

# **Effectiveness study Tools4U: Effects on cognitive and social skills**

Study on the effects of behavioral training sentence Tools4U on cognitive and social skills

## **Abstract**

University of Amsterdam, Forensic Child and Youth Care Sciences

T. van der Stouwe

J. J. Asscher

G. J. J. M. Stams

M. Hoeve

P. H. van der Laan

Amsterdam, February 2015

This study was funded by the Research and Documentation Centre (WODC), department External Affairs of the Dutch Ministry of Justice.

© 2015, WODC, Dutch Ministry of Justice. Copyright reserved.

## Abstract

Tools4U is an outpatient behavioral intervention consisting of an individual training in cognitive and social skills, which is applied as a (penal) sanction for juvenile delinquents. The training is intended for delinquent juveniles (12 to 18 years), who have committed one or more offenses and for whom lack of cognitive and social skills was related to delinquent behavior. Apart from the regular (individual) training of the juveniles, there is a 'plus-version' in which lack of parental supervision and inadequate parental problem-solving abilities are addressed during extra meetings.

Tools4U was accredited as a potentially effective behavioral intervention in 2007. Since the accreditation, several studies have been conducted to maintain and extend this accreditation (process evaluation, Bosma, Asscher, & Stams, 2013; goal attainment study, Van der Stouwe, Asscher, & Stams, 2013). As a result of the study outcomes, a mid-term review of the Dutch Ministry of Justice Accreditation Committee for Behavioral Interventions resulted in an extension of the accreditation of Tools4U until October 2015. Then, the effectiveness of the training has to be demonstrated.

The current study examined the effectiveness of Tools4U for the third evaluation (*post hoc*) of the Dutch Ministry of Justice Accreditation Committee for Behavioral Interventions. The Tools4U treatment group of 115 juveniles from the previous study (Van der Stouwe et al., 2013) was compared to a matched control group to examine whether Tools4U juveniles showed more progress in social and cognitive skills than juveniles with other penal sanctions. The current study was conducted by the University of Amsterdam from May 2013 to February 2015, and was funded by the Research and Documentation Centre (WODC) of the Dutch Ministry of Justice.

The goal attainment study showed that Tools4U juveniles mostly met the indication criteria for the intervention. However, in 17% of Tools4U cases, juveniles were referred for truancy instead of for having committed an offense. Furthermore, the number of Tools4U-referrals per region did not correspond to the number that would be expected based on the total number of juvenile criminal investigations. In some regions, Tools4U was imposed relatively often and in other regions relatively seldom. In addition, the Tools4U Top 10 intervention techniques and the compulsory intervention components were applied (more than) sufficiently according to the 60%-standard of Durlak and DuPre (2008). Finally, Tools4U achieved a substantial part of its goals, because juveniles showed improvement in cognitive distortions, impulsivity, social information processing, coping, perceived competence and the domains family and skills of the National Toolset for the Juvenile Criminal Law Chain.

By means of propensity score matching, 108 juveniles were selected from a group of 354 juveniles who received a community service order or another behavioral training sentence to compare the effectiveness of Tools4U with the alternative treatment (*treatment as usual*). *Intention to treat* analyses were conducted: incorrectly included juveniles (e.g. 17% truants), data of juveniles who did not complete treatment or who did not fill out the post-test questionnaires were imputed by means of multiple imputation techniques.

The following questions were addressed: What is the effectiveness of Tools4U in changing cognitive and social skills deficits? To what extent do program or participant characteristics influence the effectiveness of Tools4U? What are the presumed mechanisms that lead to the intended results? To what extent can potential results be attributed to the intervention? What can be stated about the context and preconditions under which Tools4U is effective?

The present report describes the first part of the effectiveness study: the effects of Tools4U on social and cognitive skills, measured immediately after treatment. The effects on recidivism will be described in a subsequent report.

To answer these research questions, questionnaires were filled out by juveniles, community service coordination officers and parents at the start and end of the alternative sanction. In addition, the questionnaires that were already filled out by Tools4U juveniles, parents and trainers for the goal attainment study were used. Furthermore, case file analysis was conducted for both the Tools4U and control group juveniles.

### **Matching**

In order to evaluate the effectiveness of Tools4U, the Tools4U group had to be compared with a (virtually) identical control group. As random allocation was not possible, propensity score matching was used to select those juveniles from the 354 control group participants who were most similar to the Tools4U participants. This resulted in a control group of 108 juveniles. After this matching procedure, no pretest differences were found between the Tools4U group and the control group based on gender, ethnicity, education, living arrangements, offenses, measured cognitive and social skills and parenting skills. However, there were time differences between pre- and post-test and urbanization of the residence of the juveniles. Follow-up time and urbanization were therefore included in the effect analyses to control for these differences.

### **Results and conclusions**

Tools4U proved to be effective in improving some of the measured cognitive and social skills (see Tables 12 and 13 in paragraph 5.1 for a schematic overview). The intervention reduced cognitive distortions, impulsivity, hostile attribution and impulsivity and improved adequate punishment by parents. With regard to these skills, 10 to 17 percent of the Tools4U juveniles performed better than control group juveniles. The intervention showed larger effects for the intended target group – offending juveniles – and less effective for truants. Truants only benefited by the intervention for reducing impulsivity and hostile attribution. Furthermore, only parents of truants (not offending juveniles) reported more adequate punishment after the intervention. The effectiveness of Tools4U will therefore be better by including only juveniles who have committed an offense.

Some effects were not in the expected direction. Tools4U juveniles showed a less positive image of their school skills, social acceptance and sense of self-worth than control group juveniles. After a different penal sanction, juveniles were more positive about their competences than after Tools4U. This could be attributed to a positive influence of the community service order, but it may also indicate that Tools4U juveniles do not overestimate their skills as much as control group juveniles.

The intervention has – contrary to what was to be expected – no effects on the remaining measured cognitive and social skills (treatment motivation, empathy, coping and perceived competence of sporting skills, physical appearance, behavioral conduct and close friendships). Furthermore, no effects were found for parenting skills: positive parenting behavior, rule setting and rewarding. Because the goal attainment study already showed that techniques targeting empathy and coping were applied the least, the effectiveness of Tools4U in improving empathy and coping can be improved by expansion and more frequent use of additional techniques. Moreover, the lack of improvements in parenting skills can be attributed to adequate customization of the intervention: with more or less effort (parental involvement) the same results are obtained.

There were no differences in effects between the Tools4U 'plus-version' and regular version and between the long and short version and there were no differences in effects on offense severity. This may also be attributed to adequate customization of the intervention: with more training effort, juveniles who need more attention obtain the same results as juveniles who need less. It could also be attributed to a lack of power because of small group size. Subsequent studies with larger groups and for multiple parenting skills is therefore advised.

Only non-native Dutch juveniles showed less cognitive distortions about physical aggression and were more positive about their physical appearance. Furthermore, solely 16 to 18 year old juveniles showed improved treatment motivation after the intervention and just for girls parental skills (positive parenting and rewarding) improved. Tools4U juveniles who initially were less positive about sporting skills, close friendships and school skills, were less positive about these skills than control group juveniles after training. Finally, non-native Dutch juveniles were less positive about their physical appearance and older juveniles (16-18) were less positive about their behavioral conduct.

Tools4U aims to reduce cognitive and social skills deficits related to the delinquent behavior. This reduction of skill deficits is thought to prevent subsequent offenses (recidivism). As the intervention succeeds in reducing some of the skill deficits, the recidivism risk should be reduced. There are, however, several skills that showed no differences between Tools4U and the control group. This may raise questions as to whether Tools4U is indeed effective or not. However, one should be aware that this may be the consequence of that programs tend to be effective for some juveniles, and for some outcomes, whereas they tend to be less effective for other individuals with other specific risk factors (see also Kazdin, 2007; 2008; Kraemer, Wilson, Fairburn, & Agras, 2002). Future research should focus on what works for whom. Additionally, the eventual goal, reducing recidivism, is yet to be established.