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An Instrument to Assess Adults' Orientations Toward Control Versus Autonomy With Children: Reflections on Intrinsic Motivation and Perceived Competence

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This article describes the development and validation of an instrument to assess adults' orientations toward control versus autonomy in their interactions with children. The 32-item, paper-and-pencil measure has four subscales that are combined to provide an overall orientation. The responses from 68 teachers had a good range and were internally consistent and temporally stable. Further, the measure was shown to be externally valid in that teachers from Grades 4 through 6 who were more autonomy oriented on the measure were rated as such by their students, and more importantly, the children of the autonomy-oriented teachers were more intrinsically motivated and had higher self-esteem than children of the teachers who were more control oriented.

It is widely believed that intrinsically motivated, self-directed learning is the ideal model for education. Proponents of this view (e.g., Bruner, 1962) suggest that when students learn out of curiosity and the desire for challenge, they are more involved in and satisfied with the learning and they understand and can integrate the material more fully.

Recent research (see Deci & Ryan, 1980) indicating that various external events such as rewards, constraints, and communications can undermine people's intrinsic motivation for a target activity with which the events are associated raises serious questions about how to design learning environments that can use the needed rewards and structures without undermining students' intrinsic motivation.

According to cognitive evaluation theory (Deci, 1975; Deci & Ryan, 1980), external events have both a controlling aspect and an informational aspect. The function of the controlling aspect is to bring about a particular behavioral outcome in the recipient, and the function of the informational aspect is to convey relevant information—information about one's competence at the target activity, for example. When the controlling aspect of an external event is more salient to the recipient than the informational aspect, the external event will tend to decrease intrinsic motivation, whereas when the controlling aspect is less salient, the external event will tend to maintain or enhance intrinsic motivation.

Support for this hypothesis has been provided from studies by Enzle and Ross (1978), Rosenfield, Folger, and Adelman (1980), Pittman, Davey, Alafat, Wetherill, and Kramer (1980), and Ryan (1981), in which the informational versus controlling aspects of rewards and communications were manipulated experimentally. The important point is that rewards, communications, and other external events can be expected to decrease intrinsic motivation only when the controlling aspect is salient for the recipient. That raises the interesting question of what

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factors determine whether the controlling component will be salient.

We suggest that characteristics of the rewarder or communicator are among the factors that could determine whether the controlling aspect would be salient. For example, if at a given time the intention of the rewarder or communicator was to bring about a particular behavioral outcome, it is likely that the controlling aspect of the reward or communication would be particularly salient. In a more general sense, if rewarders or communicators are oriented toward being controlling, it is likely that the controlling aspects of their rewards or communications will be particularly salient. On the other hand, if rewarders or communicators are oriented more toward supporting autonomy in the recipient than toward controlling the recipient's behavior, the controlling aspect of the rewards or communications is less likely to be salient. In education, this suggests that if teachers are more oriented toward control, they are likely to reward and communicate in controlling ways that will undermine children's intrinsic motivation, whereas if they are more oriented toward supporting autonomy, they are likely to reward and communicate in less controlling ways that will not undermine children's intrinsic motivation.

In order to test the hypothesis that people's orientation toward control versus autonomy will affect whether the controlling aspect of the rewards and communications that they deliver will be more salient, and thus more likely to undermine intrinsic motivation in the recipients, it is necessary to have an instrument to assess these orientations.

This article describes the development and validation of such an instrument in the domain of adults' orientations toward controlling versus supporting autonomy in children. To be useful, the measure must possess the appropriate psychometric properties such as internal and temporal consistency. And given the preceding theoretical discussion, it must also show that adults oriented toward control have a more negative or less positive impact on the intrinsic motivation of their children than adults oriented toward autonomy. To assess this validity we did two studies relating the orientations of fourth- through sixth-grade teachers to the intrinsic motivation of children in their classes.

Harter (in press) has suggested that perceived competence is integrally related to intrinsic motivation in the same domain. For example, if children perceive themselves to be competent in relation to the material covered in their classes, they are more likely to be intrinsically motivated to learn the material. Therefore, in our validity studies we also looked at the relationship between teachers' orientations and children's perceived competence.

Method

Questionnaire Format

The questionnaire is composed of eight short vignettes describing typical kinds of problems that occur in schools. Following each vignette are four possible ways of dealing with the problem situation. The four items following each vignette represent four points along a continuum from highly controlling to highly autonomous. In each "highly controlling" response, the adult (either a teacher or parent) decides on the problem solution and then uses sanctions to ensure that the solution is implemented. In each "moderately controlling" response, the adult decides on the solution and attempts to get the child to implement it by invoking guilt or emphasizing that it is for the child's own good. In each "moderately autonomous" response the adult encourages the child to use social comparison information (to see what other kids are doing) in an attempt to solve the problem. And, finally, in each "highly autonomous" response the adult encourages the child to consider the various elements of the problem and to arrive at a solution for him- or herself.

The adults who completed the questionnaire were asked to read each vignette carefully and then to consider the four possible responses, one at a time, rating each item on a scale from 1 to 7 indicating how appropriate they considered that response for handling the situation. A 1 indicated that, given that person's style, the response was highly inappropriate, a 4 indicated that it was moderately appropriate, and a 7 indicated that it was highly appropriate. Thus, a respondent was instructed to rate 32 items, four responses to each of eight vignettes. Eight of the items, therefore, were highly controlling, eight were moderately controlling, eight were moderately autonomous, and eight were highly autonomous. The four responses were counterbalanced for order across the eight vignettes. The responses to each of the eight items on each of the four subscales were averaged to give four subscale scores, each with a range from 1 to 7. A total score was calculated by weighting the highly controlling subscale score with −2, the moderately controlling subscale score with

−1, the moderately autonomous subscale score with +1, and the highly autonomous subscale score with +2, and then summing the weighted values. Thus, the total scale score could range from −18 to +18.

The following is an example of one of the vignettes and its four items.[1] The *HC*, *MC*, *MA*, or *HA* that appears before an item identifies the subscale to which it belongs. On the actual questionnaire, each item was followed by the 7-point rating scale.

1. Jim is an average student who has been working at grade level. During the past two weeks he has appeared listless and has not been participating during reading group. The work he does is accurate but he has not been completing assignments. A phone conversation with his mother revealed no useful information. The most appropriate thing for Jim's teacher to do is:

(*MC*) 1. She should impress upon him the importance of finishing his assignments since he needs to learn this material for his own good.

(*HA*) 2. Let him know that he doesn't have to finish all of his work now and see if she can help him work out the cause of the listlessness.

(HC) 3. Make him stay after school until the day's assignments are done.

(MA) 4. Let him see how he compares with the other children in terms of his assignments and encourage him to catch up with the others.

Procedure

To develop the measure of teachers' orientations, we generated a pool of 16 vignettes and 64 items that reflected the construct of interest. These vignettes and items were administered to a sample of teachers, and based on their responses we selected the eight vignettes (and 32 items) that worked best. They were the ones that were not qualified by written comments from the initial respondents, that provided a range of responses, and that raters familiar with the construct of "control to autonomy" judged to have high face validity.

We then administered the questionnaire to 68 teachers (Grades K–6). The teachers came from six schools in two school districts. Their responses were used to compute (a) summary statistics for the four subscales, and the total scale score; (b) correlations between individual items and the four subscale totals; (c) split half reliability coefficients (alpha) for each of the four subscales; and (d) correlations of each subscale score with each other subscale score. In addition, for 19 of the teachers we gave a second administration of the scale 2 months after the first administration, and we calculated (e) test–retest reliabilities for the 2-month interval. Then, for 35 of the teachers (Grades 4–6), we collected data on their children's perceptions of the climate in their classrooms and also data on the intrinsic motivation and self-esteem of the children in their classrooms as a basis for assessing (f) the external validity of the scale. A subsequent validity study was conducted in six other fourth- through sixth-grade classes.

The first of the two validity studies involved 610 children who completed an intrinsic motivation scale (Harter, 1981) and a perceived competence scale (Harter, in press) on two occasions during one school year (late October and late May). In addition, they completed another questionnaire that described their classrooms and teachers (the Origin Climate Questionnaire; deCharms, 1976) in February of the same year. Thus, we had the teachers' responses on the orientation toward control versus autonomy questionnaire, the children's descriptions of those teachers, and the children's responses on the intrinsic motivation and the perceived competence questionnaires. We correlated the teachers' orientations with the children's perceptions of the classroom climates that the teachers created. We also correlated the teachers' orientations with the children's intrinsic motivation and perceived competence. This study, which has other aspects as well, was reported in detail elsewhere (Deci, Nezlek, & Sheinman, 1981). Only the portions of it directly relevant to the validation of the orientation scale are reported here.

The first study was a correlational study in which the classroom was the unit of analysis. In the second study we selected three teachers whose orientation scores were above the mean and three whose scores were below the mean, and we looked at the changes in intrinsic motivation and perceived competence of the children in their classes from early September (the second day of school) to late October—a period of 7 weeks. Thus, in this study the 115 children (50 in the autonomy-oriented classes and 65 in control-oriented classes) were the unit of analysis.

The intrinsic motivation scale has five subscales: three motivational subscales measuring preference for challenge, curiosity, and independent mastery attempts and two evaluation subscales measuring independent judgment and own criteria for success and failure. The perceived competence scale has four subscales: general feelings of self-worth (i.e., self-esteem), perceived cognitive competence, perceived social competence, and perceived physical competence. Finally, deCharms' classroom climate questionnaire gives a total score reflecting children's perceptions of whether the teacher behaves in a way that promotes an autonomy-oriented classroom climate or a control-oriented classroom climate.

Results and Discussion

The first analyses computed summary statistics for the orientation toward control versus autonomy scale total and the four subscales based on the data from all 68 teachers. These results appear in Table 1. Virtually all of the scores were between 2.13 and 12.13, though there was one extreme score of −10.13. Thus, the effective range

[1] The entire scale can be obtained by writing to the first author.

Table 1
Means, Standard Deviations, Minimum Scores, and Maxium Scores for the Scale Total and Each of the Four Subscale Scores (n = 68)

Subscale	*M*	*SD*	Minimum score	Maximum score
1 HC	2.72	.86	1.13	6.50
2 MC	3.36	.90	1.13	5.63
3 MA	3.67	.85	1.25	6.25
4 HA	6.05	.77	1.88	7.00
Scale total	6.98	3.11	−10.13	12.13

Notes. HC = highly controlling; MC = moderately controlling; MA = moderately autonomous; HA = highly autonomous. For the total scale the minimum possible score is −18 and the maximum possible is +18. A higher score means more autonomously oriented. For each subscale the minimum is +1 and the maximum is +7. A higher score on any subscale means the score is more like the label for that particular subscale. The two controlling subscale scores are given negative weightings when the subscales are combined to yield the total scale scores.

of the data is 10.00, though the actual range is 22.25. The scores between 2.13 and 12.13 were normally distributed, with a mean of 6.98 and a standard deviation of 3.11. The ranges for the four subscales vary from 4.50 to 5.38, these values being equal to 5.00 and 6.25 standard deviations, respectively. Thus, we see that the teachers varied considerably in their orientations toward control and autonomy.

Internal Consistency

In the second analysis, each of the eight items in each of the four subscales was correlated with its subscale total. Table 2 presents the minimum and maximum values for each set of eight correlations for each of the four subscales. Of the 32 correlations, none was below .40, and they ranged as high as .80. Table 3 presents the averages of the correlations for the eight items of each subscale with each of the four subscale totals. The average correlations of the items with the total of the subscales to which they belong range from .53 to .64, whereas the average correlations for the items with the total of subscales to which they do not belong range from −.27 to +.37. Clearly, the items relate much more strongly with their own subscale totals than with the other subscale totals.

Table 2
Minimum and Maximum correlations for Each Set of Eight Items in Each of the Four Subscales With Its Own Subscale Score (n = 68)

Subscale	Minimum correlation	Maximum correlation
1 HC	.47	.70
2 MC	.44	.71
3 MA	.40	.60
4 HA	.51	.80

Note. HC = highly controlling; MC = moderately controlling; MA = moderately autonomous; HA = highly autonomous.

In an additional analysis to assess internal consistency, split half reliabilities were calculated for each of the four subscales. The values of Cronbach's alpha for standardized scores for the four subscales, respectively, were .73, .71, .63, and .80. For nonstandardized scores, the four values of alpha were .70, .69, .63, and .76. Thus, this analysis, like the previous one, indicates that the subscales have good internal consistency. Further, the analysis indicates that it is not necessary to standardize items before combining them to obtain the subscale totals.

The four subscales were designed to represent points along a continuum extending from an orientation toward control to an orientation toward autonomy. If this intent was achieved, each subscale should correlate more strongly with adjacent subscales than with distant ones, and there should be a negative correlation between the extreme

Table 3
Average correlations Between the Eight Items of Each Subscale and the Four Subscale Totals (n = 68)

	Items			
Total	Subscale 1	Subscale 2	Subscale 3	Subscale 4
Subscale 1	.59	.36	.29	−.25
Subscale 2	.37	.57	.18	−.17
Subscale 3	.27	.17	.53	−.04
Subscale 4	−.27	−.17	−.05	.64

points on the continuum. The data in Table 4 confirm these expectations. The correlations are generally less positive or more negative as one moves to more distant subscales, and the correlation between Subscales 1 and 4 is −.41.

Subscale 4, the highly autonomous scale, is negatively correlated with each of the other three, though its correlation with Subscale 3 is essentially zero. Further, Subscale 3 has significantly positive correlations with Subscales 1 and 2. Thus, it appears that the "moderately autonomous" subscale, the one that employs social comparison information, is somewhat more controlling than we had originally intended. It is ordered appropriately on the continuum, but the way in which it correlates with the other three subscales suggests that it might be more properly termed "slightly controlling" than "moderately autonomous."

Temporal Stability

Nineteen teachers completed the questionnaire a second time 2 months after the first administration. Test–retest reliability coefficients were calculated for each of the four subscale scores as well as the total scale score. As can be seen from the diagonal of Table 4, the reliability coefficients for the four subscales range from .77 to .82. The test–retest reliability of the total scale is .70, slightly lower than that of the individual subscales. This may reflect the net effect of two conflicting features of the total scale score. On the one hand, it is composed of only four values (the four subscale scores) rather than eight values that are combined to form each subscale total, so one would expect it to be less reliable. On the other hand, each of the four values that constitute the scale total is a more stable value (since it is itself an average of eight values) than each of the eight values that constitute the subscale totals. Apparently the first feature carries the greater weight in the net effect.

Table 4
Correlations Among the Four Subscale Totals (n = *68*) *and Test–Retest Reliability Coefficients* (*in italics*) *for the Subscale Totals* (n = *19*)

	Subscale			
Subscale	1	2	3	4
1	*.82*			
2	.62	*.79*		
3	.49	.31	*.82*	
4	−.41	−.28	−.06	*.77*

External Validity: Study 1

Having seen that the orientation toward control versus autonomy scale possesses adequate internal consistency and temporal stability, we turn to the question of validity. The first validity study involved 35 of the 68 teachers and 610 children from their fourth-, fifth-, and sixth-grade classrooms (Deci et al., 1981). To be considered valid, the teacher measure should correlate with the children's perceptions of the teacher and also with the actual intrinsic motivation and perceived competence of the children.

First, consider the correlations between the teachers' total scores on the control/autonomy orientation measure and the children's *perceptions* of their teachers on the classroom climate measure. The correlation of .35 was significant at the .05 level. Teachers who were more autonomy oriented, as evidenced by higher scores on our measure, were seen as being more supportive of autonomy, as evidenced by higher scores on the classroom climate measure.

Having seen that the measure of teachers' orientations related to children's perceptions of the teachers' orientations, we considered whether the measure was related to actual characteristics of the children—their intrinsic motivation and perceived competence.

This study was designed not only to validate the teacher measure but also to test the hypothesis that teachers' orientations affect the intrinsic motivation and perceived competence of the children. To provide support for this causal hypothesis, one should find correlations between the teachers' orientations and the changes in children's intrinsic motivation and perceived competence from late October when the measures were first administered to late May when they were administered again. There was, however, no relationship at all between

Table 5
Correlations Between Teachers' Orientation Toward Control Versus Autonomy Scores and Children's Fall and Spring Scores on Intrinsic Orientation and Perceived Competence Subscales

Subscale	Correlation	
	Fall	Spring
Intrinsic orientation		
Motivational		
Prefers challenge	.41***	.39**
Curiosity	.56***	.27*
Mastery attempts	.37**	.37**
Evaluative		
Independent judgment	−.13	−.09
Criteria for success	.16	.17
Perceived competence		
General self-worth	.36**	.40***
Cognitive	.29**	.43***
Social	.27*	.21
Physical	−.06	.05

Note. The classroom is the unit of analysis ($n = 35$). * $p < .10$. ** $p < .05$. *** $p < .01$.

the teacher measure and the children's change score on any of the subscales. Instead, what we found was that by the end of October, 2 months into the school year, a pattern of significant relationships had been established that seemed to remain constant over the 7-month period. These data are presented in Table 5 (adapted from Deci, Nezlek, & Sheinman, 1981). The first column presents the correlations between the teacher orientation scale and each of the subscales for the children's intrinsic motivation, self-evaluation, and perceived competence measures in late October. The second column presents the correlations for the same measures in May.

One can see from the table that the teacher orientation scale correlated significantly with each of the three intrinsic motivation subscales, on both the fall and spring administrations (though the correlation with the spring measure of curiosity was only marginally significant). Teachers who were more autonomy oriented had children who were more intrinsically motivated; teachers who were more control oriented had children who were less intrinsically motivated.

The evaluation dimensions of the intrinsic orientation scale did not correlate with the teacher orientation scale. Harter (1981) reported that children become more independent in their evaluations of themselves as they get older. Apparently this increasing independence of children's self-evaluations depends more on the cognitive abilities that develop as a child gets older than on the nature of the environments they are in.

The teacher orientation scale also correlated significantly with children's general feelings of self-worth and with their perceptions of their own cognitive competence. It correlated marginally with their perceptions of their social competence on the fall administration but not the spring administration, and it was unrelated to their perceptions of physical competence. When teachers were more autonomy-oriented, children in their classes had higher self-esteem—they felt better about themselves in general and they perceived themselves to be more competent in the cognitive domain (the domain that relates directly to the classroom).

In sum, we have seen that children in classrooms with autonomy-oriented teachers see their teachers as more supportive of autonomy, and they also are more intrinsically motivated and have higher perceived competence. This relationship was established within the first 2 months of the school year and remained essentially constant over the remainder of the year.

There seem to be two possible interpretations of these data. The first is that there was some basis for assignment of children to classrooms that was relevant to this study. For example, if variables such as achievement or behavior were taken into account in assignments to classrooms, the relationship would be spurious and uninteresting. However, we spoke with the principals of the four schools in which we collected these data and they assured us that assignment to classrooms in their district was essentially random. It appears that the second possible interpretation is correct; that is, that children adapt to their teachers relatively quickly (within 2 months) and maintain that adaptation. When their teachers are autonomy oriented they become more intrinsically motivated and feel better about themselves; when their teachers are control

oriented they become less intrinsically motivated and feel worse about themselves.

It is somewhat surprising that the relationship did not grow stronger over the course of the year. Yet when one recognizes that the schools were very traditional lower middle-class schools with conventional classrooms and structures, it no longer seems surprising that there would be a ceiling on the effect that the teachers' orientations would have on the children's intrinsic motivation and perceived competence.

External Validity: Study 2

Although we were able to conclude tentatively from the first study that teachers' orientations significantly affect children within the first 2 months of the school year, we conducted the second study to investigate this matter more carefully.

From the teachers who had completed our questionnaire, there were eight teachers who taught fourth, fifth, or sixth grade in schools other than the ones where the first study was done (so no children would be in both studies), and who were available to participate in a follow-up study. Two of these teachers had total scale scores that fell virtually at the mean, three were above the mean, and three were below the mean. We therefore made arrangements to work in six classrooms—three with control-oriented teachers and three with autonomy-oriented teachers.

On the second day of school we administered a questionnaire to each of the children in those six classrooms. The same questionnaire was administered again 7 weeks later at the end of October. The questionnaire contained the items from the three intrinsic motivation subscales of the Harter (1981) measure and the items from the perceived cognitive competence and general self-worth subscales of the Harter (in press) measure. We used only these five of the nine subscales from the original measures, since they were the only ones that had been found in our first study to be associated with teachers' orientations.

The orientation scores for the six teachers ranged from 2.38 to 11.25. Four of the six teachers were fairly close to the mean with Z scores of −.596, −.516, .249, and .732. One would expect these teachers to have less of an impact than the two teachers whose orientations were more extreme (Z scores of −1.482 and 1.375). Therefore, we weighted the children's change scores with the teachers' Z scores and subjected the data to an analysis of variance for each of the five subscales. Table 6 presents the F values for the five subscales. The change scores on the cognitive perceived competence subscale were highly significant in the predicted direction. The general self-worth scores changed in the predicted direction, though the change missed statistical significance. Still, in combination, it appears that teachers' orientation did have a meaningful impact on children's perceived competence in classroom-related domains.

The intrinsic motivation scores did not, however, change significantly. None of the three subscales had F values on the change scores in excess of 1.0. The intriguing thing, however, in inspecting the data of the children in the classrooms of the two extreme teachers—one control oriented and one autonomy oriented—was that the change scores for their children were as predicted. Indeed, a t test of differences between the change scores of the two classrooms showed that the difference between change scores on the independent mastery subscale was highly significant in the predicted direction and on the preference for challenge subscale was marginally significant in the predicted direction.

The change scores in the classrooms with

Table 6
F *Values for* ANOVAs *on Change Scores for Intrinsic Motivation and Perceived Competence Subscales* (N = *115*), *and* t *Values for Changes in Classrooms of Extreme Teachers* (n = *39*)

Subscale	F	p	t	p
Intrinsic motivation				
Preference for challenge	<1.0		1.75	.10
Curiosity	<1.0		<1.00	
Independent mastery	<1.0		3.02	.01
Perceived competence				
General self-esteem	2.28	.13		
Cognitive	16.45	.001		

the other four teachers whose orientations were less than a standard deviation from the mean were quite random and unpredictable.

Thus, we can conclude that the pattern of results is complementary to that of Study 1, and therefore it provides additional support for the hypothesis that control-oriented teachers seem to have a significantly different impact on the intrinsic motivation and perceived competence of their children than do autonomy-oriented teachers. And a major portion of this difference appears to happen relatively quickly, within the first 2 months of school. In this second study, although the results do appear weak, they are quite confirmatory, since they were gathered from only six classrooms with only two of the teachers being extreme on the orientation measure. The fact that differences appeared in the extreme classes but not in the less extreme classes makes sense. If a teacher is neither clearly controlling nor clearly autonomy oriented, then this particular factor would not be expected to have a strong impact on the children; instead, other aspects of the teacher, factors in the children, or random factors would be expected to account for most of the variance in the children's motivation and perceived competence.

Conclusions

We have shown that our teacher orientation measure is internally consistent, temporally stable, and externally valid. In the validity studies we related the teachers' orientations to children's intrinsic motivation and perceived competence. Although educators tend to agree that these are extremely important variables, it seems appropriate to relate teachers' orientations toward control versus autonomy to other children variables, such as academic achievement, as well. The measure that we have described should prove useful in that effort.

The data presented in this article were collected from ongoing classrooms; there was no experimental manipulation. deCharms (1976) has presented data indicating that when teachers participated in a training program that was intended to make them more autonomy oriented, and then used teaching materials that were intended to foster autonomy, the children rated the classrooms as more autonomy oriented and performed better on standardized achievement tests. Thus, our data complement deCharms' data very nicely. In responsive, autonomy-oriented environments, children have the opportunity to be self-determining (Deci, 1980); they feel better about themselves, they are more intrinsically motivated to learn, and they seem to perform better.

The measure described in this paper can be used for providing teachers with feedback as well as for research purposes. According to cognitive evaluation theory, however, the instrument will be valuable as a training device only if the data from it are presented to teachers *informationally* rather than *controllingly*. Just as children need autonomy-oriented classrooms to be intrinsically motivated and to perceive themselves as competent, teachers need an autonomy-oriented context within which to benefit from feedback about their own orientations. We believe that data from this instrument, presented to the teachers informationally, can help them develop a more intrinsic orientation and a stronger self-esteem. These outcomes should, in turn, filter down to the students.

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