

## Manual of the Interaction Model

### 1. Starting to work with the model

Open the program Excel version 97, 2000 or later versions. Open the file interaction model.xls. Click on the button enable macros (if it appears).

Description of the worksheets.

The worksheet *explanation* contains an explanation of the working of the model.

In the worksheet *model setup* you can find five differently colored fields, in which you can set up different components of the model.

The worksheet *model* contains a button with which you can activate the model. The main part of this worksheet contains the model's output.

The worksheet parameters contains a list of numerical parameter values and a number of predefined parameter values for different types of children.

### 2. Specifying the model parameters

In order to work with the model, you have to begin by specifying all the parameter values. First activate the worksheet *model setup*.

The central list box contains the names of the two model participants.

Click on the button *Names* and specify the names of the model participants, for instance popular child and average child. Click on the name of the participant whose parameter values need to be specified, for instance popular child. Notice that the texts appearing in the colored fields now refer to the person for which the parameters will be specified.

The dark yellow field (B1 to H28) contains the parameter values referring to the Concerns. Two basic concerns are distinguished; namely Involvement and Autonomy. You can define the relative importance of one concern over the other, by clicking on one of the sentences in the listboxes. Then click on the button '*determine parameters*'.

The blue field (I1 to N28) contains the parameter values referring to the influence of the behavior on the realized values of the concerns Autonomy and Involvement.

The green field (B29 to K68) contains the parameter values referring to the role of Emotional Expressions. The left part of this field specifies the link between Emotional Appraisal and Expression. For instance some children show positive Emotional Expressions more easily than others. The right part of this field contains the influence of positive and negative Emotional Expressions on the preferred values of the concerns.

The pink field (L29 to N68) contains the parameter values of the general behavioral tendencies. We distinguish the tendency towards Symmetry (to do what the other person does) and the tendency towards Continuity (to continue what you are doing yourself).

Finally, the light yellow field (B69 to N84) contains a number of more technical parameter values, namely the number of steps in the simulation, the level of randomization and the memory span.

All parameter values for the various types of dyads are specified in table 3 of the article.

### 3. *Checking numerical values of the parameters*

Activate the worksheet *parameters*, and select cell A1, if necessary. In columns B and C you find the name of the parameters with the corresponding numerical values. If you want to fine-tune the parameter values, you can change the numerical values manually here.

### 4. *Running the model simulations*

Activate the worksheet *model*.

Go with the scrollbar to the left of the worksheet, if necessary. Note that F is the first column here. Click on the button 'calculate model' to let the model run.

The program will scroll automatically to the output graphs.

The two upper graphs represent *the behaviors of the children*. Child 1 appears in the graph on the left, child 2 appears in the graph on the right. The x-axis contains the time in seconds, the y-axis contains the behaviors playing together or playing alone. Red indicates playing together, white indicates playing alone.

The two lower graphs represent the *emotional expressions of the children*. Child 1 is represented in the graph on the left, child 2 is represented in the graph on the right. Neutral is white, negative is red under zero, positive is red above zero.

If you wish to see the actual output, scroll to columns F to K. The following output variables are represented here.

Output variable *Behavior* (column F and G). On the left appears the output of child 1, on the right appears the output of child 2. Playing together is colored yellow, playing alone is colored green.

Output variable *Emotional Expression* (column H, I, J and K). The neutral, positive and negative expressions of child 1 appear in column H; the neutral, positive and negative expressions of child 2 appear in column I. Neutral expressions are colored light blue, positive expressions are colored red, negative expressions are dark blue. In column J and K appear the expression in numbers, ranging from + 5 (very positive) to -4 (very negative). A neutral expression has the value 0.

Click several times on the button 'calculate model' to see the effect of the random component.