

Origins and Pawns in the Classroom: Self-Report and Projective Assessments of Individual Differences in Children's Perceptions

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Two studies examined the significance of children's perceptions of their classroom environment along autonomy versus external control dimensions. Study 1 related a self-report measure of the perceived classroom climate to other self-related constructs. In a sample of 140 elementary children, it was found that the more "origin" the children perceived in their classroom, the higher their perceived self worth, cognitive competence, internal control, and mastery motivation, and the lower their perceived control by unknown sources or powerful others. These relationships were primarily due to individual differences within classrooms rather than average classroom differences. Children also wrote projective stories about an ambiguous classroom scene. Ratings of these stories indicated that, within children's fantasy, origin-like behavior of students was associated with autonomy-oriented teachers and low aggression. Self-report and projective methods converged, particularly for children whose self-reported perceptions were extreme. In a second study ($N = 578$), relative contributions of classroom and individual difference effects were further examined. Results are discussed in terms of the importance of perceived autonomy and issues in assessment strategies.

There is growing recognition that children's sense of autonomy or self-determination is an important psychological need. DeCharms (1968) argued that it is a primary tendency or striving to be a causal agent with respect to one's behavior, or to have an internal locus of causality. Deci and Ryan (1980, 1985) have more recently highlighted the importance of an internal locus of causality or sense of self-determination for the phenomena of intrinsic motivation. In their "cognitive evaluation theory," they have argued that basic needs for competence and self-determination, the latter being more fundamental, energize intrinsically motivated behaviors such as those observed in curiosity, exploration, and adaptation. Furthermore, empirical work has demonstrated that conditions which do not afford the experience of self-determination are deleterious to intrinsic motivation (Deci & Ryan, 1980; Ryan, Mims, & Koestner, 1983).

Emerging evidence also suggests that autonomy or self-determination is closely linked with the development and level of self-esteem expressed by children. For example, Deci, Schwartz, Scheinman, and Ryan (1981) assessed elementary school teachers' orientations toward either being controlling or supportive of au-

tonomy in children using the "Problems in School" questionnaire. These investigators found that in classrooms where teachers' styles were controlling versus autonomy oriented, children reported significantly lower intrinsic motivation to learn, as well as lower feelings of self-worth and perceived competence (Harter, 1981, 1982). These findings suggest that the experience of autonomy is an important aspect of children's school-related adjustment and self-perceptions (Ryan, Connell, & Deci, 1985).

Most investigations of the impact of autonomy versus control on motivation and self-esteem have either directly manipulated the environment, such as through the introduction of rewards (Deci, 1972), limits (Koestner, Ryan, Bernieri, & Holt, 1984), deadlines (Amabile, DeJong, & Lepper, 1976), interpersonal feedback (Ryan, 1982), or measured the autonomy supportive versus controlling aspects of the environment (Deci et al., 1981). Yet from an organismic perspective, it is the *functional significance* or meaning of the environment to the individual rather than the environment per se that is the most important aspect of concern for the investigation of motivational and personality variables. Accordingly, in the present study the major variable of interest was individual children's perceptions of the degree to which their school-related environment afforded autonomy or was controlling.

To operationalize this construct, we used the Origin Climate Questionnaire developed by deCharms (1976) and his co-workers. DeCharms conceptualized the origin climate as one where autonomy and acceptance are afforded within a context of firm, consistent structure. This measure taps the degree to which children perceive the classroom environment as one where they can be "origins" (i.e., active, responsible, instrumental, and having an internal locus of causality), versus "pawns" (i.e., passive, re-

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active, with little sense of personal causation for school related behaviors).

A child's perception of the classroom climate is a multidetermined phenomenon, influenced by both environmental and idiographic elements. In part, children's perceptions are a function of actual conditions in the classroom, which in turn are heavily determined by teacher style and orientation. Deci et al. (1981), for example, found that teachers' self-reported orientations toward control versus autonomy as measured by their "Problems in School" questionnaire was significantly related to children's reports of classroom climate as measured with deCharms' scale. DeCharms (1972, 1976) has also reported that teacher training programs increased the degree to which children described their classroom as "origin" in character. In these studies the average score of the children in each classroom was used as the dependent measure, in the attempt to describe some actual process or change in the environment on which children's perceptions would converge. However, there is also great variability within a given classroom in terms of how individual children interpret the ambient climate. These individual differences no doubt stem in part from the prior experiences and personality differences between children, but may also be a function of how individual children are differentially treated or affected by the teacher and setting. In this sense the "environment" or climate is different for every child. Accordingly, we suggest that it is each child's perception or interpretation of the environment, which combines between- and within-classroom sources of variance, that is most relevant from a motivational standpoint.

There were several phases to the present studies. In the initial project we assessed the relationships between individual differences in children's perceptions of their classroom environments and theoretically related constructs of intrinsic motivation, perceived competence, self-esteem, and perceived control. In a second phase of this project we examined the degree to which the classroom climate as perceived by the child related to his or her projections upon a neutral classroom scene, depicted in a Thematic Apperception Test-like (TAT-like) format. This allowed for a comparison of the self-report and projective methods, which represents an area of growing interest within assessment methodology (McClelland, 1980; Shauger & Osberg, 1981). In an additional study, we then further examined the relationship between children's perceptions of the environment and other self-related constructs, with a specific focus on the relative contributions of between-classroom effects and individual differences within classrooms.

Study 1, Phase 1: Relations Between Perceived Classroom Climate and Children's Perceived Control, Competence and Mastery Motivation

As previously stated, the child's perception of the classroom environment as captured by the origin-pawn construct was expected to have significant relationships with other important self-report assessed measures. Among the most critical of these variables was the child's sense of *self-worth* or self-esteem. This variable has become an increasing focus of empirical investigation over the past decade and is seen by many as a central index of adjustment and well-being (Harter, 1982; Wylie, 1974). We hypothesized that the more a child perceives the environment as

origin-like, the higher would be his or her perceived self-worth. We reasoned that only in a context where one feels personally responsible for his or her own actions will self-worth be enhanced. When significant others support and respect the child's autonomous functioning, children are afforded the opportunity to value themselves. Similarly we expected that in an origin climate *perceived cognitive competence*, that is, feelings of academic efficacy, would flourish. The reasoning here was similar. Children will feel more confident and competent in school when they perceive themselves as being supported for determining their own academic outcomes. We assessed children's sense of self-worth and cognitive competence by using Harter's (1982) scale of perceived competence, which has general and cognitive competence subscales.

Mastery motivation was also predicted to be positively associated with children's perceptions of an origin climate. Ryan et al. (1985) have recently reviewed evidence which suggests that in the school environment mastery or intrinsic motivation depends on the experience of autonomy. Children who perceive little opportunity to initiate behaviors, set their own goals, and otherwise act autonomously as expressed by their self-report on the deCharms' scale were therefore expected also to be low in their mastery motivation for school-related activities. Mastery motivation was assessed in this investigation by using another Harter (1981) scale which measures intrinsic versus extrinsic orientation in the classroom. The Harter scale contains two higher order factors, one of which incorporates the curiosity, preference for challenge, and independent mastery subscales of the measure, and is labeled *mastery motivation*.

A relatively unexplored relationship in this general area is that between children's perceptions of control and their perceptions of the origin character of the classroom. DeCharms' origin-pawn distinction is at least in part based on Heider's (1958) concept of locus of causality, which differs in theoretical focus from concepts of locus of control (deCharms, 1976, 1981). The concept of locus of control places emphasis on outcomes, and what or who controls them. Locus of causality is concerned, on the other hand, with the initiation of action, that is, whether action is self-determined versus determined by other forces (deCharms, 1976; Deci & Ryan, 1985).

Despite these differing foci, there are some interesting relationships that should predictably emerge. Connell (1985) developed a relevant measure which assesses the extent to which children's educational outcomes are perceived to be controlled by factors internal to themselves, by powerful others such as teachers, or by unknown factors. It seems probable that if children experience their environment as supportive of autonomy and personal responsibility, they will come to perceive that they have control over their own outcomes. On the other hand, if they experience little room for self-initiation, they will accordingly perceive the control of outcomes to be outside themselves, in the hands of powerful others or as simply unknown. Thus, we predicted a positive correlation between the perceived "originness" of the classroom and internal control, but negative relationships between originness and both powerful others control and unknown control. Connell (1985; Harter & Connell, 1983) has shown that his control measure predictably relates to theoretically relevant constructs such as achievement, perceived competence, and mastery motivation in the classroom. The more children

perceive powerful others to be in control, the less mastery motivation they reported, whereas the opposite was true for those with internal perceived control. Furthermore, unknown control—that is, not knowing the reasons for success and failure in school—has been found to be negatively associated with perceived competence.

Method

Subjects

Subjects were 140 elementary school children from a suburban Rochester, New York, district. There were 74 boys and 66 girls in this sample, drawn from nine classrooms, three each of the 4th through 6th grades.

Procedure

The subjects completed the deCharms (1976) Origin Climate Questionnaire in February. The other self-report measures, namely perceived competence, mastery motivation, and perceptions of control, were administered in two additional sessions, a minimum of 6 weeks later, in April of the same year. In all cases, these questionnaires were administered by two trained experimenters according to standardized instructions. One experimenter read the instructions and the individual items aloud, and then waited for the children to finish that item before proceeding. The second experimenter was present to answer individual questions from children. Questionnaires were administered in group sessions, and no classroom teachers were present. Children were assured of the anonymity and confidentiality of their responses. The separate and temporally distant sessions were used both to minimize fatigue and to assure that the measure of classroom climate would not directly influence children's report of self-related constructs.

Measures

Origin Climate Questionnaire. The Origin Climate Questionnaire (deCharms, 1976) assesses children's perceptions of the origin versus pawn orientation of their teacher and classroom environment. In origin classrooms, teachers are seen as providing warmth and acceptance of the child along with firm, consistent rules. Origin teachers are perceived as facilitating an internal locus of causality for children's behavior and a corresponding sense of personal responsibility. In the pawn classroom, on the other hand, teachers are seen as controlling and directing children's behavior. The locus of causality for children's actions tends to be external. This measure assesses the degree to which such an origin climate is perceived by children by asking them to rate the classroom on 28 items, 4 items associated with each of seven subscales: internal control, goal setting, instrumental activity, reality perception, personal responsibility, self-confidence, and warmth. The items are presented in a Likert-type format and are phrased in terms of teachers' behavior or things that happen in the classroom. The child circles the choices *always*, *often*, *sometimes*, and *never*. The items comprising each subscale are summed to form seven subscale scores. Subscale scores, except warmth, are then summed to yield a total origin climate score.

Multidimensional Measure of Children's Perceptions of Control (MMCPC). The MMCPC (Connell, 1985) is a self-report measure which assesses children's understanding about what controls their success or failure outcomes in general and in three specific domains (cognitive, social, and physical). In this study only items from the cognitive area (school-related competence) and the general area were administered. This measure assesses three sources of control: internal (child sees him/herself as in control of outcomes), powerful others (child sees other people as in control), and unknown (child does not know who or what controls outcomes). Each item is worded in a statement to which the child can respond with one of four choices: *very true*, *sort of true*, *not very true*, or *not at all true*.

Items are scored on a scale from *not at all true* (1) to *very true* (4). Items from each subscale within each domain are summed to form subscale scores. Time constraints imposed by the participating school limited the number of items that could be administered. We thus chose to limit the current inquiry primarily to powerful others and unknown sources of control, although perceived internal control for the general domain was also obtained.

Intrinsic Versus Extrinsic Orientation in the Classroom Scale. This measure (Harter, 1981) assesses the degree to which a child's motivation to learn in school-related activities is motivated by intrinsic interest versus by extrinsic rewards such as grades and teacher approval. This 30-item questionnaire contains five subscales each with 6 items. Three of the subscales, preference for challenge, curiosity/interest, and independent mastery, which form a higher order factor labeled *mastery motivation*, were utilized in this study for a total of 18 items. The question format consists of descriptions of two types of children, one more intrinsic and one more extrinsic. Children must decide which type they are more like, and then check whether the description is *really true* for them or *sort of true* for them. All items are scored on a scale from *high extrinsic* (1) to *high intrinsic* (4). Items from each subscale were summed to form subscale scores, and then the three subscales were summed together to form a total score on mastery motivation.

Perceived Competence Scale for Children. The Perceived Competence Scale (Harter, 1982) was used to assess children's feelings of competence and worth. This 28-item questionnaire assesses children's feelings of competence in three domains: cognitive, social, and physical, as well as children's general feelings of self-worth. The question format is the same as the Intrinsic Versus Extrinsic Orientation in the Classroom Scale previously described. All items are scored on a scale of 1 through 4, from low *perceived competence* (1) to high *perceived competence* (4). Items from each subscale are summed to attain a total subscale score. In the present study, children's general perceived competence (self-worth) and perceived cognitive competence were assessed.

Results

Prior to computing the intercorrelations between measures, gender differences were examined by using an analysis of variance (ANOVA) on each of the self-report scales. These analyses revealed no differences between boys and girls on mastery motivation, general (self-worth) or cognitive perceived competence, general internal perceived control, general powerful others control, and general and cognitive unknown control. Only the measure of powerful others control for the cognitive domain showed a significant sex difference, $F(1, 128) = 4.44, p < .04$. This finding reflects that boys report higher levels of powerful other (teacher) control over outcomes within the academic domain than do girls. There was a marginally significant sex difference, $F(1, 139) = 3.74, p < .06$, for the Origin Climate Scale, with boys reporting a less origin-oriented environment than girls. Because of these differences, the intercorrelations between measures are reported separately for each sex as well as for the total sample.

One hundred forty children drawn from nine classrooms were administered the Classroom Climate Scale. Of these children, some were absent for subsequent assessment sessions, such that each correlation represents the subset of this original total who were available to take the additional measures.

The correlations between children's origin climate scores and the self-related variables are presented in Table 1. Inspection of this table reveals in each case a significant relationship between the perceived origin-pawn nature of the classroom and the other self-report instruments. For the total sample, children who per-

Table 1

Correlations of Children's Perceived Competence (N = 124), Mastery Motivation (N = 124), and Perceived Control (N = 129) with Total Origin Climate Scores (T), Classrooms Means (C) and Individual Differences Within Classrooms (I)

Self-report variables	Boy's origin climate			Girl's origin climate			Total sample origin climate		
	T	C	I	T	C	I	T	C	I
General self-worth	.36***	.01	.41***	.25*	-.03	.26**	.30***	.01	.32***
Cognitive perceived competence	.31***	-.08	.40***	.26**	-.11	.35***	.27***	-.08	.35***
Mastery motivation	.16	-.09	.24**	.27**	.03	.27**	.22***	-.05	.27***
Internal control (general)	.23*	.18	.18	.26**	.03	.27**	.24***	.11	.22***
Powerful others control (general)	-.13	-.05	-.14	-.21*	.08	-.28**	-.16*	.01	-.20**
Powerful others control (cognitive)	-.12	.01	-.14	-.43***	-.26**	-.29**	-.25***	-.09	-.23***
Unknown control (general)	-.33***	.01	-.38***	-.26***	-.20*	-.19	-.30***	-.08	-.31***
Unknown control (cognitive)	-.25**	.00	-.29***	-.37***	-.17	-.33***	-.28***	-.08	-.28***

Note. I scores represent the residualized origin score for each child after variance due to classrooms is removed.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

ceive their environment as more origin-like have significantly higher self-esteem and perceived academic competence; they evidence greater mastery motivation and they are more sure about what controls outcomes in general and in school. They see less of their outcomes in school and in general as in the hands of powerful others. Finally, they report in general more internal control over outcomes.

The correlations of each child's total origin climate score (T) and other variables reflects the compounded effects of both between classroom differences and individual differences of children within each class. In order to differentiate between these sources of variance we first regressed the individual children's total scores on the classroom means. This regression analysis revealed that a significant amount of the variance of origin climate scores was due to classroom influences, $F(1, 138) = 34.94$, $p < .01$, that is, 20% of the total variance. The correlations between origin climate classroom means (C) and children's other self-related constructs appears in Table 1, and the results are largely nonsignificant. The relationship between individual differences within classrooms (I) and self-related constructs also appears in Table 1 and represents the partial correlation between children's origin climate scores and these other variables once classroom differences have been removed. These results suggest that in most cases, it is the within-classroom individual differences in children's perceptions which is most meaningfully related to the other self-related constructs.

Study 1, Phase 2: A Projective Assessment of Classroom and its Comparison With Self-Report

The first phase of Study 1 demonstrated that a self-report measure of the perceived classroom climate related meaningfully to the other theoretically related relevant, self-reported constructs. Minimally, the nomological net provided by these results suggests that children have a pattern of endorsing semantic items the organization of which "fits" with our theoretical assumptions about the effects of origin versus pawn environments; that is, children evidence predicted links between their perceptions of the classroom climate and their experiences of self-worth, academic competence, mastery motivation, and control.

Yet no matter how clearly a pattern of self-report measures converges on theoretical coherence, such findings provide little assurance that the assessed dimensions are actually salient and important aspects of the subjects' phenomenology. Self-report techniques provide the subject with a network of constructs rather than eliciting them from the subject's experience. A stronger test of the centrality of a construct is the degree to which it would emerge or could be extricated from spontaneous reports or productions of the subject, under conditions which do not provide specific direction or cues concerning its importance. Such a circumstance could be provided by a projective format.

In a similar vein, McClelland (1980) has argued that self-report measures tap primarily "respondent" behavior, because they supply the stimulus, structure the response, and provide a constrained set for the subject. He contrasted them with projective techniques of assessment which tap "operant" behavior, in that the subjects' motivation and selective attention provide the impetus and direction for response formation. Projective assessments, therefore, may allow aspects of the personality organization to become manifest which might not reveal themselves under more structured but reliable self-report test conditions (Ryan, 1985).

Thus, to examine the strength of the origin-pawn and teacher control themes in the context of a more spontaneous production, a second aspect of the current project investigated the degree to which children's perceptions of the classroom climate would be reflected in a projective story measure. Children were asked to write a narrative to a TAT-like picture of an elementary school classroom scene which was ambiguous in nature. We used a procedure which minimized task constraints, such that children were offered the freedom to describe the classroom scene in whatever manner they desired. Presumably, only those dimensions of particular salience to the child, that is, those which the child is oriented toward or motivated to highlight, would then emerge as thematic.

To evaluate the projective stories, we obtained subjective ratings of all the stories along six dimensions of theoretical interest. Three of the subjective ratings concerned substantive issues, namely: (a) an "origin" rating of the student protagonist, that is, how much the student's behavior was characterized by an

internal locus of causality and personal responsibility, (b) an autonomy-control rating of the projected teacher, and (c) the amount of aggression expressed in the story. Three other ratings concerned the quality of the story production itself, namely, (a) its creativity, (b) its technical goodness, and (c) the amount of effort expended.

Subsequently, we analyzed these dimensions in two ways. First, we looked within the stories themselves to evaluate how the ratings, particularly the three substantive dimensions, related to one another. These internal relationships would thus reflect how children spontaneously organize these themes. We predicted that within the children's stories, the origin character of protagonists would emerge in conjunction with autonomy-oriented teachers, whereas low origin protagonists would have as a counterpart a controlling teacher. Further, we reasoned that children often express aggression under conditions where their autonomy is denied or they feel externally controlled. Thus we expected that aggressive themes would emerge primarily in stories where the teacher was portrayed as controlling or where the student was low in origin character behavior. This would suggest that, at least within fantasy productions, children would express aggression in proportion to the degree that they experienced external control or the absence of autonomy. We thus hypothesized that aggression and the story ratings of student originness and teacher autonomy orientation would be negatively correlated.

Second, we wished to compare children's projections of this classroom environment with their self-reported perceptions of their actual classroom as tapped by deCharms' measure. In this comparison we expected that only those children who had relatively extreme views of the classroom climate, that is, those that strongly perceived the classroom to be either origin or pawn in character, would be likely to organize and orient their stories along the corresponding theme. Little relationship between story character and self-report was expected for children who were in the midrange of the origin climate variable. Our strategy was to assess the differences between high (top 25%) and low (bottom 25%) origin climate perceivers as tapped by the deCharms scale on the various ratings derived from the children's projective stories. It was predicted that high origin-climate children would have stories in which they portrayed the teacher as autonomy oriented and the student protagonist as of origin character, whereas low origin-climate students would have corresponding themes of a controlling teacher combined with a compliant or reactive, but not origin character student. By contrast a correlation of the deCharms measure with story ratings for the entire sample, which would include those children with less extreme views, was performed but not expected a priori to result in significant relationships.

Also rated were the quality aspects of the children's story productions: creativity, technical goodness, and effort expended, as well as an objective measure of the number of words used. Among these our central interest was in the stories' creativity and technical goodness. These two dimensions were suggested by the recent work of Amabile (1983), who has used more extensive subjective ratings of these dimensions as dependent measures in several studies. Further, she has hypothesized that creativity and technical goodness on heuristic tasks are influenced by the level of intrinsic motivation of the subject. Products created under conditions conducive to intrinsic motivation have, in a variety

of tasks, been rated as more creative and technically better than those under extrinsic (Amabile, 1983) or controlling (Koestner et al., 1984) circumstances. In each of these studies a central component of the facilitation of intrinsic motivation and thus of creativity has been the affordance of autonomy or self-determination (Ryan, 1984). Thus we speculated that children who perceived more opportunity for autonomy or originness in their classroom would produce more creative and technically good stories than those who reported a low origin climate particularly because our projective stories were to be obtained within the children's classroom setting. No specific predictions were made for effort or number of words, although one would expect a strong relationship between effort expended by the child and ratings of technical goodness.

Method

Subjects

One-hundred-thirty-seven of the 140 subjects who completed the deCharms Classroom Climate Questionnaire participated in the projective story experiment in May 1983, all at least 2 months after the questionnaire administration. Seventy-one of these subjects were boys and 66 were girls.

Procedure

The projective session was accomplished by an independent examiner from those who administered self-report measures, and children were unaware of any connection between the questionnaires and the projective story session. Each child was given a reproduction of a TAT-like picture which depicted a classroom scene and a blank sheet of paper. The specific picture was drawn from the original version of the Michigan Pictures Test (MPT; 1953), and is one which is no longer in the newly revised version, the MPT-R (Hutt, 1980). The MPT is similar to the TAT but includes everyday scenes relevant to and including school-age children. The scene involves a typical classroom arrangement, with approximately 25 children in rowed seats in a schoolroom. A female teacher stands at the head of the room near her desk, and a single boy student is standing amidst the others, next to his desk. Both teacher and children are focused upon the boy. The tone of the picture, and what specifically is occurring, is ambiguous. The subjects were asked to look at the picture and to

Write a story about what is going on. It can be any kind of story you like. Tell something about what is happening now, what happened before, what is going to happen, and include something about what the people are thinking or feeling.

After 10 minutes the children were told "It's time to finish up if you have not already done so," and the stories were collected by the examiner.

Subsequently the children's stories were read and rated by two independent raters who were blind to the child's scores on the Origin Climate Scale and other measures. These raters assessed each story on six dimensions of interest using a 1-7 scale after being familiarized with the meaning of each. Those dimensions were technical goodness (1 = *very low*; 7 = *very high*), creativity (1 = *very low*; 7 = *very high*), origin character of student, that is, the degree to which the protagonist displayed agency and personal responsibility in the story (1 = *pawn*; 7 = *origin*), degree of autonomy afforded by the teacher in the story (1 = *controlling*; 7 = *autonomy oriented*), effort expended (1 = *little effort*; 7 = *great effort*), and the expression of aggressiveness (1 = *very low*; 7 = *very high*). In addition, an objective measure of the number of words used was obtained. Not all stories could be rated on one of the dimensions, namely, teacher autonomy, because the teacher was not mentioned in all of the obtained stories. Thus, only those stories in which a teacher was explicitly included

Table 2
Intercorrelations Among Rated Story Dimensions

	Student origin (<i>N</i> = 137)	Teacher autonomy (<i>N</i> = 91)	Aggression (<i>N</i> = 137)	Creativity (<i>N</i> = 137)	Technical goodness (<i>N</i> = 137)
Teacher autonomy	.62***				
Aggression	-.35***	-.27***			
Creativity	.06	.15	.24***		
Technical goodness	.20**	.19*	-.12	.57***	
Effort	.18**	.19*	.04	.86***	.69***
Number of words	.06	.07	.15*	.71***	.51***

* $p < .10$. ** $p < .05$. *** $p < .01$.

were rated on the degree of teacher autonomy depicted ($N = 91$). After computation of reliability, the two raters' scores on each subjective dimension were averaged to result in the six scores applicable to each child's story. The word count was accomplished by only a single rater, such that no averaging was required in this variable.

Although our two story raters were blind to the child's scores on self-report measures, they were familiar with the network of constructs being investigated. We thus wanted to guard against the possibility that their theoretical predilections might influence the correlations between the separate story variables. To help check for this we recruited two additional raters who had not been exposed to any of our theoretical notions and who were naive with respect to the purpose of their ratings. Each rated only one of the two seemingly most easily contaminated dimensions; those of origin-pawn and teacher autonomy. These independent ratings could then be correlated with our prior ratings and assessed separately in correlations with each other to look for a similar pattern of relationships.

Results

The reliability between the two independent ratings of the stories on the six subjective dimensions were assessed by Pearson product-moment correlations. These correlations ranged from a low of .65, $p < .001$, for the rating of teacher style, to a high of .89, $p < .0001$, for the rating of effort. The average of the six intercorrelations was .77.

Internal Analyses of Story Ratings

Table 2 reports the correlations among the six subjective story dimensions and the single objective word count. As might be expected, those children who depicted an autonomy-oriented teacher were also more likely to portray the student as of origin character. In addition, when the student protagonist was portrayed as origin in character, there was less aggression expressed in the story. Similarly, when the teacher was depicted as autonomy oriented, less aggression was evidenced.

Relationships among the ratings assessing the quality aspects of the production (i.e., technical goodness, creativity, effort, and words) and between quality and content ratings were also examined. The objective dimension of the number of words used was highly correlated with our raters' assessment of effort, technical goodness, and creativity; indeed all of the variables assessing the quality of production were interrelated. However, these quality aspects of the stories were unrelated to the variables concerned with the autonomy-oriented or controlling content of the stories, with the exception of technical goodness, which was positively related to the origin character rating.

The validity check using the two naive raters suggested that these internal relationships were not a function of the biases of our trained raters. The naive rating of teacher autonomy was positively correlated with the naive rating of origin character ($r = .47$, $p < .0001$). Furthermore, these additional ratings showed adequate reliability with our trained raters, particularly because these recruits had little familiarity with the constructs. The naive rating of origin character correlated .64 ($p < .0001$) with the average of the trained raters on this variable, whereas the naive rating of teacher autonomy correlated .59 ($p < .0001$) with those prior ratings. Further, the naive ratings showed a pattern of correlations with other variables in the study which was highly similar to those from the original raters.

Comparison of Projective Stories With Self-Report

As previously stated, it was our expectation that only children with extreme self-report scores would show strong corresponding themes within their projective stories. However, before proceeding to the extreme group analysis, intercorrelations between classroom climate scores and the six subjective and one objective dimension were obtained. Only one significant correlation between these ratings and the Classroom Climate Questionnaire was obtained for the entire sample. The rating of the origin or pawn characteristics of the student protagonist in each story was positively correlated with the deCharms classroom climate score ($r = .20$, $p < .03$). No other rating was significantly correlated in the larger sample.

Subjects were then divided separately by sex into top and bottom quartiles on the classroom climate measure to form high origin-climate versus low origin-climate groups. These Sex \times Classroom Climate groups were used as the basis for a 2×2 ANOVA, with the six story rating dimensions used as dependent variables. The results of the analysis, which are reported in Table 3, reveal that children who were classified as high versus low origin based on their perceptions of the classroom, also differed on several aspects of their projective productions. Most important, the stories of high origin-climate subjects depicted student protagonists who themselves were characterized by origin-like behavior, $F(1, 70) = 4.88$, $p < .03$. A corresponding finding was that the teacher in the high origin-climate group stories was marginally more autonomy oriented as indicated by these ratings than the teacher described by the low origin-climate group, $F(1, 45) = 3.31$, $p < .08$. Creativity was significantly lower in the stories of low versus high origin-climate children, $F(1, 70) = 5.40$, $p < .02$, whereas technical goodness only marginally differed

Table 3
F Values for Analysis of Variance of High Versus Low Origin Climate and Sex Groups Selected Across Classrooms on Projective Story Ratings

Story rating	High versus low origin climate	Sex	Sex × Origin Climate
Origin character	4.88**	9.67**	2.38
Teacher autonomy	3.31*	9.20***	6.65***
Creativity	5.40**	1.07	.71
Technical goodness	3.58*	10.55***	.67
Aggression	.00	5.19**	.55
Effort	4.13**	12.58***	.80
Word count	1.96	5.46**	.99

Note. In all cases $df = 1, 70$ and $N = 49$ except the teacher autonomy rating where $df = 1, 45$ and $N = 49$.

* $p < .10$. ** $p < .05$. *** $p < .01$.

in the same direction, $F(1, 70) = 3.58, p < .06$. The aggressive content of the stories did not differ for high versus low origin groups, nor did effort ratings.

Sex differences were also apparent on nearly all these ratings, as shown in Table 3. Girls' stories were rated as higher in technical goodness, $F(1, 70) = 10.6, p < .002$, originness of student, $F(1, 45) = 9.20, p < .004$, and the objective rating of number of words, $F(1, 70) = 5.46, p < .02$. Boys' stories were rated as having greater aggressive content, $F(1, 70) = 5.19, p < .03$. There was only one significant Sex × Group interaction which occurred in the teacher autonomy rating, $F(1, 70) = 6.65, p < .01$. This interaction reveals that high origin girls ($M = 4.16$) had a much greater tendency to portray a highly autonomy-oriented teacher than either high origin boys ($M = 1.81$) or low origin girls ($M = 2.67$) or boys ($M = 2.32$).

The high versus low origin-climate groups examined in the prior analysis consisted of those children whose self-report scores were most extreme across all classrooms. This method of group selection compounds the influences of classroom and individual differences. This compounded influence is of interest because such influences are indeed compounded within the actual ecology of schools. Of additional interest, however, is the influence of individual differences apart from classroom effects. Accordingly, we performed a second ANOVA using top and bottom quartile

subjects selected after the between-classroom effects have been removed, namely, the high and low "residualized" origin-climate groups. The results of this procedure are presented in Table 4. These results reveal that high versus low origin-climate groups differ in the expected directions on both the origin character rating and on technical goodness. The absence of effects on the remaining variables, particularly effort and creativity, suggest that the extreme groups chosen across classrooms may be more differentiated in projective responses than those chosen on the basis of individual differences within classrooms.

Study 2: A More Extended Look at Classroom and Individual Differences in Children's Perception of Classroom Climate

The results of Study 1 indicated that children's perceptions of the classroom environment are meaningfully related to their sense of self-worth, competence and control, and to their school-related mastery motivation. Furthermore, these relationships remain even after between-classroom effects are removed, and only individual differences within classrooms are considered. This finding is provocative and suggests several possibilities: (a) that the "environment" is different for each child, namely, that individual children are differentially treated within classrooms; (b) that children show meaningful individual differences in their interpretation of the environment; or (c) that a and b apply and perhaps even interact.

The strength of the within-classroom effects compared with between-classroom effects, thus, on the surface suggests that the concept of a "general" classroom environment may be inappropriate, at least where the prediction of individual child variables is concerned. Such a conclusion is, however, tempered by the fact that there is a significant portion of the variance in individual perception of classroom climate that is a function of average classroom differences. Furthermore, it is also possible that the Study 1 sample, which contained only nine classrooms from within a single school, did not represent sufficiently a range of classroom environments such that their impact on individual child variables could be detected.

Accordingly, in Study 2, it was our purpose to further examine the relative contribution of between-classroom effects and individual differences within classrooms to the prediction of students' self-related constructs within a broader sample of classrooms.

Table 4
F Values for Analysis of Variance for High Versus Low Origin Climate and Sex Groups Selected After Between Classroom Differences Were Removed on Projective Story Ratings

Story rating	High versus low origin climate grouping	Sex	Sex × Origin = climate grouping
Origin character	6.38***	5.85**	1.32
Teacher autonomy	1.23	3.03*	2.04
Creativity	2.03	12.24***	.16
Technical goodness	4.88**	22.24***	.36
Aggression	.69	.87	.02
Effort	1.91	26.44***	.10
Word count	.41	20.00***	.27

Note. In all cases $df = 1, 77$ and $N = 81$ except the teacher autonomy rating where $df = 1, 50$ and $N = 54$.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Method

Subjects

Subjects were 578 elementary school children (Grades 4–6) drawn from 35 classrooms in four schools within a suburban Rochester, New York, district. There was no overlap between these classrooms and those used in Study 1. Three-hundred-three boys and 275 girls participated in this project.

Procedure

The subjects completed the deCharms (1976) Origin Climate Questionnaire in February. The other self-report measures, namely the Perceived Competence Scale for Children (Harter, 1982) and the mastery motivation subscales of the Intrinsic Versus Extrinsic Orientation in the classroom scale (Harter, 1981), were completed a minimum of 8 weeks later in May of the same year. The administration procedure was similar to that described in Study 1.

Results

Origin climate scores were represented in three ways, as in Study 1, that is as a total score (T), a classroom score (C) representing each child's classroom mean, and a within-classroom individual difference score (I), representing each child's residual score after the variance due to classrooms was removed from the total origin-climate score. The regression of individual scores on classroom means revealed that a significant amount of children's total origin climate scores was a function of between-classroom differences, $F(1, 578) = 111.35, p < .001$, accounting for 16% of the total variance. This finding is similar to that obtained in Study 1. Table 5 presents the correlation of the total scores (T) and classroom means (C) with children's perceived self-worth, social and cognitive perceived competence, and mastery motivation. In addition the partial correlation of individual differences within classrooms (I) and these variables is also reported. The results reveal that in all cases, the total origin climate score significantly relates to self-related constructs, both within and across gender. Furthermore, in this larger sample, significant correlations are in most cases obtained for both component scores of the origin climate variable and the other self-report variables. That is, between- and within-classroom sources of variance appear to contribute to the overall correlations to a significant degree. However, as in Study 1, the magnitude of the relationships due to individual differences within classrooms appears to exceed that attributable to between-classroom effects.

General Discussion

These two studies examined the importance of children's perceptions of their classroom environment for both self-related constructs and projective productions. In both spheres, the classroom climate as perceived by the child appears to be related to the variables of interest. In particular, the child's perception of origin climate of the classroom appears to influence self-perceptions, such that the more the classroom was perceived as origin in nature, the greater the child's self-esteem, perceived cognitive competence, and mastery motivation. In addition, there are moderate relationships between the origin construct and children's perceptions of control. Children who perceive the class as origin promoting, correspondingly reported greater internal control over outcomes, and less control by powerful others such as the teacher. Also, the higher the report of origin climate, the less

children reported that the sources of control over outcomes were unknown.

Previous research has directly linked teacher orientations toward autonomy versus control to classroom averages on the origin climate scale (Deci et al., 1981). DeCharms (1976) additionally showed that teacher training programs led directly to changes in classroom averages on this dimension. Yet, by using classroom averages, these previous investigations deemphasized the role of individual differences within classrooms, which appear from the present research to be substantial.

By examining the component sources of variance in children's perceptions of the classroom environment, we argued that individual differences within classrooms in these perceptions represent a meaningful variable of interest. These individual differences in perception had significant relationships with other child self-perceptions, motivations, and feelings of control. The findings thus underscore the importance of assessing the *functional significance* of the environment for the individual when concerned with the effects of the environment on self-related variables. It appears that there are wide differences in the manner in which individual children experience the environment, even within the same general context. In short, the "environment" is something unique for each child.

The present study did not, however, examine the factors which might produce the variance in how individual children view their classroom environment on the origin-pawn dimension. The most plausible sources of these differences are the home environment (e.g., caretaker orientations toward autonomy versus control) and/or past experiences in school. Home caretakers, in particular, represent a powerful long-term influence on how children organize and interpret the world around them. Individual differences in what children perceive and/or expect from the environment undoubtedly also result in transactional effects, that is, they may conduce variances in the way a child is differentially treated within a given context. The sources of these individual differences in children's perceptions is, accordingly, an area for further inquiry.

Projective findings further extended the construct validity of the origin-pawn dimension in children's perceptions of the environment. Across the entire sample of children, there was a tendency for those who saw their classroom climate as origin in nature to portray protagonists in their projective stories as origin in character. However, the most dramatic correspondences between self-report and projective stories occurred in the subsample of those children who perceived their classroom as either highly origin in nature or alternatively highly pawn-like. Children who saw their own class as pawn oriented were more likely to portray low origin character students and controlling teachers, whereas the opposite was true for students with high origin-climate self-reports.

Furthermore, within the projective productions of children, there was evidence of more aggressiveness when either the children were less origin oriented or the teachers were depicted as less autonomy promoting. Although speculative, these findings are suggestive in terms of understanding the sources of children's aggressive expression as stemming from perceptions of being externally controlled.

An interesting aspect of this data is the manner in which self-report and the projective measure converged. It appears that for the most part the projective method was likely to manifest results

Table 5

Correlations Between Self-Worth, Perceived Competence, and Mastery Motivation, and Total Origin Climate Scores (T) Classroom Means (C) and Individual Differences Within Classrooms (I)

Self-report variables	Boy's origin climate			Girl's origin climate			Total sample origin climate		
	T	C	I	T	C	I	T	C	I
General self-worth	.28***	.22**	.22**	.35***	.13**	.31***	.31***	.18***	.26***
Cognitive perceived competence	.30***	.14**	.27***	.38***	.13***	.35***	.33***	.14***	.30***
Social perceived competence	.21***	.12**	.18***	.28***	.22***	.21***	.24***	.18***	.18***
Mastery motivation	.37***	.18***	.33***	.37***	.10	.36***	.37***	.14***	.34***

Note. $N = 578$ for total sample. * $p < .10$. ** $p < .05$. *** $p < .01$.

for those children who were extreme in their self-reported perceptions of the environment. The children who were moderate in their view of the classroom environment were less likely to give a clear-cut corresponding picture within the stories they produced, as revealed by the minimal correlations obtained across the entire sample. We suggest that for a theme to emerge in a projective or, as McClelland (1980) calls it, "operant" measure, then it must be both salient and important to the subject, which it apparently was for our extreme group subjects.

There are limitations in the methodology used. Foremost is the fact that the data are primarily correlational in nature, and causal relationships between children's perceptions of the environment, self-report measures, and projective ratings can only be inferred. However, the replication of the major findings across two independent samples suggests that they reflect reliable relationships. The findings also lend further support to the growing literature suggesting that the experience of autonomy is a significant contributor to children's school-related and general adjustment, and an important and measurable target for applied psychological research.

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