

## ACHIEVEMENT MOTIVATION IN HIGH SCHOOL: CONTRASTING THEORETICAL MODELS IN THE CLASSROOM

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### Abstract

The main objective of this study is to contrast some of the most important theoretical models of achievement motivation in a real classroom situation: Weiner's model, Covington and Omelich's model and Dweck and Elliot's model. These models differ in the number of motivational factors they include and in the role they attribute to them as well as to causal attributions, affective reactions and expectancies as performance predictors. The role of all these variables is discussed. Then, following the method used by Covington and Omelich (1979), a sequential data collection with two different stages was performed. 155 high school students, who considered their exam performance unsuccessful served as subjects for the study. Correlations among all variables of the model were used as an input matrix for "path analysis". Diverging from other works, path coefficients were estimated through specific statistical software packages for structural equation models. Results suggest that Dweck and Elliot's model, which includes three different motivational factors instead of the two originally proposed by Atkinson, offers a better explanation of the relationships between achievement motivation, attributions, emotional reactions, expectancies and performance than the two other models mentioned above.

### Introduction

Starting from Atkinson's classic theory of achievement motivation (1964), some authors such as Weiner (1986), Covington (1985; Covington & Omelich, 1979) and Dweck and Elliot (1983; Elliot & Dweck, 1988) have developed theoretical proposals to account for the existing relations between the several components of achievement motivation (hope of success, fear of failure, desire to increase one's competence), causal attributions for success and failure, affective reactions to the obtained, expectations about future outcomes of new attempts in the same kind of tasks, and the final obtained outcomes. Predictions derived from each of these proposals about the influence of achievement motivation on academic performance through attributions, affective reactions and expectations are not always compatible. Consequently, it seemed worthwhile to us to test which of them are more valid.

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In order to carry out the above mentioned contrast we used a method that is similar to the one used by Covington and Omelich (1979) and that is based on the path analysis methodology. However, instead of measuring achievement motivation as it is usually done, we considered achievement motivation components separately, in line with the proposals of Dweck and Elliot (1983).

#### Rationale and Hypothesis

Although the method applied in this study is based mainly on the one proposed by Covington and Omelich (1979) with university students, we use a different instrument for assessing the motivational factors, hoping to clarify some controversial issues.

Besides, there are two facts that imply modifications in relation to the theoretical model contrasted in the Covington and Omelich work. First, we have taken external attributions (task difficulty and bad luck) out of the model, due to the insignificant role they play according to the above mentioned study. Second, concerning emotions, we included helplessness, because it seems to be more related to fear of failure than shame is. However, we evaluate independently the traditional achievement motivation components, and because the negative achievement motivation is understood as a capacity for experiencing shame after failure, we include the two affective reactions (shame and helplessness) in the model, in order to clarify issues under discussion. Figure 1 gives an overview of the model, which includes the different expected relations, as well as the theoretical positions under contrast: Weiner (1986), Covington and Omelich (1979) and Dweck and Elliot (1983).

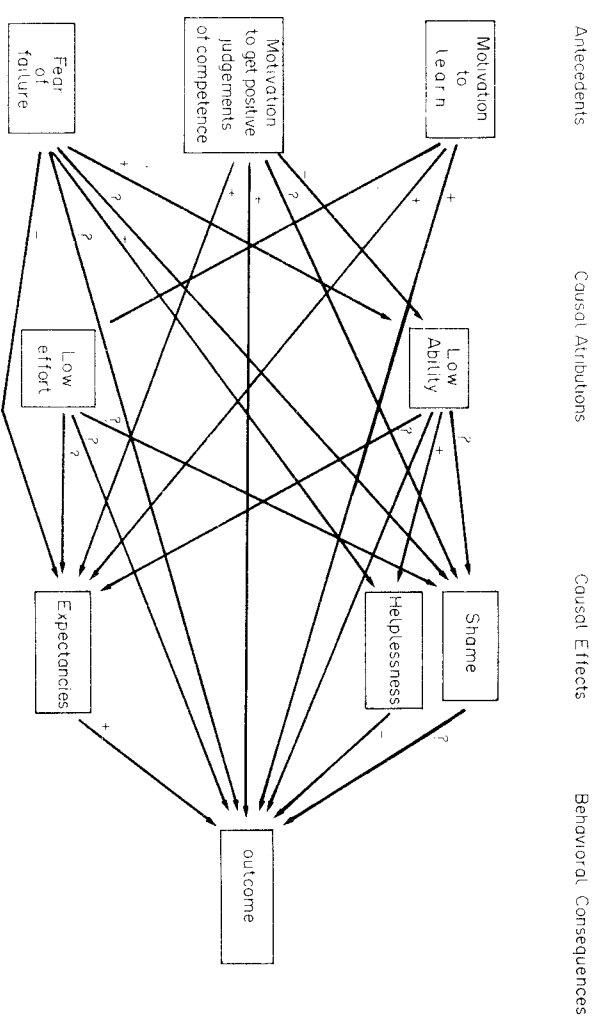


Figure 1

#### Relations between Attributions, Affective Reactions, Expectancies and Academic Results

Predictions concerning the relation between the attribution of failure to lack of effort and shame can vary depending on the role given to that attribution. If a student who usually dedicates enough time to prepare his exams, realizes that in a particular occasion he has not made enough effort, he may feel shame, as Weiner predicts. But if this student, regardless of the time spent in preparing his exam, attributes failure to lack of effort instead of lack of ability — because of the negative consequences it would imply for his self-esteem, as Covington (1985) points out — he may not have that feeling, as this is what he is trying to avoid.

How can we know the types of subjects we are going to come across? We suppose that probably any sample will have subjects of both types. Therefore, as the relation between the attribution of failure to lack of effort and the emotional reactions is different for each type, group results will be mixed and so, a null relation may be predicted.

As for the effect of attribution of failure to lack of effort on helplessness, we predict also a zero relation. This feeling is related to the perception of lack of control when facing new situations, whereas effort is usually perceived as controllable.

The relation between attribution of failure and lack of ability and helplessness is expected to be positive, because ability is usually perceived as uncontrollable. On the other hand, we do not have a clear prediction concerning the relation between that causal factor and shame, as the evidence offered by Covington and Omelich is not convincing enough.

In a similar way, we do not have a sound basis to predict the direction of the relation between each one of the causal factors and expectancies. On the one hand, Covington and Omelich's data go against Weiner's hypothesis. On the other hand, however, data coming from studies which relate expectancies and attributions to controllable causes, give some support to it. So, because of these contrasting results, we cannot anticipate the direction our data will take.

Concerning the relations between attributions and outcomes on the final exam, predictions are as follows. First, it can be expected that attributing failure to lack of ability will have a negative effect on this outcome if ability is conceived as a stable causal factor, as usually done (Weiner, 1986). But this relation is not found in the Covington and Omelich results. Second, it is difficult to predict the effect that attributing failure to lack of effort will have on the final outcome, as it depends on subjects' will to make enough effort to improve their results. If, in spite of attributing failure to lack of effort, subjects do not decide to work harder when given a second opportunity, they will possibly fail again; but if they decide to try harder, their outcomes will probably improve. So, as both kinds of decisions are possible, we predict a null relation between effort and outcome.

We also expect no relation between outcome and shame, as the Covington and Omelich study suggests, and a negative effect on outcome from helplessness. We base this prediction on the fact that feelings of helplessness imply the perception of lack of control over the situation, and this perception usually has the effect of diminishing subjects' efforts, what in turn increases the probability of a bad outcome.

Finally, we predict that expectancies will have a positive effect on outcome. This result appears in the study of Covington and Omelich, as well as in Weiner's attributional theory.

We expect to find only one indirect effect. This will go from attribution of failure to lack of ability through shame to final outcome. This effect has been extensively documented in the literature on human helplessness (Abrahamson, Seligman, & Teasdale, 1978).

#### *Effects of the Factor "Motivation to Learn"*

We predict a negative effect of the factor "motivation to learn" (or the desire to increase one's competence) on attribution of failure to lack of effort, as subjects scoring high in this factor are the ones who systematically try hard when studying (Alonso Tapia, 1987; Montero, 1989).

As for the effect of this motivational factor on attribution of failure to lack of ability, we predict that it will be a null one. The reason for our prediction is that, though some of the subjects in the group may perceive their lack of ability as being stable and unchangeable, others may consider this causal factor modifiable through effort if one has enough time before the next exam. Therefore, as we cannot separate both groups of subjects, we expect both tendencies to compensate each other.

Our predictions concerning the effects of "motivation to learn" on affective reactions is that they will be null in both cases considered in the model. This prediction relies on the fact — supported by research — that as subjects' scores in this factor increase, they tend to see their successes and failures from an informative point of view rather than from an affective one.

Finally, we predict positive direct effects of this factor on expectations and outcomes. The reason for this prediction is that, as scores in this factor increase, subjects usually try to overcome failure. So they keep their expectancy of success for the next trial high, which allows them to learn more, increasing the probability of improving the final outcome.

As for indirect effects, the only one that can be predicted is the effect coming from the motivation to learn through expectations of the final outcome.

#### *Effects of the Factor "Motivation to get Positive Judgements of Competence"*

First, it is expected that this motivational factor will have a null effect on the attribution of failure to lack of effort. The reason for this prediction is that, as scores in this factor increase, subjects tend to look for exonerating causes, usually external ones, and effort is more often related to personal implication and control (Covington, 1984). This suggests a negative relation. However, attributing failure to lack of effort may sometimes be a useful way to preserve a positive self-concept in relation to the perception of one's ability, which suggests a positive relation. Then, as both things can happen, they compensate each other.

Second, a negative effect of this motivational factor on the attribution of failure to lack of ability is expected: as the desire of getting a positive judgement of competence increases, subjects tend to deny ability or intelligence as causes of their failures.

Turning to affective reactions, we expect first a null effect of this motivational factor on helplessness. The reason is that an increase of scores in this factor means an increase in the desire of getting a positive experience of competence, but not a parallel one in the degree in which failure may be perceived as an indicator of lack of ability. It is this last perception

which usually mediates helplessness, as has been shown in our previous work (Alonso Tapia, 1987). Second, according to Covington and Omelich's data, we should expect a negative effect of this motivation on shame. However, we have no clear prediction in this case. The reason is that these authors used a measure of achievement motivation which combined desire of success and fear of failure, whereas we used separated measures for these two factors. So, as the shame reaction might depend mainly on the "fear of failure" component in the Covington and Omelich study, is not possible to predict how that feeling will relate to the factor of "motivation to get positive judgements of competence".

As for the effect of this factor on expectations and outcomes, we predict a positive one in both cases. As subjects look for success to show their worth, it may be assumed that, if they have an opportunity to overcome a failure, they will try to demonstrate that failure has happened because of bad luck, and nothing is better for that, than success at the second chance (Covington, 1984). Therefore, their expectancy of success at the second trial will remain high, and so they will try to improve their results.

Finally, for the same reasons mentioned above, an indirect positive effect from the factor of "motivation to get positive judgements of competence" through expectations on outcomes can be expected. The model also predicts a positive indirect effect from this motivational factor through attribution of failure to lack of ability and through the relation between this attribution and helplessness on outcomes. Furthermore, an indirect negative effect from this motivational factor, through attribution of failure to lack of ability, on helplessness can be predicted. In any case, we expect the indirect effects to be lower than the direct ones.

#### *Effects of the Factor "Fear of Failure"*

Concerning the effects of "fear of failure" on attributions, we expect first a direct positive effect on the attribution of failure to lack of ability. This prediction is based on Weiner's theory, confirmed by the study of Covington and Omelich (1979). It is also in line with predictions derived from the learned-helplessness theory: the need to avoid failure is high in helpless subjects and they also have the tendency to attribute failure to lack of ability.

Second, a null effect of this motivational factor on the attribution of failure to lack of effort can be expected. The main reason for this prediction is the fact that subjects with the same level of "fear of failure" may show different effort levels depending on whether they believe that trying can compensate for their lack of ability or not. On the one hand, subjects who came to the conclusion that it is not worthwhile to make an effort and behaved consequently, may attribute their failure to this causal factor. On the other hand, subjects using their efforts to compensate for their lack of ability would reject lack of effort as an explanation for their failure. Again, the probable presence of both kinds of subjects in the sample should produce the null effect mentioned above.

As for the affective reactions to failure, we expect, on the one hand, a positive effect of "fear of failure" on the feeling of helplessness. This prediction derives from similarities between this factor and the learned helplessness phenomenon commented upon before. On the other hand, we do not have a clear basis to predict effect of this factor on shame. One could expect a positive effect according to Atkinson's theory and its confirmation by the Covington and Omelich data. However, it could also be that helplessness would

reflect better the affective reaction taking place as fear of failure increases, thus diluting the relation predicted by the above mentioned authors.

We can also predict a negative effect of "fear of failure" on the expectancy of success at the second chance, because of closeness between fear of failure and learned helplessness. The relevant literature shows that failure diminishes success expectations in similar situations among subjects with this syndrome.

Finally, we could expect a negative effect of this motivational factor on final outcome. However, it is difficult to predict whether such an effect will be a direct or an indirect one. We have to take into account that the indirect relations that can be assumed between these two variables may follow five different paths: (a) through attribution of failure to lack of ability; (b) through this attribution and expectancies; (c) through the same attribution and helplessness; (d) through expectations alone; and (e) through helplessness alone. As the relevant literature shows the existence of such indirect relations, we leave open the question of the direct effect of the "fear of failure" factor on outcomes. In any case, it can be expected that all the indirect effects will take place.

#### Method

#### Subjects

The sample of our study consisted of 155 high school students: 101 of them were first-year students (48 females and 53 males) and 54 were third-year students (21 females and 33 males).

#### Instruments

A new questionnaire developed by ourselves, the MAPE-II (Montero, 1989), has been chosen for assessing achievement motivation as defined by Dweck and Elliot (1983) in their revision of previous theories. According to these authors, achievement motivation has three components: (a) desire to get positive judgements of competence; (b) desire to increase personal competence, and (c) desire to avoid negative failure. The first two components are not distinguished in Atkinson's classic theory of achievement motivation, which only includes the hope of success and the fear of failure. However, it seems necessary to do it because each one of the two components supports different predictions (Alonso Tapia, 1987). Therefore, we decided to develop the MAPE-II in line with the ideas of the above mentioned authors. The three second order factors of this questionnaire — motivation to learn, motivation to get positive judgements of competence and fear of failure — correspond respectively to the three achievement motivation components of their theory. Reliability, content validity, predictive validity and construct validity of this questionnaire have been shown in the first-author's doctoral dissertation (Montero, 1989).

A questionnaire made specifically for this study was also used to assess attributions, emotions and expectations. Students had to indicate in a Likert-type format:

- (a) To what extent they considered their unsuccessful performance was due (1) to lack of effort and (2) to lack of ability.

- (b) The degree of shame and helplessness they have experienced as a consequence of their failure. We did not ask for the degree of guilt they experienced, a feeling introduced by Weiner in his 1986-model. Instead, we asked about helplessness, a feeling that is not in the model. We had two reasons for doing that. First, it is very difficult in our culture and in our academic contexts to distinguish between the feeling of shame (*vergüenza*) and guilt (*culpabilidad*), as they are considered as going together. Second, helplessness has often been related to fear of failure and we were interested in knowing whether predictions improved when this feeling was taken into account.
- (c) To what extent they expect their outcome will improve at the second trial.

#### Procedure

Following the Covington and Omelich (1979) procedure, two first-year history teachers whose teaching programs were coordinated and another third-year teacher prepared two parallel tests for each level. The first test was given at the end of the second term and the second one was used for the second trial four weeks later.

The students included in the final sample were the ones — from a larger sample — that considered their outcome at the first trial as a failure. Before the first trial, subjects were given the MAPE-II, as motivational variables act before any other variable of our causal model. Then the first trial followed, and once each subject knew his/her outcome, they were asked to fill in the questionnaire which evaluates attributions, emotions and expectations. Finally, subjects were examined again four weeks later.

#### Results

Before carrying out path-analysis, motivational levels of subjects participating in the study (the ones who considered their outcomes as a failure) and those who did not participate (the ones who considered their outcomes as a success) were compared. This comparison showed significant differences in the expected direction for "motivation to learn" ( $X_6 = -.0862$  vs  $X_1 = .0831$ ;  $t_{154} = -2.70$ ,  $p < .01$ ) and for "fear of failure" ( $X_6 = .2746$  vs  $X_1 = .2095$ ;  $t_{154} = 2.82$ ,  $p < .01$ ), but not for "motivation to get positive judgements of competence". These results differ from the ones found in Covington and Omelich (1979). It seems that the two first motivational factors, mentioned above, are good predictors of outcomes at the first trial, which was not the case in their study.

Turning to path analysis, means, standard deviations and a correlation matrix among all the variables of the model are shown in Table 1. This matrix was the starting point to carry out the path analysis using the EQS programme (Bentler, 1985). The "generalized minimum square procedure" was chosen for parameter estimation as it did not pose in our case any problem with the assumption of multinormality, according to the information given by the authors of the program, and as the sample size allows us to choose this procedure instead of the maximum likelihood one.

In order to clarify the analysis and find more adjusted solutions, weights with a probability greater than .15 were deleted from the equation system, that is, they were considered in the model as equal to zero. The selection of that value is arbitrary, but

Table 1  
Correlation Matrix

	F1	F2	F3	Ability	Effort	Shame	Helplessness	Expectation	Outcome
F1									
F2	-.058								
F3	.025	-.013							
Ability	.114	.036	-.016						
Effort		.261**	.050	.259**					
Shame			.105	.145					
Helplessness					.145				
Expectation					.209*				
Mean	-.086	-.106	.274	2.62	3.56	1.22	3.15	4.77	4.53
S <sub>x</sub>	.780	.955	1.07	1.50	1.80	1.61	1.91	1.09	1.94

\*\* = any value equal or greater than .213 is significant at 1% level.

\* = any value equal or greater than .175 is significant at 5% level.

F1 = Motivation to learn.

F2 = Motivation to get positive judgements of competence.

F3 = Fear of failure.

allows us to show that some weights are in the expected direction, although they fall short of standard levels of significance.

Results from data analysis — level of adjustment to the model; sign, magnitude and significance of weights; error value and percentage of variance explained of each endogenous variable — are shown in Figure 2.

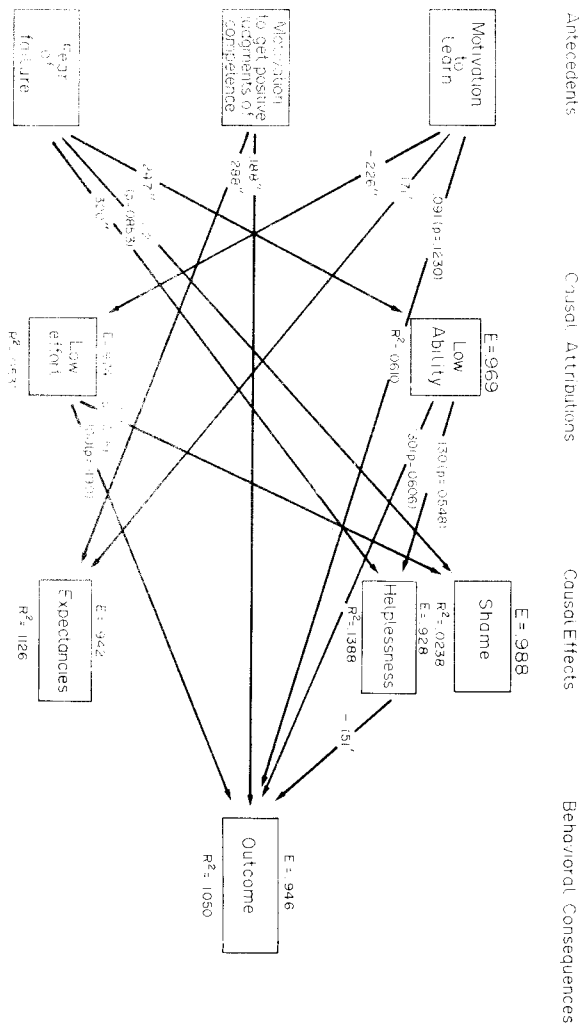


Figure 2

Before discussing results in relation to each one of the hypotheses, we comment on the general adjustment degree of data in the model. The Bentler-Bonett index is similar to the one we found when reanalyzing the Covington and Omelich data (1979; see Montero, 1989). However, the chi-square value shows clearly that the null hypothesis on data goodness of fit to the model cannot be rejected ( $\chi^2_{20} = 20.59$ ;  $p = .421$ ), which was not the case in the Covington and Omelich study. Thus, the assumption that the model we propose is a good one for explaining the data is supported by the convergence of both goodness-of-fit indexes.

#### *Attributions, Affective Reactions/Expectations, and Performance*

As can be seen in Figure 2, the effects of attributing failure to lack of effort on shame and helplessness are null, as we expected. The effect on shame is positive, but not significant ( $.105$ ;  $p = .1075$ ). Considering this tendency, we could say that our results support the model of Weiner and run against the Covington and Omelich results. However, the effect is too weak.

Concerning the effects of this same attribution on expectations and performance, our doubts have been cleared up to some degree. First, attribution of failure to lack of effort has a null effect on expectations (the correlation between both variables is  $-.003$ ), thus disconfirming Weiner's prediction (a positive relation) as well as the prediction based on Covington and Omelich (a negative relation). The effect on performance is negative, as in the Covington and Omelich study, but it does not reach the standard levels of significance ( $-.100$ ;  $p = .119$ ). Thus, as the arguments given by these authors are not very convincing either, these results underscore the need to clear the role this variable plays on academic performance. We believe that assumptions of Weiner's theory are not enough for explaining effort-performance relationships, probably because Weiner does not take into account that the effort a person makes does not only depend on the previous attribution of a failure to this causal factor and on the perception of effort as a variable and controllable cause, but also on the degree in which effort is considered to be worthwhile when one looks at the future.

Although the effects of the attribution of failure to lack of ability on shame and helplessness are weak, they are in line with our predictions. On the one hand, the effect of attributing failure to a lack of ability on shame is null. On the other hand, the effect of this attribution on helplessness is positive, though it falls short of standard levels of significance ( $.13$ ;  $p = .0548$ ). Thus, it seems that the effect of this attribution on affective reactions, though weak, is centered on helplessness — according to our suppositions — and not on shame — as Covington and Omelich have suggested.

The effect of attribution of failure to lack of ability on expectations is null, which is in accordance with the Covington and Omelich data and in opposition to the predictions of Weiner and the ones coming from literature on learned helplessness. We will discuss this result when we analyze the effects of the fear-of-failure factor on the remaining variables of the model.

The effect of attributing failure to a lack of ability on outcomes is negative, as predicted, but only marginally significant ( $-.130$ ;  $p = .0606$ ). The indirect effect coming from this attribution through helplessness on outcome is a weak one too ( $.130 \times -.151 = -.019$ ).

The discussion of these results is postponed until we analyze the effects of "fear-of-failure" on the remaining variables in the model.

As for the effect of affective reactions on outcomes, shame has a null one, as in the study of Covington and Omelich. However, helplessness has a negative effect as predicted ( $-.151; p < .05$ ). This finding supports our assumption according to which helplessness, and not shame, is the feeling that plays the most important role in the motivational processes implied in academic performance of high-school students.

Finally, expectations have no effect on outcomes at the second trial, which goes against all theoretical predictions. The only reason we can find for this negative result is that subjects in our study are not able to form realistic expectations.

#### *Effects of "Motivation-to-Learn"*

In general, the data confirm our hypotheses about the effects of the "motivation to learn" factor on the remaining variables in the model. First, this factor has a negative effect on attribution of failure to lack of effort ( $-.226; p < .01$ ). The stronger the "motivation to learn", the more subjects tend to increase their efforts, discarding lack of effort as an acceptable cause for failure.

Also as expected, this factor has no effect on attributing failure to lack of ability. This is probably because there is an interaction between attributional behaviour and actual ability. This interaction tends to eliminate the effect that could be predicted if all subjects had the same level of ability or knowledge of the subject under examination.

There is no effect of the "motivation to learn" factor on the two affects we consider in the study, supporting our hypothesis.

Data show also the predicted positive effect of this factor on students' expectations ( $.171; p < .05$ ).

Concerning the predicted positive effect of this factor on outcomes, our results are in the expected direction, although they fall short of standard levels of significance ( $.091; p = .123$ ). To understand this result, it has to be remembered that most of the subjects scoring high in this motivational factor passed the first exam. Because of that, the "motivation to learn" levels of subjects taking the second exam were more homogeneous and, on the average, lower than the reference population. So, the expected result can probably be blurred as a consequence of that.

Finally, the predicted positive indirect effect from the "motivation to learn" factor through expectations on outcomes is not found. We find, however, a positive indirect effect from this motivational factor through attribution of failure to lack of effort on outcomes. Though weak ( $-.226 \times -.100 = .022$ ), it has to be added to the direct effect to explain the correlation between this motivational factor and the outcome at the second exam.

#### *Effects of the "Motivation to get Positive Judgements of Competence"*

Results show that effects of this factor on the two attributions included in the study are null. For the attribution of failure to lack of effort, this result was predicted. But for the effect on attribution of failure to lack of ability, a negative relation was expected.

The effects of this motivational factor on affective reactions are null for shame and for helplessness, as predicted. These results give some support to our assumption that this type of motivation — which is only one component of the achievement motivation — would not affect shame reactions, because they depend on the "fear of failure" component. It would neither affect helplessness feelings, because these feelings depend on the perception of incompetence and lack of control. It is true that higher scores for this factor mean an increase in the desire to get a positive experience of competence. However, that does not imply a parallel increase in the degree in which failure may be perceived as an indicator of lack of ability.

As predicted, the effect of the "motivation to get positive judgements of competence" on expectations ( $.288; p < .01$ ) and on outcomes ( $.188; p < .01$ ) is positive. None of the predicted indirect effects can be found.

#### *Effects of "Fear-of-Failure"*

Predictions about effects of "fear-of-failure" on attributions are confirmed. The effect of this motivational factor on the attribution of failure to lack of ability is positive and very significant ( $.247; p < .01$ ), as Weiner and the learned-helplessness theory predict. This factor has no effect on the attribution of failure to lack of effort, probably because of differences in each subject's real effort level, as discussed before.

The data tend to confirm also our predictions about the effects of "fear of failure" on affective reactions. First, there is a positive and significant effect on helplessness, as could be predicted from the learned-helplessness theory ( $.320; p < .01$ ). Second, the effect on shame falls short of standard levels of significance ( $.112; p = .085$ ). This result supports our belief that this feeling does not play a relevant role in achievement motivation dynamics.

As for the effect of this factor on the expectancy of success, our prediction is not confirmed. We find no effect. This may be due to the inability of our subjects to form realistic expectations. Because of such inability and because of the strong desire to pass the exam, students may become too optimistic. That optimism may explain why subjects with reasons to have low expectations tend to raise them, which would distort the relation between the two variables. In any case, more research is needed on expectancy formation processes in high school subjects, as well as on the role played by the excess of optimism on subjects' academic performance.

When discussing our hypotheses, we left it as an open question whether "fear-of-failure" would have a direct effect on outcome at the second trial. According to our data, such effect does not exist. Also the predicted indirect effect through the attribution of failure to lack of ability, expectancy and helplessness on outcome received no support. First, there is no indirect effect from this motivational factor through expectancy. Second, the predicted indirect effect through attribution of failure to lack of ability and helplessness is almost null ( $.247 \times .130 \times -.151 = -.004$ ), though each one of the components of this path has a significant relation to outcome. Finally, the indirect effect through attribution of failure to lack of ability is rather weak ( $.247 \times -.130 = -.032$ ) as well as the one through helplessness ( $.320 \times -.151 = -.048$ ).

### Conclusions and Discussion

After discussing the empirical evidence in relation to our hypotheses, the following points must be considered.

#### *Amount of Variance Explained*

One of the assumptions of the "path analysis" technique is that the variance of endogenous variables should be explained by relations in the model. It is clear from our data that the percentage of variance of endogenous variables explained by relations assumed in our model is very low, though some causal effects reach statistical significance. This does strongly affect the goodness of the model. Also Covington and Omelich (1979) had similar data, though these authors did not pay special attention to it. However, it suggests the need to look for other variables, not included in the model yet, to explain the variance of endogenous variables. That is, the variance in attributions, affective reactions, expectancies and outcomes at a second trial seems to depend much more on other variables than on the ones included in the model.

If one is interested in knowing whether phenomena observed in laboratory conditions take place in natural settings such as classrooms, then qualitative aspects may be as relevant as quantitative ones. That is, it may be useful to study the presence and significance of hypothesized effects apart from their magnitude. From this point of view, our results support some of the hypotheses while others are disconfirmed. Our data allow us also to evaluate whether the inclusion of our motivational factors is of any use in clarifying some of the problems under discussion in the Covington and Omelich paper (1979).

#### *Relevance of Considering the Three Motivational Factors Separately*

Before summarizing the motivational effects on the endogenous variables of the model when motivational variables are considered separately, we should remember some points. Usually, the two classical components of achievement motivation — the "need for success" and the "fear of failure" — have been combined in one measure (the resultant achievement motivation) by subtracting "fear of failure" scores from "need for success" scores. However, effects of resulting scores are difficult to interpret because there are two factors confounded in the construct "need for success", according to the Dweck—Elliot reinterpretation of achievement motivation (Dweck & Elliot, 1983), and to our own studies (Alonso Tapia, 1987). Intermediate scores in resultant achievement motivation may be due to combinations of scores of different magnitude in each motivational component. So, as theoretical predictions vary according to what motivational component is under consideration, predictions for the compound measure of *N-Ach* may be misleading. Let us see how measuring each of these components separately clarifies the existing relations among the variables of the model.

### *Starting Point*

The first fact that becomes clear when observing our data is that all of the endogenous variables of the model receive a direct effect from one or more of the motivational factors considered in contrast with Weiner's theory and Covington and Omelich's results. The meaning of this fact will be clarified by examining causal effects on each one of the variables.

#### *Motivation and Attributions*

Failure ascriptions to lack of effort receive a direct negative effect from "motivation to learn". This effect runs against Weiner's predictions, according to which achievement motivation correlates positively with a tendency to attribute failure to lack of effort. It also contradicts the results obtained by Covington and Omelich according to which *N-Ach* does not affect effort ascriptions.

The negative effect of the "motivation to learn" on effort ascriptions may be explained as follows. Pupils who are more motivated to learn put in more effort (Alonso Tapia, 1987). So, lack of effort can be discarded as a possible causal factor for failure. However, neither Weiner (1986) nor Covington (1984) consider the interaction between the behavioral aspect of effort and this same variable as a causal ascription of an outcome.

As for ability ascriptions, they receive a positive effect from "fear of failure". This result is convergent with the ones reported by Weiner and by Covington and Omelich. Besides, it shows that the relation between resulting achievement motivation — as it is usually measured — and ability ascriptions after failure, depends mainly on the "fear of failure" component, which underlines the need of studying motivational effects considering each motivational component separately.

#### *Motivation, Attribution and Expectancies*

Our results — as well as those of Covington and Omelich — do not confirm Weiner's assumption that the effect of achievement motivation on expectancies would go through attributions. Our data show that expectancies after failure depend more on approaching than on avoidance components of resulting achievement motivation, as fear of failure does not affect expectancies.

#### *Motivation, Attributions and Affective Reactions*

As far as affective reactions after failure is concerned, our data show first that helplessness plays a more important role than shame. Second, affective reactions seem to depend more on "fear of failure" than on the positive motivational components. Third, the indirect effect predicted by Weiner from motivation to shame through ability

ascriptions of failure does not exist. Finally, indirect effects on affective reactions are, in general, negligible.

#### *Motivation and Outcomes*

Finally, we find a direct effect of two motivational factors on outcomes, in contrast to Weiner's predictions and in line with Covington and Omelich's results (1979). The causal effect of motivational factors on outcome was already suggested by the analysis of motivational differences between subjects passing and failing the first exam. The first ones were superior in "motivation to learn", while the second ones had higher scores for "fear of failure". However, it was not possible to know whether these differences reflected a direct effect or an indirect one from motivational variables on first exam outcomes.

As for outcomes at the second trial, the direct effect from the "motivation to get positive judgements of competence" is most clear. This supports Covington's assumption (1984) made in his "self-worth theory", according to which, one way to increase student motivation might be to give them a second opportunity. However, the context in which this result appeared points to the fact that motivation for self-worth — or motivation to get positive judgements of competence, using the Dweck—Elliot terminology (1983) — is only one of the motivational factors that exert a positive effect on academic outcomes. The existence of a "motivation to learn" factor that differentiates passing from failing subjects at the first trial, and that has also a direct effect on outcomes at the second trial, supports our assertion, though results in this case fell short of standard levels of significance.

Our results underline the importance of enlightening the meaning of different components of what is usually referred to as "achievement motivation". In this context, our data seem to support the theory proposed by Dweck and Elliot (1983), which includes the three motivational components that we measure. This theory offers a better explanation of the relations between achievement motivation and the other variables included in the study, also in natural settings.

#### References

- Alonso Tapia, J. (1987). Analisis de las relaciones entre motivacion de logro, estilos atribuyos y expectativas de control a partir del estudio de la validez de construido de los cuestionarios MAPE, EAT y ECO. *Estudios de Psicologia*, **30**, 45-69.
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Bentler, P. M. (1985). *Theory and implementation of EQS: A structural equations program*. Los Angeles: BMDP Statistical Software Inc.
- Covington, M. V. (1984). The motive for self-worth. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 1, pp. 77-113). New York: Academic Press.
- Covington, M. V., & Omelich, C. L. (1979). Are causal attributions causal? A path analysis of the cognitive model of achievement motivation. *Journal of Personality and Social Psychology*, **37**, 1487-1504.
- Covington, M. V., & Omelich, C. L. (1984). An empirical examination of Weiner's critique of attribution research. *Journal of Educational Psychology*, **76**, 1199-1213.
- Dweck, C. S. (1985). Intrinsic motivation, perceived control, and self-evaluation maintenance: An achievement goal analysis. In C. Ames & R. Ames (Eds.), *Research on motivation in education* (Vol. 2, pp. 289-305). New York: Academic Press.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, **41**, 1040-1048.
- Dweck, C. S., & Elliot, E. S. (1983). Achievement motivation. In E. M. Hetherington (Ed.), *Socialization, personality and social development* (pp. 643-691). New York: Wiley.
- Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, **54**, 5-12.
- Montero, I. (1989). *Concepto y medida en el ambito de la Enseñanza Media*. Unpublished doctoral dissertation, Universidad Autónoma de Madrid.
- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer-Verlag.