Expectancies and Development. The Effects of the Social Environment on Relating to One's Performance: An Experimental Study on Undergraduate Students

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Abstract
The present study relies on the basic assumption that individual differences in attachment are involved in organizing one's experience by means of the cognitive-affective models represented by the internal working models of relationships. Suggestion is conceptualized as a special modality of social influencing,[1] which is ubiquitous in all relationships and works through the activation of cognitive-affective schemata. We examined the effects of controlling versus informative feedback on the size of improvement in performance on a mental states recognition test in a group of psychology students, as well as the involvement of adult attachment in these effects. Results are discussed mainly in terms of educational implications.

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Introduction

Individual differences in adult attachment

Recent research suggests that adult attachment can be better represented by a bidimensional (orthogonal) model than by a model of three or four categorical schemes.[2] [1] Figure 1 illustrates both the

[1] Lars-Gunnar Lundh, "Normal Suggestion. An Analysis of the Phenomenon and Its Role in Psychotherapy", *Clinical Psychology and Psychotherapy* 5 (1998): 24–38.

[2] Kelly A. Brennan, Catherine L. Clark and Phillip R. Shaver, "Self-Report Measurement of Adult Attachment", in *Attachment Theory and Close*

orthogonal and diagonal dimensions with poles corresponding to the attachment styles proposed by Bartholomew.

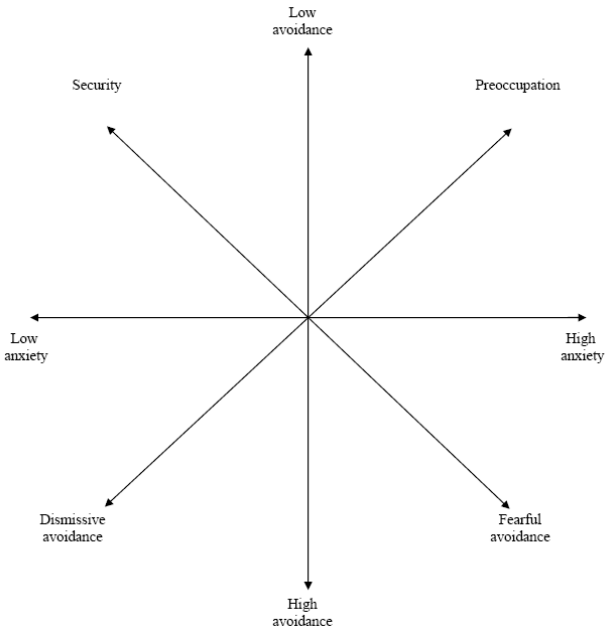

Fig. 1. The bidimensional model of individual differences in attachment in children and adults[2]

Fraley and Shaver[3] described avoidance and anxiety dimensions of attachment as functionally distinct systems; thus, while the expressions of avoidance manifest themselves mainly in the behavioural

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Relationships, eds. Jeffry. A. Simpson and W. Steven Rholes (New-York: Guilford Press, 1998), 46–76, 51.

[1] Dale Griffin and Kim Bartholomew, "Models of Self and Other: Fundamental Dimensions Underlying Measures of Adult Attachment", *Journal of Personality and Social Psychology* 67 (1994), 3: 430–445, 442.

[2] R. Chris Fraley and Phillip R. Shaver, "Adult Romantic Attachment: Theoretical Developments, Emerging Controversies, and Unanswered Questions", *Review of General Psychology* 4 (2000), 2: 132–154, 145.

[3] Fraley and Phillip R. Shaver, "Adult Romantic Attachment…", 146.

strategies used, the main component for anxiety during social interactions would be represented rather by experiencing the anxiety and relating to it. The dimension of attachment avoidance reflects the extent to which a person manifests mistrust in his/her partner, in the partner's good intentions, tries to rely mainly on him/herself, to maintain emotional distance from the partner, and resorts chronically to the so-called "deactivation" strategies in order to deal with the insecurity related to attachment. The second dimension, typically called "anxiety" reflects the extent to which a person is worried about his/her partner's availability (which is often experienced as a fear that the partner would not be at hand when he/she is needed), as well as the extent to which the person resorts chronically to the so-called "hyperactivation" strategies.[1] "Hyperactivation" and "deactivation" are secondary strategies, which means, strategies the individual "had to" develop since primary (inborn) strategies, consisting in the spontaneous search for intimacy and support in order to satisfy the needs for safety and protection, have been unsuccessful. Hiperactivation consists of intense efforts to obtain proximity to the attachment figure and to ensure this person's attention and support. The persons who resort to strategies based on hyperactivation seek intimacy and protection compulsively; they are greatly sensitive to the signs of a possible rejection or abandonment, and they tend to dwell on some presumed personal deficiencies or potential threats related to the relationship with the attachment figure. Deactivation means the inhibition of intimacy seeking tendencies and actions, as well as the suppression or ignoring of any threat which could activate the attachment system. The persons relying on such strategies tend to maximize the distance from others, they are ill at ease in situations of intimacy, they seek to affirm their personal resources, they rely on themselves in resolving problems and difficulties, and they resort to the suppression of distressful cognitions and memories.[2] Therefore, while the avoidant tendency implies the negative representation of others and an inclination to avoid intimacy, the anxiety tendency in attachment refers to negative representations of the self, as well as an inclination to worry

[1] Phillip R. Shaver and Mario Mikulincer, "Attachment Theory and Research: Resurrection of the Psychodynamic Approach to Personality", *Journal of Research in Personality*, 39 (2005): 22–45, 34–5.

[2] Mario Mikulincer and Phillip R. Shaver, "Attachment Security, Compassion and Altruism", *Current Directions in Psychological Science* 14 (2005), 1: 34–38, 34.

about the possibility of being rejected or abandoned.[1] According to Fraley and Shaver,[2] the dimension of anxiety represents sensitivity to rejection, while the dimension of avoidance represents the degree of comfort as depending on others. The persons obtaining low scores with regard to both dimensions of attachment are considered to have a basic sense of security and positive attachment relationships.[3] Therefore, in the bidimensional space of attachment, the quadrant corresponding to the attachment style based on low tendencies of both avoidance and anxiety is characterized by security and comfort related to intimacy in relationship, by interdependence, and by the ability to seek support, as well as the use of other constructive modalities for facing stress. The so-called "anxious style" (or "ambivalent style") is represented by the region in which the tendency to anxiety is high, while the avoidance tendency is low. This region is characterized by the lack of security in relationships, a very strong need for intimacy, a tendency to worry (about aspects of the relationship), and the fear of rejection. Bartholomew and Horowitz[4] refer to this type as "preoccupied" attachment. The "avoidant" style is represented by a region in which the avoidance tendency is high. This style is characterized by the lack of security related to attachment, compulsive self-confidence – and at the same time a compulsive pattern to rely on oneself, together with a preference for greater emotional distance in relationships. Relying on the bidimensional model proposed by Bartholomew, Bartholomew and Horowitz[5] made a distinction between the "avoidant-dismissing" style – characterized by a marked tendency of avoidance and low anxiety – and the "avoidant-fearful" style – characterized both by great anxiety and a high tendency of avoidance.

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[1] Mario Mikulincer, Omri Gillath and Phillip R. Shaver, "Activation of the Attachment System in Adulthood: Threat-Related Primes Increase the Accessibility of Mental Representation of Attachment Figures", *Journal of Personality and Social Psychology* 83 (2002), 4: 881–895, 882.

[2] Fraley and Shaver, "Adult Romantic Attachment: Theoretical …", 142–3.

[3] Mikulincer, Gillath and Shaver, "Attachment Security, Compassion and Altruism ...", 882.

[4] Kim Bartholomew and Leonard M. Horowitz, "Attachment Styles Among Young Adults: A Test of Four Category Model", *Journal of Personality and Social Psychology* 61 (1991), 2: 226–244, 227–8.

[5] Ibid., 227.

The working models of relationships – a basic criterion in shaping one's experience

Referring to the basic assumptions of attachment theory, DiTommaso et al.[1] emphasize that an individual's initial way of attachment is early established in his/her relationship with those who take care of him/her (especially with the primary caregivers), and this basic relationship will create a cognitive frame which, later on, after the period of early childhood, will shape the ways s/he will interact with others, as well as the information s/he will perceive.

The attachment behaviour is mediated by behavioural systems which become goal-corrected very early during the development. In planning and guiding these behaviours, we use both the representational models of self and of the relevant features of the environment.[2] For each of us the answer to questions such as "Who are my reference persons?", or "Where are they to be found?", as well as "How do I expect them to react?" is a key feature of the functional model of the other; at the same time, a fundamental characteristic of the model of self is the image we have about how acceptable/unacceptable we are in the eyes of persons important for us.[3] According to Bowlby,[4] the attachment system is based on those symbolic representations (the so-called "working models") of the important persons ("attachment figures"), and of environment, in general, as well as of the self, which are already stored and accessible within the system. Early experiences of an encouraging, supportive and cooperative environment confers a child confidence in the support of others, a well-defined "sense" of things, as well as a favourable model for building future relationships. Moreover, the support given to the child in confidently exploring his/her environment, and in facing effectively the challenges s/he meets represents an experience which promotes a sense of competence in the child.[5]

The earliest working models are formed in early childhood, mainly as a response to the interaction with parents or other important

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[1] Enrico DiTommaso et al., "Attachment Styles, Social Skills and Loneliness in Young Adults", *Personality and Individual Differences* 35 (2003): 303–312, 303.
[2] John Bowlby, *Attachment and Loss*, vol. III: Loss, Sadness and Depression (New York: Basic Books, 1980), 41.
[3] John Bowlby, *Attachment and Loss*, vol. II: Separation: Anxiety and Anger (Canada: Penguin Books, 1973/1975), 236.
[4] John Bowlby, *Attachment and Loss*, *vol. I: Attachment* (New York: Basic Books, 1969/1982), 373.
[5] Ibid., 378.

persons involved in the care of the child.[1] Main, Kaplan and Cassidy show that, as the individual develops, the models of the different attachment figures converge in forming some more generalized models of self and others, though the models of the specific attachment remain intact.[2] Bretherton describes the working models of attachment as "a set of developing multiple and interconnected hierarchical schemes" existing at different abstraction levels.[3] The working models of attachments are, therefore cognitive-affective constructs which develop in the course of the child-parent interaction, finally, the child extracting from these experiences a set of postulates regarding the way in which close attachments function in general, as well as in what way and to what extent we can rely on these in everyday life or when facing stress These models are relatively stabile constructs which operate outside conscience, guide one's behaviour toward one's parents, and influence expectancies, strategies and behaviour in further attachments. In this sense these models can be described as "prototypes".[4] During childhood and adolescence the working models of new attachments begin to develop on the basis of these new interactions. Theoretically, the new models are not totally independent from the former ones, since these affect the way in which the information on new persons and attachments is coded, interpreted and stored in memory, as well as re-actualized.[5] The working models of self and others are seen by Bowlby[6] as the main cause of the continuity between early attachment experiences and the cognitions, emotions and behaviours characteristic to later relationships. During childhood and adolescence the person has very consistent interaction patterns, thus the most representative working models are strengthened

[1] John Bowlby, "Psychoanalysis as a Natural Science", *Psychoanalytic Psychology* I, 1 (1984): 7–21, 10.
[2] Jeffry A. Simpson et al., "Working Models of Attachment, Support Giving, and Support Seeking in a Stressful Situation", *Personality and Social Psychology Bulletin* 28 (2002), 5: 598–608, 598.
[3] Sidney J. Blatt and Kenneth N. Levy, "Attachment Theory, Psychoanalysis, Personality Development, and Psychopathology", *Psychoanalytic Inquiry* 23 (2003), 1: 101–150, 105.
[4] Judith A. Crowell and Dominique Treboux, "A Review of Adult Attachment Measures: Implications for Theory and Research", *Social Development* 4 (1995), 3: 294–327, 296.
[5] Simpson et al., "Working Models of Attachment, Support Giving, and…", 598.
[6] Bowlby, "Psychoanalysis as a Natural Science", 13.

and become part of the person's (implicit) procedural knowledge.[1] Similarly to other mental schemata, the most (chronically) accessible working models become basic characteristics of the personality and tend to be applied in new situations and relationships; they can affect the functioning of the attachment system in general, as well as the course of subsequent social interactions, especially in the closest relationships.[2] The working models of attachment affect adult relationships by influencing expectancies and perceptions referring to the social environment, and one's relational behaviour in specific ways.[3] In line with these ideas, Anderson and Perris[4] emphasize that working models determine later in life the information type on which attention is primarily focused, as well as the way in which the information is interpreted/understood and recorded, becoming thus a main organizing principle of people's experience. Once created, such a working model tends to organize perception and to direct attention selectively in order to ensure its stability and self-perpetuation,[5] and to facilitate the preferential evocation of certain attachment types.[6]

Normal suggestibility

The term "suggestibility" is often used to explain a wide range of different phenomena, starting with hypnotic susceptibility, up to simple obedience.[7] Most frequently, suggestibility is defined as a

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[1] Shaver and Mikulincer, „Attachment Theory and Research: Resurrection …", 27.

[2] Ibid., 27.

[3] Linda C. Gallo and Timothy W. Smith, "Attachment Style in Marriage: Adjustment and Response to Interaction", *Journal of Social and Personal Relationships* 18 (2001), 2: 263–289, 264.

[4] Pentti Andersson and Carlo Perris, "Attachment Styles and Dysfunctional Assumptions in Adults", *Clinical Psychology and Psychotherapy* 7 (2000): 47–53, 47.

[5] Patrizia Vermigli and Alessandro Toni, "Attachment and Field Dependence: Individual Differences in Information Processing", *European Psychologist* 9 (2004), 1: 43–55, 44.

[6] Mark W. Baldwin et al., "Social-Cognitive Conceptualization of Attachment Working Models: Availability and Accessibility Effects", *Journal of Personality and Social Psychology* 71 (1996), 1: 94–109, 103, 106.

[7] Mitchell L. Eisen, Danielle Y. Morgan and Laura Mickes, "Individual Differences in Eyewitness Memory and Suggestibility: Examining Relations between Acquiescence, Dissociation and Resistance to Misleading Information", *Personality and Individual Differences* 33 (2002): 553–571, 554.

tendency to react in a particular way to suggestions.[1,2] Reviewing the relevant literature, Spiegel[3] shows that one widely accepted definition of suggestibility refers to it as the readiness to perceive and accept new information by the relative suspension of the usual critical judgement. Spiegel[4] shows that suggestibility is a process in which motivation, different personality traits, the context, the system of beliefs, as well as fears and trust will influence the extent to which one edits, and filters influences or accepts to be influenced and directed by others. Obviously, such definitions describe rather the outcome of a process, while, regarding its nature, it merely indicates the association of suggestibility with the relative suspension of the usual critical judgement.

Following Crawford and colleagues, as well as Dixon and colleagues, Di Clementi and colleagues[5] propose the definition of suggestibility in terms of information processing as a particular way of information processing characterized by selectivity and distortion, the latter meaning that relevant information cannot be accessed and incorporated in a balanced manner. In this context the term "distortion" must be understood as closely related to selectivity, namely, that in a suggestive context the suggestible person focuses his/her attention selectively on the suggested element, tending to exclude other elements present. This means that if suggestible reactions occur, the characteristic intense focus of attention involves the automatic information processing modality, and, implicitly, the ceasing of the controlled, and strategic processing. The less suggestible reaction means that one rather commits oneself to strategic reality testing procedures.[6] This position is in line with the one expressed by Gudjonsson[7], who shows that suggestibility is clearly connected to memory and information processing, to personality and situational factors.

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[1] Gisli H. Gudjonsson, *The Psychology of Interrogations and Confessions. A Handbook* (Chichester: John Wiley & Sons, Ltd., 2003), 336.
[2] Jeannie D. DiClementi, Karen B. Schmaling and James F. Jones, "Information Processing in Chronic Fatigue Syndrome. A Preliminary Investigation of Suggestibility", *Journal of Psychosomatic Research* 51 (2001): 679–686, 680.
[3] Herbert Spiegel, "The Power of Suggestibility", *Preventive medicine* 26 (1997): 616–621, 617.
[4] Ibid., 617.
[5] DiClementi et al., "Information Processing in Chronic…", 684.
[6] Ibid., 684–685.
[7] Gudjonsson, *The Psychology of Interrogations and Confessions…,* 414.

Lundh[1] introduces the construct of "normal suggestion" (or, we could say, "everyday suggestion"), referring to the suggestion carried willingly or unwillingly in the way people in different interpersonal contexts ask themselves questions, formulate statements or seek to encourage themselves. The author shows that suggestive influences are immanent to any human interaction, yet, in spite of this evidence, this domain is rather neglected in psychological research. It is impossible to participate in situations free of suggestive influences, therefore the identification of these suggestions, as well as of their effects, and the conditions in which such effects are either intensified, or reduced/annihilated has a special relevance, especially in the client-therapist type interactions.[2] Equally, we consider that these suggestions can be valuable instruments or, on the contrary, very dangerous ones in education (in the child-parent or pupil-teacher relationship), as well as in the context of patient-physician relationship; that is, especially in those relationships in which – by their nature – one of the parties is particularly vulnerable to the (positive and negative) influences coming from the other party.

Lundh[3] proposes to define suggestion – viewed as an interpersonal phenomenon – as *a certain type of social influence* based on the automatic activation of meaning structures (the cognitive-affective schemata) by the relative exclusion of critical-rational modalities of thinking. The suggestive process is understood as a communication form which realizes a process of interpersonal priming during which:

- one party (the "suggestor") influences intentionally or unintentionally another (the "suggestant") by means of verbal and non-verbal communication elements, and/or other contextual factors;
- the influencing process is produced in a way that the person receiving the suggestion takes over intentions, sentiments, convictions or wishes from the one transmitting the suggestion, and
- the influencing process relies on the automatic activation of meaning structures in the one who receives the suggestion.

[1] Lundh, "Normal Suggestion. An Analysis of…", 25, 35.
[2] Ibid., 31–32.
[3] Ibid., 25.

Suggestibility, expectancy, self-fulfilling prophecy

Non-hypnotic suggestibility is a multidimensional phenomenon. Woody, Drugovic and Oakman[1] show that measurements of this form of suggestibility do not correlate well among themselves, suggesting rather the existence of several distinct attributes of non-hypnotic suggestibility, than of a unitary construct of compliance–suggestibility. Despite the lack of homogeneity and the so far unrevealed nature of these different attributes, Woody and colleagues[2] consider that context based expectancies of participants may represent the common explicative mechanism of these effects. The construct of expectancy is based on the social learning theory, being an extension to this.[3] In a study investigating the factors which affect the students' performance in a course of statistics and research methodology the authors depart from Bandura's conception according to which a person's beliefs referring to his/her ability to obtain a certain level of performance greatly affect the person's actions.[4] The study emphasized that graduate students' expectancies referring to their global performance in the course of statistics and research methodology represented the most powerful predictor – besides anxiety regarding statistics – of their performance in this discipline.[5] Dafinoiu[6] defines expectancy as

> "the subjective probability or the implicit or explicit hypothesis regarding the appearance of a voluntary or non-voluntary result consequently to a certain behaviour; it has a special importance in the organization of the subject's cognitive field in the process of structuring the situation in which he/she is and in choosing the behaviour which will be actualized from the repertory of his/her potential behaviours."

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[1] Erik Z. Woody, Mira Drugovic and Jonathan M. Oakman, "A Reexamination of the Role of Non-Hypnotic Suggestibility in Hypnotic Responding", *Journal of Personality and Social Psychology* 72 (1997), 2: 399–407, 400.

[2] Ibid., 400.

[3] Pedro Hara Vera and Francisco Martinez Sanchez, "Hipnosis, hipnotizabilidad y expectativas de respuesta: Una revision critica", *Anales de Psicologia* 15, 1 (1999): 39–56, 39.

[4] Anthony J. Onwuegbuzie, "Modeling Statistics Achievement among Graduate Students", *Educational and Psychological Measurement* 63 (2003): 1020–1038, 1022.

[5] Ibid., 1032.

[6] Ion Dafinoiu, *Sugestie şi hipnoză* (Suggestion and Hypnosis) (Bucharest: Editura Ştiinţifică şi Tehnică, 1996), 58–9.

Closely related to the concept of expectancy is the notion of "self-fulfilling prophecy", which can be defined as "a process in which the plausibility of a situation involves an inherent tendency to its fulfilment".[1] Referring to the relationship between the constructs of suggestibility, expectancy and self-fulfilling prophecy, Dafinoiu[2] cites Gheorghiu, formulating the hypothesis that the mechanism of self-fulfilling prophecy is to be found explicitly or implicitly in all suggestive processes based on expectancy. These phenomena have mainly been studied in educational contexts, nevertheless, many data originated from the sphere of medical therapeutics, firstly referring to the implication of response expectancies in placebo effects,[3] and also to the effects of diagnosis itself as a self-fulfilling prophecy.[4] With respect to educational contexts, the investigation of these phenomena is related first of all to the famous experiment of Rosenthal and Jacobson (by whose work the concepts of "self-fulfilling prophecy" and "Pygmalion effect" were introduced in psychology). It is known that the classic experiment of Rosenthal and Jacobson highlighted the possibility that students' intellectual capacities may be developed better by furnishing a manipulated feedback which followed the investigation of the abilities in question. In this experiment the feedback was offered to the teachers who looked after those students, creating thus *certain expectancy* in the teachers towards the children's capacities and performances. This expectancy influenced the teachers' attitude towards the children, and this, in turn, was reflected in the children's attitude and expectancies towards their own capacities and performance, in the end the performance of these children being really superior.[5,6] In an extensive critical study which examined research data and extracted from there the

[1] Ibid., 21.
[2] Ibid., 21.
[3] Vilfredo De Pascalis, Carmela Chiaradia and Eleonora Carotenuto, "The Contribution of Suggestibility and Expectation to Placebo Analgesia Phenomenon in an Experimental Setting", *Pain* 96 (2002): 393–402, 400.
[4] Marcus J. H. Huibers and Simon Wessely, "The Act of Diagnosis: Pros and Cons of Labelling Chronic Fatigue Syndrome", *Psychosocial Medicine* 36 (2006): 895–900, 896.
[5] Robert Rosenthal, "Covert Communication in Classrooms, Clinics, Courtrooms and Cubicles", *American Psychologist* 57 (2002), 11: 839–849, 842–3.
[6] Robert Rosenthal and Leonore Jacobson, "Teachers' Expectancies: Determinants of Pupils' IQ Gains", *Psychological Reports* 19 (1966): 115–118, 116.

pros and cons regarding the reality of the phenomenon of self-fulfilling prophecy, as well as the size of its effects, Jussim and Harber[1] reached the conclusion that this phenomenon exists and functions in school context, and it has lasting consequences. The authors also show that, though in general the effects of self-fulfilling prophecy are relatively modest, for particularly vulnerable individuals these effects can be even exceedingly intense.

Suggestibility and attachment

There are only a few studies focusing directly on the relationship between suggestibility and attachment. Most of them refer to the interrogative suggestibility of children. In an extensive review discussing the cognitive, social and personality factors which intervene in determining the variability in children's memory and interrogative suggestibility, Quas and colleagues[2] consider also those studies which emphasized the role of individual differences in children's, and their parents' attachment as well, highlighting that individual differences in children's and adults' attachment are often considered together, because of the belief that strong associations exist between them. To this effect, Quas and colleagues[3] cite the position of some authors who have raised the idea that parental working models influence their behaviour towards their children, which then determines similar working models in children too. Similarly, the cited authors also quote some studies which support the possibility that working models may have – in adults – an impact on the memory of affectively meaningful events.[4] Therefore we may consider that, indirectly, these studies also suggest the possibility that the suggestibility of adults' memory can be affected by attachment patterns.

In Table 1 we present a synthesis of some studies which investigated the implication of children's and/or adults' attachment in children's memory and suggestibility.

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[1] Lee Jussim and Kent D. Harber, "Teacher Expectations and Self-Fulfilling Prophecies: Knowns and Unknowns. Resolved and Unresolved Controversies", *Personality and Social Psychology Review* 9 (2005), 2: 131–155, 152–3.

[2] Jodi A. Quas et al., "Individual Differences in Children's and Adult's Suggestibility and False Event Memory", *Learning and Individual Differences* 9 (1997), 4: 359–390, 370–371.

[3] Ibid., 370.

[4] Ibid., 379.

Table 1. Studies which highlighted the relationship between children's memory and suggestibility, on one hand and the lack of security of attachment (related to both parental or/and children's attachment) on the other hand

Author(s)	Year	Type of study	The variable of the attachment investigated	Results/Conclusions
Quas et al.	1997	review	– individual differences of parental attachment – individual differences of children's attachment	– both parental attachment and children's attachment influence children's memory and (interrogative) suggestibility
Quas et al.[1]	2000	review	– individual differences of parental attachment – parent-child communication patterns	– attachment and insecure relationships are connected with children's increased suggestibility, as well as with the lack of accuracy and incompleteness of children's accounts referring to stressful and unstressful events
Alexander et al.[2]	2002	experi-mental	– parental attachment	–parental attachment anxiety was connected with a smaller quantity of accurate information referring to a stressful event – the avoidant type of parental attachment moderated the relationship between level of stress experienced by the child and memory, with low levels of accuracy and information amount? quantity in case of high levels of avoidance

[1] Jodi A. Quas et al., "Questioning the Child Witness: What Can We Conclude from the Research Thus Far?", *Trauma, Violence & Abuse* 1 (2000), 3: 223–249, 239.

[2] Kristen Weede Alexander et al., "The Role of Attachment and Cognitive Inhibition in Children's Memory and Suggestibility for a Stressful Event", *Journal of Experimental Child Psychology* 83 (2002): 262–290, 281–3.

- Continuation (table 1) -

Clarke-Stewart, Malloy and Allhusen[1]	2004	experi-mental	– the child's attachment to his/her mother – the father's attitude	– the insecurity of attachment was connected to higher levels of children's suggestibility – the father's distant emotional attitude and his lack of involvement in everyday problems was connected with increased (interrogative) suggestibility

Despite the extremely limited number of studies directly approaching the relationship between attachment and suggestibility (the latter understood as a particular information processing modality, see also DiClementi and colleagues[2]), there are several indices which suggest the plausibility of this connection. Attachment theory claims that, once formed, it is very probable for the working model of relationships to affect one's relationships, as well as the way in which one constructs one's social world, or the way in which one reacts in new situations.[3] The idea, that insecure attachment biases the interpretation and evaluation of events in such ways that the existent negative beliefs and expectancies are confirmed, is otherwise supported by many authors. For example, according to Bartholomew and Horowitz[4], it is to be expected that the working models of relationships should direct the attention, organize and filter new information, and determine the accessibility of past experiences. Recent formulations of attachment theory include the thorough discussion of some specific types of association-systems, which can serve as a basis for different orientations of attachment, and which, at the same time, determine the relative self-preservation of the working

[1] K. Alison Clarke-Stewart, Lindsay C. Malloy and Virginia D. Allhusen, "Verbal Ability, Self-Control and Close Relationship with Parents Protect Children against Misleading Suggestions", *Applied Cognitive Psychology* 18 (2004): 1037–1058, 1054–5.
[2] DiClementi et al., "Information Processing in Chronic...", 684.
[3] Suzanne Pielage, Coby Gerlsma and Cas Schaap, "Insecure Attachment as a Risk Factor for Psychopathology: The Role of Stressful Events", *Clinical Psychology and Psychotherapy* 7 (2000): 296–302, 296.
[4] Bartholomew and Horowitz, "Attachment Styles Among Young…", 241.

models.[1] For example, the excitatory circuits, which connect negative attachment memories to one's expectancies, and, on the other hand, all these to the conjunctural stimuli, may have a tendency to maintain high levels of accessibility for threatening information. Furthermore, these high levels of accessibility will produce an attentional bias towards the negative stimuli of the environment, and, from the moment a negative perception is activated, the powerful associative connections will facilitate the extension of the activation towards distressful memories and expectancies. At the same time, the inhibitory circuits can be established by activating the deactivation strategies, or by learning some safety signals which communicate that negative events are improbable. Such learning decreases the accessibility of threat related cognitions and limits the dispersion of activation on the field of negative representations.[2] Reviewing the findings of some studies focusing on characteristics of information processing connected with attachment styles, Baldwin and Kay[3] conclude that these data support the idea that specific information processing patterns are central aspects of attachment working models. (For a more detailed discussion regarding the particularities of information processing related to individual differences in attachment, see also Szabó.[4])

The present study

In the present study we investigated the effects of two types of feedback – informative and respectively controlling feedback – on participants' performance in a mental states recognition test. We observed how the two types of feedback influenced the improvement of the said ability, measured by the same test, later on. We chose the performance on a mental states' recognition test as dependent variable, because the study was designed to target psychology students and empathy is generally considered of particular relevance for their basic

[1] Mark W. Baldwin and Aaron C. Kay, "Adult Attachment and the Inhibition of Rejection", *Journal of Social and Clinical Psychology* 22 (2003), 2: 275–293. 289.
[2] Ibid., 289.
[3] Ibid., 279.
[4] Szabó Krisztina-Gabriella, "A kötődési mintákkal kapcsolatos információ-processzálási sajátosságok" (Attachment Styles and Related Information Processing Characteristics), in *Klinikai Pszichológia* (Clinical Psychology), by Vargha Jenő-László and Szabó Krisztina-Gabriella (Cluj: Presa Universitară Clujeană, 2009), 115-140.

professional education. Empathy can be conceptualized as a personality trait, measurable by self-report assessment, but also as an equally intellectual and emotional ability, which can be evaluated by performance tests.[1]

Controlling feedback vs. informative feedback

Generally, an interpersonal context is considered controlling when people perceive a pressure to think, to feel or to behave in a certain way.[2,3] Assor and colleagues demonstrated that in most cases, the reinforcement of expected behaviours by contingent rewards, threats, time limits, pressing locutions and manipulation attempts are perceived as controlling.[4]

Our "*controlling feedback*" intervention is represented by an attempt to influence, directed especially toward the motivational sphere, in order to encourage the participants' more intensive involvement in the activities aimed at the development of empathy; we supposed that this more intense involvement would then stimulate the mechanisms and processes necessary to improve the performance. The phrase "And if you try harder, it could be even better", which accompanied the feedback containing data referring to the obtained performance, does not formulate explicitly an expectation ("I expect more of you"), but on an implicit level one can perceive such a message. This type of feedback is widespread in the educational (and sometimes even in the therapeutic) practice: one would intend to encourage the child, the student or the patient to strive for better results. One could rely on the assumption that the participant "is able to obtain a performance superior to the actual one" and transmits indirectly an interpersonal expectancy in this sense (the experimenter's belief that the participant is capable of more). This feedback is ambiguously formulated, since – though associated with a nice and amiable manner of communication – it is *unclear* whether the main message "should be understood" as rather expressing reproach or

[1] Michael V. Lombardo et al., "Self-Referential Cognition and Empathy in autism", PloS ONE 2, 9 (2007): e883. doi: 10.1371/journal.pone.0000883, 2.
[2] Avi Assor, Guy Roth and Edward L. Deci, "The Emotional Costs of Parents' Conditional Regard: A Self-Determination Theory Analysis", *Journal of Personality* 72 (2004), 1: 48–88, 53.
[3] Edward L. Deci, Richard Koestner and Richard M. Ryan, "Extrinsic Rewards and Intrinsic Motivation in Education: Reconsidered Once Again", *Review of Educational Research*, 71 (2001): 1–27, 4.
[4] Assor, Roth and Deci, "The Emotional Costs…", 53.

discontent regarding the participant's actual performance or trust in the participant's potential of development. Therefore, we were interested in which direction would this feedback influence participants' further development: would they perceive the message of trust and could they use this message in order to improve their performance or would they perceive rather the message of discontentment and, if so, how would this affect their further performance?

The informative feedback consisted in offering information on the obtained performance, and it was introduced in order to create a control condition.

Objective

The aim of this study was to investigate the direction of influence of the controlling feedback we used, compared to the development associate to the informative condition, as well as the implication of individual differences in adult attachment in these effects.

Hypothesis

We presumed that participants will register differentiated results in the post-experimental phase, depending on the type of feedback (informative, controlling) they were offered concerning the initial performance and also on individual differences in attachment.

We also expected that the two attachment dimensions would have opposite effects on the development of mental states recognition ability.

Method

Participants

The participants were second-, third- and fourth-year psychology students of the Faculty of Psychology and Educational Sciences (Babeş-Bolyai University, Cluj-Napoca). All participants were of Hungarian ethnicity, and they volunteered for the study, which is a well documented custom in literature.[1] In the pre-experimental phase we collected data from 79 students. Table no. 2 summarizes data regarding the participants of this study:

[1] Leonard S. Milling, John M. Reardon and Gina M. Carosella, "Mediation and Moderation of Psychological Pain Treatments: Response Expectancies and Hypnotic Suggestibility", *Journal of Consulting and Clinical Psychology* 74 (2006), 2: 253–262, 254.

Table 2. Age and gender characteristics of the participants

Total number	Sex	Minimum age	Maximum age	Mean age and standard deviation*
79	Male: 4 Female: 75	21	40	27.80 (S.D. = 6.23)

* 14 participants did not mention their age

Instruments

Attachment dimensions were measured by RSQ-11 (Relationship Scales Questionnaire, 11 items variant, in Hungarian). RSQ-11 had been obtained from Relationship Scales Questionnaire (RSQ[1]). Detailed information regarding how the subscales for evaluating anxiety and, respectively, avoidance dimensions of attachment had been obtained may be requested from the author.[2]

RSQ-11 presents acceptable reliability: in a previous research[3] we found Cronbach's alpha coefficient of internal consistence .80, for anxiety and .67 for avoidance, while the test-retest fidelity coefficient (after 8 weeks) was .77 (p = .000) for anxiety dimension and .69 (p = .000) for the dimension of avoidance (N = 326). Means for the mentioned sample of 326 persons (111 men and 216 women, with ages between 17 and 39) were: 15.23 (*S.D.* = 5.14) for anxiety, and 12.14 (*S.D.* = 3.59) for avoidance. There were significant differences between men and women regarding the dimension of attachment anxiety (m = 14.19, *S.D.* = 4.93 for men and m = 17.76, *S.D.* = 5.18 for women, t = 2.64, p = .009).

The ability to recognize mental states was assessed with the Hungarian version of Read the Mind in the Eyes test (RME).[4] The

[1] Dale Griffin and Kim Bartholomew, "Metaphysics of Measurement: The Case of Adult Attachment", in *Advances in Personal Relationships. Vol. 5: Attachment Processes in Adulthood,* eds. Kim Bartholomew and Daniel Perlman (London: Jessica Kingsley, 1994), 17–52, 52.

[2] Szabó, "A kötődési mintákkal kapcsolatos...".

[3] Krisztina-Gabriella Szabó, "Metodologia studierii influenței moderatoare exercitate de stilul de ataşament asupra efectelor influențelor sugestive. Date preliminare", (*manuscris nepublicat,* 2008*)* (The Methodology of Study of the Moderator Influences Exerted by Attachment Style on Suggestive Influences' Effects. Preliminary Data, *unpublished manuscript*), 33–40.

[4] RME, Simon Baron-Cohen, "*Elemi különbség. Férfiak, nők és a szélsőséges férfi agy*." (The Essential Difference. Men, Women and the Extreme Male Brain) (Budapest: Osiris Kiadó, 2006), 239–251.

reliability of the Hungarian version of RME was found to be moderate (alpha Cronbach = .62, $N = 117$)[1].

Procedure

Frame

The first phase of the study took place in November 2005. Within the clinical disciplines the students attended the development of emphatic abilities was a permanent secondary objective, in parallel with other specific themes and objectives. Before completing the RME, the students were informed that feedback would be given with respect to their results. It was also emphasized that empathy can be conceptualized as a personality trait, but also as a set of skills which can be measured by performance tests and developed by training. Participants were also informed that they would be retested at the end of their studies.

The pre-experimental phase

The measurements for the assessment of attachment dimensions and performance on RME (Hungarian language version) were applied.

The experimental phase

The experimental groups

Two homogenous groups were obtained according to the RME performance in the pre-experimental phase. Participation in one of the two groups (the group with the controlling condition and the group with the informative one) within the same category (percentile) was decided by drawing lots.

The interventions

In the second phase each participant was given feedback on his/her RME results. The feedback was communicated individually to each participant, in a confidential manner.

Controlling feedback vs. informative feedback

The informative vs. controlling nature of the feedback consisted in the way the information was offered: for the informative feedback, only the data on the participant's and his/her group's performance were communicated, written on a paper, handed over merely with the words: "This is it", uttered in a kind tone, gently smiling. An explanation on the information to be found on the note was given. For the controlling feedback, the note containing the data on the participant's performance

[1] Szabó, "Metodologia studierii influenței…", 72–76.

was handed over with the following comment uttered in a kind tone and gently smiling: "And if you try harder, it could be even better".

Messages implied in the two types of feedback

The frame of this experiment was also designed to contribute to the suggestive influencing. Thus, we relied on the following assumptions:

- Empathy is a basic skill among psychologists' competences.
- We defined empathy from a double perspective: as a personality trait, but also as an ability which can be developed.
- We informed participants before the pre-experimental phase that they were going to receive a feedback, and that they were to be retested at the end of their studies in order to see their development in the field.
- The feedback offered personally and confidentially to each student represented a situation which probably increased its significance and importance.

As mentioned earlier, the controlling feedback we used was ambiguous, due to the potential multiple messages implicitly contained. On one hand, it may imply the encouraging message that "Your performance *can* be improved and you *can* do something to this effect". One may think: "I can develop myself by doing more of what I have been doing so far". On the other hand, the feedback can also imply: "The present performance *is not good enough*", in other words, it can be perceived as a rather negative feedback. In this latter case we expect that rejection related "meaning structures" would be activated, especially when one has a degree of vulnerability toward rejection. The expectancy thus constructed could carry the meaning: "I shall not succeed", which could be reflected in a poorer performance in the post-experimental phase.

The students were called one by one for the feedback. Each one received a note which contained the following data: the recorded score, the number of those who participated in this study, the mean of the group, the standard deviation, the highest and the lowest scores within the group, as well as the score transformed into percentiles. For example: "XY: The obtained score was 31. In the group of those who participated in this study (N = 79) the mean was m = 23.84, the standard deviation $S.D.$ = 3.38, the lowest recorded score was 12, the highest recorded score was 32. Your score of 26 points belongs to the second percentile." The

data referring to the group were offered so that the participant may relate his/her result to the group's performance.

Further on, all students continued to participate in the training of basic clinical skills, within the seminars of clinical disciplines, where the development of empathy continued to remain a permanent secondary objective.

The post-experimental phase

This took place at the end of the studies. Therefore, some students participated one and a half year, while others only six months, according to the year of study they had been in when the study had begun. Once again the RME was applied.

Figure 2 presents the experimental design of the study:

<table>
<tr><th></th><th>Phase 1.</th><th>Phase 2.</th><th>Phase 3.</th></tr>
<tr><td>Group I</td><td rowspan="2">RSQ-11
RME</td><td>Informative feedback (I)</td><td rowspan="2">RME</td></tr>
<tr><td>Group C</td><td>Controlling feedback (C)</td></tr>
</table>

Fig. 2. The experimental design

***Key*:**

Group C: received controlling feedback

Group I: received informative feedback

RSQ-11: Relationship Scales Questionnaire – 11 items version

RME: Read the Mind in the Eye Test, Hungarian language version

Results

We illustrate the experimental groups and their number in the last phase of the study (Table 3).

Table 3. The groups participating in the study (N = 65, in the post-experimental phase)

Feedback type	**informative**	**controlling**
	Group I N = 31	**Group C N = 34**

Key:
Group I: informative feedback
Group C: controlling feedback

One general effect observed was that related to the given feedback-type. Test *t* revealed significant differences for the two groups ($t(63) = 2.34$, $p = .022$, $m = 1.67$, *S.D.* = 3.27 for group I, and $m = -.58$, *S.D.* = 4.33 for group C).

A statistically significant difference was revealed between the two groups regarding attachment anxiety ($m = 14.65$, *S.D.* = 5.54 for the informative group, and $m = 11.94$, *S.D.* = 4.43 for the group with controlling feedback, $t(63) = 2.183$, $p = .033$), as well as a tendency with regard to attachment avoidance ($m = 9.65$, *S.D.* = 2.85 for the group with controlled intervention, and $m = 11.03$, *S.D.* = 3.60 for the group with informative intervention, $t(63) = 1.73$, $p = .089$). This effect was not foreseen and, moreover, could not have been avoided by randomization, since randomization was realized by taking into consideration the criterion of the initial RME performance.

In order to test our moderation hypotheses, we used the methodology suggested by Baron and Kenny.[1] The hypotheses were tested separately for the two dimensions of attachment. Demonstrating the moderator effect of attachment on the influences of controlling feedback requires that the interaction between intervention (feedback) and the targeted dimension of attachment have significant effect on the difference between post-experimental and pre-experimental RME scores.

[1] Reuben M. Baron and David A. Kenny, "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations", *Journal of Personality and Social Psychology* 51 (1986), 6: 1173–1182, 1175–6.

Testing the moderator hypothesis for the anxiety dimension

The regression analysis conducted by including the four variables (dependent variable: the difference of RME scores between the post-experimental and pre-experimental phase, respectively; independent variables: informative vs. controlling intervention; the hypothesized moderator variable attachment anxiety; and interaction between feedback-intervention x attachment anxiety) in the model did not show any significant effect when using the Enter method. This suggests that if there is a moderating relationship in the expected sense, this is not linear.

The chart in Figure 2 shows us informatively the tendency of the data.

One can observe the effect revealed by test *t*, namely that for any value of attachment anxiety, the informative feedback has superior effects.

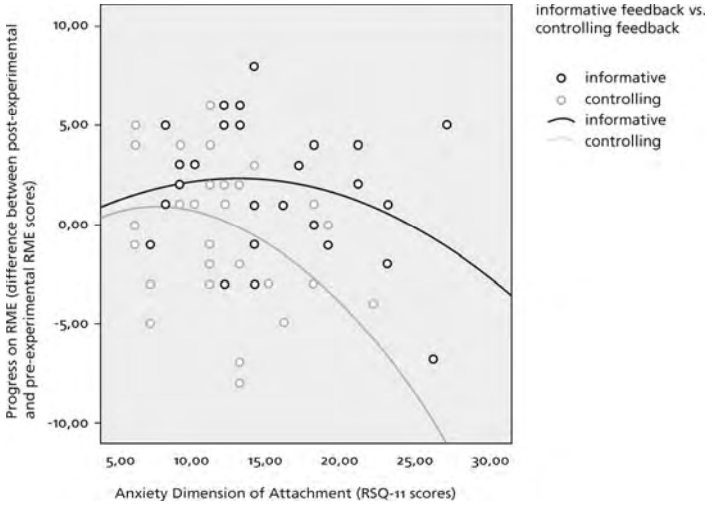

Fig. 3. The effects of controlling vs. informative feedback on the improvement in RME performance dependent on attachment anxiety dimension (RSQ-11**scores, N = 65)*

*RME: Read the Mind in the Eyes, Hungarian language version
**RSQ-11: Relationship Scales Questionnaire, 11 items version

In both groups, as anxiety increases, the progress on RME performance tends to take lower values, but this effect is clearly more

intense for the controlling feedback condition, and hardly perceptible in the informative one. It is to be mentioned that in the informative feedback condition the difference between the two measures of RME scores (post-experiment and pre-experiment) remains positive, even if it takes values very close to zero, when associated with very high anxiety, while in the case of controlling intervention, this difference begins to become negative at relatively low anxiety values (under the mean) and it has a marked and rapidly decreasing tendency.

Further on, we tested the moderator hypothesis presuming that the moderating relationship could rather be imagined as a quadratic equation. Following the procedure suggested by Baron and Kenny,[1] we dichotomized the dimension of anxiety (the chart suggested approximately the value 12), and we tested the effect of feedback type x attachment anxiety interaction. ANOVA revealed a strong tendency ($F(1,60) = 3.82$, $p = .055$) when anxiety dimension dichotomized at the value 12.5. The tests for the comparison of means revealed significant differences in the improvement of RME scores between the informative condition group and the controlling condition group respectively, for values of attachment anxiety higher than 12.5 (for the informative feedback group, $N = 17$, $m = 3.73$, $S.D. = 3.02$, and for the controlling feedback group, $N = 14$, $m = -2.86$, $S.D. = 4.24$). The t test value was $t(29) = 3.03$, $p = .005$. For attachment anxiety values lower than (or equal with) 12.5, there were no significant differences between the two groups. These differences show that for attachment anxiety values higher than 12.5, controlling intervention had significantly more negative effects on the RME progress, compared with the informative intervention, differences which, however, are not relevant for attachment anxiety values below 12.5.[2]

It was also noticeable that in the informative feedback condition, there was also a tendency for the RME scores' difference to decrease at very high levels of attachment anxiety. Post-hoc tests revealed a strong tendency towards a significant main effect for belonging to one of the two categories of attachment anxiety obtained by the dichotomization of anxiety dimension at the value 17 ($F(1,16) =$

[1] Baron and Kenny, "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual ...", 1176.

[2] The mean attachment anxiety for women ($N = 216$) was 15.76, $S.D. = 5.18$, and for the group consisting in total of 111 men and 216 women $m = 15.23$, $S.D. = 5.14$. In the informative intervention group $m = 14.65$, $S.D. = 5.54$, while in the controlling intervention group $m = 11.94$, $S.D. = 4.43$.

3.95, $p = .051$). Thus, if, for the low and medium anxiety values (RSQ-11 scores under 17), the progress in RME scores was differentiated according to the type of feedback participants were exposed to, for anxiety values above medium (scores higher than or equal with 17), the differences between the two groups were no longer significant ($t(28) = 1.24$, $p = .224$), in other words, for these high anxiety values, the superior effects of the informative intervention as compared to the controlling one were no longer evident.

Testing the moderator hypothesis for attachment avoidance

The testing procedure of this hypothesis was similar to the one described previously. The regression analysis by Enter method did not confirm the hypothesis of a linear moderation in this case either; therefore, we tested the hypothesis of a quadratic moderation. Graphical representation of data (see chart in Figure 3) suggested the dichotomization of avoidance dimension around the value 15.[1]

ANOVA revealed significant effects for the interaction avoidance x feedback ($F(1,60) = 5.49$, $p = .022$), supporting the formulated hypothesis of moderation. Post-hoc tests showed significant differences in the RME progress ($t(57) = 1.87$, $p = .006$), for avoidance values under 15, between the controlling intervention group participants ($N = 32$, $m = -.69$, $S.D. = 4.01$), and the informative group participants ($N = 27$, $m = 2.00$, $S.D. = 2.99$). Therefore, for avoidance values below 15, controlling intervention had significantly more intense negative effects on the improvement of RME scores, as compared to the informative intervention. Above the value 15, these differences were irrelevant, and the relationship between the two interventions tended to become indistinct, without reaching significant values.

[1] The mean of attachment avoidance in a group of women ($N = 216$) was: 12.21, $D.S. = 3.67$, and in a group consisting in total of 111 men and 216 women $m = 12.14$, $D.S. = 3.59$; in the informative intervention group, the mean of attachment avoidance was $m = 11.03$, $D.S. = 3.60$, while in the controlling intervention group $m = 9.65$, $D.S. = 2.85$.

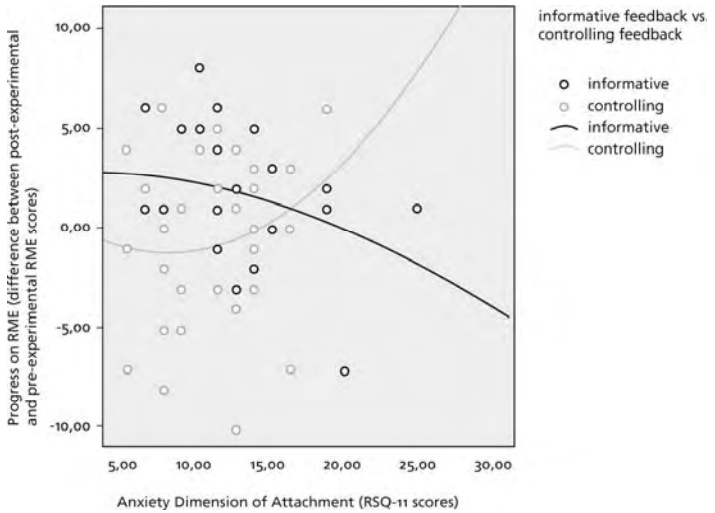

Figure 3. The effects of controlling vs. informative feedback on theimprovement in RME performance dependent on the avoidance dimension of attachment (RSQ-11** scores, N = 65)*

*RME: Read the Mind in the Eyes, Hungarian language version

**RSQ-11: Relationship Scales Questionnaire, 11 items version

Discussions

General effects

A first result revealed by this study was the significant difference regarding the improvement in the participants' performance in RME depending on the type of feedback they received. Thus, while for the participants in the informative condition there was a significantly better average performance at the end of their studies, as compared to the initial one, in the controlling condition group there were no significant differences observable between the two measurements of RME performance. These results suggest that, generally, we can expect the message – transmitted through the controlling feedback we used – to have a rather negative potential. We were interested to identify further on the participants with the highest, respectively, the lowest vulnerability when exposed to this kind of feedback, in terms of individual differences in adult attachment.

Moderating effects

Attachment anxiety

Post-hoc analyses (ANOVA) revealed a strong tendency for the effect of attachment anxiety dimension x feedback type (controlling vs. informative) interaction. For medium and above-mean attachment anxiety values, controlling intervention was associated with significantly more negative effects regarding the improvement in RME performance as compared to the informative intervention. In other words, the greater the anxiety, the more probable that a person will register no improvement, or s/he will even have regress in performance (as compared to his/her initial scores), in the controlling condition. Furthermore, our results indicate that high attachment anxiety exerts some negative effect on performance improvement, which becomes significantly more intense when controlling feedback is employed. These results lead us to the question of the mechanisms implied in these effects. Considering Lundh's model,[1] according to which the suggestive process can be conceived as a phenomenon of interpersonal priming, which works through the activation of specific meaning structures, we may ask the question "What kind of structures have been activated by the controlling feedback on the one hand, and by the informative feedback, on the other hand?". We consider that the theory of active self account proposed by Wheeler, De Maree and Petty[2] can adequately describe these phenomena: the model of biased activation suggests that the priming may affect self-representations by the selective activation of a biased subset from the chronic self-representations of the individual. The determinants of this selective activation belong on the one hand to the characteristics of the material used for priming, but also to the particular meaning the individual confers to it. Certainly, the results of this study suggest that controlling feedback – though often used in educational and therapeutic practice for encouragement – activates structures unfavourable to progress, all the more so, as attachment anxiety is more pronounced. We may suppose that these structures unfavourable to progress and development are related to the activation of a negative self-concept (this remains an aspect to be investigated in the future), namely of a subset of

[1] Lundh, "Normal Suggestion. An analysis ....", 25.

[2] S. Christian Wheeler, Kenneth G. DeMaree and Richard E. Petty, "Understanding the Role of Self in Prime-to-Behavior Effects: The Active-Self Account", *Personality and Social Psychology Review* 11 (2007), 3: 234–261, 236–239.

the negatively biased self-representations,[1] especially in individuals with medium and above-medium levels of attachment anxiety, for whom it is assumed that a predominantly negative self-model is chronically accessible.[2] Using the two feedback types, we assumed that they *can* form bivalent suggestive influences, the sense of suggestion depending exactly on the personal meaning-structures challenged by the feedback-type used. We supposed that one of the implicit messages which can be detected in the feedback formulated controllingly is that "The present performance is not good enough", and another message would be that "Your performance *can* be better, you *are able* to do better!". In the first case, the emphasis would fall on the insufficiency of the performance, and, in this sense, the controlling feedback may become a rather negative feedback. In the terms of self-determination theory we may evoke the numerous studies (e.g. the studies of Ryan and Deci;[3] Vansteenkiste and colleagues;[4] Black and Deci;[5] Deci, Koestner and Ryan[6]), which demonstrated in abundance the negative effects of controlling interpersonal contexts on motivation, with consequences on involvement, satisfaction, and also on performance in the domain aimed at. Thus, from the perspective of the self-determination theory (see for example Deci and Ryan[7]), we may assume that being exposed to such influences the need for competence is firstly undermined ("Your performance was not sufficiently good"). We may think also that controlling interventions

[1] Ibid., 240.
[2] Griffin and Bartholomew, "Metaphysics of Measurement: The Case of …", 25.
[3] Richard M. Ryan and Edward L. Deci, "Self-Regulation and the Problem of Human Autonomy: Does Psychology Need Choice, Self-Determination, and Will?", *Journal of Personality* 74 (2006), 6: 1557–1585, 1563–4.
[4] Maarten Vansteenkiste et al., "Examining the Motivational Impact of Intrinsic versus Extrinsic Goal Framing and Autonomy-Supportive versus Internally Controlling Communication Style on Early Adolescents' Academic Achievement", *Child Development* 76 (2005), 2: 483–501, 485–6.
[5] Aaron E. Black and Edward L. Deci, "The Effects of Instructors' Autonomy Support and Students' Autonomous Motivation on Learning Organic Chemistry: A Self-Determination Theory Perspective", *Science Education* 84 (2000): 740–756, 742–743.
[6] Edward L. Deci, Richard Koestner and Richard M. Ryan, "A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation", *Psychological Bulletin* 125 (1999): 627–668, 641.
[7] Edward L. Deci and Richard M. Ryan, "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior", *Psychological Inquiry* 11 (2000), 4: 227–268, 234–235.

undermine the need for autonomy as well in the sense that the student is confronted with an external expectancy (s/he is not the one to decide whether the present performance is good enough or not, and therefore, s/he can not assume the responsibility for any further change). Finally, the need for relatedness may also be affected, given that a controlling teacher can be perceived rather negatively. We consider that these aspects may constitute a base for further research.

In the second case (the message detected from the controlling feedback would be rather "You may obtain an even better performance"), the emphasis would fall on the idea that the person *is able* to improve his/her performance. We may assume that the intention behind drawing on such feedback would be similar; nevertheless, our study suggests that when attachment anxiety takes moderately high or very high values, there is small chance that this message will be perceived as encouraging by the one it is addressed to.

Attachment avoidance

Our results revealed a significant effect for the attachment avoidance x feedback type (controlling vs. informative) interaction, when we dichotomized avoidance dimension at the value 15 (RSQ-11 scores). The results have shown that for avoidance levels under this value, the two feedback types are associated with significantly different effects, the improvement in RME performance being clearly superior in the informative condition. In fact, in the controlling condition there was no improvement in performance, as compared to the initial one: for low values of avoidance, a regress was noticeable, the second measurement of RME performance being worse than the first one; a slight improvement started to show up however beginning with medium values of avoidance, and this tendency became stronger, as the level of avoidance increased. Thus, the differences between the controlling feedback-group and informative feedback-group decreased as the level of avoidance increased, so that above the value 15 they faded and there were no longer significant differences between the two interventions regarding the size of improvement in RME performance. We may say that, in the light of these results, it seems that, the participants with low and medium avoidance level are more exposed to the negative effects described above, which can be attributed to the controlling feedback, while for those with avoidance level above the medium, these effects were no longer relevant. On the contrary, when the level of the avoidance was high, controlling intervention was associated with more and more

positive effects on the improvement in RME performance, as the level of avoidance increased (although no significant differences were recorded as compared to the informative intervention, the positive effects of which tended to decrease together with the increase of the level of avoidance). These results suggest, that if, for low and medium avoidance levels, we may preserve the assumption that the message decoded by the participants subjected to the controlling intervention would rather be the negative one ("my performance was not sufficiently good"), for avoidance levels above medium, the decoded message would rather be the positive one ("it is good and it can be better"). This seems to be in line with results published in previous studies which have supported the idea that high avoidance levels (mainly when related to low levels of attachment anxiety) are associated with a positive model of self,[1] or that high avoidance levels are related to a particular type of information processing in the sense of redirecting attention far from the stimuli which may threaten the self-image, i.e. far from the stimuli which can be decoded as signalling rejection.[2]

A question which requires additional investigations to be answered is whether the differences recorded at the end of the study (improvement in RME performance) were really due to the different decoding of the feedbacks administered or rather to some different ways of managing similarly decoded messages. In other words, the question is, whether highly avoidant participants in the controlling condition perceived the received feedback differently, as compared with the participants with lower attachment avoidance levels; or, although the controlling feedback used was perceived as equally negative, the long term reaction to it implied different strategies and mechanisms of coping with.

We acknowledge several limitations to this research. The main limitations of the study were connected to the Hungarian language version of the instrument intended for the assessment of individual differences in adult attachment (for detailed data contact the author). RSQ-11 presents an acceptable reliability, but the item number of each subscale is relatively small, and the scale has not been evaluated from the point of view of its content validity. On the other hand, unlike to RSQ, by RSQ-11 variant we can only assess the two dimensions of the attachment. In the present study the number of participants proved to be

[1] Griffin and Bartholomew, "Metaphysics of Measurement: The Case of …", 25.
[2] Baldwin and Kay, "Adult Attachment and the Inhibition of Rejection ...", 286.

too small for conducting the analyses also for the four attachment styles, which could be obtained by combining the two dimensions of the attachment (see figure 1).

Another limitation originated from the differences existing between the controlling feedback group and the informative feedback group from the point of view of attachment patterns (this difference was significant concerning attachment anxiety, and non-significant, but present on the level of a tendency regarding the avoidance dimension, with higher levels in the informative condition). Taking into account that attachment anxiety and attachment avoidance exerted opposite effects on the size of the improvement in RME performance, we may suppose that these unexpected differences between the groups did not significantly affect the relationships between the investigated variables. Moreover, the differences with respect to attachment anxiety were more marked than those referring to attachment avoidance (where only a tendency was revealed), a significantly higher mean being recorded in the group subjected to informative feedback, so that it is more probable that the effects revealed by our study had been rather underappreciated than conversely.

The relatively small number of participants – and mainly of those whose attachment anxiety and avoidance level was above the mean – constituted another limitation of the study.

Despite its manifold limitations, the present study makes an important contribution, demonstrating the long-term effects on the development of two mainly in the educational practice frequently used feedback forms. It seems worth mentioning the fact that the recorded effects were associated with some singular interventions, participants being exposed to the described feedbacks on a single occasion! This may suggest that when an individual is consequently exposed to the same type of feedback, the effects of this on a long run can be more dramatic. No doubt, in real life we all are exposed to some very varied influences coming from the interactions we participate in, and the investigation of the factors which determine the prior interception of some of these influences, as compared to others, would be interesting. We can only suppose that, some of these factors, beyond the way in which a (verbal) feedback is formulated, could be related especially to the relationship-variables (i.e. the relationship between the person who emits the influence and the one who receives it), as well as to individual differences with regard to the receiving person, probably including attachment style.

In conclusion, our study has shown that the two feedback types we used exerted significantly different effects on the long-term progress of the participants' ability to recognize mental states, which suggests that these two feedbacks potentially contain different psychological implications (indirect suggestions). On the other hand, consistent with our hypothesis, attachment dimensions played a determinant role in shaping the ways in which the received feedback was understood and/or reacted to on a long run. Although we do not know the precise sense participants made of the experience they were exposed to, our results suggest a general negative suggestive potential, inherent to the controlling type of feedback we used (as compared to the informative one). At the moment, we can only presume that the implications involved in the two feedback forms, and especially the meaning given to these by participants, are connected to self-perception and self-confidence, at least from the point of view of the ability to obtain a superior performance at the RME test and they constituted the basis for the participants' expectancies related to further performance.

With regard to the involvement of attachment avoidance in determining the observed effects, the findings from the present study have supported the moderation hypothesis we formulated. Thus, the moderating effect of attachment avoidance was exhibited so that the negative effects of controlling feedback were reduced for avoidance levels above mean. Moreover, our findings also revealed a strong moderating tendency for attachment anxiety, so that the negative effects of controlling feedback were increased for the medium-high and high values of anxiety, but also that for rather high values of attachment anxiety, informative feedback was also associated with negative effects.

Further research is needed, on the one hand, to elucidate the mechanisms involved in these phenomena, and, on the other hand, in order to investigate the immediate effects of informative and controlling feedback, with regard to performance, and other parameters, such as, self-perception, or the global cognitive efficiency. Despite the potentially negative consequences, controlling types of interaction will always exist, but research findings can make us understand and minimize, as much as possible, their effects.

Translated by Ágnes Korondi

Door of the Saint Alexander of Alexandria Cathedral
(Photograph by Bianca Petcu)