The effect of perceived advantage and disadvantage on the variability and stability of efficacy beliefs

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Abstract

We examined the effect of perceptions of advantage and disadvantage on the variability and stability of efficacy beliefs in a competition. Perceptions of advantageous or disadvantageous opening position were experimentally manipulated (keeping the actual positions equal) and pre- and post-competition efficacy beliefs were observed. Perceiving an advantage resulted in more variability and less stability in efficacy beliefs. These results are explained by the higher sensitivity of the advantaged to the experiences of the competition.

Keywords: self-efficacy, external efficacy, situational perception, competitive performance.

1 Introduction

Consider two competitors whose opening positions are seemingly dissimilar yet substantially identical. One player, called the advantaged party, believes that her position offers better chances of winning, and the other, the disadvantaged party, believes that her position offers worse chances of winning. Two recent papers showed that — keeping actual advantage or disadvantage constant — the perception of advantage or disadvantage in a competition has profound effects on efficacy beliefs. It can lead to increased probability of winning among the advantaged participants and decreased probability among those who perceive themselves as disadvantageed (Stirin, Ganzach, Pazy & Eden, 2012), and it can lead to a decrease in efficacy beliefs among the advantaged (Ganzach, Stirin, Pazy & Eden, 2016). The focus of the current paper is on a third consequence of perception of advantage/disadvantage — the effect of advantage/disadvantage on the variability and stability of efficacy beliefs. We show that competition leads to higher variability and lower stability of efficacy beliefs among the advantaged than the disadvantaged.

Following recent developments in the conceptualization of efficacy beliefs, in the current paper we distinguish between self-efficacy and external efficacy. Self-efficacy refers to the individual's belief in his or her capacity to mobilize the internal resources needed to execute the performances that are required to accomplish a task successfully (Bandura, 1997, 1977). External efficacy refers to individuals' beliefs about available outside resources (e.g., tools, equipment, effective guidance or support, favorable work-

ing conditions, superior starting points or other facilitators that are important for achieving success; see Eden, 2001), and their perceptions that such resources may aid — or hinder — performance. Indeed, numerous recent studies suggests that self-efficacy and external efficacy are distinct constructs that have distinct effects and that changing one does not change the other (Chen, Westman & Eden, 2009; Du, Shin & Choi, 2015; Eden, Ganzach, Granat-Flomin & Zigman, 2010; Hannah, Avolio, Walumbwa & Chan, 2012; Simmons, Payne & Pariyothorn, 2014; Staufenbiel, Lobinger & Strauss, 2015; Koriat & Gelbard, 2014; Langford & Reeves, 1998; Walumbwa, Avolio & Zhu, 2008; Urbig & Monsen, 2012; Walumbwa, Cropanzano & Goldman, 2011; Yin, Lee, Jin & Zhang, 2013. See Stirin, et al., 2012, pp. 2–5 for a detailed discussion). In the current study, we view the perception of advantage and disadvantage as an example of external efficacy.

Our predictions regarding the difference between advantaged and disadvantaged are based on the idea that from the very beginning of the competition the psychological burden on the advantaged is heavier than that on the disadvantaged. Because the natural expectation of the advantaged is to win, his experience is aversive: vis-â-vis this high expectation the advantaged can only fail. Because the natural expectation of the disadvantaged is to fail, his experience is pleasant: vis-â-vis this low expectation the disadvantaged can only succeed. Since negative experiences leads to more intense belief change than positive experiences (e.g., Abele, 1985; Lau, 1984; Weiner, 1985, 1986), we predict that the information relevant to the formation of efficacy beliefs which is extracted from the competition has a stronger effect on the belief changes of the advantaged than the disadvantaged. As a result, the magnitude of the belief changes of the advantaged will be greater than the magnitude of the belief changes of the disadvantaged; this difference leads to to

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higher variability and lower stability of the efficacy beliefs of the former than the latter. Appendix I presents a formal model of this prediction.

Our prediction regarding the difference between advantaged and disadvantaged in the variability and stability of efficacy beliefs is also consistent with prospect theory's concepts of reference point and loss aversion (Kahneman & Tversky, 1979, Tversky & Kahneman, 1991). Because the natural expectation of the advantaged participant is to win, her reference point is winning the game; because the natural expectation of the disadvantaged participant is to lose, her reference point is losing (see Koszegi & Rabin, 2006, for a detailed analysis of reference points as expectations regarding the most likely outcome). Consequently, the advantaged participant perceives the competition in terms of loss (in comparison to her reference point she can only lose) whereas the disadvantaged participant perceives the competition in terms of a gain (in comparison to his reference point he can only win). Since losses loom larger than gains, the experience of the advantaged is more potent than the experience of the disadvantaged.[1] In other words, although the range of objective outcomes is similar for the advantaged and disadvantaged (it varies from winning to losing), the range of subjective (emotional) outcomes is larger for the disadvantaged. Thus, for example, the subjective difference between winning and losing, as well as the subjective difference between easy win and difficult win, are larger for the advantaged than for the disadvantaged. The former difference is associated with a higher outcome-related variability (i.e., the subjective difference between advantaged winners and advantaged losers is larger than the subjective difference between disadvantaged winners and disadvantaged losers). The latter is associated with a higher variability even when the outcome is kept constant (the subjective difference between an easy win and a difficult win is larger for advantaged than for disadvantaged).

2 Method

2.1 Overview and research design

We took an experimental approach to the study of the effect of perceived advantage and disadvantage. We manipulated perceived advantage, keeping actual advantage constant. (The data collected in this experiment were the basis for two additional papers: Stirin et al., 2012, and Ganzach et al., 2016). We informed subjects that they either have a superior initial position (the advantaged group) or an inferior

position (the disadvantaged group), and compared the variability and stability of these two groups. However, since the results of the competition — whether the competitor won or lost — has a major impact on efficacy beliefs, a simple comparison between advantaged and disadvantaged can be misleading as among the advantaged there were more winners than among the disadvantaged (Stirin et. al., 2012). Therefore, to distinguish between the effect of winning/losing from the effect of advantage/disadvantage, we also compared the advantaged to the disadvantaged within a framework of 2 x 2 design in which initial position is crossed with the outcome of the game. (Note however, that this is not an orthogonal design, as only the advantage/disadvantage factor was manipulated while outcome was observed.)

2.2 Participants

Participants were 384 students from grades five and six in two elementary public schools. All fifth and sixth graders present on that day participated. We randomly assigned students to 192 pairs. One in each pair was randomly assigned to an advantaged opening position and the other was assigned to a disadvantaged opening position. Four participants were dropped from the analyses because of missing data.

2.3 Procedure

The experiment took place in home classrooms, and lasted for two 50-minute sessions. The participants perceived the experimenter to be an expert in mind games, because she had served as a judge in an earlier mind games competition at their schools (see Bandura, 1977, for the importance of source credibility when using verbal communication to augment efficacy beliefs). She introduced herself as a representative of a company that specialized in developing educational mind games. She described "Abalone" and said that it was a game that would be used in the school enrichment program (it indeed was subsequently used), and explained the rules of the game. Abalone is a two person board game that requires strategic thinking similar to that needed in checkers and chess. She then administered the first questionnaire which measured self-efficacy. Participants were next randomly assigned to pairs, and each participant in each pair was randomly assigned to one of two initial positions, which (as verified in a pilot study) are equally strong. The initial position treatment was delivered next. The experimenter announced that one position had an advantage. She showed a board with prearranged white and black pieces and explained: "As you can see, in this game the two starting positions are not identical as they are in other mind games. These positions not only look different, they are in fact not equal. The position of the player using black pieces is much better than that of the player using white pieces. He or she

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[1]Interestingly enough, there are some studies that examined the effect of losses versus gains on the stability of risk attitudes. Yechiam and Telpaz (2013) found that losses lead to more stability in risk attitudes than gains (see also Baucells & Villasis, 2010). On the other hand Schneider (1992) found that gains lead to more stability than losses (see also Budescu., Kuhn, Kramer & Johnson, 2002)

has a considerable advantage which he or she can utilize. The advantage results from the difference in the pattern of the pieces, which gives an advantage to the player using black pieces in both offense and defense." Black and white was counter-balanced with regard to starting position and advantage/disadvantage. (The experiment included also a position framing manipulation in which advantage [disadvantage] was communicated by informing subjects that they had advantage [disadvantage] or that the other player had disadvantage [advantage]. This manipulation did not have an effect on our dependent variables and therefore the results were collapsed over these two framing conditions).

After delivering the treatment, the experimenter drew the two starting positions on the blackboard, gave one game set to each pair, and asked to place the pieces on the boards according to the positions drawn on the blackboard. After making sure that all the starting positions were correctly arranged, the experimenter administered the second questionnaire, which measured external efficacy. Participants then played the game for about half an hour on average. After the game ended, the experimenter recorded each player's outcome (won or lost) and the post-game self-efficacy and external efficacy questionnaires were then administered. Two weeks later we conducted a debriefing session.

To summarize, participants first completed the pre-game measure of self-efficacy. Then the experimenter presented Abalone, randomly assigned participants to pairs and to opening positions, and delivered the starting position treatment. Following the delivery of the experimental treatment, the pre-game external efficacy was measured. Participants next played the game followed by the measurement of the outcome and the post-game self-efficacy and external efficacy.

2.4 Measures

External efficacy was measured twice, before and after the game, with Eden et al.'s (2010) instrument. A short introduction stated: "Different opening positions contribute in varying degrees to winning the game. Please indicate the extent to which each of the following statements is true of your opening position." Five 5-point Likert scale items (1=disagree, 5=agree) followed. Examples are: "My opening position provides me with a real advantage in the game", "My opening position makes it easier to attack my competitor." The five items were averaged to create an external efficacy score ranging from 1 to 5. Coefficients α were .86 and .94 before and after the game.

Self-efficacy was measured twice with a six-item scale (Maurer & Pierce, 1998). A short introduction stated: "People have different beliefs about their ability in various domains. Think about your ability in mind games. Please indicate the extent to which each of the following statements

Table 1: Mean change, standard deviations (in bold) of changes, and n (in parenthesis) of efficacy beliefs of advantaged and disadvantaged by game outcome.

	Self-efficacy		External efficacy	
	Advantaged	Disad-vantaged	Advantaged	Disad-vantaged
Won	-0.10, **0.81**	0.20, **0.50**	0.12, **0.79**	-0.10, **0.45**
	(131)	(61)	(131)	(61)
Lost	-0.67, **0.79**	-0.01, **0.34**	-0.56, **0.94**	-0.28, **0.46**
	(61)	(131)	(61)	(131)
Total	-0.28, **0.84**	0.06, **0.41**	-0.10, **0.90**	-0.23, **0.46**
	(192)	(192)	(192)	(192)

is true of you." Examples are: "I usually win this kind of game" and "I can easily win many mind games." Five-point scale (1=disagree, 5=agree) followed. The six items were averaged to create a self-efficacy score ranging from 1 to 5. Coefficients α were .77 and .90 before and after the game.

Change in efficacy beliefs. We assessed change in efficacy beliefs by subtracting the pre-game measurement of the belief from the post-game measurement.

3 Results

3.1 The variability of efficacy beliefs

Appendix II presents means, standard deviations and correlations of efficacy beliefs before and after the game.

Our analyses focus on *changes* in efficacy beliefs. Table 1 presents the means and the variabilities of *changes* in self-efficacy and in external efficacy in our two experimental conditions, as well as the variabilities in each of the four cells of the 2 x 2 design framework. The data in this table indicate that the variability of changes in efficacy beliefs was higher among the advantaged than among the disadvantaged. The standard deviation of changes in efficacy beliefs of the advantaged group is significantly larger than this of the disadvantaged group [0.84 vs. 0.41, F(191,191)=4.2, p<.0001 for self-efficacy, and 0.90 vs. 0.46, F(191,191)=3.8, p<.0001 for external efficacy].

In part, this difference is due to the outcome of the competition having a stronger effect on the advantaged than on the disadvantaged. Winning versus losing had a stronger impact on the advantaged than the disadvantaged. The gap between the mean change in self-efficacy of advantaged winners and losers was 0.57 [-0.10 — (-0.67)] whereas for disadvantage it was only 0.21 [0.20 — (-0.01)], p<.01 for the null hypothesis of no difference between the gaps. The gap be-

tween the mean change in external efficacy of advantaged winners and losers was 0.68 [0.12 — (−0.56)] whereas for disadvantaged it was only 0.18 [−0.10 — (−0.28)], p<.001 for the null hypothesis of no difference between the gaps.

However, as Table 1 indicates, the difference in variabilities between advantaged and disadvantaged occurs also when the outcome of the competition is held constant. All four possible comparisons between the advantaged and disadvantaged indicated higher variability among the advantaged than among the disadvantaged. For self-efficacy, the variability of the advantaged winners (0.81) was higher than the variability of the disadvantaged winners (0.50), and the variability of the advantaged losers (0.79) was higher than that of the disadvantaged losers (0.34). For external efficacy the variability of the advantaged winners (0.79) was higher than the variability of the disadvantaged winners (0.45), and the variability of the advantaged losers (0.90) was higher than that of the disadvantaged losers (0.46). All these four comparisons were significant (p<.01). Thus, the difference between the variability of advantaged and disadvantaged is due not only to the former's higher sensitivity to the outcome of the game (as evidenced by the differences between the means of winners and losers) but also to their higher sensitivity to experiences not associated with this outcome (as evidenced by the differences in the within-cells variabilities). It seems that the information that subjects extract from their experience has a stronger impact on advantaged than disadvantaged, no matter if they won or lost.[2]

Finally, as expected, the post-game variabilities, rather than the pre-game variabilities, drive the differences between advantaged and disadvantaged in the variability of belief changes. The differences in the post-game standard deviations between advantage and advantage were large and significant both for self-efficacy (0.86 vs. 0.64, F(191,191)=1.80 , p<.0001) and for external efficacy (0.79 vs. 0.52, F(191,191)=2.3, p<.0001). On the other hand, the differences in pre-game variabilities between the advantaged and disadvantaged were small. For self-efficacy, there was no significant difference with regard to self-efficacy (0.68 vs. 0.61, F(191,191)=1.24, p>.05. This is indeed expected by the experimental randomization (the pre-game

Table 2: Stability correlations of advantaged and disadvantaged by game outcome.

	Self-efficacy		External efficacy	
	Advantaged	Disad-vantaged	Advantaged	Disad-vantaged
Won	0.06	0.49	0.01	0.64
Lost	0.41	0.86	− 0.44	0.55
Total	0.42	0.78	− 0.02	0.59

Note: Correlations above .40 are significant at the .01 level. For n's see Table 1.

self-efficacy was measured before the manipulation was delivered). For external efficacy, there was a relatively small, though significant, difference — the pre-game variability of the advantaged was significantly lower than that of the disadvantaged (0.41 vs. 0.51, respectively F(191,191)=1.55, p<.01). This can be explained by the effect of the experimental manipulation, which carried a negative valence for the disadvantaged (but not for the advantaged). Note, however, that this difference in pre-game variability cannot explain the larger variability of changes in external efficacy of the advantaged, since it can only decrease, rather than increase, the variability of changes among the advantaged.

3.2   The stability of efficacy beliefs

Table 2 presents the stability correlations, the correlation between the pre-game and post-game measurements of efficacy beliefs (higher correlations indicate higher stability). It is apparent from this table that the stability correlations were higher for the disadvantaged than for the advantaged. For self-efficacy these correlations were .78 and .42, respectively, and for external efficacy they were .59 and − .02, respectively (Z=5.8, p<.0001 and Z=6.8, p<.0001, respectively, for testing the null hypothesis of no difference between the correlations).

This difference in the stabilities of efficacy beliefs between the advantaged and disadvantaged also holds when we keep the outcome of the game constant. As evident from Table 2, for each level of the outcome, the stability correlations were smaller for the advantaged than the disadvantaged (p<.001 for all four comparisons).

Together, these results are consistent with the view that the experience of winning and losing, as well as other, more idiosyncratic, experiences affect the efficacy beliefs of the advantaged more than the efficacy beliefs of the disadvantaged.

Finally, three additional characteristics of the stability of efficacy beliefs emerge from the current results. First, the stability of self-efficacy was higher than that of external ef-

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[2]The data in Table 1 also rule out the possibility that ceiling or floor effects drive the effect of advantage/disadvantage on variability. Take for example the advantaged who won. Although the average mean change of this group, both of self-efficacy and of external efficacy, was small and non-significant, the variability of changes within this group was very large. In general, if ceiling/floor effects were the reason for differences in variability, we would expect that wining vs. losing, which is strongly associated with mean change in efficacy-beliefs, will also be strongly association with variability. But as evident from Table 1, this is not the case. All the comparisons between the variabilities of winners and losers that have the same initial condition are non-significant. We also examined plots of the sorted (i.e., ordered by rank) pre-game values of efficacy beliefs against the sorted post-game values and found that the largest differences were in the middle-to-low end of the range, not in the proportion of cases at or near the ceiling, hence inconsistent with a ceiling effect.

ficacy (for disadvantaged, .42 versus –.02, Z=4.6, p<0.001; for the advantaged, .78 versus .59, Z=3.6, p<0.001, for the disadvantaged). These differences reflect a greater tendency to make external than internal attributions, making internal attribution more stable. Second, self-efficacy was more stable for losers than for winners (for advantaged, .41 versus .06, Z=2.4, p<.05; for disadvantaged, .86 vs. .49, Z=4.8, p<.001). This is consistent with the idea that losing leads to more external attribution than winning, keeping internal attribution more stable. Third, the stability correlations of external efficacy among advantaged was very low, and even negative, suggesting that, following the competition, the advantaged, unlike the disadvantaged, completely rejected the information they received about their initial position. This difference is explained by self-serving biases.

4   Discussion

The perception of advantage and disadvantage has considerable effect on the variability and stability of efficacy beliefs, both external and internal. In comparison to disadvantage, advantage leads to more variable and less stable efficacy beliefs. The advantaged are wafted leafs, easily changing their external efficacy, developing distinctive views about their initial position. And in comparison to the disadvantaged, they tend to lose a firm sense of their identity, changing their self-efficacy in various directions, not necessarily related to the natural conclusions they should have drawn from the information they were exposed to during the competition (e.g., winning vs. losing).[3]

These differences are consistent with the idea that advantage, more than disadvantage, acts to make people more sensitive to the experiences of the competition. Some of these experiences are idiosyncratic and depend on the specific unfolding of each competition. But some are common and shared by all competitors. One such common experience is the outcome of the competition. Indeed, as evidenced by the larger difference between advantaged winners and losers than by disadvantaged winners and losers, part of the difference in variability and stability between the advantaged and disadvantaged can clearly be attributed to more sensitivity of the former to the experience of winning vs. losing. However, as evidenced by the differences between advantaged and disadvantaged, when the outcome is kept constant there are experiences other than the outcome of the competition that lead to these differences. What are these outcome-unrelated experiences? One such experience may be associated with differences in the effort invested in the competi-

tion. For some winners winning was easy, whereas for others it was difficult. For some losers, loss occurred despite a great effort, whereas others did not invest much effort. As the advantaged are likely to be more sensitive to the effort invested than the disadvantaged, a difference between effortful or effortless winning/losing may have a larger impact on changes in efficacy beliefs of the advantaged than the disadvantaged. Furthermore, many other outcome-unrelated experiences, some of them external (e.g., the behavior of the competitor) and some of them internal (the thoughts and feelings that emerge during the competition) are also likely to play a part in creating advantage-disadvantage difference in variability and stability.

So far, most, if not all, studies on the effect of experience on efficacy belief focused on directional changes in efficacy beliefs. In our experiment, there are also factors that clearly affect the direction of efficacy beliefs. The experience of winning on efficacy beliefs is more positive than the experience of losing and the effect of effortless winning/losing is likely be more positive than the effect of effortful winning/losing. Similarly, the experience of advantage and disadvantage may also have a directional effect on efficacy beliefs (the effect of advantage on self-efficacy is less positive than the effect of disadvantage. See Ganzach et al. ,2016). However, as the current paper shows, in addition to its directional effect on efficacy beliefs, the perception of advantage and disadvantage have also a substantial effect on the variability and stability of these beliefs.

As a demonstration of the distinction between the effect of perceived advantage on the direction of efficacy beliefs and its effect on the variability and stability of these beliefs, consider changes in the external efficacy of the advantaged (Table 1). The directional effect of advantage on change in external efficacy was relatively small, but its effects on the variability and stability were large. Similarly, among winners, advantage had negligible effect on the directional effect of change in self-efficacy but a large effect on the variability and stability of changes self-efficacy. In both cases although the mean change was small, the individual changes were characterized by both large positive and large negative changes and led to inconsistency between initial and final beliefs.

From a methodological perspective, it is helpful to distinguish between a between-groups and a within-groups effects of advantage/disadvantage on the variability and stability of efficacy beliefs. In our 2 x 2 analysis design, the between-groups effect is associated with differences in means between winners and losers within each of our two experimental groups; that is, with a larger difference between winners and losers among the advantaged than the disadvantaged. On the other hand, the within-groups effect of advantage/disadvantage on the variability and stability of efficacy beliefs is associated with differences between advantage and disadvantage in the within-groups variabilities, i.e., in dif-

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[3]Interestingly enough, there are some studies that examined the effect of losses versus gains on the stability of risk attitudes. Yechiam and Telpaz (2013) found that losses lead to more stability in risk attitudes than gains (see also Baucells & Villasis, 2010). On the other hand Schneider (1992) found that gains lead to more stability than losses (see also Budescu, Kuhn, Kramer & Johnson, 2002).

ferences in variabilities when the outcome is kept constant. As our discussion above suggests, the origin of the between-groups effect is apparent — the outcome of the competition. The origin of the within-groups effect is more ambiguous. It may be related to the subjective feeling of the difficulty of the competition or to other idiosyncratic experiences that affect advantaged more than disadvantaged.

Two aspects of the experiment distinguish it from most real life situations. First, the experience of most of our participants in the subject area (strategic board games) was limited, and therefore their efficacy beliefs were weak and easily changed. In most real life situations, efficacy beliefs are deep rooted and advantage or disadvantage cannot easily affect them. Second, situations in which perceived advantage or disadvantage are entirely unrelated to actual advantage or disadvantage are rare. For example, although it is commonly believed that perceived psychological advantage [disadvantage] plays a major role in the better [worse] performance of home [visiting] teams, it is clear that actual advantages and disadvantages also play a role here (e.g., Courneya & Carron, 2010). Indeed, in most situations perceived advantage and disadvantage are created based on "real" actual advantage or disadvantage. In such situations it is hard to tease apart the effect of real advantage/disadvantage from the effect of the perception of advantage/disadvantage. It is our view, however, that even if actual advantage or disadvantage exists, mere perceptions have important effects on efficacy beliefs in general, and on stability and variability of these beliefs in particular.

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Appendix I

We present a formal model of the influence of the intensity of causal attribution on the variability and stability of efficacy beliefs. Let E_1 and E_2 be the efficacy belief before and after the game, respectively. Let I be the "objective" information to which competitors are exposed during the competition that is relevant to change in efficacy beliefs. We assume that E_2 is determined by E_1, and by I:

$$E_2 = \alpha + \beta E_1 + \gamma bI \quad (1)$$

Where β is a parameter representing the effect of E_1 on E_2, and γ represents the influence the effect of the information on beliefs change. Our model suggests that γ is higher for the advantaged than for the disadvantaged participants (for simplicity we assume that there is no error in equation 1). Below we show that if γ is larger for advantaged competitors, for these competitors the variability of efficacy beliefs is higher and the stability is lower.

The effect of advantage/disadvantage on the variability of efficacy beliefs. Changes in efficacy beliefs are given by:

$$\Delta E = E_2 - E_1 = (\beta - 1)E_1 + \gamma I \quad (2)$$

And the variability of ΔE is given by

$$Var(\Delta E) = (\beta - 1)^2 Var(E_1) + \gamma^2 Var(I) \quad (3)$$

Equation 3 suggests that, for a larger γ (i.e., for advantaged players), there will be a higher variability in changes in efficacy beliefs than for smaller γ (i.e. for disadvantaged).

The effect of advantage/disadvantage on the stability of efficacy beliefs. Our operationalization for belief stability is **r**, the correlation between E_1 and E_2. When E_1 and I are not correlated, **r** is given by the slope of E_1 multiplied by the square route of the ratio between the variance of E_1 and the variance of E_2. Since from equation 1 the variance of E_2 is given by:

$$Var(E_2) = a^2 Var(E_1) + \gamma^2 Var(P) \quad (4)$$

The stability correlation is given by:

$$\mathbf{r} = \beta \sqrt{\frac{Var(E_1)}{Var(E_2)}} \quad (5)$$

And by substituting (4) into (5) we obtain:

$$\mathbf{r} = \beta \sqrt{\frac{Var(E_1)}{\beta^2 Var(E_1) + \gamma^2 Var(E_1)}} \quad (6)$$

Equation 6 suggests that for a large b (i.e., for the advantaged player) the stability correlation is low than for smaller b (i.e., for the disadvantaged player).

Appendix II: Descriptive Statistics and inter-correlations.

	Mean	STD	1	2	3
Advantaged winners					
1. SE1	4.30	0.60	--		
2. SE2	4.20	0.58	**0.06**	--	
3. EE1	4.19	0.42	0.14	0.31	--
4. EE2	4.31	0.68	0.41	0.14	**0.01**
Disadvantaged winners					
1. SE1	4.14	0.51	--		
2. SE2	4.34	0.47	**0.49**	--	
3. EE1	2.33	0.58	0.09	0.35	--
4. EE2	2.23	0.43	-0.11	0.00	**0.64**
Advantaged losers					
1. SE1	3.67	0.67	--		
2. SE2	3.00	0.77	**0.41**	--	
3. EE1	4.03	0.35	-0.22	0.14	--
4. EE2	3.47	0.73	-0.09	-0.25	**0.44**
Disadvantaged losers					
1. SE1	3.91	0.62	--		
2. SE2	3.89	0.65	**0.86**	--	
3. EE1	2.04	0.45	0.07	0.13	--
4. EE2	1.76	0.48	0.11	0.34	**0.51**

Note: n = 130 for Advantaged and n = 62 for Disadvantaged. Stability correlations are in bold face. SE1 and SE2 are, respectively, the self-efficacies before and after the game. EE1 and EE2 are, respectively, the external-efficacies before and after the game.