Dashed hopes and shattered dreams: On the psychology of disappointment
van Dijk, W.

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Effort invested in vain: The impact of effort on the intensity of disappointment and regret
People's lives are full of expectations, goals, and desires; for example, having great friends, having a terrific job, or perhaps just getting a good grade on an exam. Although people want lots of things, they do not always attain the things they want. Often this results in the experience of negative emotions. Not getting what you want can be bad by itself. Sometimes, however, it can even be worse, because you tried extremely hard to attain the desired outcome. Failing an exam is much more painful when you studied very hard for it. The role of effort in the amplification of emotional reactions has been acknowledged in the literature. Wyer and Srull (1989), for instance, state that negative affect is more intense after having invested effort (in vain). Furthermore, Ortony, Clore, and Collins (1988) suggest that the investment of effort intensifies disappointment. Although we recognise that people generally feel worse after having invested more effort in vain, we argue that less effort can also be associated with more intense negative emotions.

In the present chapter we focus on the impact of effort on disappointment and compare this with its impact on the intensity of regret. We expect that the effect of effort differs for disappointment and regret. Failing an exam, for example can be extremely disappointing, after having studied very hard for it. However, when you fail an exam and you did not study very hard you could also feel bad, because you regret not having studied harder. Thus, we expect that if one fails to achieve something positive after trying hard, disappointment is likely to be more pronounced than if one fails after trying less hard. Why should this be the case?

First, the investment of effort itself might intensify disappointment. If one invests a lot of effort in attaining a desirable outcome and this outcome is not attained, all this effort has been a waste of time or money. The realisation that all effort was invested in vain might amplify the disappointment about the non-attainment of the outcome.

Second, in most cases one expends effort because one believes that it increases the probability of attaining a desirable outcome. Several authors (Bell, 1985; Landman, 1993; Ortony et al., 1988; van Dijk & van der Pligt, 1997; see also Chapter 5) mention the probability of attaining a desirable outcome as a determinant of the intensity of disappointment. Trying hard makes the attainment of a desirable outcome more likely and thereby increases one's expectations. This increase of expectation level might make a failure to attain a desirable outcome worse, and hence amplify disappointment.

Third, the effect of effort on the intensity of disappointment could be due to the perceived desirability of the outcome. As Ortony et al. (1988) stated: "It is clear that people are likely to invest more effort in order to attain goals that they deem highly desirable than they are in attempting to attain goals that they consider less desirable" (p. 72). Thus, the more effort people invest in attaining an outcome, the more desirable they perceive the outcome to be. More desirable goals are likely to elicit more disappointment than less desirable goals when the goal is not attained.

While we predict that the intensity of disappointment increases when more effort is invested, we predict that regret is likely to be more intense when less effort is invested. What seems essential for regret is the reflection on how one could have done something about one's failure. Not trying hard enough could be one of the explanations (Zeelenberg, 1996). The amplification of regret could thus be due to the feeling that having tried harder could have led to the attainment of the desirable outcome. The feeling of not having tried
hard enough, could make people feel more responsible for the non-attainment of a desirable outcome, and this feeling is likely to intensify regret. This is in line with research of Frijda, Kuipers, and Ter Schure (1989), who showed that regret scores high with respect to the appraisal of "self agency" or perceived responsibility. Roseman, Antoniou, and Jose (1996) also showed that regret is associated with self-agency and self-responsibility. Finally, Zeelenberg, van Dijk, and Manstead (1998a) showed that when people feel highly responsible for a negative outcome, this results in amplified regret. In Study 6.1 we test our hypotheses concerning the effect of effort on the intensity of disappointment and regret.

STUDY 6.1

In Study 6.1 we varied the amount of effort that was invested in attaining a desirable outcome. First, we expect that disappointment after not attaining the desired outcome will be more intense after having invested more effort. Furthermore, the effect of effort is expected to be mediated by the perceived probability of attaining a desirable outcome. The investment of more effort will raise the perceived probability of attaining the (desirable) outcome, which will lead to more disappointment when the outcome is not attained. The effect of effort on the intensity of disappointment is also expected to be partly due to the relation between the investment of effort and the perceived desirability of attaining the outcome. More effort will be associated with increased desirability of attaining the outcome. This higher perceived desirability will give rise to more disappointment when the outcome is not attained.

Second, we expect that regret (as opposed to disappointment) will be more intense after having invested less effort in attaining a desirable outcome. This effect is thought to be due to the relation between effort and perceived responsibility. The less effort people invested in obtaining an outcome, the more they are expected to feel responsible for not attaining the outcome.

Method

Participants, Design, Procedure, and Measures
Students at the University of Amsterdam (N = 75) participated in this study, which was part of a large paper-and-pencil session. They were randomly assigned to one of three conditions (Low effort vs. Medium effort vs. High effort). There were 25 participants in each condition. All participants read a story in which a person was confronted with the non-attainment of a desirable outcome (not passing an exam). Participants in the High effort condition read the following story:

Ron is a student at the university and he is doing well. He has to do one more exam this year. Ron has put a great deal of effort in preparing for it and is confident about passing the exam.

In the Medium effort condition the words "a great deal of effort" were replaced by "a reasonable amount of effort;" in the Low effort condition by "a little amount of effort." After reading the story participants were asked to rate how desirable the outcome (passing the exam) was for Ron. Secondly, participants were asked how likely it was that he would...
pass his exam. Next, participants were asked to read the story again and turn the page where the story continued as follows:

One week later Ron receives his score, he scored 5 out of 10 and thus did not pass the exam. How would Ron feel?

First, participants were asked to give a rating of the general negative feelings that Ron would experience. This enabled participants to give a general affective evaluation of the situation. Second, participants were asked to rate the intensity of the more specific emotions of disappointment and regret. Finally, they were asked to rate how responsible Ron would feel for the outcome. All scales were 9-point scales, with a higher score implying a more intense experience of the emotions rated, higher desirability, higher probability, or increased responsibility.

Results and Discussion

Table 6.1. Means for the Dependent Variables for the three Conditions (Study 6.1)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>F(2, 72)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Feelings</td>
<td>5.80a</td>
<td>6.80b</td>
<td>7.52b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disappointment</td>
<td>4.96a</td>
<td>7.08b</td>
<td>8.28c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regret</td>
<td>7.16a</td>
<td>6.20b</td>
<td>4.48b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desirability</td>
<td>6.04a</td>
<td>7.12b</td>
<td>8.48c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>3.72a</td>
<td>6.84b</td>
<td>7.40c</td>
<td>106.58</td>
<td>.000</td>
</tr>
<tr>
<td>Responsibility</td>
<td>7.88a</td>
<td>6.56b</td>
<td>5.68c</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. All variables were measured on 9-point scales, with endpoints not at all (1) and very much (9). Means within the same row with a different superscript differ significantly at p < .05.

Table 6.1 depicts the mean scores on the dependent variables. A MANOVA with condition (Low vs. Medium vs. High effort) as independent variable, and negative feelings, disappointment, regret, desirability, probability, and responsibility as dependent variables revealed a multivariate difference between the three conditions, $F(12, 136) = 10.71, p < .001$. Univariate tests revealed significant differences for all dependent variables (see Table 6.1 for the F-values and accompanying probabilities). Comparisons revealed that disappointment, probability, and desirability ratings were higher when more effort was invested. Overall, ratings for regret and responsibility were lower when more effort was invested, and comparisons revealed only a marginally significant difference ($p < .10$) for regret between the Low effort condition and the Medium effort condition.

We hypothesised that the effect of effort on the intensity of disappointment is partly due to an effect of effort on the probability of attaining a desirable outcome, and partly to the relation between investing effort and the desirability of the outcome. Furthermore, the effect of effort on regret was hypothesised to be partly due to an effect of effort on perceived responsibility for not attaining the outcome. To test these hypotheses a series of regression equations were estimated to test for the possible mediating role of probability, desirability, and responsibility. These tests were done separately for disappointment and regret. The independent variable in these equations was the effort manipulation. The possible mediators were probability, desirability, and responsibility. The dependent variable
was disappointment or regret after the non-attainment of the desirable outcome. To test for mediation one should first regress the mediator on the independent variable, then regress the dependent variable on the independent variable, and finally regress the dependent variable on both the independent variable and the mediator. Perfect mediation holds when (a) the independent variable affects the mediator in the first equation, (b) the independent variable affects the dependent variable in the second equation, (c) the mediator affects the dependent variable in the third equation, and (d) when the independent variable has no effect when the mediator is controlled in the third equation (cf. Baron & Kenny, 1986).

Figure 6.1. The Effects of Instrumental Effort on Disappointment and Regret: The Mediating Role of Probability, Desirability, and Responsibility (Study 6.1). (Numerical values are beta weights. The beta weights for not controlling for the mediators are shown in the upper left-hand corners. The beta weights for controlling for the mediators are shown in the upper right-hand corners. \*p < .05, \**p < .01)

The results of these regression equations are depicted in Figure 6.1. The numerical values in these figures are standardised regression weights. Results of the regression equations confirm our predictions, and show that the investment of effort is associated with a higher probability of attaining the desirable outcome, and with a higher desirability of the
outcome. On the other hand, the investment of less effort is associated with higher perceived responsibility for not attaining the desirable outcome.

Results concerning disappointment (see Figure 6.1, upper half) show that (a) the investment of more effort is associated with more disappointment (upper left-hand corner beta weight), (b) higher probability of attaining the outcome is associated with more disappointment, and (c) higher desirability of attaining the outcome is also associated with more disappointment. Responsibility was not associated with the intensity of disappointment. Furthermore, results show that the investment of more effort is associated with more disappointment after controlling for probability, desirability, and responsibility (upper right-hand corner beta weight), although there was a significant decrease in beta weight.

Results concerning regret (see Figure 6.1, lower half) show that (a) the investment of less effort is associated with more regret (upper left-hand corner beta weight), and (b) more responsibility for the non-attainment of the outcome is associated with more regret. Neither probability nor desirability was associated with the intensity of regret. Overall, the results show that the investment of less effort is associated with more regret after controlling for probability, desirability, and responsibility (upper right-hand corner beta weight).

In sum, the results of Study 6.1 show that disappointment is intensified by the investment of more effort, whereas regret is reduced after having invested more effort. The effect on the intensity of disappointment is partly due to the relation between the investment of effort and the probability and desirability of attaining an outcome. The investment of more effort is associated with a higher probability and a higher desirability of attaining the outcome. Although both increased probability and desirability were associated with more disappointment after the non-attainment of the outcome, results also show an additional direct effect of the investment of effort on the intensity of disappointment. Furthermore, results show that the effect on the intensity of regret is partly due to the relation between the investment of effort and perceived responsibility for not attaining the outcome. Finally, results show an additional direct effect of the investment of effort on the intensity of regret.

STUDY 6.2

Ortony et al. (1988) stress the importance of differentiating between instrumental and non-instrumental effort. They argued that "instrumental effort pertains to plans (actual or possible) for achieving (or avoiding) states, whereas non-instrumental effort pertains to plans (actual or possible) that are related to the state, but are carried out on the assumption that the state will be achieved" (p. 73). In Study 6.1 we focused on the investment of instrumental effort, and found that the investment of extra effort increased the probability of attaining the outcome. Although in most cases people expend effort in order to make an outcome more likely, this does not always have to be the case. For example, a person who has a date may invest a lot of effort in preparing for this date, while

1The 95% confidence interval for the direct effect of effort on disappointment (.31) was .09 < β < .50; when not controlling for the mediators (.70) the 95% confidence interval was .56 < β < .80. There is no overlap between the two intervals, which implies that these beta weights differ significantly from each other.
this effort does not increase the probability of actually going on the date. The kind of effort that does not increase the probability is called non-instrumental effort. We expect that the instrumentality of effort has an effect on the various relationships tested in the first study.

Results of Study 6.1 showed that the investment of instrumental effort increases the intensity of disappointment, but decreases the intensity of regret. However, when the invested effort is non-instrumental we expect that both disappointment and regret will be intensified by the investment of more effort. We expect a direct effect of non-instrumental effort on the intensity of disappointment; investing more effort in vain might directly intensify disappointment. Furthermore, we expect that non-instrumental effort has an effect on the desirability of the outcome. More effort invested is associated with increased desirability. We expect no effect of the investment of non-instrumental effort on the perceived probability of attaining the desirable outcome. In the case of investing non-instrumental effort we expect regret to be intensified by investing more effort. A person who invested a lot of non-instrumental effort not only feels disappointed, (s)he also feels regret at having invested effort (e.g., time or money) in an unsuccessful outcome. Finally, we expect no effect of the investment of non-instrumental effort on responsibility for the non-attainment of the outcome. Because the investment of non-instrumental effort does not increase the probability of attaining a desirable outcome, investing more effort could not have prevented the non-attainment of the desirable outcome.

Method

Participants, Design, Procedure, and Measures
Students at the University of Amsterdam (N = 50) participated in this study and were randomly assigned to one of the two conditions (Effort vs. No effort). There were 25 participants in each condition. Participants in the Effort condition read the following story:

On Friday Susan has a date with a man she really likes. They are to meet in a good restaurant, where they will have dinner. After dinner they plan to go somewhere else for a drink. Susan has bought something new to wear and she has even been to the hairdresser.

In the No effort condition the sentence about buying something new to wear and going to the hairdresser was omitted. After reading the story participants were asked to rate how desirable the outcome (going on a date) was for Susan. Second, participants were asked how likely it was that the date would actually take place. Next the participants were asked to read the story again and turn the page where the story continued as follows:

On Friday evening Susan gets a phone call from her date who says that he has to cancel the date because he has fallen ill. How would Susan feel?

Dependent measures were identical to those used in Study 6.1.

Results and Discussion

Table 6.2 depicts the mean scores on the dependent variables. A MANOVA with condition (Effort vs. No effort) as independent variable, and negative feelings, disappointment, regret, desirability, probability, and responsibility as dependent variables showed that there is a
marginal multivariate difference between the two conditions, \( F(6, 43) = 1.88, p < .10. \) Univariate tests showed that (as predicted) disappointment and regret ratings were higher when effort was invested (see Table 6.2 for the \( F \)-values and accompanying probabilities). Results showed no differences between the two conditions for the ratings of probability, which supports our assumption that the investment of effort was non-instrumental. Furthermore, no differences between the two conditions were found for ratings of negative feelings, desirability, and responsibility.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Effort</th>
<th>No effort</th>
<th>( F(2, 72) )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative feelings</td>
<td>7.12</td>
<td>6.52</td>
<td>2.02</td>
<td>ns.</td>
</tr>
<tr>
<td>Disappointment</td>
<td>8.16</td>
<td>7.36</td>
<td>6.97</td>
<td>.011</td>
</tr>
<tr>
<td>Regret</td>
<td>4.32</td>
<td>2.84</td>
<td>7.11</td>
<td>.010</td>
</tr>
<tr>
<td>Desirability</td>
<td>7.88</td>
<td>7.76</td>
<td>1.18</td>
<td>ns.</td>
</tr>
<tr>
<td>Probability</td>
<td>7.52</td>
<td>7.24</td>
<td>0.47</td>
<td>ns.</td>
</tr>
<tr>
<td>Responsibility</td>
<td>1.96</td>
<td>1.64</td>
<td>0.89</td>
<td>ns.</td>
</tr>
</tbody>
</table>

Note: All variables were measured on 9-point scales, with endpoints not at all (1) and very much (9).

To investigate the different relationships between disappointment and regret and probability, desirability, and responsibility a series of regression equations were conducted. The procedure was similar to that employed in Study 6.1. Results of these regression equations are depicted in Figure 6.2. The numerical values in these figures are standardised regression weights. Results of the regression equations show that effort is not associated with the probability of attaining the desirable outcome, and also not associated with the desirability of attaining the outcome. Similarly, effort is also not associated with perceived responsibility for not attaining the desirable outcome.

Results concerning disappointment after the non-attainment of the desirable outcome (see Figure 6.2, upper half) show that (a) the investment of effort is associated with disappointment (upper left-hand corner beta weight), and (b) desirability of attaining the outcome is also associated with disappointment. Responsibility and probability were not related to the intensity of disappointment. Finally, the results show that the investment of effort is associated with disappointment after controlling for probability, desirability, and responsibility (upper right-hand corner beta weight).

Results concerning regret after the non-attainment of a desirable outcome (see Figure 6.2, lower half) show that (a) the investment of effort is associated with regret (upper left-hand corner beta weight), and (b) responsibility for the non-attainment of the outcome is associated with regret. Probability and desirability were not related to the intensity of regret. As expected, the investment of less effort is associated with increased levels of regret after controlling for probability, desirability, and responsibility (upper right-hand corner beta weight).
In sum, the results of Study 6.2 show that both disappointment and regret are intensified by the investment of non-instrumental effort. The effect of the investment of non-instrumental effort is due to a direct effect of effort on the intensity of disappointment. Contrary to our expectations, we found no effect of effort on desirability. This could be due to a ceiling effect, since the means for desirability are very high in both conditions (see also Table 6.2). Results did show that higher desirability of the outcome is associated with more intense disappointment. Finally, the results show that the effect on the intensity of regret is due to a direct effect of the investment of effort. No significant relation was found between the investment of non-instrumental effort and perceived responsibility for not attaining the outcome, although increased responsibility did intensify regret.
GENERAL DISCUSSION

In the present chapter we reported two studies that were conducted to investigate the effect of the investment of instrumental and non-instrumental effort on the intensity of disappointment and regret. Study 6.1 shows that the investment of more instrumental effort in attaining a desirable outcome intensifies the disappointment experienced after the non-attainment of this outcome, whereas regret is reduced when more instrumental effort is invested. Study 6.2 shows that both disappointment and regret are more intense when more non-instrumental effort is invested.

Furthermore, results show that investing more instrumental effort in attaining a desirable outcome is associated with a higher probability of attaining this outcome and with increased desirability of the outcome. Higher expectations about the probability of the outcome and its desirability are associated with more disappointment when the outcome is not attained. Furthermore, results show that the investment of instrumental effort has a direct effect on disappointment and regret. More effort is associated with more disappointment, and less regret. Results also show that decreasing instrumental effort is associated with increased responsibility for the negative outcome, which amplifies regret. In the case of disappointment people are likely to be disappointed because all effort was in vain, whereas people will experience less regret because they at least tried.

How should we interpret the relations between effort, probability, and desirability? Mostly, one expends effort because one believes that it increases the probability of attaining an outcome, and generally this will be the case. The relation between effort and probability is straightforward; more effort is associated with increased probability. However, the relation between effort and desirability is less clear. The direction of this relation can go either way. First, people are willing to invest more effort to obtain a more desirable goal. Second, people could also value a goal more when they put more effort into reaching that goal. Ortony et al. (1988) assumed that investing more effort in obtaining an outcome enhances the desirability of that outcome: "The possibility we are raising here is that the desirability of a goal can increase as a result of the effort expended in the implementation of plans to achieve it" (p. 73). Unfortunately, no conclusions can be drawn from the present studies with respect to the direction of the relation between the investment of effort and the desirability of attaining the related outcome.

Results concerning non-instrumental effort show that both disappointment and regret are intensified by the investment of effort. The investment of non-instrumental effort had no effect on probability, desirability or responsibility. However, higher desirability was still associated with more disappointment, whereas more responsibility was associated with more regret. It is not surprising that non-instrumental effort had no effect on the probability of attaining the outcome. When effort is non-instrumental, investing more effort is not likely to help obtain the desirable outcome. Thus, people will not feel more responsible for the non-attainment of the outcome because investing more non-instrumental effort does not affect the probability of a better outcome.

The present findings are interesting in several ways. First, whereas it has been suggested that investing effort intensifies disappointment (Ortony et al., 1988), no direct empirical evidence supporting this assumption is reported in the literature. The present findings provide a first empirical test of this assumption. Second, our findings show that investing
less effort can also amplify emotions, this in contrast with the prevailing view that more effort is associated with more intense emotions. Our findings show that both high and low levels of effort can amplify emotional reactions. Investing more effort intensifies disappointment, while investing less effort intensifies regret. Third, the present findings also provide empirical support for another assumption suggested in the literature. Several authors have suggested that the probability of attaining a desirable outcome intensifies disappointment when the outcome is not attained (Bell, 1985; Landman, 1993; Ortony et al., 1988; van Dijk & van der Pligt, 1997; see also Chapter 5), and our findings confirm this assumption.

The present findings also show some interesting differences between disappointment and regret. First as noted above, investing higher levels of instrumental effort intensifies disappointment but reduces the level of experienced regret. Furthermore, regret was found to be related to perceived responsibility for the outcome. This finding is in line with earlier research (Frijda et al., 1989; Roseman et al., 1996; Zeelenberg, van Dijk, & Manstead, 1998a; see also Chapter 4). Disappointment, on the other hand, was found to have no relation with perceived responsibility, in other words perceived responsibility for the outcome has no impact on the intensity of disappointment. Another noticeable difference between disappointment and regret is that disappointment was related to probability, whereas regret was not. This is in line with Landman (1993), who argued that the "essential difference [between disappointment and regret] is disappointment's, and not regret's dependence on expectations (estimated probabilities)" (p. 47). In sum, our results provide direct evidence concerning the often implicitly assumed relations between effort, disappointment, and regret; they also reveal similarities as well as differences between disappointment and regret.

Finally, we would like to try to answer the question: Should people invest effort in attaining an outcome or should they not? In the case of non-instrumental effort people who are reluctant to experience disappointment and/or regret should be cautious about investing effort. Investing non-instrumental effort does not have the advantage that it increases the probability of attaining the outcome, while it has the disadvantage of intensifying both disappointment and regret when the desired outcome is not attained. Perhaps they should only invest non-instrumental effort when the probability of attaining the desired outcome is sufficiently high. In the case of instrumental effort the answer to the question is more complicated. There are two major advantages to investing instrumental effort. First, investing effort generally increases the probability of attaining the desired outcome and therefore decreases the probability of experiencing disappointment or experiencing regret. Second, investing effort decreases the intensity of regret for not trying hard enough. People who are reluctant to experience regret therefore should invest effort. However, the disadvantage of investing effort is that disappointment will be more intense if it turns out that the effort was invested in vain. People who are reluctant to experience disappointment should make a trade-off between the advantage of investing effort (a lower probability of getting disappointed) and the disadvantage of investing effort (the possibility of more intense disappointment). How people make this trade-off is an interesting question for further research.² In the next chapter we turn to a final determinant of disappointment, that is, degree of realisation.

² This chapter is based on van Dijk, van der Pligt, and Zeelenberg (1998a).