

Reconsidering the Relation between Regret and Responsibility

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Recently Connolly, Ordóñez, and Coughlan challenged the view that regret is partly determined by perceived responsibility for the regretted outcome [Connolly, T. Ordóñez, L. D., & Coughlan, R. (1997). Regret and responsibility in the evaluation of decision outcomes. *Organizational Behavior and Human Decision Processes*, 70, 73–85]. In a series of experiments they manipulated whether actors arrived at an outcome through their own decision or through a “computer assignment” over which they had no influence. This decision agency manipulation did not affect their “regret measure.” We show in two experiments that this null-effect is due to the fact that regret was measured by means of a general happiness assessment. In the present research we replicated the basic design of their experiments and also found no effects of decision agency on the happiness assessment. However, the results showed the predicted effects of decision agency when regret was directly measured. Moreover, a measure of disappointment seemed to indicate the opposite effect: People are more disappointed when a negative outcome is caused by a computer assignment than when caused by their own choice. The role of regret and disappointment in decision making is discussed.

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Regret is a negative, cognitively determined emotion that we experience when realizing or imagining that our present situation would have been better, had we acted differently (Zeelenberg, 1996, p. 6). Present in this definition is the idea that regret stems from *decisions* that are “wrong” in retrospect, and hence that there is a sense of responsibility on the part of the decision-maker. If he or she had made a different decision, the outcome would have been better. This definition is partly based on a review of empirical research showing a relation between responsibility and regret; that is, the more a decision maker perceives him- or herself to be responsible for a negative outcome, the more regret he or she experiences (e.g., Frijda, Kuipers, & ter Schure, 1989; Gilovich & Medvec, 1994). According to this approach there is no reason for regret following negative outcomes that were not caused by the decision maker him- or herself, that he or she could not prevent happening, and for which he or she does not feel responsible. Other negative emotions, such as disappointment, frustration, anger, or sadness, may be experienced in these situations, but not regret.

Some theorists, however, have argued against a relation between regret and responsibility. For instance, the philosopher Taylor (1985) argued that “regret but not remorse can be felt about an event for which the decision agent does not take herself to be even just causally responsible” (p. 98). In a similar vein, Solomon (1976) proposed that

The difference between them [regret and remorse], however, is very much like the difference between embarrassment and shame—a difference in responsibility. In regret, one does not take responsibility, blaming whatever disappointment is involved on “circumstances beyond one’s control” (p. 349).

Similar views were advanced by Landman (1993) and Rorty (1980). It is important to note that the relation between regret and responsibility as stated by these theorists was not based on empirical investigations, but on logic and introspection. More recently, however, Connolly, Ordonez and Coughlan (1997) also claimed that regret and responsibility are not related, and their claim *was* supported by empirical evidence. In a series of experiments they manipulated responsibility and found no effects on their measure of regret. This led Connolly *et al.* to argue against a narrow definition of regret linking it to responsibility. Instead they appear to favor a conceptualization of regret as a broader state of dissatisfaction with an obtained outcome.

Connolly *et al.* (1997) provide a detailed overview of research on the relation between regret and responsibility. We will therefore not present what would be a very similar review of the literature. However, it is worth pointing to two additional sources supporting a relation between regret and responsibility. Frijda *et al.* (1989, Study 2) studied the extent to which 32 emotions could be differentiated. They found that “self agency” measured by means of the question “Were you responsible for what happened or had happened?” was a typical appraisal item for regret. Shefrin and Statman (1986) also recognized the connection between regret and responsibility. They argue in their study of behavior on the stock market that people prefer to spend their money on stocks

of conventional companies (e.g., IBM) instead of unconventional ones. One reason for this behavior is that if you invest your money in stocks of an unconventional company and prices go down, you blame yourself and feel regret. "However, if IBM stock drops, you'll look at the misfortune as an act of God. Your choice involves little responsibility and therefore little regret, since IBM is the conventional choice" (p. 57). We now briefly describe the research that led Connolly *et al.* to the conclusion that regret and responsibility are not related.

Connolly *et al.*'s (1997) article describes a series of five experiments. The basic design of these experiments is quite similar: Participants were presented with scenarios describing three (or sometimes two) students who register for a required undergraduate course. In this course there are different sections, taught by different instructors. The students register and are assigned to a certain section. Just before the start of the semester the students either had the opportunity to change to another section if they so wished (high responsibility manipulation), or they were reassigned to sections by a computer (low responsibility manipulation). The students all ended up in the same moderately good section B. For one of them this was the section initially allocated. For the others the initial section was either better (section A) or worse (section C) than section B. After reading the scenario participants were asked to answer the following question "How happy overall do you think each student would be with the course section he ended up in?" on an 11-point scale with endpoints labeled *Very Unhappy* (-5) and *Very Happy* (+5).

Connolly *et al.* (1997) found that this rating was influenced by the initial section assignment of the students. Participants gave highest ratings for the student whose initial section was worse than the section he ended up in. Lower ratings were given for the student whose initial section was equal to the section he ended up in, and the lowest rating was given for the student whose initial section was better than the section he ended up in. However, Connolly *et al.* did *not* find any effects of the responsibility manipulation on their dependent variable. Thus, the ratings were independent of whether the students ended up in section B as a result of their own choice or as a result of a computer reassignment. This was interpreted as indicating that responsibility (i.e., decision agency) is not related to the experience of regret.

We believe that a critical feature of the experiments of Connolly *et al.* (1997) is that they assessed regret by means of a general happiness assessment. Had they asked participants explicitly about regret, they should have found strong effects of decision agency. We should note here that in their Experiment 3 Connolly *et al.* did ask participants about regret. In this experiment the scenario involved only two students, Alan and Bob, whose initial section assignment was either better than (Alan), or equal to (Bob) the section they ended up in. The researchers again manipulated whether the students ended up in that section as a result of their own choice or as a result of a computer reassignment. Participants were asked about possible differences in regret experienced by Alan and Bob. They were asked to indicate this on a scale that ranged from -2 ("Bob feels much more regret than Alan") to 2 ("Alan feels much more regret than Bob"). In both the student choice condition and the computer

reassignment condition it was found that Alan was rated as experiencing more regret. A problem with this measure is that it only informs us about the regret of Alan compared to the regret of Bob, *within* one of the two decision agency conditions. Since the *intensity* of regret was not directly assessed, this measure does not provide any information about whether the overall level of regret was higher in the student choice condition than in the computer reassignment condition. Thus, the fact that Alan was seen as experiencing more regret than Bob in both conditions does *not* imply that the regret experienced following a unsatisfactory computer reassignment is equal in intensity to the regret experienced following a unsatisfactory choice.

Our conviction that Connolly *et al.* (1997) would have found the predicted effects of decision agency had they asked for intensity ratings of regret is based on the findings of our own research in which we have focused on regret (Zeelenberg, 1996; Zeelenberg, Beattie, van der Pligt, & de Vries, 1996; Zeelenberg & Beattie, 1997; Zeelenberg, van der Pligt, & Manstead, *in press*; Zeelenberg & van Dijk, 1997), disappointment (van Dijk & van der Pligt, 1997), or on the differences and similarities between these emotions (van Dijk, van der Pligt, & Zeelenberg, 1998a, 1998b; van Dijk, Zeelenberg, & van der Pligt, 1998c; Zeelenberg, van den Bos, & van Dijk, 1997; Zeelenberg *et al.*, 1998c; Zeelenberg, van Dijk, Manstead, & van der Pligt, 1998a; 1998b).

Regret and disappointment obviously have much in common; they are related to risky decision making and uncertain outcomes, and originate in a comparison process in which the outcome obtained is compared to an outcome that might have occurred. However, what we have found in our research is that there are also clear differences between the two emotions. For example, we found that the investment of instrumental effort in achieving a goal amplifies experienced disappointment when the goal is not achieved, but at the same time attenuates experienced regret (van Dijk *et al.*, 1998a). In another study we found that the experience of regret is positively associated with responsibility and internal attribution (i.e., the extent to which we feel responsible for an outcome and perceive our own choices to be the cause of this outcome), whereas the experience of disappointment is positively associated with external attribution (i.e., the extent to which we perceive external events to be the cause of this outcome) (Zeelenberg *et al.*, 1998c).

In short, we have repeatedly found evidence consistent with the notion that an important difference between regret and disappointment resides in the processes giving rise to the emotions. Moreover, in a recent study on the phenomenological experience of regret and disappointment we found that the two emotions are not simply similar experiences that go by different names; they are distinct emotions, each with its own characteristics (Zeelenberg, *et al.*, 1998a).

The relevance of our findings described above to Connolly *et al.*'s (1997) research is that our findings show that it is important to be precise about the specific emotions under investigation (see, van der Pligt, Zeelenberg, van Dijk, de Vries, & Richard [1998], for a more comprehensive discussion of the need to be specific in research on affect, attitudes, and decision making). Our research shows that a given manipulation can have opposite effects on regret

and disappointment; that is, it may amplify one emotion *and* at the same time attenuate the other. Moreover, sometimes these manipulations do not have any impact on a measure of general affect (e.g., van Dijk *et al.*, 1998a; Zeelenberg *et al.*, 1998c). The happiness assessment used by Connolly *et al.* may be considered as similar to the measure of general affect used in our own studies. The happiness assessment might therefore be too general to be influenced by how an outcome came about, and too insensitive to reflect differences in regret. It might be the case that other negative emotions (e.g., disappointment) also influence one's overall happiness with an outcome. Alternatively it might be the case that the emotion happiness is just not influenced by responsibility. This is the case for what Weiner and colleagues refer to as 'outcome dependent-attribution independent' emotions. According to these researchers "certain emotions such as happiness and disappointment are independent of attributions but dependent on outcomes" (Weiner, Russell, & Lerman, 1979, p. 1216).

In the present research we replicated the basic design of Connolly *et al.*'s (1979) experiments and measured, in addition to overall happiness, the specific emotions regret and disappointment. We expected to replicate Connolly *et al.*'s findings on the happiness measure. However, we expected ratings of regret to be influenced by the manipulation of responsibility (i.e., decision agency). That is, we expected higher regret ratings when the outcomes were produced by the students' own choice than when they were produced by a computer reassignment. The prediction for disappointment was more complex. Although Weiner *et al.* (1979) argued that disappointment is an attribution independent emotion, our own research provided evidence suggesting the opposite. For example, we have found that disappointment was negatively related to responsibility (Zeelenberg *et al.* 1998c), and positively related to external attribution (van Dijk *et al.*, 1998b; Zeelenberg *et al.* 1998c). However, these relations were always weaker than those between regret and responsibility. In other research we have found no evidence for a relation between disappointment and responsibility, although a relation between regret and responsibility was present (van Dijk *et al.*, 1998a). This inconsistent pattern of results led us to predict that the responsibility manipulation would have a small effect on disappointment, such that there would be greater disappointment when the negative outcome was caused by a computer assignment than by the student's own choice.

EXPERIMENT 1

Method

Design and participants. The experiment had the following design: 2 (Decision Agent: student choice vs. computer assignment) \times 3 (Initial Condition: better than vs. equal to vs. worse than actual outcome), with Initial Condition as within-subjects factor and Decision Agent as between-subjects factor. The dependent variables were the judged happiness, regret, and disappointment of each student in the scenario. We also assessed perceived responsibility for the outcome to check whether the decision agency manipulation did indeed

influence responsibility. Sixty Dutch undergraduate students volunteered to participate in this experiment. Thirty participants were randomly allocated to each of the Decision Agency conditions.

Procedure and material. Participants were confronted with a scenario involving three students, Alan, Bob and Chuck. This scenario was a closely based on the one used by Connolly *et al.* (1997, p. 76) and presented in Dutch. The computer assignment version is presented here [the student choice variant is shown in parentheses]:

Alan, Bob and Chuck register for a required undergraduate course. They are assigned to three different sections, A, B, and C, taught by three different instructors. They have heard that the sections differ widely in how interestingly they are taught and how easily they are graded. Due to unforeseen circumstances the students have to be reassigned to the sections just before the semester starts. The computer reassigned Alan to section B, Bob's assignment is unchanged, and Chuck is reassigned to section B. [or: After a great deal of research, calling around, and discussion with other students, Alan decides to change to section B, Bob decides to make no change, and Chuck decides to change to section B]. So all three students end up in the same section B. Section B turns out to be an OK section, with fairly interesting lectures and a reasonable grade distribution. They later find out that section A was terrific, with wonderful lectures and easy grades, and that section C was a disaster, with dull, monotonous lectures and very low grades.

After reading the scenario participants were asked to rate the happiness for each student on a 11-point scale with endpoints labeled *very unhappy* (−5) and *very happy* (+5). This happiness scale was identical to the one used by Connolly *et al.* (1997). Next, participants were asked to rate the amount of regret and disappointment each student felt. These were measured on 9-point scales with endpoints labeled *no regret* (1) and *very much regret* (9), and *no disappointment* (1) and *very much disappointment* (9). Finally, as a check on the Decision Agent manipulation, participants were asked on a separate page to rate how responsible each student was for being in section B. Participants were asked to make these ratings on 9-point scales with endpoints labeled *not responsible* (1) and *very responsible* (9).

Results

Manipulation check. The mean responsibility ratings per condition are depicted in Table 1. A 2 (Decision Agent: student choice vs. computer assignment) × 3 (Initial Condition: better than vs. equal to vs. worse than actual outcome) ANOVA revealed the expected main effect of Decision Agent, $F(1,58) = 45.53$, $p < .001$, showing that participants perceived the students to be more responsible when the outcome stemmed from the student's own choice than when it stemmed from a computer reassignment. The Decision Agent manipulation thus appears to be an effective manipulation of responsibility. The analysis also yielded a main effect for Initial Condition, $F(2,116) = 19.58$, $p < .001$. This effect was qualified by the Decision Agent × Initial Condition interaction, $F(2,116) = 14.78$, $p < .001$. Inspection of the means depicted in Table 1 shows that all the students were perceived as equally low in responsibility in the

TABLE 1
Mean Responsibility Ratings in Experiment 1

Initial condition	Decision Agent	
	Computer assignment	Student choice
Better than (= Alan)	2.50 _a	6.50 _b
Equal to (= Bob)	2.33 _a	3.80 _c
Worse than (= Chuck)	2.53 _a	6.17 _b

Note. Ratings were made on a 9-point scale, with endpoints labeled *not responsible* (1) and *very responsible* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

computer assignment condition. Those in the student choice condition were perceived as being more responsible, and within this condition those who changed section, Alan and Chuck, were perceived as more responsible than Bob, the one who did not change.

Happiness. Mean happiness ratings are shown in Table 2. The ANOVA revealed a main effect of Initial Condition, $F(2,116) = 197.22$, $p < .001$. Chuck was judged to be happier than Bob, who was judged to be happier than Alan. No other effects were significant. This replicates the findings of Connolly *et al.* (1997).

Regret. Mean regret ratings are shown in Table 3. Here the ANOVA revealed the predicted main effect of Decision Agent, $F(1,58) = 29.49$, $p < .001$, indicating that there was more regret in the student choice condition than in the computer assignment condition. The analysis also revealed a main effect of Initial Condition, $F(2,116) = 73.13$, $p < .001$, and a significant Decision Agent \times Initial Condition interaction, $F(2,116) = 19.28$, $p < .001$. Inspection of the means depicted in Table 3 show that in both the student choice condition and in the computer assignment condition Alan was judged to experience more regret than Bob, who was judged to experience more regret than Chuck. The difference between the three actors (arising from their initial condition) is, however, much more pronounced in the student choice condition.

TABLE 2
Mean Happiness Ratings in Experiment 1

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than (= Alan)	-3.50 _a	-2.97 _a
Equal to (= Bob)	-0.30 _b	-0.47 _b
Worse than (= Chuck)	3.20 _c	2.47 _c

Note. Ratings were made on a 11-point scale, with endpoints labeled *very unhappy* (-5) and *very happy* (+5). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

TABLE 3
Mean Regret Ratings in Experiment 1

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than (= Alan)	3.53 _a	7.23 _b
Equal to (= Bob)	2.70 _c	4.73 _d
Worse than (= Chuck)	2.10 _e	2.70 _e

Note. Ratings were made on a 9-point scale, with endpoints labeled *no regret* (1) and *very much regret* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

Disappointment. The mean disappointment ratings show a different pattern (see Table 4). The ANOVA revealed a significant main effect for Initial Condition, $F(2,116) = 187.89, p < .001$. Overall, Alan was judged to experience more disappointment than Bob, who was judged to experience more disappointment than Chuck. Although the analysis did not reveal the predicted main effect for Decision Agent, $F(1,58) < 1$, a significant Decision Agent \times Initial Condition interaction was found, $F(2,116) = 9.70, p < .001$. The means depicted in Table 4 show that the predicted effect of Decision Agent, that is, more disappointment in the low responsibility condition, held for Alan, but not for Bob and Chuck. Note that Alan is the only student who is really in a disappointing situation. The section he initially was assigned to was much better than the mediocre section he ended up in, whereas Bob was originally assigned to this section, and Chuck moved from a much worse section.

Relations between the dependent variables. Table 5 shows the partial correlations between the dependent variables in Experiment 1. These correlations are corrected for the influence of the other two dependent variables. The table shows these partial correlations for each level of Initial Condition separately, because this factor was manipulated as a within-subjects variable. Inspection of Table 5 reveals that responsibility and regret were positively correlated in each condition, and that happiness and responsibility showed no correlation at all. The correlations between disappointment and responsibility were less

TABLE 4
Mean Disappointment Ratings in Experiment 1

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than (= Alan)	7.43 _a	6.10 _b
Equal to (= Bob)	4.57 _c	4.93 _c
Worse than (= Chuck)	2.00 _d	2.50 _d

Note. Ratings were made on a 9-point scale, with endpoints labeled *no disappointment* (1) and *very much disappointment* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

TABLE 5
Partial Correlations Between the Dependent Variables per Initial Condition in Experiment 1

Initial condition:	Better than (= Alan)			Equal to (= Bob)			Worse than (= Chuck)					
	Resp.	Happiness	Regret	Disap.	Resp.	Happiness	Regret	Disap.	Resp.	Happiness	Regret	Disap.
Responsibility	—	—	—	—	—	—	—	—	—	—	—	—
Happiness	-.081	—	—	.035	—	—	—	—	-.080	—	—	—
Regret	.628*	-.042	—	.540*	-.047	—	—	—	.294*	-.045	—	—
Disappointment	-.245*	-.623*	-.012	.094	-.526*	.220*	—	—	-.006	-.260*	.675*	—

Note. Entries are partial correlations between two dependent variables, corrected for the remaining two variables.
 * p < .05 (one-tailed).

consistent. In the condition where the outcome is most disappointing (i.e., where the initial condition was better than the obtained outcome) the correlation was negative, showing that the less responsible one is judged to be, the more disappointment one is judged to feel. For the other two levels of initial condition there was no correlation between perceived responsibility and ratings of disappointment. All these correlations are in line with the findings described earlier and with our theoretical predictions.

This brings us to the question of how the different emotional reactions are related to one another. More specifically, how does overall happiness with the obtained decision outcome relate to the ratings of regret and disappointment? One of the possibilities proposed earlier is that overall happiness with the outcome is influenced by both regret and disappointment, and that the two influences cancel each other out. An alternative possibility is that happiness is an 'outcome dependent - attribution independent' emotion (cf. Weiner *et al.*, 1979). The partial correlations seem to support the latter notion. This is not only because there are no correlations between responsibility and happiness, but also because regret does not correlate with happiness, as would be required by the first explanation. Unlike regret, disappointment was found to correlate negatively with happiness.

Discussion

The results of this experiment clearly show the predicted effect of decision agency on regret when the intensity of regret was assessed more directly. The results also replicate Connolly *et al.*'s (1997) finding that happiness is not influenced by decision agency. In addition, the results indicate that when the obtained outcome was worse than the outcome forgone, disappointment may be affected by decision agency in a different way than regret. The student whose outcome was worse than the original allocation was rated as feeling more disappointed when the negative outcome was caused by a computer reassignment than when it arose from his own choice. The results of correlational analyses were in accordance with these findings.

EXPERIMENT 2

In Experiment 1 participants rated the happiness, regret, disappointment and responsibility of the three different actors in the scenario. The difference between the actors was the initial section assigned to. This within-subjects manipulation of Initial Condition may have resulted in a tendency for the participants to overstate the differences in reactions following the different initial conditions. It might be argued that this could have affected the findings regarding the impact of decision agency, and also the correlations between the dependent variables. The purpose of Experiment 2 was to test the predictions concerning the relation between regret and responsibility in a completely between-subjects design. In the present experiment Initial condition had only two levels (similar to Connolly *et al.*'s [1997] Experiments 1 and 3).

Method

Design and participants. The experiment had the following completely between-subjects factorial design: 2 (Decision Agent: student choice vs. computer assignment) \times 2 (Initial Condition: better than vs. equal to actual outcome). The dependent variables were identical to those in Experiment 1. Eighty Dutch undergraduate students volunteered to participate in this experiment, which was part of a larger experimental session. There were 20 participants in each condition. They were paid 15 Dutch Guilders (approximately \$7.50) for their participation.

Procedure and material. Since Initial Condition and Decision Agency were manipulated as between-subjects factors, participants were confronted with a scenario involving only one student, Alan. The scenarios were presented in Dutch. The computer assignment version in which the initial condition was better than the obtained outcome is presented here [the variant in which the initial condition was equal to the obtained outcome is shown in parentheses]:

Alan registers for a required undergraduate course. He is assigned to section A. [He is assigned to section B.] There are two different sections, A and B, taught by three different instructors. He has heard that the sections differ widely in how interestingly they are taught and how easily they are graded. Due to unforeseen circumstances all students have to be reassigned to the sections just before the semester starts. The computer reassigned Alan to section B. [Alan's assignment is unchanged]. Section B turns out to be an OK section, with fairly interesting lectures and a reasonable grade distribution. Alan later finds out that section A was terrific, with wonderful lectures and easy grades.

In the Student Choice conditions participants read that Alan made his decision "after a great deal of research, calling around, and discussion with other students," as was the case in the student choice conditions in Experiment 1 and in Connolly *et al.*'s (1997) experiments. After reading the scenario participants were asked to rate the happiness, regret, disappointment and responsibility for Alan, on the same scales that were used in Experiment 1.

Results

Manipulation check. The mean responsibility ratings per condition are shown in Table 6. A 2 (Decision Agent: student choice vs. computer assignment)

TABLE 6
Mean Responsibility Ratings in Experiment 2

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than	1.80 _a	7.10 _b
Equal to	2.70 _a	6.25 _b

Note. Ratings were made on a 9-point scale, with endpoints labeled *not responsible* (1) and *very responsible* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

TABLE 7
Mean Happiness Ratings in Experiment 2

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than	-2.80 _a	-2.40 _a
Equal to	-2.30 _a	-2.30 _a

Note. Ratings were made on a 11-point scale, with endpoints labeled *very unhappy* (-5) and *very happy* (+5). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

× 2 (Initial Condition: better than vs. equal to actual outcome) ANOVA revealed the expected main effect of Decision Agent, $F(1,79) = 100.23$, $p < .001$, showing that participants perceived the student as more responsible when the outcome stemmed from his own choice than when it stemmed from a computer reassignment. The Decision Agent manipulation thus again appeared to be an effective manipulation of responsibility. The analysis did not yield a main effect for Initial Condition, $F(1,79) = 0.01$, *ns.*, and the Decision Agent × Initial Condition interaction was only marginally significant, $F(1,79) = 3.92$, $p < .10$.

Happiness. Mean happiness ratings are shown in Table 7. The ANOVA revealed a marginally significant main effect of Initial Condition, $F(1,79) = 2.96$, $p < .10$. Alan was judged as less happy (or, more precisely, as more unhappy) when his initial condition was better, rather than to equal to, the section he ended up in. No other effects were significant.

Regret. Mean regret ratings are shown in Table 8. Here the ANOVA revealed the predicted main effect of Decision Agent, $F(1,79) = 47.72$, $p < .001$, indicating that there was more regret in the student choice condition than in the computer assignment condition. No other effects were significant.

Disappointment. The mean disappointment ratings again show a different pattern (see Table 9). The ANOVA revealed the predicted main effect for Decision Agent, $F(1,79) = 20.63$, $p < .001$, indicating that there was more disappointment in the computer assignment condition than in the student choice condition. The analysis also revealed a marginally significant main effect for

TABLE 8
Mean Regret Ratings in Experiment 2

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than	2.95 _a	7.70 _b
Equal to	3.20 _a	6.10 _b

Note. Ratings were made on a 9-point scale, with endpoints labeled *no regret* (1) and *very much regret* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

TABLE 9
Mean Disappointment Ratings in Experiment 2

Initial condition	Decision agent	
	Computer assignment	Student choice
Better than	7.30 _a	6.15 _b
Equal to	7.15 _a	5.10 _b

Note. Ratings were made on a 9-point scale, with endpoints labeled *no disappointment* (1) and *very much disappointment* (9). Means within rows and columns not sharing a common subscript differ significantly ($p < .05$).

Initial Condition, $F(1,79) = 2.86$, $p < .10$, suggesting that Alan was judged to experience more disappointment when his initial condition was better, as compared to equal to, the one he ended up in. The interaction was not significant.

Relations between the dependent variables. Table 10 shows the partial correlations between the four dependent variables measured in Experiment 2. Again, responsibility and happiness were not related, while responsibility and regret were positively related. In the present experiment we also found a negative correlation between responsibility and disappointment, such that the lower the perceived responsibility for the outcome, the higher the disappointment. The relations between happiness and regret, and happiness and disappointment were similar to those in Experiment 1. Happiness was again not related to regret, whereas it was negatively related to disappointment.

Discussion

The results of this experiment replicate the findings of Experiment 1, again showing that a manipulation of decision agency does not have an impact on happiness with the decision outcome, but at the same time does have a strong effect on a more direct assessment of regret. Correlational analyses confirm these findings by showing a positive relation between regret and responsibility, and no relation between happiness and responsibility.

TABLE 10
Partial Correlations Between the Dependent Variables in Experiment 2

	Responsibility	Happiness	Regret	Disappointment
Responsibility	—			
Happiness	.066	—		
Regret	.636*	-.026	—	
Disappointment	-.189*	-.466*	-.154*	—

Note. Entries are partial correlations between two dependent variables, corrected for the remaining two variables.

* $p < .05$ (one-tailed).

An additional finding of Experiment 2 is that the effects of Initial Condition do not seem to occur when it is manipulated as a between-subjects factor. This suggests that the effects of action/inaction manipulations and change of status quo manipulations are less robust than is assumed in the literature. We will return to this point in the General Discussion.

GENERAL DISCUSSION

In a series of experiments Connolly, Ordonez, and Coughlan (1997) manipulated whether three students arrived at an outcome through their own decision or through a "computer assignment" procedure over which they had no influence. This decision agency manipulation had no effect on regret as measured by asking participants to rate each student's overall happiness or unhappiness with the outcome obtained. On the basis that this is not an appropriate measure of regret, we replicated the basic design of Connolly *et al.*'s experiments and found the predicted effect of decision agency on regret when it was directly measured. At the same time we replicated Connolly *et al.*'s finding that decision agency does not influence general happiness. Moreover, a measure of disappointment resulted in the opposite effect, as predicted.

Contrary to the findings of Connolly *et al.* (1997), the present research shows clear effects of responsibility on regret. These findings are consistent with those of Gilovich and Medvec (1994), Frijda *et al.* (1989), and our own previous research on regret and disappointment. Together this evidence provides a strong case for a conceptualization of regret that includes the notion of responsibility for the regretted outcome. We argue that the case for this conclusion is particularly strong in view of the lack of evidence that regret is unrelated to responsibility.

These findings emphasize the need to be precise about the emotion under investigation. As we have shown, a given factor (in this case responsibility) can increase the experience of one emotion (regret), decrease the experience of another emotion (disappointment), but at the same time have no influence on a more general emotional reaction (overall happiness). Which emotion one measures therefore has an important bearing on the conclusions one draws regarding the influence of such a factor on emotion.

This need for specificity may also be applicable to an issue that is related to the one addressed in the present article, namely the relation between action/inaction effects and change of status quo effects (Baron & Ritov, 1994; Gilovich & Medvec, 1995; Kahneman & Tversky, 1992; Kordes-de Vaal, 1996; Landman, 1986; Ritov & Baron, 1990, 1992, 1995; Spranca, Minsk, & Baron, 1991; Schweitzer, 1994, 1995). Previous studies have shown that affective reactions to decision outcomes are influenced by whether the outcome is the result of a decision to act or a decision not to act; generally the outcome produced by action results in more extreme affective reactions. It has also been found that outcomes that are the result of a change of the status quo result in more extreme affective reactions than outcomes that are the result of not changing the status quo. A number of studies have tried to disentangle these two effects

(e.g., Baron & Ritov, 1994; Ritov & Baron, 1992; Schweitzer, 1994). Although the focus of the present research is on the role of responsibility in regret, we also manipulated the initial section the students were assigned to (cf. Connolly *et al.*, 1997). This initial condition could be seen as a status quo, and may serve as a reference point with which the obtained outcome can be compared. Moreover, deviations from the status quo can be seen as actions in the student choice conditions, but not in the computer reassignment conditions. In this way our experiments can also be regarded as relevant to status quo and action/inaction effects. The differences in affect between the different levels of initial condition within the computer assignment condition reflect a pure change of status quo effect. However, the difference in affect between the different levels of initial condition within the student choice condition reflect both the change of status quo effect and the action/inaction effect (because here the change of status quo involves an action of the student). By comparing these two conditions we can see how much the action/inaction effect adds to the change of status quo effect (Schweitzer [1994] argued that these effects are additive). What do our results show?

First, they show that the conclusions one draws are very much dependent on whether initial condition is manipulated as a within or between-subjects factor. In Experiment 2, where we manipulated initial condition as between-subjects factor, we found no reliable effects of initial condition. Thus, the initial condition only mattered when information was provided about another actor whose initial status quo was different. This suggests that action/inaction effects and status quo effects are dependent on comparison processes. This is in line with findings recently reported by N'gbala and Branscombe (1997); they also failed to find action/inaction effect in a between-subjects design, and suggested that action/inaction effects might be due to a comparative judgment process that is induced by the use of a within-subject manipulation of action/inaction. If N'gbala and Branscombe's alternative account for action/inaction effects is correct, it may also apply to change of status quo effects, since we found no evidence of these effects when this factor was manipulated as a between-subjects factor.

Second, if we limit ourselves to Experiment 1, in which action/inaction effects and status quo effects were found, our results show that the conclusions that can be drawn are different for the different emotions. The happiness data of Experiment 1 show the same change of status quo effects in both the student choice condition and the computer assignment condition, suggesting that action/inaction effects do not add something to the change of status quo effects. But when one considers the regret data, the action/inaction effect clearly did add significantly to the change of status quo effect.

In sum, our results suggest that the existence of these effects is dependent on whether factors are manipulated within-subjects or between-subjects. Moreover, the success of attempts to disentangle action/inaction effects from status quo effects may depend on the specific dependent variable under investigation. These findings have clear implications for future research that tries to disentangle these effects.

One could question whether the focus on specific emotions that we adopt illuminates psychological processes as opposed to linguistic ones. That is, does the fact that results vary depending on the emotion being assessed inform us about the psychology of emotions and their role in decision making, or does it simply show that people know when to use a given emotion word? We wish to argue that it is informative about psychological processes. The focus on specific emotions is important because each emotion has its own characteristic phenomenology (e.g., Frijda *et al.*, 1989; Roseman, Wiest, & Swartz, 1994). This is also true of regret and disappointment, the two emotions that are most relevant in the context of decision making (Zeelenberg *et al.*, 1998a). These differences in phenomenology suggest that the two emotions play different roles in decision making. Being specific about which emotion one is investigating is not only important when identifying factors that influence that specific emotion. Such specificity is also important because of the differential effects on decision making that different emotions may have. This is what we turn to next.

Implications for Decision Making

The influence of the anticipation of emotions on decision making is the topic of regret and disappointment theories (Bell, 1982, 1985; Loomes & Sugden, 1982, 1986). There is now ample evidence that anticipated regret influences decision making. For example, Simonson (1992) asked consumers to imagine the regret they would feel after choosing between two options and then finding that the rejected option would have been the better one. Asking consumers to generate these behavioral-prefactuals made them more likely to purchase an item that would shield them from this possible regret (i.e., a higher-priced, well-known brand), over a potentially better item (a less expensive, but lesser-known brand) (see Richard *et al.*, 1996, for similar findings). Central in current research on regret is the concept of feedback on unchosen options. It has been found that people choose in such a way that they avoid feedback that could result in regret (e.g., Larrick & Boles, 1995; Ritov, 1996; Ritov & Baron, 1995). Zeelenberg *et al.* (1996; see also Inman & Zeelenberg, 1998; Zeelenberg & Beattie, 1997) have shown that the anticipation of regret can promote risk-seeking as well as risk-avoiding choices, depending on which choice would minimize the possible regret. Thus, the anticipation of regret results in choices that protect the decision maker from possible feedback about foregone opportunities.

There is less research on anticipated disappointment. We predict, however, a relationship between the anticipation of this emotion and risk aversion. Bell's definition of disappointment as a "psychological reaction to an outcome that does not match up to expectations" (Bell, 1985, p. 1) implies that risky options have much potential to create disappointment (Inman, Dyer, & Jia, 1997; van Dijk & van der Pligt, 1997). Safe options leading to a certain outcome that is known in advance carry no risk of disappointment. One already knows the outcome, and therefore the outcome *is* the expectation. Outcomes of risky options, by contrast, can fall short of the expectation level, thereby resulting

in disappointment. For this reason, the anticipation of disappointment should reduce the amount of risk that individuals are willing to take.

When people make decisions they may anticipate the emotions they could experience as a consequence of those decisions. As the present research has shown, some factors may amplify one emotion, without influencing another emotion. The same factor can even attenuate a third emotion. This suggests that the influence of emotions on decision making is very much dependent on the specific emotion that one is anticipating. Someone who anticipates regret might be inclined to make conventional decisions that are (because they are conventional) accompanied by less responsibility. Not feeling responsible for decision outcomes is one way to protect yourself from regret. Someone who anticipates disappointment, by contrast, might take steps to gain control and thereby enhance a sense of responsibility, because negative outcomes over which you had little control give rise to more disappointment than identical outcomes over which you had control. These are predictions that could be tested in future research.

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