were performed using group response rate during school hours or after school hours as the dependent variables. *Response rate* was defined as the percentage of responses relative to the total number of signals each adolescent was sent. Results indicated that no significant differences existed among the three groups in response rate while in school, $F(2,52) = .831$, $p = .441$, or outside of school, $F(2,52) = 1.081$, $p = .347$. This similarity in response rate for the three groups suggests that the subjective measures represent general group tendencies during and after school hours, and, therefore, group analyses could be legitimately performed. The average response rate of the students during school (58%) is only somewhat lower than the overall response rate for the heterogeneous group of high school students (69%) in the Csikszentmihalyi and Larson (1984) ESM study. Although a higher response rate would have been desirable, a cutoff point for inclusion was not employed in this particular study because of its exploratory nature. In the original study, the individual student means were graphed for all of the significant findings, as a way to further observe the degree of similarity in response tendency. Given the narrow response range of most of the subjective data (-3 to $+3$), it is unlikely that the outliers or low responders would affect the directionality of the general findings. However, future investigations are needed to confirm or disconfirm the group findings from this study. Table 3 provides a summary of the ranges, means, and standard deviations for each group's response rate during and after school.

Because there was homogeneity among the three groups on response rate, parametric statistics were used in the subsequent between-group subjective analyses. To determine whether adolescents with learning disabilities differ from their low-achieving and average-achieving peers on any of the subjective measures during school or after school, the mean values of the three groups on each subjective category were compared. These values were obtained by summing across the subscales for each subjective category per response per individual, and then deriving an individual student average for that subjective category while in school and outside of school. As presented in Table 4, when the three subjective categories of Affect, Activation, and Cognitive Efficiency were submitted to one-way analyses of variance, no group differences emerged in subjective responses within these categories after school. However, during school there were significant differences on the Affect scale, $F(2,52) = 3.61$, $p < .05$, and the Activation scale, $F(2,52) = 7.65$, $p < .01$. A post hoc analysis (Fisher PLSD) indicated that the students with learning disabilities felt more positive during school than either of the other groups. Post hoc analyses (Fisher PLSD and Scheffee F test) indicated that the students with learning disabilities also felt more active during school than either of the other groups. When analyses were executed controlling for gender differences on these two scales during school, the effect of group remained the same.

The four subscales of the Affect and Activation scales and the three subscales of the Cognitive Efficiency scale, both during and after school, were submitted to one-way analyses of variance to elucidate the differences and

TABLE 3
Response Rates for the Three Subject Groups During and After School

Group		During school	After school
LD	Mean (%)	54.37	41.18
	Range (%)	17–100	14–64.4
	SD	24.29	15.55
LA	Mean (%)	56.82	34.02
	Range (%)	22–89	2.1–84
	SD	17.62	22.22
AA	Mean (%)	62.85	41.77
	Range (%)	23.81–91	22.22–77
	SD	20.26	16.95

Note. LD = learning disabilities; LA = low achievement; AA = average achievement.

TABLE 4
Means, Standard Deviations, and Significance of Group Differences of Reported General Affect, Activation, and Cognitive Efficiency

		During school		After school	
Affect[a]	LD	5.64	(2.70)	3.46	(2.06)
	LA	3.79	(2.73)	2.82	(2.89)
	AA	3.62	(2.15)	3.51	(2.42)
	F Value[b]	3.607*		.421	
Activation[a]	LD	4.53	(2.67)	2.57	(3.56)
	LA	1.41	(2.70)	2.40	(2.09)
	AA	1.50	(2.84)	2.49	(3.19)
	F Value[b]	7.652**		.013	
Cognitive efficiency[c]	LD	.19	(.55)	−.04	(.60)
	LA	−.18	(.59)	.23	(.73)
	AA	−.01	(.75)	−.16	(.58)
	F Value[b]	1.451		1.706	

Note. LD = learning disabilities; LA = low achievement; AA = average achievement. Numbers in parentheses are standard deviations.
[a]Means of means. [b]*F* tests based on 2 and 52 degrees of freedom unless otherwise noted. [c]*Z* score transformation.
*$p < .05$ **$p < .01$.

similarities on these measures. These values were obtained by calculating individual student averages on each subscale. On the Affect scale, there were significant differences on the Sociable–Lonely subscale, $F(2,52) = 4.16$, $p < .05$. Post hoc analyses indicated that the students with learning disabilities reported feeling more sociable during school than the AA students. In addition, there was a trend toward group differences on the Cheerful–Irritable subscale, $F(2,52) = 2.51$, $p = .0912$. Post hoc analyses indicated that the students with learning disabilities reported feeling more cheerful than the LA students.

All of the subscales of the Activation scale indicated group differences in the same direction. The students with learning disabilities reported feeling more active during school than either of the other groups on all of the measures of Activation: Alert–Drowsy, $F(2,52) = 5.33$, $p < .01$; Strong–Weak, $F(2,52) = 3.36$, $p = < .05$; Active–Passive, $F(2,52) = 7.50$, $p < .01$; and Excited–Bored, $F(2,52) = 4.58$, $p < .05$.

There was a trend toward group differences on the Clear–Confused subscale, $F(2,52) = 3.14$, $p = .052$. Post hoc analyses indicated that the students with learning disabilities tended to feel clearer during school than either the LA or the AA students.

Only one other subjective measure indicated a trend toward group differences. On the two combined 9-point self-esteem measures, there was a tendency toward group differences during school, $F(2,52) = 3.02$, $p = .058$. Post hoc analyses indicated that the students with learning disabilities were more self-satisfied as a group during school than the AA students.

Discussion

The data from this study indicate that the subjective response patterns of the three groups on the internal dimensions of affect, activation, cognitive efficiency, and self-esteem were different during and after school. During school hours, there were significant differences among the groups on measures of affect and activation. On both of these emotional scales, the students with learning disabilities reported feeling more positive and active than the other two groups during school. Yet, after school hours, the subjective patterns of the students with learning disabilities and their peers were indistinguishable according to statistical methods of comparison (see Figures 2 and 3).

Past research on the subjectivity of adolescents with learning disabilities collected through clinical interviews and assessments has suggested that a significant number of adolescents with LD feel depressed and/or anxious (Brumback & Staton, 1983; Cohen, 1985). An assumption of stability of these feeling states would have led one to predict that the students with learning disabilities in this study would generally feel less happy and, perhaps, less energetic than their peers. This was not upheld. In fact, a picture of the adolescent with learning disabilities as more content and energetic than her or his peers, at least during school hours, clearly emerges from the data.

The results from the epidemiological study on adolescents with learning disabilities conducted by Deshler et al. (1980) would offer confirmation of this positive orientation to school on the part of the students with learning disabilities. These researchers found that students with learning disabilities were more satisfied with their performance in school than LA students. Myers and Wiseman (1978), in their study of the attitudes of adolescents with learning disabilities toward school, also found that the majority of the students perceived their school relationships as positive and felt pleased with the results of their schoolwork.

It may be that the students with learning disabilities in the present sample were not more evidently depressed and/or anxious than their peers primarily because their problems were identified early on in their school lives (all except three were identified as LD in the primary grades), and their subsequent special placement has been positive and therapeutic for them. This orientation would agree with the major theorists in the field of learning disabilities who regard *undiagnosed* learning disabilities, rather than labeling and special services, as predisposing an individual to psychological prob-

lems (Johnson & Myklebust, 1967; Orton, 1937).

Csikszentmihalyi and Larson (1984), in their book, *Being Adolescent*, suggested that the feeling states of affect and activation go together. If one is feeling happy, one is also feeling alert and active. They refer to this general state of positivism as "psychic negentropy," a state in which one feels integrated and acts with a sense of "clarity, commitment, and enthusiasm" (p. 23).

Why would adolescents with learning disabilities feel happier in school than their peers, and why does that finding seem counterintuitive? To respond to the latter question, one can turn to the researcher, in the hermeneutic tradition, and attempt to infer her or his perspectives. Most researchers are, by definition, those who have succeeded in school. As a result, their consciousness vis-à-vis school and achievement issues was cocreated through participation in mainstream school practices. This consciousness would have impelled them to see separation from normal school practices as having a negative impact on those so isolated. Yet, the during- and after-school subjective responses for each of the groups would indicate that the students with learning disabilities feel more positive during school on all of the affect and activation subscales. For the LA and the AA students, the picture that emerges is quite different. Although the differences in reported affect and activation between the two contexts of school and after school may not represent statistical significance, it appears that the LA students mostly experience more positive affect in school, while feeling more active and alert *outside* of school. Similarly, without doing statistical comparisons between the two contexts, on all of the affect and activation subscales except Sociable–Lonely, the AA students appear to be more "negentropic" *outside* of school.

When the self-esteem and cognitive efficiency data are added to this picture, the differences between the students with learning disabilities and the

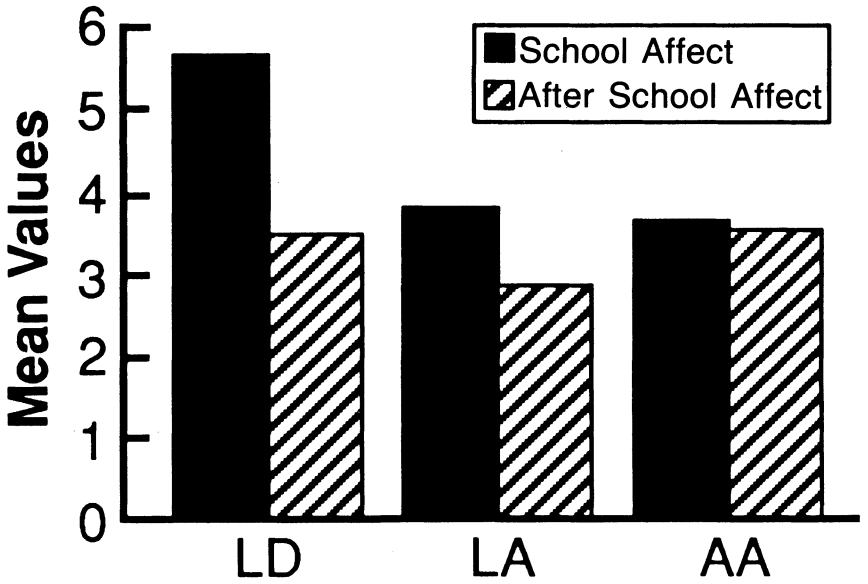

FIGURE 2. Affect means of the three groups during and after school.

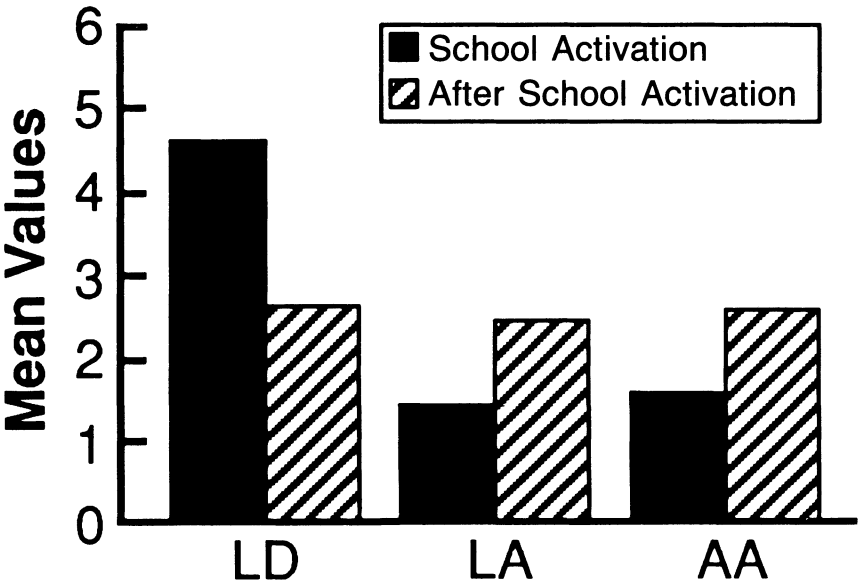

FIGURE 3. Activation means of the three groups during and after school.

other two groups are augmented. The students with learning disabilities feel more clear-headed and less confused than either of the other groups during school. When the context differences are compared, the students with learning disabilities appear to feel as clear during school as they do out of school. On the other hand, the LA and AA students appear to feel more clear-headed and less confused outside of school. Although the self-esteem data are not so dramatic, there is still a tendency for the students with learning disabilities to feel better about themselves during school than do the AA students.

Given that these results suggest different emotional interpretations of events in school by the three groups, Epstein (1985) would see the groups as having different "cognitive-experiential self-theories." The higher positive regard for school held by the students with LD would imply that their experiential-conceptual system regarding high school has resulted from positive experiences with school over time. By implication, the AA students' history of experiences with high school must be less positive than their out-of-school experiences. This would mean that postulates regarding school are different within the two groups' experiential systems—the students with learning disabilities believe in school as a more personally fulfilling domain than do the AA students.

Making sense of these findings requires an examination of differential school practices. This line of discussion does not ignore the individual differences between adolescents with learning disabilities and average-achieving adolescents but, rather, places those differences in the school context to explore the impact of categorical school practices on subjectivity. The perspective that seems relevant here is the social constructivist one (Vygotsky, 1962), in that the different orientations to school on the part of the LD, LA, and AA students must have been formed as they interacted with their individual school situations. In essence, the psychological development, relative to school, of the adolescents with LD is different from that of the AA students and, to a lesser degree, the LA students.

What are the different school practices that may have had an impact on these groups of adolescents? First, in examining the school files of the students with learning disabilities, one finds that all of the students except three were diagnosed with learning disabilities in the primary grades. Of the other three, one was diagnosed in fourth grade, one in fifth, and one in ninth. Thus, for most of the sample, the school practices associated with having learning disabilities have been experienced for most of their school life. Individualized attention, small classes, increased parent involvement, and levels of expectation commensurate with their abilities are some of the school situations they would have experienced that would not necessarily have been experienced by either of the other groups. Deshler et al. (1980) suggested that these special accommodations for students with learning disabilities, but not for LA students, who share similar cognitive difficulties with school, may account for the former group's higher level of satisfaction with school than the LA students'.

Informal observations in the four high schools of the district sampled in this research indicated that the students with learning disabilities had more opportunity for social interaction with other students, teachers, and counselors than did either of the other groups. The LD content classrooms were small, and student-teacher and student-student interactions were both formally structured and encouraged. In addition, the LD resource rooms were places where students with learning disabilities not only received individual support for their schoolwork, but also experienced emotional support. The resource room functioned as a student center, in that they could "drop in" during lunch or study hall to ask for extra help or to converse with a willing teacher about school-related and non-school-related topics. This informal learning and therapeutic atmosphere in the resource room has also been observed by Licopoli (1984), who contrasted it sharply with the formalistic, content-oriented approach in the regular high school classroom.

The increased social support that the student with learning disabilities receives in school may mitigate some of the loneliness that is a natural part of the adolescent experience (Blos, 1967). Having teachers and counselors accessible every day may provide a social transition from the family for these students. Licopoli (1984), in fact, characterized the LD resource room as functioning like a "family," in which the teacher treats each student with attention to her or his individual needs and idiosyncracies. The student with learning disabilities may vent some of her or his emotional needs with these school adults rather than the family.

It is interesting that one of the findings of this study in the area of affect was that students with learning disabilities reported feeling more sociable than the AA students. The design of their school day afforded them many opportunities for socializing. Raviv and Stone (1991), using the Self-Image Questionnaire for Adolescents, found that it was only on the Social Relations Scale that the adolescents with learning disabilities scored as high as their normally achieving peers. It appeared that social acceptance was very important to the group of adolescents with learning disabilities. If this is so, it may be that the structure of their school day would tend to create the positive feelings expressed by the adolescents with learning disabilities. Interestingly, the LA students felt almost as sociable as the students with learning disabilities while in school. Although the LA students did not have the same degree of "intimacy" relative to individual attention in their classrooms as the students with learning disabilities did in their resource rooms, informal observations did indicate a more informal, interpersonal structure in their content class-

es than in those of the AA students. There was a greater degree of tolerance in the basic-level classes for behaviors such as late arrival to class and spontaneous comments during discussion. Also, activities were often structured in small groups and/or involved some kind of game format.

In contrast, observations of the school structure for the AA students suggested a more traditional content-oriented program. Classes were large, and the emphasis was clearly on the delivery of content through lecture. It is interesting to note that Csikszentmihalyi and Larson (1984) found, in their heterogeneous sample of high school students, that the students were least happy in adult-structured situations, such as school. In particular, they did not like the lecture-type classes, preferring classes in which discussion was the typical mode.

It may be that the school practices that are a part of the everyday experiences of the adolescent with learning disabilities are generally more helpful to the adolescent developmental agenda. Both the individual attention and the increased levels of autonomy afforded to students with learning disabilities may account for their feelings of positivism during school. Also, the time that a student with learning disabilities spends in vocational training and counseling may help to set him or her on an occupational course long before the AA student makes such a decision. Hurrelman and Engel's (1989) description of the "good school" captures many of the school experiences of the adolescent with LD:

> The school's potential for social support should be strengthened. If school, besides being an institution providing knowledge and intellectual training, also becomes a social platform, an encouraging part of the adolescents' everyday life, then it is available for experiences that are important in the personal development in many dimensions. A "good school" in this sense is a society's unsurpassable contribution to youth policies. The school has to offer working and training opportunities with different learning situations for adolescents that they will find meaningful and important. A good school with a pleasant climate can be a social area with a preventive influence on antisocial behavior and health impairment. (p. 24)

Might these results be biased because of the nature of volunteerism? That is, might the present sample of adolescents with learning disabilities represent those students who feel positive about school, which is why they participated in the study so responsibly? This is a possibility that needs to be explored in future research. However, the fact still remains that significant emotional differences existed between this group with LD and the LA and AA groups. School for this group with LD was experienced more positively than it was for the other two groups and was experienced more positively than out-of-school experiences.

However promising this picture of school life for the adolescent with learning disabilities may be, there is also the possibility that their positive feelings may be too dependent on school structure. Raviv and Stone (1991) found that adolescents with learning disabilities scored significantly lower than their non-LD peers on three of the scales of the Offer Self-Image Questionnaire for Adolescents that constitute the Coping Scale. This would suggest that adolescents with learning disabilities perceive themselves as possessing less emotional strength for coping with the demands of their internal and external worlds. It may be that the school day of the adolescents with learning disabilities in the present study provided significant emotional supports for them, which, in turn, reduced their general anxieties. This reduction in anxiety through the structure and support of the family-type social environment—a different kind of school within a school—may account for these students' more positive feelings during school hours. Without a similar social situation in their lives subsequent to high school, it is possible that they will experience a decline in their "psychic negentropy."

Conclusions and Implications

The Experience Sampling Methodology has created a provocative picture of the subjective life of the adolescent with learning disabilities. There is an element of surprise to the finding that the students with learning disabilities feel more positive levels of affect and activation during school than their low-achieving and average-achieving peers but feel similarly after school to their peers on these measures. Although a few studies (Deshler et al., 1980; Licopoli, 1984; Myers & Wiseman, 1978) suggest that adolescents with learning disabilities like school because of the special accommodations that are made for them in the structure of their school day, the normative, social orientation would tend to focus on the deleterious effects of labeling and the social isolation from mainstream practices, particularly in adolescence.

The ESM, through its innovative method of sampling immediate subjectivity in the natural milieu, seems to have tapped a level of experience other than the one depicted by prevailing social wisdom. How situations make us feel immediately, without prereflection, may reflect our unique personal orientations, which were formed through our experiences with people, situations, and institutions. The prevalent social wisdom, in contrast, may privilege normative discourses, which have become objectified through rational discourse in everyday social exchanges and are less sensitive to particular, nonnormative discourses.

Standard psychological research has tended to favor the investigation of thinking and the mind over feelings and the heart. Poplin (1988) criticized special education research for omitting nonobservable subjectivity and the multiple facets of situations that cannot be quantified. She believes that this omission is the result of special

education research resting comfortably within the logical positivistic tradition, which privileges verifiable information. This tradition partitions and studies behaviors that can be observed and measured and reduces the individual under study to a rational, observable subject, contextless and emotionless.

Research methodologies like the ESM could redress Poplin's criticism of the LD research tradition, in that they inform us about a level of experience of adolescents with learning disabilities that may be a more powerful influence on their everyday world functioning than their cognitive attributes. Also, not only does this kind of research address the significance of subjectivity, but, by implication, it also recognizes the uniqueness of these individuals' historical interplay of relationships. The quality of these specific relationships, which, theoretically, would be critical to the development of life orientations, may not be reflected in the rational speech of individuals with LD and, thus, may not be evident through traditional investigations.

Research that investigates responses in situ is important in another way. Inherent in the study of exceptional populations is the tendency to appropriate the behavior of exceptional individuals into our native systems of thought, because our knowledge of the immediate experiential world of exceptional populations is scanty. As a result, the partiality of this experiential knowledge gets "filled in" by researchers. In an unwitting manner, there exists in this scenario the distinct tendency for an ethnocentric, normative view to prevail. Thus, our normative expectations may exert a distortion on the collected data from traditional research investigations regarding subjectivity.

Although well-constructed questionnaire/interview studies may accurately reflect the conscious attitudes of individuals with learning disabilities, what does not get included in these retrospective analyses are preconscious, prereflective, immediate responses in specific situations. Thus, specific contexts and their impact are hidden. The present study has indicated that school social practices of the adolescents with learning disabilities more positively affect their affectivity and activation, while the school practices associated with being low achieving and average achieving are experienced less positively by the adolescents in those categories. In fact, the positive levels of affect and activation experienced by the students with learning disabilities in school are reportedly never experienced outside of school by the low-achieving or average-achieving students. This would argue for the strong impact of specific person–situation interactions in school on the subjectivity of adolescents. Although a description of the impact of particular school practices on the subjectivity of adolescents with learning disabilities and their peers must await further analyses of the data, the ESM has yielded an ecological picture of human functioning. The differential social practices associated with school identification of student types (e.g., LD, low achieving) do affect the subjectivity of high school students. Thus, the importance of conducting future research on adolescents with learning disabilities within their daily contexts, and in comparison to normative samples, is clear. Such research would increase our understanding of the relationship between specific educational practices and the development of subjectivity or life views, not only for adolescents with learning disabilities but also for other school populations. School practices could be informed from a phenomenological perspective and changes designed with students' input involved. In addition, research like this could further our understanding of the relationships between subjectivity or personal ethos and cognition.

Because sampling research with electronic pagers is relatively new, a number of questions arise. A critical issue regarding validity is the extent to which responses over time are representative of experience samplings or, instead, represent either individual or group bias based on factors outside of the research. Although theory would suggest that the aggregation of responses over some time period increases the probability of gaining a more valid reading of personal patterns than one-time measures, the requisite length of time and number of signals necessary to yield validity remains in question. Sample representativeness is another issue. As this methodology requires a long-term commitment and a willingness to self-exposure, it may be that individuals who agree to participate are more reflective, social, and open and, as such, do not provide a valid cross section of the population under study. Issues of timing of beeper research also need to be considered. In this study the research was conducted in the late winter through late spring. Although preliminary analyses do not suggest an effect of time, further analyses are needed to disconfirm this possibility, as well as to confirm the overall generalizability of the present ESM findings to other LD, LA, and AA populations and sites.

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