Moroccan-Dutch adolescents' emotional functioning : in between cultures?

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Bicultural and Monocultural Adolescents' In-Vivo Responses when Provoked by a Peer

In this study we examined bicultural and monocultural adolescents' reactions in a lab-controlled in-vivo aggravating situation. Fifteen-year-old Moroccan-Dutch (n=92) and Dutch (n=75) adolescents played a computer game in which the peer-teammate acted provokingly. Adolescents' reported anger intensity and chat-reactions were analyzed. In contrast to previous research using teachers' and parents' reports, the findings show that negative or aggressive reactions are not more frequent in Moroccan-Dutch adolescents than in their Dutch peers. In fact, barely any differences in reaction styles emerged between the two groups, implying that bicultural adolescents externally regulate their emotions similarly to peers from the dominant culture. We also examined the influence of two indices of personality characteristics (self-esteem and sense of coherence) on adolescents' response styles. The results show differences in implications of both indices between Moroccan-Dutch and Dutch adolescents, suggesting group variations in the meaning of personality characteristics in their daily lives.

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Introduction

Given the increasing number of bicultural youngsters growing up in Western societies today, such as in the Netherlands (Dutch Central Bureau of Statistics, 2010), research on their social, emotional, and psychological functioning has become increasingly important. These individuals face the challenge of integrating contradicting cultural norms, values, and expectations regarding appropriate behavior. Regulating negative emotions is one of the key tasks involved in navigating smoothly within a cultural context. Previous studies focusing on behavioral problems suggest that bicultural youngsters are less able to regulate their negative emotions effectively within the dominant culture than their monocultural peers (Stevens et al., 2003; Vollebergh et al., 2005). However, inconsistent findings regarding differences between the bicultural and monocultural youngsters arise when including different informants, such as parents, teachers, or the adolescents themselves. The aim of the present study was to examine bicultural adolescents' external emotion regulation in-vivo by comparing Moroccan-Dutch and Dutch adolescents' communication styles in a real-life aggravating situation, taking into account two possible mediating effects of indicators of personality (sense of coherence and self-esteem).

Regulating negative emotions appropriately, such as frustration and anger, is one of the critical tasks children must develop in order to obtain and maintain social relationships. As they get older, children learn that is it not always desirable to express negative emotions to the extent that they are felt (Cole, 1986; Harris, Donnely, Guz, & Pitt-Watson, 1986). Instead, so-called display rules guide children when, where, and how to express emotions in accordance with the expectations of the (cultural) environment (Novin, Banerjee, Dadhkah, & Rieffe, 2009; Saarni, 1999). In time, children's emotion expressions become increasingly regulated by internalized display rules. Previous studies show that older children and adolescents have more control over their negative emotions than younger children (Von Salisch & Vogelgesang, 2005). Where younger children are more likely to opt for a confrontation, adolescents are more likely to negotiate, reconcile, or use humor.

The learning effect of whether and how negative emotions are expressed is well documented in cross-cultural research. Although cross-cultural scholars acknowledge that cultures do not entirely consist of a homogeneous population, emotion expressions of one cultural group differ from another, thereby reflecting dominant cultural models (Mesquita & Albert, 2007). Cultural models are often differentiated according to central norms and values regarding the position of the self against others, also known as

the individualism-collectivism distinction (Hofstede, 1980; Oyserman & Lee, 2008; Triandis, 1995).

Individualistic-oriented cultures, such as the Dutch, are said to centralize individuals and to foster personal concerns and wishes and autonomy and independence of the self (Gelfand, Bhawuk, Nishii, & Bechtold, 2004; Markus & Kitayama, 1991; Rispens, Hermans, & Meeus, 1996). Honesty and directness in communication are highly appreciated, while at the same time individual differences are tolerated. Dutch children for example are taught to speak up for themselves, even if this may be unpleasant for another person (Stephenson, 1989). Conversely, collectivistic-oriented cultures, such as in Morocco, are said to centralize the self in relation to others and to foster relatedness, connectedness and dependence (Kim, Triandis, Kagitčibasi, Choi, & Yoon, 1994). In traditional Moroccan childrearing, modesty, good manners, conformism, respect, and social responsibility in social interaction have a central focus (Nijsten, 1998; Pels, 1998).

Consistent with these cultural models, previous studies indicate cultural differences in both children and adult populations in expressing negative emotions, such as anger, fear and sadness. These emotions are more likely to be suppressed during social interaction in collectivistic-oriented than in individualistic-oriented cultures, as they clearly emphasize personal needs that might jeopardize harmonious relationships (e.g., Cole, Bruschi, & Tamang, 2002; Gross & John, 2003; Matsumoto, 1990; Matsumoto, Yoo, & Chung, 2010; Novin et al., 2009). When anger is expressed in both types of cultures, research shows that children from collectivistic-oriented cultures are more likely to express negative emotion with more subtlety to peers than their counterparts from individualistic-oriented cultures, who in turn are more likely to display their emotions directly and bluntly (Novin, Rieffe, Banerjee, Miers, & Cheung, 2011). Although parents in Western cultures do not promote overt aggressive responses, these responses are more likely among children from individualistic-oriented cultures than from collectivistic-orientated cultures (e.g., Deffenbacher & Swaim, 1999; Zahn-Waxler, Friedman, Cole, Mizuta, & Hiruma, 1996).

The present study contributes to previous studies in several ways. First, our knowledge concerning cross-cultural differences in emotion expression mostly stems from studies comparing Western and East Asian populations. Surprisingly little attention has been given to emotions and emotional behavior in North African and Middle Eastern countries. Yet, in West-European societies today, most immigrant populations find their origin in these regions. For example, Moroccan immigrants, comprising nearly 350,000 people, belong to the second largest immigrant group in the Netherlands (Dutch Central Bureau of Statistics, 2010).

One recent study focusing on adolescents' anger communication using hypothetical conflict situations with a peer reveals cross-cultural differences between Moroccan adolescents living in Morocco and Dutch adolescents living in the Netherlands as can be expected from Moroccan and Dutch cultural models. Although no cultural differences were revealed with respect to expected anger intensity, the manner in which it was displayed did differ. Compared to their Dutch peers, Moroccan adolescents were more likely to express their dissatisfaction subtly, whereas Dutch adolescents were more likely to react directly or aggressively, explicitly trying to reinstate their personal goals (Novin & Rieffe, under review).

Second, the present study and that of Novin and Rieffe, go beyond the examination of cross-cultural differences between countries. Instead, our focus is on individuals who are faced with contradicting expectations and desires regarding emotional behavior in the parental and dominant culture. Little is known about the emotional development of bicultural adolescents. Yet, Moroccan-Dutch adolescents receive much attention in empirical studies concerning externalizing behavioral problems, suggesting that they have more difficulties regulating negative emotions than their Dutch peers.

Although studies show that teachers report more externalizing problems among Moroccan-Dutch than Dutch adolescents (Stevens et al., 2003), differences in externalizing problems between these adolescents do not appear in self-reports. For example, the outcomes in the study by Novin and Rieffe (under review) show that Moroccan-Dutch adolescents barely differed from their Dutch peers in self-reported anger communication. Moreover, the only group difference found was that not Moroccan-Dutch, but Dutch adolescents were more likely to respond aggressively. In another study examining Moroccan-Dutch adolescents' anger regulation styles by means of self-report (Novin, Banerjee, & Rieffe, under review) it was found that the use of anger regulation styles (acting out, anger verbalisation, anger reflection, and anger diversion) did not differ between Moroccan-Dutch and Dutch adolescents. In fact, their use of anger regulation styles differed in the same manner from the Moroccan group. In other words, these inconsistencies concerning Moroccan-Dutch adolescents' external emotion regulation compared to their Dutch peers might be related to different informants.

Therefore, our third contribution is to examine adolescents' external emotion regulation in a real life situation, by means of their written reactions in a computerized experiment with a peer-aggressor. This method has an important advantage over social desirability-sensitive self- and other-reports, as being more objective. Adolescents in this study played a computerized game

on the Internet for a desirable prize with a same-gender teammate of whom they thought to be another participant. In reality there was no other participant and the game was rigged. During the game participants were provoked by the game and chat reactions of the fictitious teammate. The written reactions of the participants were analyzed.

Based on the descriptions of individualistic-Dutch and collectivistic-Moroccan cultural models, one could expect that Moroccan-Dutch adolescents would less often criticize the peer and use aggressive language than their Dutch peers, who are more likely to stand up for their personal concerns. However, based on previous teacher-reports focusing on externalizing behavior, one could also expect that Moroccan-Dutch adolescents' communication styles would be more aggressive, self-defensive, and less positive than those of their Dutch peers. Further, in line with other studies using self-reports one would expect no differences between the Moroccan-Dutch and Dutch reactions in provoking situations (Novin et al., under review).

Fourth, we included two indices of personality (sense of coherence and self-esteem) which are known to be related to the expression of negative emotions and could play a mediating role in the effect of cultural background on expression styles. A person's sense of coherence, referring to perceiving situations as understandable, predictable, and controllable (Antonovsky, 1991), is associated with less anger and with constructive anger expression (Julkunen & Ahlström, 2006; McSherry & Holm, 1994). Self-esteem is also found to have positive effects, due to its relation to more anger control (e.g., Arslan, 2009). In turn, individuals with low self-confidence are more easily angered and are more likely to behave aggressively and defensively due to feelings of self-dislike and self-doubt. As Bushman and Baumeister argue: they 'have nothing to lose' (1998, p.219). High levels of self-esteem, however could also contribute to display of anger in an overtly aggressive manner (e.g., Baumeister, Smart, & Boden, 1996; Schröder-Abé, Rudolph, & Schűtz, 2007). Criticism may be easily perceived as threatening to the inflated positive self-view, making it justifiable to lash out at someone.

The relationship between sense of coherence, self-esteem, and anger expression styles is likely to be dependent on the target group. Nunn and Thomas (1999) for example show that for men low self-esteem is associated with aggressive anger display, whereas for women low self-esteem is related to suppression of anger or directing it inwards. In a similar vein, low self-esteem and low sense of coherence might strengthen cultural emotion patterns, for example more confrontational reactions for the Dutch group and more passive reactions for the Moroccan-Dutch group.

Although it was not our main concern, we took gender into account in our analyses. In line with previous studies (e.g., Underwood, Hurley, Johanson, & Mosley, 1999), it is likely that boys are more likely to respond with negative comments to the peer after being provoked than girls, whereas girls might more often give self-blaming or other self-negative responses.

Method

Participants

Participants were 92 Moroccan-Dutch (47 boys; mean age= 15 years and 7 months; SD=8 months) and 75 Dutch (43 boys; mean age= 15 years and 6 months; SD=7 months) adolescents. The participants were recruited from schools in 5 large cities in the Netherlands, where they were educated at preparatory secondary vocational or intermediate level. All Moroccan-Dutch adolescents had at least one parent who was born in Morocco (92% of the Moroccan-Dutch adolescents' parents were both born in Morocco). All Moroccan-Dutch adolescents were second-generation immigrants: born in the Netherlands or moved to the Netherlands before their tenth birthday. Although all Moroccan-Dutch adolescents were fluent in Dutch, 25% reported speaking only Arabic or Berber at home. The majority of the Moroccan-Dutch adolescents reported speaking both Dutch and Arabic or Berber at home (54%). The Dutch adolescents and both their parents were born in the Netherlands. Socio-economic status of the groups was measured using the Family Affluence Scale (Currie, Elton, Todd, & Platt, 1997), which has been found to be a valid indicator of adolescents' socio-economic status (Boyce, Torsheim, Currie, & Zambon, 2006). The SES of the Moroccan-Dutch group was significantly lower compared to the Dutch participants. The sample originally consisted of 174 adolescents, but 12 participants were excluded because they either did not fall into the Moroccan-Dutch or Dutch group, or because they had noticed that the computerized reactions were pre-programmed.

Computer Game with Peer-Aggressor

A computer game was designed for this study to examine adolescents' responses in aggravating situations with a peer-aggressor. Participants were asked to play a computer game with an unknown peer of the same age, whom they thought was another participant at another school in a different city. During the instruction, participants were told that the aim of the study was to investigate how youngsters cooperate with an unknown peer over the Internet. Participants were informed that by cooperating well their team could earn many points and that the team with the highest score would win 50 Euros.

Participants were randomly assigned to the condition of playing in a team with a Dutch or a Moroccan-Dutch peer. In reality, the game was 'rigged' and no other peer was involved. However, to make the game more realistic, a photograph of the teammate was displayed in the game interface, as often is the case with online games. The photograph was of either a Dutch or a Moroccan-Dutch same-gender peer with a corresponding Dutch or Moroccan name. In turn, a webcam photograph of the participant was taken and uploaded for the fictitious teammate.

Before the game began, the objectives and rules of the game were displayed on the laptop-screen. Participants were told that they would see moneybags popping on and off the screen and that the objective was to fill the treasure box with moneybags by quickly catching and moving them with the computer mouse. The team with the most moneybags in their treasure box would win. The participant and the fictitious teammate then took turns for four rounds lasting approximately 20 seconds each. The fictitious teammate went first and when it was the participant's turn, the moneybags changed color. During their teammate's turn the participant could follow actions "real-time" on-screen. Chat messages could be sent and received throughout the game.

The game was played in the main field of the screen; the fictitious teammate's picture and name were shown on the top right of the screen. Below this the current score and remaining time were presented. The chat interface, where the fictitious teammate's reactions were presented and where participants were able to react to the teammate, was placed on the lower right.

Since the aim of this study was to examine adolescents' reactions in an aggravating situation, the game was programmed so that the fictitious teammate made antagonizing remarks and acted provokingly at preprogrammed moments. A great advantage of a standardized computer game is that each participant is confronted with the same provoking remarks and actions at the same time points during the game. For ethical reasons provoking comments were not personal but related to only game playing. Provoking comments started for example with 'hey, I really need that money!' and 'You can do better' and ended for example with 'you're as slow as a turtle' and 'it's really annoying you ruined the game and it's your fault I didn't win the money'. Typos and typical chat term were included in the teammate's comments to increase validity. The first round was a practice round, in which the teammate played according to the game's objectives and made no provoking statements. After the practice round, participants were asked to indicate their anger mood on a 5-point scale from 0= '*not at all*' to 4= '*very much*'. The fictitious teammate's actions then became more antagonizing until the teammate clearly was deliberately ruining the game, i.e.,

by moving the moneybags to different parts of the screen rather than to the treasure box. At the end of the game, participants were again asked to rate their anger mood on the 5-point scale and were given the opportunity to write a final message to their teammate.

Debriefing

Immediately after finishing the game, participants were thoroughly and fully debriefed with the aim of removing any negative effects of the teammate's negative comments and actions during the game. They were explicitly told that the game was programmed: that there was no other peer playing the game and that the comments and actions were computerized. Participants were explained that the real aim of the study was to examine adolescents' responses to aggravating situations and that they would not respond the way that they did if they knew the real aim beforehand. They were told that their chat messages would be used in the study and that their reactions would be treated anonymously. Their consent for using their responses was explicitly requested. None of the participants refused. The participants were told that they could still win the 50 Euro's, because it would be raffled among all participating youngsters. After the debriefing, participants were asked whether they had noticed that the game had been rigged. Eight participants responded positively to this question.

Coding of the responses

In total, participants could provide written responses at five time points, once after each round of the game (1-4) and in their final message at the end of the game. Based on previous research examining children's verbal responses in an actual anger-provoking situation (e.g., Underwood et al., 1999), participants' responses were coded with reference to six categories: *no response* (no written response), *positive* (no aggravation is expressed by reacting positively, talking neutrally about the game or something else, e.g., 'come on, you can do it' or 'this game is fun' or 'are you Moroccan?'), *game-negative* (negative comments about the game, e.g., 'it is difficult' or 'my mouse doesn't work well'), *self-negative* (negative comments about one's own performance or ability or self-defensive remarks, e.g., 'I'm not good at the game' or 'I'm doing the best that I can'), *other-negative* (negative comments about how the other is playing or what the other is saying, which include scaffolding, threatening, swearing, or provoking, e.g., 'you are not playing so well yourself' or 'you should be encouraging me, not being so unkind' or ''haha, now you don't get your money'). Note that the categories were not exclusive, since participants responses could reflect more than one of the categories.

All responses were coded by two independent judges, which revealed Cohen's kappa varying from .68 (round 2) to .93 (round 1). Disagreements were resolved through discussion.

Questionnaires

Feelings of control. Adolescents' sense of coherence was measured using the *Sense of Coherence* scale (SOC; Torsheim, Aaroe, & Wold, 2001; Dutch translation Jellesma, Meerum Terwogt, & Rieffe, 2006). The scale consists of 13 items. Participants are asked to respond to statements on a 5-point scale from 1 (*almost never*) to 5 (*almost always*). An example of an item is: 'How often do you have the feeling that you are in an unfamiliar situation and don't know what to do?' Two items that are recoded have a different response format from 1 (*like it a lot*) to 5 (*don't like it at all*). The internal consistencies for each cultural group in this study were good (Table 1).

Self-esteem. The *Rosenberg Self-Esteem Scale* (Rosenberg, 1965; Dutch translation by Van der Linden, Dijkman, & Roedens, 1983) assessed the extent to which adolescents feel confident and self-worthy. The scale consists of 10 items that are rated on a 4-point scale ranging from 0 (*strongly disagree*) to 3 (*strongly agree*). Examples are 'Generally I am content about myself' and 'Sometimes I think I am not good in anything'. Table 1 shows good internal consistencies for each group.

Table 1
Internal Consistency, Mean and Standard Deviation for the Sense of Coherence Scale and Rosenberg's Self-Esteem Scale by Cultural Group

Questionnaire		Dutch		Moroccan-Dutch	
	No. of items	α	*Mean* (*SD*)	α	*Mean* (*SD*)
SOC	13	.79	3.43_2 (.45)	.84	3.64_1 (.60)
Self-Esteem	10	.90	2.08_2 (.55)	.81	2.29_1 (.49)

Note. Means in the same row that do not share subscripts differ at $p < .05$.

Procedure

The computer game was played alone in a quiet room in the participant's school during or after school hours. In order to ensure that participants would not be talking to their classmates about the game until all participants had finished playing, participants were not only urged to not inform the other participants, but they were also placed in another classroom to complete the personality questionnaires making sure that they did not see their classmates. When all participants in one class played the game, they could return to their class or go home. The study

was approved by the Ethical Commission of the Social Science Faculty of Leiden University.

Results

Self-reported intensity of happiness and anger

In order to examine how adolescents felt during the provoking peer-situation, the means of the self-reported happiness and anger intensities were calculated *before provocation* (after round 1) and *after provocation* (after round 4). A 2 (cultural group: Moroccan-Dutch vs. Dutch) x 2 (gender) x 2 (emotion: happiness vs. anger) x 2 (time: before vs. after provocation) ANOVA was conducted. Since both adolescents' emotion experiences and responses were not sensitive with respect to whether they were playing with a Dutch or a Moroccan-Dutch peer, we collapsed these two conditions in all analyses. The ANOVA revealed a main effect of emotion, $F(1, 159)=118.95$, $p<.001$, *partial* $\eta^2=.43$, which was qualified by an Emotion x Time interaction, $F(1, 159)=47.84$, $p<.001$, *partial* $\eta^2=.23$. Although overall, adolescents reported to feel happier than angry (*Mean*=1.51, *SD*=.98; *Mean*=.46, *SD*=.69, respectively), their happiness decreased (from *Mean*=1.71, *SD*=1.00 to *Mean*=1.26, *SD*=1.31), whereas their anger increased (from *Mean*=.18, *SD*=.63 to *Mean*=.71, *SD*=1.13) by the provoking situation. No significant effects for cultural group or gender were found.

Adolescents' chat responses

In order to quantify adolescents' chat responses we counted the number of times these responses fell into each of the above-described categories. We separately calculated the mean frequency *before* the peer started to make provoking comments (in round 1) and *during and after* the peer started to make provoking comments (round 2, 3, 4, and the end message) to examine the effect of provocation.

Adolescents' chat responses were analyzed by means of a 2 (cultural group) x 2 (gender) x 2 (time: before and after provocation) x 5 (expression: no response, positive, game-negative, self-negative, other-negative) analysis of variance. This analysis revealed main effects of time, $F(1, 163)=9.44$, $p<.001$, *partial* $\eta^2=.06$, and expression, $F_{GG}(2.22, 361.39)=89.27$, $p<.001$, *partial* $\eta^2=.35$, which were qualified by a Time x Expression interaction effect, $F_{GG}(2.64, 430.63)=56.36$, $p<.001$, *partial* $\eta^2=.26$. In general, adolescents were most likely to respond with positive or neutral responses and least likely to respond with negative comments about the game (Table 2). However, responses were sensitive to time. Before the provoking remarks of the fictitious teammate, adolescents were more likely to respond positively to the teammate or to only make negative

remarks about the game than after the time the teammate had made provoking remarks. After provocation by the teammate, adolescents were more likely to give self-negative or other-negative responses.

Table 2
Means (SDs) of Responses as a Function of Time

	Total	Before provocation	After provocation
No Response	.24 (.26)	$.25_1$ (.44)	$.24_1$ (.27)
Positive	.42 (.26)	$.68_2$ (.47)	$.36_1$ (.29)
Game-negative	.07 (.14)	$.12_2$ (.32)	$.06_1$ (.14)
Self-negative	.14 (.17)	$.04_2$ (.19)	$.16_1$ (.21)
Other-negative	.27 (.22)	$.01_1$ (.08)	$.34_2$ (.27)

Note. Means in the same row that do not share subscripts differ at $p < .05$.

Table 3
Means (SDs) of Responses as a Function of Cultural Group

	Before provocation		After provocation	
	Dutch	Moroccan-Dutch	Dutch	Moroccan-Dutch
No Response	$.19_1$ (.39)	$.30_1$ (.46)	$.28_1$ (.30)	$.21_1$ (.25)
Positive	$.77_1$ (.42)	$.60_2$ (.49)	$.36_3$ (.29)	$.36_3$ (.29)
Game-negative	$.11_1$ (.31)	$.11_1$ (.33)	$.08_{12}$(.16)	$.05_2$ (.12)
Self-negative	$.03_3$ (.16)	$.04_3$ (.21)	$.13_2$ (.17)	$.19_1$ (.23)
Other-negative	$.00_2$ (.00)	$.01_2$ (.10)	$.32_1$ (.26)	$.35_1$ (.25)

Note. Means in the same row that do not share subscripts differ at $p < .05$.

With respect to group differences, the analysis revealed a Cultural Group x Time x Expression interaction, $F(2.64, 430.63)=4.82$, $p<.01$, *partial* $\eta^2=.03$. As can be seen in Table 3, although the response pattern within the two cultural groups did not differ on most response categories, Dutch adolescents were more likely to respond positively before being provoked than their Moroccan-Dutch peers, and Moroccan-Dutch adolescents were more likely to respond self-defensively or give negative comments about themselves after being provoked than Dutch adolescents. No main or interaction effects for gender were found.

Sense of coherence, self-esteem, and adolescents' responses in a provoking situation

Next, we examined the extent to which Moroccan-Dutch and Dutch adolescents' sense of coherence and self-esteem contributed to their response styles in a provoking situation. Sense of coherence and self-esteem were positively related in the Moroccan-Dutch and Dutch group, $r=.31$, $p<.01$; $r=.33$, $p<.01$,

but are not in violation of the multicollinearity assumption (Tabachnick & Fidell, 2007).

We conducted five hierarchical regression analyses (MRAs), using each response style after being provoked as the dependent variable. Cultural Group as a dummy score (-1= Moroccan-Dutch and 1= Dutch), Gender as a dummy code (-1=boy and 1=girl), Sense of Coherence, and Self-Esteem were entered in the first step as the independent variables and the interactions Cultural Group x Sense of Coherence and Cultural Group x Self-Esteem were entered in the second step (Table 4). All predictor variables were centered (Aiken & West, 1991).

Table 4
Standardized Beta's (β's) for Variables Predicting Responses Styles after Provocation

	No Response	Positive	Game-negative	Self-negative	Other-negative
Step 1					
Cultural Group	.23**	-.07	.12	-.20**	-.11
Gender	.06	-.05	-.07	.18*	-.04
SOC	.20*	-.00	.04	-.19*	-.23**
Self-Esteem	-.11	-.16	.04	-.01	.21*
R^2_{adj}	5.9%	0.3%	0.4%	6.2%	5.4%
Step 2					
Cultural Group	-.18	.47	.14	-1.41*	.73
Gender	.07	-.06	-.02	.22*	-.07
SOC	.08	.19	-.20	-.23*	-.19
Self-Esteem	.02	-.41**	.16	-.23	.33*
Culture x SOC	-	-.30**	.18***	-	-
Culture x Self-Esteem	-	.35**	-	.87*	-
R^2_{adj}	7.2%	6.1%	6.2%	14.9%	6.1%

Note. For ease, only significant interactions are described in the table.
* $p < .05$. ** $p < .01$. *** $p < .001$

First, the MRA with non-responses as a dependent variable found a positive effect for cultural group, indicating that being a Dutch adolescent is related to more frequent non-responses. In addition, while controlling for cultural group and gender, a unique positive relation was found for sense of coherence, indicating that the higher adolescents' sense of coherence the more frequently they did not respond.

Second, the MRA with positive responses as dependent variable indicated that adolescents' self-esteem is related to fewer positive responses. However, the significant interaction of self-esteem and cultural group indicates that this relation was only found for the Moroccan-Dutch adolescents and not for their Dutch

peers (β's -.35 and -.01, respectively). Additionally, in both the MRA with positive responses and negative responses about the game, a significant interaction of sense of coherence and cultural group was revealed. Sense of coherence was associated with fewer positive responses and more negative responses about the game for the Dutch group (β's -.30 and .34, respectively), whereas the reverse was found for the Moroccan-Dutch adolescents. In this latter group, sense of coherence was related to more positive responses and fewer negative game responses (β's .17 and -.23, respectively).

The MRA with self-negative responses as a dependent variable found independent effects for cultural group and gender. Being a Moroccan-Dutch adolescent and being a girl is related to more self-negative responses. Furthermore, the analysis showed a unique negative relation for sense of coherence, indicating that the higher adolescents' sense of coherence, the fewer self-negative responses were reported. Additionally, a significant interaction effect for cultural group and self-esteem was found, showing that self-esteem is negatively associated with self-negative responses in the Moroccan-Dutch group, but positively associated in the Dutch group (β's -.18 and .20, respectively).

Finally, the MRA with other-negative responses as a dependent variable revealed a unique negative relation for sense of coherence and a unique positive relation for self-esteem. Independent of cultural group, sense of coherence is related to fewer other-negative responses, whereas self-esteem is associated with more of these responses.

Discussion

Despite increasing immigrant populations in western countries, little is known about bicultural adolescents' emotional functioning. Previous studies comparing Moroccan-Dutch with Dutch adolescents' behavioral problems show inconsistent findings regarding their external emotion regulation depending on the informant (parents, teachers, or adolescents themselves). By creating a lab-controlled real-life situation with a computerized peer-conflict paradigm, this study strengthens earlier self-report studies by showing that Moroccan-Dutch adolescents' reactions barely differ from those of their Dutch peers (Novin & Rieffe, under review). In contrast to teachers' reports, Moroccan-Dutch adolescents do not react negatively or aggressively to the peer more often than their Dutch peers. Instead, they were more likely to react negatively towards themselves. In addition, some interesting cultural group differences in the contribution of personality factors (sense of coherence and self-esteem) on adolescents' reactions emerged: these suggest distinguishing

psychological processes between bicultural and monocultural youngsters.

One could argue that the absence of group differences could be a result of the experimental set-up that had not fooled the participants. However, in order to emphasize the validity of the experiment, we have two remarks. First, data from participants who reported having noticed that the game was programmed were excluded from the analyses. Second, a prerequisite of the study concerned the ability to provoke negative emotions in adolescents by means of our computerized peer-conflict paradigm. And indeed, provocation was reflected in the adolescents' self-reported anger intensity as well as in their reactions to the peer-aggressor. More specifically, adolescents reported feeling significantly more angry after being provoked than before. Furthermore, prior to provocation adolescents frequently reacted positively or with game-talk, whereas after provocation their reactions more often reflected negative self- or other-statements.

Note that about 25% of the time, adolescents did not respond with written responses to the peer. This percentage is lower than in previous experimental studies with middle school-aged children (Underwood et al., 1999), perhaps because adolescents are less afraid to communicate with an unknown peer than younger children or because our study design did not included face-to-face interaction with the peer. Scholars have suggested several explanations for a relative high non-response rate. First, not responding might be a safe reaction in conflict situations, reflecting adolescents' awareness that anger expressions could have negative consequences in a social relationship. Second, some adolescents might not react because they are too surprised about the inappropriate and unjustifiable reactions of the peer. Future research could explore adolescents' justifications for their reactions by asking about their motives afterwards.

The above described reaction patterns did not differ between the Dutch and the Moroccan-Dutch group. We only found two group differences concerning the frequency of reaction styles. First, Dutch adolescents were more likely to react positively than their Moroccan-Dutch peers before provocation by the unknown peer. Perhaps Dutch adolescents are taught, inherently to Dutch cultural characteristics, to be more open and positive in the start of a new social contact than their Moroccan-Dutch peers. However, further research is needed to confirm this possibility. Another possibility relates to the bicultural position of the Moroccan-Dutch adolescents. The complex position these adolescents face might increase passive reactions rather than open ones in new social situations, avoiding a prominent role.

This could also explain why, in contrast to the Dutch group, Moroccan-Dutch adolescents reacted more often in a self-

defensive manner or with negative comments about their performance after being provoked. This response style reflects a higher sensitivity to criticism, despite the fact that Moroccan-Dutch adolescents rated a higher level of self-esteem than their Dutch peers. Perhaps, Moroccan-Dutch adolescents interpreted peer-comments as more personal; it would be interesting to examine the extent to which these differences in interpretations are subject to child factors (e.g., psychopathology, friends), migration factors (e.g., ethnic identity and acculturation patterns), family factors (e.g., parental psychopathology and SES), and school factors (e.g., attending multicultural schools) (Stevens, Vollebergh, Pels, & Crijnen, 2005).

Note that our findings are in contrast to outcomes in other studies where teachers reported more behavioral problems among Moroccan-Dutch than Dutch adolescents (e.g., Stevens et al., 2003). Although we examined adolescents' reaction patterns only in a specific conflict situation with an unknown peer, our study shows Moroccan-Dutch adolescents did not react more negatively or aggressively than their Dutch peers and that the reaction styles of both Moroccan-Dutch and Dutch adolescents were not influenced by the ethnicity of the unknown peer. These findings are consistent with self-reports concerning Moroccan-Dutch and Dutch adolescents' external emotion regulation and emotion expression (Novin & Rieffe, under review; Novin et al., under review). These differences in results might be due to differences in social setting, where teachers observe adolescents' behavior at school, in the context of friends and classmates, whereas in our study adolescents were interacting without other people observing. The chance of losing face in front of others was not applicable in our study. In order to examine reaction styles more broadly, future research could include reactions styles in situations with teachers and with other peers as observers.

In contrast to our expectations, none of the reaction patterns described above were moderated by gender. On the one hand this suggests that our response categories may have been too broad to reveal gender differences. Negative comments to the other, for example, included negative comments about the other's play or communication, which could either be expressed in a non-aggressive (e.g., 'relax, it's just a game) or in an aggressive manner (e.g., 'haha, now you don't get your money!!'). Although aggressive reactions were outnumbered in this category (6%), in a different anger-provoking game or in a naturalistic setting these responses might indeed be more likely among boys than girls. The outcomes of the regression analyses are more consistent with our hypotheses, showing that being a girl provided was related to self-negative reactions.

We also examined the influence of adolescents' sense of coherence and self-esteem on their reaction styles after

provocation. Independent of cultural group, adolescents' sense of coherence was significantly associated with more non-responses and fewer self-negative and other-negative responses. Apparently, feeling more control over a situation is associated with more adaptive anger and frustration regulation. This outcome underlines Julkunen and Ahlström's study (2006) among adults, showing that sense of coherence is related to constructive anger expressions.

Sense of coherence, however, showed different associations with reported positive reactions and game-talk for the Dutch and the Moroccan-Dutch group. Feelings of control were related to more positive reactions and to less negative game-talk for the Moroccan-Dutch group. For the Dutch group, in contrast, a stronger sense of coherence was associated with fewer positive reactions and more negative game-talk. These different implications for adolescents' sense of coherence could to due to a different interpretation of the construct. Feelings of control in Moroccan-Dutch adolescents might be more related to maintaining harmonious relationships with others, by providing comforting and positive reactions to the peer. In contrast, Dutch adolescents' sense of coherence might be more related to personal concerns in a situation, standing up for oneself, thus making positive reactions less likely and comments on external factors, such as the game, more probable. We propose that in all cross-cultural research it would be meaningful to compare the interpretation of psychological concepts between cultural groups.

Furthermore, self-esteem in both groups was related to more criticism to the aggressor-peer. On the one hand this outcome could mean that adolescents with high self-esteem perceive provocation as criticism of their positive self-view and consequently feel justified acting out (e.g., Baumeister et al., 1996; Schröder-Abé et al., 2007). On the other hand, criticizing the other does not necessarily have to reflect aggressive, acting out responses. Instead, when expressed in a non-aggressive manner, it could be constructive in social situations, indicating the positive influence of self-esteem on constructive anger expressions (e.g., Arslan, 2009). As noted earlier, although our category 'other-negative responses' included aggressive responses, these responses were outnumbered. Which explanation is more plausible, might be dependent on the cultural group. For example, the findings show that self-esteem is linked to fewer self-negative and self-defensive reactions for the Moroccan-Dutch, but to more of these reactions for the Dutch group. Perhaps it is more important to protect one's self-esteem for the Dutch than for the Moroccan-Dutch group. Previous research has shown that self-esteem might influence psychological constructs differently, depending on cultural factors. Diener and Diener (1995) for example found that the relation

between high self-esteem and high life satisfaction is moderated by individualism. It might be worthwhile to address cross-cultural differences and similarities regarding the relation between self-esteem and behavior in future research.

This study has several limitations that future research could address. First, the presented findings are based on adolescents' written communication with the peer. Although the chat-messages provide insight in adolescents' external regulation strategies, additional observational and physiological measures such as facial expressions, gestures, heart rate and cortisol levels could provide a broader picture of adolescents' external emotion regulation. Furthermore, although adolescents played the computer game alone, without observers, their reactions on the computer might differ from those in other naturalistic settings where the aggressor can be seen. Following this line of thinking, it is plausible that adolescents' reactions are dependent on who is observing (e.g., peers versus adults).

Second, the correlational nature of our results prevents us from drawing conclusions regarding the causal effects of personality factors on response styles. Our suggestions concerning the relations between the variables were based on theoretical assumptions that were indicated by previous research. Yet, longitudinal data is needed to strengthen our theoretical notions about the cause and effect relationships between adolescents' sense of coherence, self-esteem and response styles in a peer-conflict situation.

Third, the aim of this study was to compare bicultural and monocultural group of adolescents. Given that the results have not been replicated in other mono-cultural and bicultural groups, caution should be given to the generalization of the results. Furthermore, although we could theorize about the effects of (bi)cultural background on the found differences, this was not systematically studied. Future research could activate mono-cultural or multicultural mindsets in adolescents before presenting them an emotional expression task. Further, the use of different age groups within the proposed research design, including younger children, could explore the changes in emotion of bicultural youngsters from a developmental perspective. It is for example plausible that primary school Moroccan-Dutch children's response patterns show more similarities to those of their monocultural Moroccan peers than to those of their monocultural Dutch peers. These suggestions for future research could help us understand the similar reaction patterns of Moroccan-Dutch and Dutch adolescents, as found in the present study.