

Between intrinsic and extrinsic motivation: Examination of reasons for academic study based on the theory of internalization

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Abstract: In contrast with the view that intrinsic and extrinsic motivation are antagonistic, the view proposed in this article is that they are anchors of a continuous variable. According to the theory set out here, intrinsic motivation develops by means of internalization. This gives rise to four types of motivation: external, introjected, identified, and intrinsic. The main purpose of this study was to construct a scale to measure these four types of motivation for academic achievement and then to examine its validity. The Stepping Motivation Scale, created by the author, was administered to 483 junior high school students. Intercorrelations among the four subscales conformed to a simplex structure, and documented a continuum from extrinsic to intrinsic motivation. To clarify the distinction among the four types of motivation, relevant variables such as causal attributions and coping behaviors in failing situations, beliefs in links between extrinsic and intrinsic motivation, and teachers' evaluation of students' motivation were related to motivation types. A difference in motivational types was exhibited in the differential patterns of correlations.

Key words: intrinsic motivation, extrinsic motivation, internalization, causal attributions, coping behaviors.

Learning behaviors have been viewed as a product of either extrinsic or intrinsic motivation. Usually intrinsically motivated behaviors have been viewed as those that are engaged in primarily for the pleasure and satisfaction derived from performing them, whereas extrinsically motivated behaviors are those that are engaged in as a means to an end. However, another way to view the distinction between intrinsic and extrinsic motivation involves an examination of whether self-determination and autonomy are determinants of a behavior. Originally, it was thought that extrinsic motivation referred to behaviors performed in the absence of self-determination, whereas intrinsic motiva-

tion referred to behaviors performed in its presence.

The view that extrinsic and intrinsic motivation are antagonistic has been prevalent since these motivational terms began to be used. For example, a number of studies (e.g., Deci, 1971, 1972; Lepper, Greene, & Nisbett, 1973) indicated that offering people extrinsic rewards for performing an intrinsically motivated activity decreased their intrinsic motivation for the activity. Deci (1971) interpreted these findings as follows: Intrinsically motivated behavior was the prototype of self-determined or autonomous activity, and the introduction of extrinsic motivators tended to undermine

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people's experience of self-determination and induced a shift in the perceived locus of causality from internal to external.

Other studies examining this undermining effect suggested, however, that extrinsic rewards can complement or increase intrinsic motivation rather than decrease it (e.g., Harackiewicz, 1979; Ryan, 1982). That is, people can be self-determined even when they are offered extrinsic motivators. This finding signified that extrinsic motivation facilitates rather than inhibits intrinsic motivation. This view presumes that these motivation sources are not antagonistic, but interact and coexist with one another. The question then arises, can we clearly classify motivations into either intrinsic or extrinsic sources?

Deci, Ryan, and their colleagues (Deci & Ryan, 1985; Ryan & Connell, 1989) have proposed that different types of extrinsic motivation exist, some of which are partially self-determined. That is, although intrinsically motivated behaviors are by definition self-determined, extrinsically motivated behaviors can vary in their degree of self-determination. It has been hypothesized that the extent to which they are fully endorsed by and congruent with one's sense of self produces differences in the type of extrinsic motivation. Ryan (1993) stated that intrinsic motivation is formed through the developmental processes of internalization and integration. The tendency toward assimilation or integration can lead people not only to do what interests them, but also to internalize and integrate the value of these activities, and allow them to feel both autonomous and related to others within the social world. This perspective is unique in regarding intrinsic motivation not as innate but as socially formed.

Ryan and Connell (1989) have proposed four types of motivation that can be ordered along a continuum of increasing self-determination: external, introjected, identified, and intrinsic. These are based on answers to questions regarding reasons for significant behaviors in achievement domains.

The first type of motivation, external reason, means doing the target activities to comply

with authorities such as teachers and parents. For example, students may participate in activities because they felt urged to do so by their teachers. Or they may study hard at school in order to receive a reward promised by their parents. Thus, they are not motivated by the learning. Besides, their motivation is not self-determined. External reason for an act can be classified as extrinsic motivation based on the prior definitions.

The second type of motivation, introjected reason, is framed in terms of internal, esteem-based pressures to act, such as avoidance of guilt and shame or concerns about approval from self or others. Individuals subsequently begin to internalize their reasons for the action. In other words, the source of control is inside the individual. Rewards or constraints are now imposed by the individual and not by others. However, this form of internalization is not truly self-determined. For example, a student thinks that he studies hard before examinations because he feels guilty when he does not study. This reason gives rise to extrinsic motivation according to one definition mentioned earlier, because he does not engage in the action by reason of the pleasure derived from it. However, it is somewhat classified within intrinsic motivation because it incorporates self-determination.

The third type of motivation, identified reason, occurs when a behavior is valued by the individual and is perceived as being chosen by oneself. It typically takes the form "I want." Behavior is internally regulated in a self-determined way. In this respect, it is classified as intrinsic motivation. In another respect, however, it is conceived as extrinsic motivation because the activity caused by the identified reason is not performed for itself but as a means to an end.

The fourth type of motivation, intrinsic reason, as defined by Ryan and Connell (1989), involves doing an activity for fun or for inherent enjoyment in a self-determined way. It can be classified wholly into intrinsic motivation based on prior definitions.

If these classifications are accurate, then it can be argued that extrinsic and intrinsic

motivation are not antagonistic, but rather are located on a continuous dimension.

The main purpose of this study was to construct a scale to measure the four types of motivation for academic achievement. As confirmation of the validity of the scale, constructed on the theory of internalization, external, introjected, identified, and intrinsic reasons for achievement behavior should conform to a simplex (ordered correlation) structure. It is hypothesized that there will be strong positive correlations between adjacent concepts in the theory, and less positive or perhaps even negative correlations between concepts further apart. For example, it is expected that external reasons have a strong positive correlation with introjected reason, a weaker positive correlation with identified reason, and either no correlation or a slightly negative correlation with intrinsic reason. This hypothesis is examined first in this article.

Furthermore, to classify the distinction between the motivational types, relevant variables are related to these motivational types. The variables examined include causal attributions, coping behaviors, beliefs in links between extrinsic and intrinsic motivation, and teachers' evaluation of students' motivation. With regard to causal attributions, we focused on academic failure. It is predicted that attributions to controllable causes such as lack of effort and bad strategy will be associated with identified and intrinsic reasons, whereas attributions to uncontrollable causes will be strongly associated with external reasons for behavior. This is because the person who is motivated autonomously and self-determined is responsible for failing, whereas the individual having external reasons avoids self-responsibility for failure.

Turning next to coping behaviors, it is assumed that there are active and passive means of coping with failure. Students who have less self-determined motivation do not overcome failure without external help. Thus, they show passive coping behaviors. In contrast, the students having more self-determined motivation will resist their failure with active coping behaviors.

In addition, the relations between the four types of motivation and "beliefs in links" are explored. "Beliefs in links" connotes to what extent individuals believe in links between extrinsic and intrinsic motivation, that is, changeability from extrinsic to intrinsic motivation (Hayamizu, 1993). It is contended that middle levels of motivation, introjected and identified reasons, are more likely to change from one to another reason than are the extreme motivational types, external and intrinsic reasons. That is to say, introjected and identified reasons should be associated more closely with beliefs in links than external and intrinsic reasons.

Finally, teachers' evaluations of students' motivation to learn are examined in relation to the four types of motivation. Recently, in Japanese schools, the evaluation of the process of learning, such as measuring motivation and attitude, has been emphasized more than the results of learning, such as understanding and knowledge. Those students who are motivated autonomously want to study more actively than do those who are motivated heteronomously. Therefore, it is hypothesized that the higher intrinsic and identified reasons are, the more positive the evaluation, whereas the higher the external and introjected reasons, the lower the evaluation.

Method

Subjects

The subjects were 483 junior high school students in the seventh and eighth grade (239 boys and 244 girls).

Procedure

The questionnaire consisted of three parts. A tentative version of the Stepping Motivation Scale (SMS) formed the first part of the questionnaire. The SMS was guided by the Self-Regulation Questionnaire developed by Ryan and Connell (1989), which is designed for elementary school children, and the Academic Motivation Scale, designed by Vallerand and Bissonette (1992) for college students. The SMS assessed the four motivational concepts of external, introjected, identified, and intrinsic

reasons for academic achievement. The subscale used to measure each concept was composed of seven items, so the SMS comprised a total of 28 items. Following the instructions, subjects were asked "Why do you study science?" Originally, the Self-Regulation Questionnaire and Academic Motivation Scale were not constructed to measure motivation for a particular school subject. In this study, however, the school subject was restricted to science because it is easier for the students to respond to a specific rather than a vague statement. Subjects were asked to respond to every statement by choosing one of five alternatives: 1, never; 2, rarely; 3, sometimes; 4, often; and 5, always.

The items for the external reason were: (1) because the teachers of my school and *juku* assign me homework (*juku* refers to small private classes where supplementary lessons are provided for pupils); (5) because my parents jump on me if I don't study; (9) because it seems to be a rule for students to study; (13) because the modern social system is such that one must study; (17) because the teachers do not scold me if I at least study; (21) because my parents monitor me; (25) because my parents get angry if I don't study.

To assess the introjected reason, the items were: (2) because I feel anxious if I don't study; (6) because I feel shameful if I don't study; (10) because I may end up regretting not studying if I don't study now; (14) because I want teachers to regard me as a good student; (18) because I don't want my parents to feel sad because of my poor achievement; (22) because I want my friends to regard me as smart; (26) because I don't want my friends to dislike me because I am a dull student.

The items for identified reason were as follows: (3) because science involves an important thing that I should study; (7) because it is one of the important school subjects relevant to the entrance examination; (11) because I think it is necessary to study as part of life; (15) because I want to study new things; (19) because studying science will be useful for me in the future; (23) because I want to get a good report card; (27) because it is the subject matter that I want to understand.

Finally, the subscale of intrinsic reason comprised the following items: (4) because it is interesting for me to solve the problems; (8) because I want to feel the joy of understanding science; (12) because I get pleasure from difficult challenges; (16) because it is fun to become good at it; (20) because I like thinking; (24) because it is fun for me to increase my knowledge; (28) because it is fun to overcome stumbling and failure.

The number presented at the top of each item indicates the order in which it is arranged in the SMS.

In the second part of this questionnaire, causal attributions and coping behaviors for failure were measured. First, subjects were asked to imagine they had performed poorly in an examination. Then, they were requested to infer the degree to which each cause listed in the questionnaire determined their failure. There were seven causes: (1) lack of ability; (2) lack of effort; (3) teacher's poor instruction; (4) difficulty of tasks; (5) bad luck; (6) bad strategy for study; (7) parents' poor educational guidance. The subjects responded on a scale ranging from 1 (not at all true) to 5 (completely true).

Next, the subjects were asked how they would cope with such a failure. Nine typical coping behaviors were listed: (1) setting a new goal; (2) attributing the cause of failure to teachers and parents; (3) persuading oneself that this failure is unimportant; (4) being cross with others; (5) if they made a mistake, asking teachers and checking books on it; (6) trying to forget bad things quickly; (7) doing something else to refresh oneself; (8) falling into a melancholy mood; (9) thinking about the cause of failure and trying to change it. The subjects were requested to answer on a five-point scale ranging from 1 (never do) to 5 (always do).

In the last part of the questionnaire, the subjects were asked their beliefs in links between extrinsic and intrinsic motivation. The scale constructed by Hayamizu (1993) was revised to be applicable only to science. In this study, only the positive links between intrinsic and extrinsic motivation were examined. The positive links imply that positive extrinsic motivation is

associated with positive intrinsic motivation. Two aspects of intrinsic motivation, increasing interest, and sense of efficacy, were assumed. For example, the item "When I like a teacher in charge of science, my interest in science increases" represents the former, whereas the item "When I am approved by the teacher, my sense of efficacy increases" refers to the latter aspect. The scale consisted of 12 items, equally tapping the two kinds of content. Subjects responded to such questions using a five-point scale.

Regarding evaluations for students' learning motivation, the teacher in charge of science class rated this on a three-point scale.

Results

Item analyses of each subscale in the SMS

In order to examine one dimension of each subscale in the SMS, principal-component analyses were applied to the seven items in each. Two heterogeneous items were found. These were item (1), assumed as an external reason, and item (23), chosen as an identified reason. These were therefore excluded from the subscales. To equalize the number of the items of each subscale, one relatively heterogeneous item was excluded from both subscales of introjected and intrinsic reasons. The item numbers were (2) and (8). Thus, each refined subscale consisted of six items. The coefficients representing internal consistency were .770 for external reason, .739 for introjected reason, .762 for identified reason, and .855 for intrinsic reason.

Intercorrelations among four types of motivation

To examine one facet of the validity of the SMS, we calculated the intercorrelations among the four subscales. Support for the validity of the SMS would be obtained if the correlations were displayed in a simplex structure. A simplex structure is supported if positive correlations between adjacent concepts are obtained, and these become progressively less positive and gradually negative as the concepts are

further apart. As shown in Table 1, the pattern of correlations supports the simplex structure. The highest positive correlations were obtained between adjacent concepts (external and introjected reasons, $r = .576$; introjected and identified reasons $r = .476$; identified and intrinsic reasons, $r = .617$). Conversely, the lowest correlation was obtained between the concepts at opposite endpoints (external and intrinsic reasons, $r = .052$), although this was not a negative correlation. The correlations between two concepts that were one interval apart were moderate (external and identified reasons, $r = .211$; introjected and intrinsic reasons, $r = .279$).

In order to clarify the feature of these interrelations still more, significance tests for the differences between intercorrelations were conducted. In most pair comparisons, significant differences ($p < .05$) were indicated except for the difference between $r = .576$ and $r = .617$ and that between $r = .211$ and $r = .279$. As a whole these results support the view that a self-determination continuum underlies the four subscales.

Factor analyses of causal attributions and coping behaviors

Factor analyses (principal factor analysis with varimax rotation) of both causal attributions and coping behaviors were conducted. First, it was found that the structure of causal attributions consisted of two factors. There was an obvious break between the second and the third eigenvalues, decreasing as follows: 1.954,

Table 1. Intercorrelations among four types of motivation

	Motivation (reason)			
	External	Introjected	Identified	Intrinsic
External	.770***	.576***	.211***	.052
Introjected		.739***	.476***	.279***
Identified			.762***	.617***
Intrinsic				.855***

*** $p < .001$.

Note. The scores on the diagonal are internal consistency values (Cronbach alpha).

1.469, .946, .799. The cumulative percentage of variance accounted for by two factors was 48.90%. Examining the items having factor loadings over .55, the first factor loaded on four items: teacher's poor instruction, difficulty of tasks, bad luck, and parents' poor educational guidance. This factor was regarded as loading on external causes. The second factor comprised two items, lack of effort and bad strategy for study. This factor was regarded as capturing controllable causes. Both factors, however, loaded somewhat similarly on the item of lack of ability. That is, the first factor loading was greater than .50, and the second one was over .42. Thus, it was dealt with as another cause and separated from the two causes extracted from the factor analysis. Hence, causal attributions were classified into three categories: external causes, controllable causes, and ability.

Concerning coping behaviors, three factors were extracted from the nine items, which accounted for 57.1% of the variance. Factor loadings over .60 for the first factor were shown on three items: setting a new goal; asking teachers about a mistake and checking books on it; thinking about the cause of failure and trying to change it. These items all refer to active coping behaviors. The second factor loaded highly on three items: persuading oneself that this failure is unimportant; trying to forget bad things quickly; and doing something else to refresh oneself. This factor was labelled as passive coping behaviors. The loadings of the third factor were high on the items of attributing the cause of failure to teachers and parents, being cross with others, and falling into a melancholy mood. These imply maladaptive coping behaviors. Thus the coping behaviors were categorized into active, passive, and maladaptive ones.

Relations between four types of motivation and other variables

After summing up the rating scores of items included in each category of causal attributions, the correlations between the four types of motivation and the three kinds of causal attributions were calculated (see Table 2). Although external causes were positively related

Table 2. Correlations between four types of motivation and classified causal attributions

Attribution	Motivation (reason)			
	External	Introjected	Identified	Intrinsic
External causes	.322***	.198***	-.040	-.090*
Controllable causes	.058	.103*	.116*	.077
Ability	.107*	.077	-.075	-.149**

* $p < .05$, ** $p < .01$, *** $p < .001$.

to the external reason ($r = .322$), they were negatively associated with intrinsic reason ($r = -.090$). The differences between adjacent correlations were significant ($p < .01$) except for that between identified and intrinsic reasons.

Overall, it appears that as motivational type varied from external to intrinsic, external causes became less positively and more negatively associated with motivation.

On the other hand, controllable causes were positively related to introjected ($r = .103$) and identified reasons ($r = .116$). Tests of the differences between two correlations for adjacent motivation did not indicate any significance. In addition to the correlations between the composite causes and four reasons, those between individual causes and each motivation were calculated (not shown in Table 2). Lack of effort was not significantly related to introjected or identified reasons. However, there were significant correlations between bad strategy for study and introjected ($r = .146$) and identified ($r = .147$) reasons. The correlations of the four reasons with attributions to lack of ability were similar to those with attributions to external causes. For example, attribution to lack of ability was negatively related to intrinsic reason ($r = -.149$) and positively to external reason ($r = .107$). The difference between the correlations was significant ($p < .01$) between introjected and identified reasons.

Turning next to coping behaviors, which were represented by the total of item scores included in each category as mentioned before, the correlations between active coping behaviors and

Table 3. Correlations between four types of motivation and classified coping behaviors

Coping behaviors	Motivation (reason)			
	External	Introjected	Identified	Intrinsic
Active coping	-.004	.201***	.482***	.528***
Passive coping	.174***	.071	.043	-.029
Maladaptive coping	.270***	.258***	.125**	.067

** $p < .01$, *** $p < .001$.

Table 4. Correlations between four kinds of motivation and beliefs in links

Beliefs in links	Motivation (reason)			
	External	Introjected	Identified	Intrinsic
Interest	.215***	.415***	.407***	.402***
Efficacy	.229***	.428***	.377***	.378***

*** $p < .001$.

the four reasons became progressively positive as motivational type varied from one end of the continuum (external reason, $r = -.004$) to the opposite end (intrinsic reason, $r = .528$) (see Table 3). Students who had highly identified and intrinsic reasons tended to cope actively with failure. Also, introjected reasons were positively correlated with active coping behaviors. The differences between adjacent correlations were all significant except for that between the correlations for identified and intrinsic reasons.

In contrast, maladaptive coping behaviors were strongly associated with the extrinsic and introjected reasons. They also were positively correlated with identified reasons. However, the difference between correlations with identified and intrinsic reasons was not significant. To examine these relationships in detail, the correlations between each item of maladaptive behaviors and identified reasons were calculated (not shown in Table 3). Identified reasons were significantly, positively, correlated only with falling into a melancholy mood ($r = .157$). Only intrinsic reasons exhibited no correlation in relation to maladaptive coping behaviors.

Passive coping behaviors were significantly associated with external reasons ($r = .174$). It

was significantly higher than the correlation with introjected reason ($p < .05$). Examining each coping behavior, however, revealed that persuading oneself that failure is unimportant was significantly correlated not only with external reasons ($r = .151$) but also with introjected reasons ($r = .119$). Also, doing something else to refresh oneself was significantly related only to external reasons ($r = .166$). Another item categorized as passive coping behavior, trying to forget, was negatively associated with intrinsic reasons ($r = -.100$).

The "beliefs in links" was divided into two types: interest and efficacy. The correlations between the four types of motivation and the two aspects of links were calculated. The strength of each link was represented by adding the rating scores of the six items concerning interest or efficacy. As can be seen in Table 4, the interest link was significantly correlated with the external ($r = .215$), introjected ($r = .415$), identified ($r = .407$), and intrinsic ($r = .402$) reasons, while the efficacy link was associated significantly with the external ($r = .229$), introjected ($r = .428$), identified ($r = .377$), and intrinsic motivation ($r = .378$). In both links, the correlations with external reasons were significantly lower than those

Table 5. Means and standard deviations of scores for causal attributions, coping behaviors, and beliefs in links for five motivational groups

	Amotivational	External	Introjected	Identified	Intrinsic
	62	127	111	86	97
No. of subjects					
Original score					
external	9.63(2.33)	19.11(2.85)	15.73(3.45)	12.95(3.79)	11.88(3.99)
introjected	10.35(2.28)	16.00(2.99)	19.69(2.54)	14.93(3.48)	13.63(3.57)
identified	13.50(3.29)	17.94(3.37)	19.56(3.11)	22.73(2.76)	19.24(3.96)
intrinsic	11.16(3.42)	15.49(4.05)	17.46(3.28)	18.26(3.57)	22.32(3.37)
Causal attribution					
external causes	7.84(2.38)	9.70(3.38)	9.07(2.59)	8.24(2.85)	7.89(2.49)
controllable causes	7.68(1.86)	8.03(1.63)	8.44(1.52)	8.20(1.64)	8.08(1.65)
ability	3.21(1.44)	3.18(1.20)	3.14(1.07)	2.94(1.24)	2.64(1.20)
Coping behavior					
active	6.63(2.66)	8.36(2.45)	9.07(2.35)	10.09(2.27)	10.04(2.57)
passive	7.61(3.04)	8.35(2.41)	8.29(2.37)	8.06(2.95)	7.75(2.52)
maladaptive	4.02(1.35)	5.44(1.95)	5.05(1.86)	5.04(1.98)	4.51(1.60)
Beliefs in links					
interest	15.00(5.00)	18.50(3.94)	20.47(3.36)	19.51(4.04)	19.47(4.01)
efficacy	16.01(5.24)	18.98(3.73)	20.78(3.12)	19.50(3.76)	19.74(3.57)
Teachers' evaluation	2.43(0.56)	2.40(0.54)	2.38(0.51)	2.66(0.48)	2.71(0.47)

The numerical values in parentheses are standard deviations.

with introjected, identified, and intrinsic reasons.

Characteristics of five motivation groups

Individuals were classified into five motivational groups based on the relative strengths of the four reasons. First, the individual scores for the four reasons were transformed into standardized scores (*z* scores). When all four *z* scores for each student were less than 0, he/she was classified into the *amotivational group*. The other students were classified into one of the other four groups on the basis of relative comparisons between the four types of motivation. For example, if the student's *z* score for identified reason was the highest of the four *z* scores, he/she was classified into the *identified motivation group*. The means and standard deviations of the original scores for four reasons and for five motivation groups are shown as Table 5 for reference. Table 5 presents the means and standard deviations for causal attributions, coping behaviors, beliefs in links and teachers' evaluation of students' motivation and attitude

for each group. One-way analyses of variance were conducted on these variables.

Focusing first on causal attributions, for external causes, the main effect of these groups was significant, $F(4, 478) = 8.41, p < .001$. The means of the external and introjected motivation groups were higher than those of other groups. Using Tukey's test of multiple comparisons, significant differences were found between the external motivation group and the amotivational, identified, and intrinsic motivation groups. In addition, the attributions to external causes were significantly different between the introjected and intrinsic motivation groups. Next, a marginal main effect was found for attributions to controllable causes, $F(4, 478) = 2.33, p < .06$. Although the lowest mean was exhibited by the amotivational group, the highest score was obtained not in the intrinsic, but in the introjected group. The difference between the two extreme groups was statistically significant ($p < .05$) according to Tukey's test. Further, a significant main effect among groups was found for attributions to ability,

$F(4, 478) = 3.67, p < .01$. The intrinsic motivation group attributed significantly less to ability than did the amotivational, external, and introjected groups.

Does each motivational group report different coping behaviors? Analyses of variance were conducted for the three classified coping behaviors. First, a significant difference was shown for active coping behaviors, $F(4, 478) = 25.27, p < .0001$. The means were the highest in the identified and intrinsic motivation groups, moderate in the external and introjected groups and the lowest in the amotivational group. Using Tukey's test, significant differences were documented between the groups. However, for passive coping behaviors, no main effect was found. Finally, maladaptive coping behaviors displayed significant differences among the five motivational groups, $F(4, 478) = 8.03, p < .0001$. The means of the amotivational and intrinsic motivation groups were low in comparison with the other groups. Significant differences were found between the amotivational group and the external, introjected, and identified motivation groups, and between the external and intrinsic motivation groups.

Turning next to beliefs in links, variations in the means of the five groups were revealed (see Table 5). Significant main effects were observed for both interest, $F(4, 478) = 20.28, p < .0001$, and efficacy links, $F(4, 478) = 16.28, p < .0001$. For both links, the highest means were in the introjected motivation group, followed by the identified and intrinsic motivation groups. The lowest means were for the amotivational group. With Tukey's test, significant differences in both links were found between the amotivational group and the other four groups. Likewise, significant differences were displayed between the introjected and external groups.

Finally, the teacher's evaluation of each student's motivation for and attitude toward learning science was examined. It was found that the means of the identified and intrinsic motivation groups were higher than those of the other three groups. The main effect was highly significant, $F(4, 278) = 9.27, p < .0001$. Using Tukey's test, significant differences were found between the intrinsic motivation group and

the amotivational, external, and introjected motivation groups, and between the identified motivation group and the external and introjected motivation groups.

Discussion

On the basis of the belief that intrinsic and extrinsic motivation are not dichotomous, but continuous, the SMS was created and examined. The hypothetical characteristics of this scale were supported on the basis of a simplex structure of the intercorrelations among four types of motivation: external, introjected, identified, and intrinsic reason. Conceptually adjacent motivations were closely related to each other, that is, the correlation between external and introjected reasons, that between introjected and identified reasons, and that between identified and intrinsic reasons were fairly high. Among these correlations, however, the correlation between introjected and identified reasons was relatively low. If four motivational types can be arranged on a continuous dimension from heteronomous to autonomous poles, it appears that there is a relatively large distance between the introjected and identified reasons. Although a few elements of self-determination are involved in introjected motivation, they are clearly fewer than those in the identified reasons. That is, the students who have strongly introjected reasons do not self-determine actively or autonomously, but do so rather passively or heteronomously. Although introjected reasons were framed in terms of internal, esteem-based pressure to act, it was also based on others' pressure as well as external reasons. With introjected motivation, individuals just begin to internalize the reasons for their actions. In contrast, the individuals with identified motivation arrive at the deep level of internalization because their behaviors are valued by themselves. Identified reasons are usually regarded as extrinsic motivation; however, they are more closely related to the intrinsic reasons rather than to the external and introjected reasons. In short, it appears that self-determination is more dominant than the distinction between the

means and the end. This close relation might be due to the similarity of the contents of the items. There was a difference in that the items for the intrinsic reason included affective expression such as joyful and pleasure, while items for identified reason did not include such feelings. Instead, the latter often included the expression "I want," based on Ryan's suggestion. However, such expressions could involve implicitly positive emotion because we usually feel good when we want to do something spontaneously.

How strong is each motivation in junior high school students? The means and standard deviations for the four types of motivation are as follows: external reason ($M = 14.57$, $SD = 4.69$); introjected reason ($M = 15.46$, $SD = 4.17$); identified reason ($M = 18.86$, $SD = 4.21$); intrinsic reason ($M = 17.25$, $SD = 4.88$). The last two reasons score higher than the first two. This tendency might reflect the age of the subjects. If the subjects were younger, then they might have displayed higher external and introjected reasons and lower identified and intrinsic reasons than the present students. It will be important to examine the development of such motivation in the future. In addition, it should be noted that identified reason was the most prominent of all reasons. It seems that such motivation, which is located between extrinsic and intrinsic motivation, has been overlooked in educational settings because only intrinsic motivation has been emphasized.

The examination of the four types of motivation in relation to causal attributions and coping behaviors gave support to our belief that extrinsic and intrinsic motivation are continuous rather than dichotomous. For example, it was shown that the students who had more extrinsic motivation, such as external and introjected reasons, tended to attribute their failure to external causes, and they also more often used maladaptive coping behaviors.

The difference between identified and intrinsic reasons discussed above is evident in Tables 2 and 3. Intrinsic reasons were significantly negatively related to attributions of external causes and ability, while identified reasons significantly positively related to controllable

causes. Also, regarding coping behavior, identified reasons were correlated significantly with maladaptive coping behaviors, whereas intrinsic reasons were not. These two kinds of reasons can be clearly distinguished in these data.

Of great interest, introjected reasons, which had been located at the middle position on the self-determination or autonomous dimension, was positively related not only with external attributions and maladaptive coping behaviors, but also with controllable attributions and active coping behaviors. Students having strongly introjected reasons seem to be psychologically ambivalent. Perhaps this is because this reason has the potential to be transformed into identified and intrinsic reasons.

Similarly, the possibility of transformation of motivational types is suggested by the relation with belief in links. The correlations between beliefs in links and introjected reasons were the highest. The students who had high introjected reasons held strong beliefs in links between extrinsic and intrinsic motivation, that is, they believed that extrinsic reasons could be transformed into intrinsic reasons.

Students were classified by their dominant motivational reason. Students with scores lower than the means for all four types of motivation were classified into the amotivational group. They were apparently motivated neither extrinsically nor intrinsically. Amotivational students had the least attributions to controllable causes, and the least active coping behaviors in the five motivational groups. There were inconsistent results, however, because they did indicate the least attribution to external causes and the least maladaptive coping behaviors. Additionally, they believed less in links of transformation from extrinsic to intrinsic motivation than did the students belonging to the other four groups. It appears that the self-awareness of amotivational persons is generally low, so they do not attempt self-evaluation. In this sense, it seems that they are less self-regulated than students in the external motivation group. Perhaps amotivational students are not motivated easily by other persons. That is, they cannot perceive even extrinsic motivation.

It is doubtful, however, whether such a classification is appropriate, because the students could not be readily ascribed a dominant motivation. For example, some students were rated high not only for introjected but also for identified reasons. Examinations of such complicated classifications will be undertaken in future research.

Teachers' evaluations were high in the identified motivation group as well as in the intrinsic motivation group; the external and introjected groups were rated low. As mentioned before, it seems that the differences between the former two groups and the latter two groups are due to the inequalities in self-determination and autonomy. There is, without explanation, no difference between amotivational and external groups.

Any mechanism for transforming one motivation to another motivation was not examined in this study. In the educational setting, how a teacher motivates students for learning is very important. It is difficult for them to motivate students who do not want to study or who dislike a school subject. We think, however, that it is possible to intervene and transform motivation in the following sequence: amotivation – external motivation – introjected motivation – identified motivation – intrinsic motivation. How, then do we help the students proceed toward intrinsic motivation on the continuum beginning with amotivation? Are the factors that promote motivation the same or different depending upon what steps are being changed? For example, teachers' approval might be needed when the students' dominant motivation changes from external to introjected reasons. However, teaching students the importance of learning might be needed in changing from introjected to identified reasons. Deci, Eghrari, Patrick, and Leone (1994) proposed that a rationale that is personally meaningful to the target person can aid him/her in understanding why self-regulation of the activity would have personal utility. Moreover, they suggested that acknowledging the behavior's perspective and conveying choice rather than control promotes

integrated internalization to more autonomous motivation. These mechanisms are in need of study.

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