

Learning life skills strengthening basic competencies and health-related quality of life of socially disadvantaged elementary school children through the mentoring program "Balu und Du" ("Baloo and you")

Sibylle Drexler · Brigitte Borrmann ·
Hildegard Müller-Kohlenberg

Received: 4 July 2011 / Accepted: 7 October 2011
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Abstract

Aim This investigation aimed to determine whether socially disadvantaged elementary school children profit health-wise from their participation in the mentoring program "Balu und Du" in which their basic competencies are strengthened and their health-related quality of life is improved.

Subjects and methods For the evaluation study we compared an intervention group of 141 children, or so-called "Mowglis" (treatment group), with a stratified control group of 158 children. The children in both the treatment and control groups were 6 to 10 years old and visited 38 different elementary schools at 12 participating locations in Lower Saxony, Germany. Children were recommended for "Balu und Du" by their teachers who were worried about their pupils' disadvantaged family backgrounds and their personal and developmental problems. The control group children were also selected by the Mowglis' teachers and were supposed to match the participants closely in the mentioned attributes. With their parents' consents they participated in the evaluation study.

Results The children in the treatment group (Mowglis) can profit from their participation in the project "Balu und Du" in the areas of health-related quality of life. Scholastic achievement and motivation increased in comparison to the control group and the willingness of the children to acquire knowledge and skills that are necessary for current and future problem-solving capacity grew.

Conclusion The project "Balu und Du" was able to reach elementary school children from socially disadvantaged families and, by strengthening important basic competencies

and their health-related quality of life, can prevent hazardous health characteristics.

Keywords Socially disadvantaged children · Mentoring project · Health promotion · Basic competencies · Health-related quality of life

Introduction

Theoretical background

Starting as early as the 1990s, there have been health promotion programs and projects in Germany focusing on strengthening health-related life skills [Bundeszentrale für gesundheitliche Aufklärung (BZgA) 2005]. These life skills or basic competencies include, for example, the abilities to make decisions, have empathy and solve problems. While key or basic competencies are applied primarily in the tertiary education sector (university study and vocational training), life skills are more of a topic in especially primary education and health promotion. There are large overlaps in content. Life skills, however, can also be seen as a possible prerequisite for the acquisition of further diversified basic competencies.

The ability to overcome challenges in everyday life is largely dependent on the development of these life skills. Life skills and health are connected with each other interdependently. Just as health is dependent on the ability to overcome everyday challenges in an individual's life, so too are physical and especially mental health prerequisites for the ability to meet these daily challenges.

The life skills approach is closely connected theoretically to the wider, salutogenic approach to health promotion (Sagy and Dotan 2001) and to resilience competencies

S. Drexler · B. Borrmann · H. Müller-Kohlenberg (✉)
University of Osnabrueck,
Neuer Graben 27,
49074 Osnabrück, Germany
e-mail: muellerk@uos.de

(Werner 2004). This approach differs greatly from standard, deficiency-oriented prevention approaches that are focused specifically on the prevention of risky behaviors. Since people ultimately benefit the most when health as a whole (physical and psycho-social health as well as health-related quality of life) is strengthened, it makes sense to begin especially at this precursory level since with this method larger effects on health behavior and overall health can be expected. This is especially true for children, who can profit in diverse ways through the strengthening of life skills.

The majority of health projects for children are based either on the setting approach or on the prevention of unhealthy actions in the areas of physical education, diet, abuse or media consumption. Until now there have been few behavior-centered projects that follow a life skills-related approach (Blair et al. 2010; BZgA 2005).

Numerous studies have been able to prove that the orientation on role models ("learning through a model") is one of the most important influencing factors on the (health-related) actions of children (Rosenstock et al. 1988; Sallis and Owen 2002). This happens both most easily and, at the same time, effectively, in an everyday context: "The training of life skills consists of practicing many actions in order to achieve a (health-related) goal. These actions are not practiced only in 'dry runs' but also, ideally, in everyday life. This should solidify the competency ability to truly command them and use them deliberately" (BZgA 2005).

Balu und Du's implementation strategy to foster life skills contains three main elements: first, informal learning in an everyday context (Bekerman et al. 2007); second, authentic, personal relation based on a one-on-one rapport; and third, the acknowledgement of a learning goal as a "byproduct." Additionally, one unique feature of "Balu und Du" is the possibility to voluntarily continue the mentoring relationship after the end of the year-long project period.

Conceptual justification of the mentoring program
"Balu und Du"

Informal learning

The mentoring relationship is substantially influenced by the concept of informal learning (Bekerman et al. 2007; Coffield (2000); Colardyn and Bjornavold 2004; Dohmen 2001; Schugurensky 2000). Informal learning refers to everyday learning. It is centered around passing realizations and insights that indirectly grow out of a situation. Informal learning contributes a great deal to the knowledge base of all adults. The learning process is not always intentional for the learners. Its result cannot always be expressed in words. Yet the experiences of conscious learning are highly effective.

Access to educational sources and content is different for children depending on their family culture and social

standing. Thus, their chances that depend on education are also unevenly varied.

Mentoring as a personal and authentic relationship experience

Mentoring programs for disadvantaged children are a commonly practiced and controlled possibility to balance out the above-mentioned opportunity inequality. The first evidence of the compensating effects of mentoring, which are equally related to the social, cognitive and health-related development, comes from the 1970s and 1980s (Beutel 1989; Kauffmann et al. 1979; Tress 1986; Werner and Smith 1982).

The mentoring function contains different aspects such as, for example, model learning, support in every day situations, transmitting norms, expanding the horizons of life experience and communal reflection. The construction of a value system and a hierarchy of values can be seen as a sweeping principle of the mentoring relationship, whose effects on the complete way of life have to be taken into consideration.

Well-meaning and sensitive adults, for example, parents, kindergarten teachers or teachers, are helpful in successful socialization processes in order to offer up a dialog of values that reflects on preconscious (value) decisions and leads to higher levels of understanding. Mentors can also fall back on the children's concrete experiences in order to systematize content, reanimate memories and make present knowledge accessible to contemplation. Thus, as long as the process of learning remains undiscovered and subconscious—which is often the case—the results, due to their subconscious nature, are often deprived of further elucidating penetration. At the same time the pool of knowledge and norms is highly effective. The social and cultural environment of the family of origin define, first and foremost, the still subordinated collection of selective value experiences and form a precursory subordinated "archive of values."

In order for a reflective and founded hierarchy of values to develop in the personality of a child, the dialog of values should ideally be imbedded in the child's life environment in order to support the implementation of conduct conviction—the so-called performance. It is more difficult if action is supposed to be deductively inferred from abstract concepts or rules. A canon of values is established inductively through repeated dialogs of this type. This canon of values is anchored in the children's lives and—very importantly—connected with personal relationships.

Since there are many children whose construction of a canon of values takes places without assistance—without socially acceptable role models, without direction, without supported reflection—specifically these children need to be offered help.

Mentoring demonstrates itself as an important support for disadvantaged children in connection with risk and

protection factors, as has been repeatedly demonstrated in the concept of resilience (Murphy 1974; Rutter 1985; Scheithauer and Petermann 1999).

Learning as a byproduct

Similar to the concept of informal learning, the principle of learning as a byproduct also lives more at the edge of pedagogical discussion. Publications on this topic deal with a special form of learning in which not the intentional effort leads to the goal, but rather particularly willfully attempting to succeed results in failure. The most prominent example for this is the "attempt to fall to sleep." The publications to date dealing with this topic are from different fields of learning and action (Elster 1987; Warner 1999; Mezirow 2000). In relation to the mentoring program "Balu und Du," the learning goals "empathy" or "concentration," for example, distance themselves widely from an appellative or curricular-intentional learning arrangement.

A "command to learn" or the assignment to taxonomy of learning goals (Bloom 1971) can be counterproductive in this case. A learning goal as a byproduct cannot be pursued; it rather offers itself up.

The diary entries of the mentors, or so-called "Balus" ("Baloos"), shed light on the factors at work. The experience of empathetic care forms the child's personality. The understanding and sensitive approach to the mentee's needs—as is often portrayed in the diary entries—allows for the development of empathy even without it being picked out as a central learning goal. In the concept of the "byproduct," countless indirect paths lead to the finish line. This learning approach can also be solidified in the developmental goal of the ability to concentrate. A learning process that accepts indirectly achieving goals—as a byproduct—is dependent on individual arrangements. The requirements for this are favorable in mentoring relationships.

Evaluation study: impact of the mentoring program "Balu und Du" on the development of basic competencies and the health-related quality of life of socially disadvantaged children

Methods

Evaluation study design and investigation group

For the evaluation study we almost accomplished a regionally defined complete survey of all children who were accepted into the program "Balu und Du" in spring and autumn of 2009 (two cohorts) within a radius of 125 km around the city of Osnabrück in Lower Saxony, Germany. These treatment group children, or so-called "Mowglis,"

attended 38 different elementary schools in 12 participating locations. The children of the stratified control group were selected by the same teachers who had chosen the Mowglis. They had to be pupils of the same classes as the Mowglis and were supposed to match the participants closely in particular relation to their family background, their personality and their developmental problems. We collected relevant data through all means of measures and tests for 90% of the 299 children in total (N=141 Mowglis and N=158 control group children). The dropout rate was 3.7%.

The research team developed a teacher questionnaire for the study that the teachers filled out both at the beginning and at the end of the year. Both scientifically established survey methods and those developed specifically for the project were used for the appraisal of the children. We needed two class periods for the survey, in which the children, some of whom could not properly read or write yet, were interviewed and tested in one-on-one situations.

The children comprising the treatment group (the Mowglis) and the control group in the investigation were on average 8 years old and in the second to third grade at the time of the first appraisal. The majority of the children in both groups are from large families and have, on average, two siblings. Half of the children in each group have migrant backgrounds. There are slight differences in the sex ratio. While the control group is made up of half girls and half boys, six out of ten Mowglis are male. Additionally, the children's teachers were asked if they would categorize the individual children's family situation as difficult and which problems were present. As the results demonstrate, the mentoring program "Balu und Du" was successful to a great extent in achieving its claim of reaching socially disadvantaged elementary school children. The teachers judged the Mowglis' family situation to be somewhat difficult in 40% of the cases and even very difficult in the case of 20% of the children. Divorce/separation, unemployment of one or both parents, poverty and a low level of education were especially frequently named as difficulties. In this point the treatment group differs very significantly from the control group ($p < 0.01$) since the family situation of the children in the control group was appraised as somewhat difficult in only 20% and as very difficult in 2% of the cases.

Classification of the basic competencies into functional competencies, personal competencies and social competencies

For the evaluation study "Balu und Du" we divided the analyzed basic competencies, following the classification of the key competencies by the Ministry of Education Conference, into three areas. Thus, the basic competencies

were categorized as functional, personal and social competencies. The term functional competencies describes the ability to solve tasks and problems in a goal-oriented, subject-specific and independent way, in the manner children are especially taught in school. The personal competencies, on the other hand, consist of personal characteristics such as independence, critical faculty, confidence, dependability and responsibility. Social competencies are important in order to form and maintain social relationships, especially the development of social responsibility and solidarity, and the ability intentionally to deal with one's self and with others belonging to this group (Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland 1999).

For the evaluation study “Balu und Du,” we investigated the ability to solve problems through the attainment of scholastic knowledge and abilities for the area of functional competencies. The area of personal competencies includes the abilities to organize oneself, to concentrate and to make decisions. Finally, items dealing with empathy and the children's realistic ability for self-appraisal were surveyed as part of the social competencies (see Fig. 1).

The effects of the mentoring program “Balu und Du” on the development of the individual basic competencies of the treatment group of Mowglis were measured using the effect size measurement Cohen's d (Cohen 1988).¹ The gross effects for the entire treatment group and the gross effects for the entire control group were calculated. The difference between the data resulted in the net effects in the following individual basis competencies for the treatment group of Mowglis. Additionally, the specific extreme groups of both the treatment group and the control group were filtered out for the individual items and/or tests. We also calculated the gross effect size for these subgroups from which the specific net effect size for the extreme group of Mowglis could be assessed. The term extreme group refers to the quartile of the cases that demonstrated especially low or undesirable results at the point of the first survey.

Results

Functional competencies: the ability to solve problems by acquiring scholastic knowledge and abilities

Children train and learn the willingness and ability to solve problems and tasks functionally, especially in a school setting. Scholastically obtained knowledge and scholastically developed skills play a key role in the development of function competencies, as they are needed for a self-

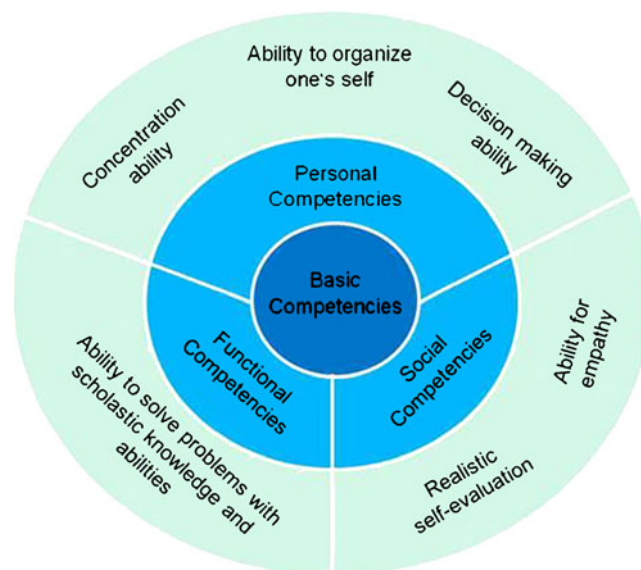


Fig. 1 Division of the basic competencies into functional, personal and social competencies

determined life and the prevention of unhealthy behavior. Success and motivation in school, measured in this case by the appraisal of the teachers, are thus indications for the children's willingness to pursue and actually obtain functional competencies.²

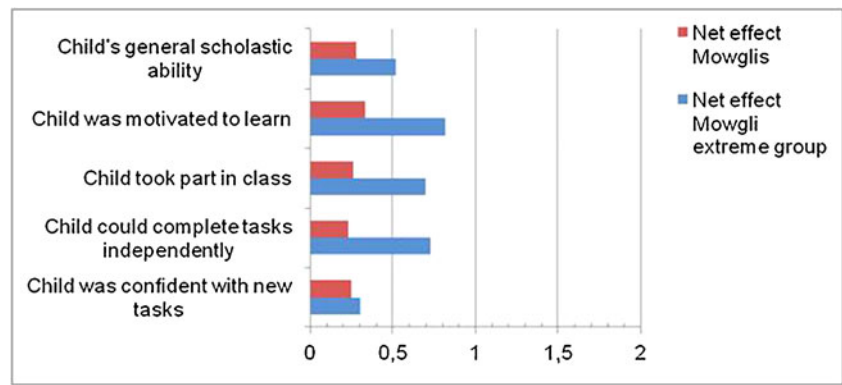
As the teacher questionnaires demonstrate, the Mowglis posted slightly positive net effects in comparison to the control group in reference to their overall scholastic performance, their motivation to learn, their classroom participation and their competence to solve tasks individually as well as with their confidence when dealing with new tasks. The treatment group children who originally had particularly poor results demonstrated middle to high positive net effects in the named items. The treatment group children improved especially positively in the course of the project year in comparison to the control group children with equally weak results (see Fig. 2).

At first glance, this result is amazing since the mentoring program “Balu und Du” does not offer the children explicit scholastic support, for example, in the form of homework tutoring. One answer to the question of why it is indeed plausible that the mentoring program has positively affected the Mowglis' scholastic ability and motivation has already been discussed in the section above dealing with the concept of byproducts and will become clear in the following section on the development of personal competencies.

¹ According to Cohen, $d=0.2$ represents a small effect, $d=0.5$ a moderate effect and $d \geq 0.8$ a strong effect.

² Grades to measure the students' abilities were not used for two reasons: first of all, this is not possible for children in the first and second grade since they do not receive grades yet. Secondly, the grades of the older children were not allowed to be passed on to the research group because of German privacy laws.

Fig. 2 Questions for the school teachers in reference to the children's scholastic success and motivation (net effects)



Effect size measurement: Cohen's d

Personal competencies: self-organization, decision making and the ability to concentrate

We measured the development of the children's self-organizational ability and calculated the connections for the Mowglis between these and the activities carried out with their Balooos for the area of personal competencies. The ability to organize themselves helps the children to structure themselves better and to act with foresight. Self-organization, along with the ability to make decisions and to concentrate, forms an important requisite for scholastic success and mental health.

This is the reason why the teachers were asked to assess the Mowglis and the control group children in particular reference to individual items relating to self-organization skills at the beginning and the end of the project year. As the results show, the Mowglis developed more positively in the teachers' opinions than the control group children. The treatment group posted positive midrange net effects for the questions whether the child wrote down what homework was given and if the student could complete his/her homework because he/she had taken his/her books and materials home with him/her. A comparison between the individual extreme groups even resulted in very high positive net effects for the Mowglis in the items listed above.

This means that the children who took part in the program "Balu und Du" and, at the beginning of the project year,

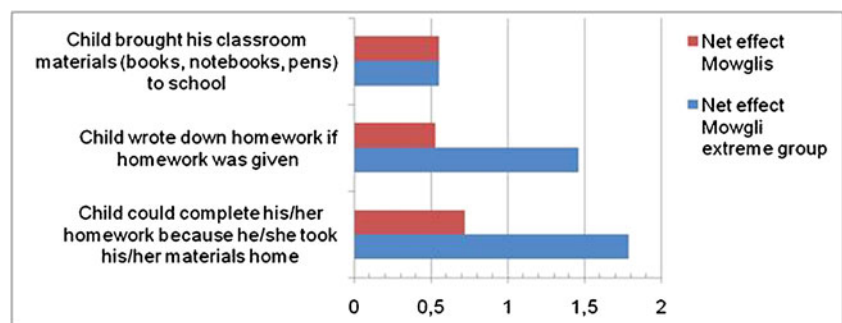
posted extremely low results in the area of self-organizational ability were able to develop positively (see Fig. 3).

The children's positive development in reference to self-organization can be explained well by the diversity of activities that occurred during the course of the project (see Fig. 4).

The analysis of the in total 2,772 mentor diary entries shows that, especially during arts and crafts activities, when cooking together and when dealing with concrete, everyday activities such as purchasing a bus ticket or checking out a book at the library, the children honed their self-organizational abilities. According to their teachers, the more often the protégés did arts and crafts in their meetings, the less often they forgot their books and materials in the school ($r=0.54^{**}$). A similar statistical connection that is nearly as strong can be seen in reference to the frequency of games/board games ($r=0.42^*$).

At the end of the project year, in the area of decision making, slight, positive net effects for the Mowglis can be seen in regard to the questions whether the child can easily make a decision and whether this decision is not dependent on other children. The complete Mowgli group was not able to develop positively compared to the control group in reference to the question whether the child made erratic decisions. The extreme group of Mowglis, a group that was very erratic in its decisions at the beginning of the project year, did, however, develop positively in comparison to the

Fig. 3 Questions to the teachers concerning the children's self-organization



Effect size measurement: Cohen's d

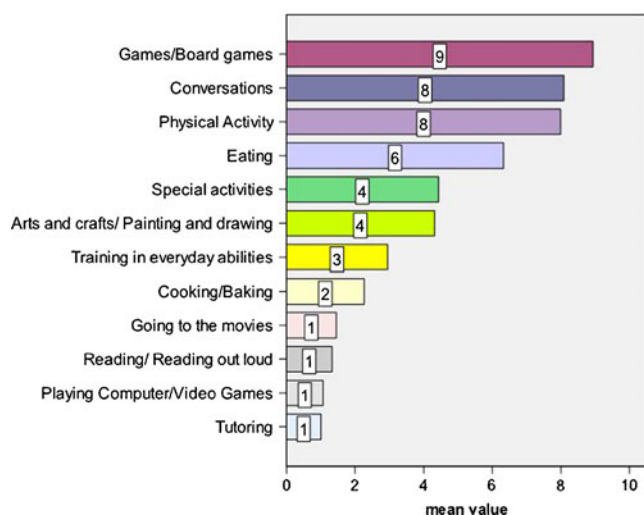


Fig. 4 Activities by Baloos with Mowglis during the project time frame

corresponding extreme group from the control group. It was able to achieve moderate positive effects (see Fig. 5).

In the perception of the teachers, the project children's ability to concentrate improved slightly when compared to the control group children. Thus, the Mowglis achieved slight positive net effects in reference to the questions whether it was easy for a child to finish a task once it had been started, whether the child did not appear to be drifting during class and whether the child could concentrate well in class. An effect is present only in the last point when dealing with the Mowgli extreme group and the extreme control group. It is however quite major ($d=1.25$). This means that the Mowglis, who, at the beginning of the project, were unable to concentrate, were able to concentrate much better at the end of the project. This result was confirmed with a concentration test that was carried out with the children. The Kaseler Concentration Test (Krampen 2007) was used in a modified form for the younger children.³ After evaluating the test it became clear that the total group of Mowglis could profit slightly (positive net effect of $d=0.2$) from the mentoring program. The extreme group of Mowglis, which could not concentrate well at the beginning of the project, was able to profit greatly (positive net effect of $d=1.25$) from the mentoring program (see Fig. 6).

Social competencies: empathy and realistic self-assessment

We measured the level of empathy and the realistic self-assessment in the area of social competencies. The child-

³ The Kaseler Concentration Test was modified and made more difficult for the children since a ceiling effect already appeared when using the original version in the first survey of the first cohorts included in the study. The variation could be increased greatly for the more difficult version; the individual test results are nearly evenly distributed.

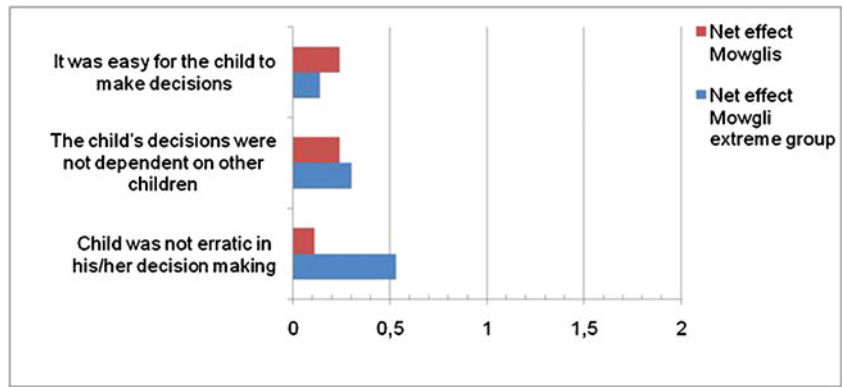
ren's empathy was measured and self-assessed through the Collection Inventory of Impulsivity, Risk taking and Empathy for the older children over the age of 8 years (Stadler et al. 2004). The results were analyzed separately for both sexes. It is clear that the boys as well as the girls from the treatment group demonstrated slight to middling positive net effects when compared to the boys and girls of the control group. Hence, the empathy ability of boys and girls developed more positively in comparison to the control group in the course of the project year. A different effect of the participation in "Balu und Du" can be seen in the extreme groups of both sexes with a particularly low empathy ability. While the extreme group of female Mowglis with low empathy ability only improved slightly in comparison to the equivalent control group, the male Mowglis demonstrated a very high positive net effect compared to the male control group ($d=0.8$, see Fig. 7).

The children's realistic self-assessment was appraised by means of questions posed to the children's teachers. Thus, at the beginning and the end of the project year, the teachers were supposed to assess, in their view, how realistically the children evaluated themselves in the areas of scholastics and sports. Following this approach, the treatment group's realistic self-assessment increased slightly during the project year when compared to the control group in reference to both their scholastic and athletic abilities. While the extreme group of Mowglis, whose realistic self-assessment of their scholastic ability differed greatly from reality, observed no mentionable effect ($d<-0.1$) in this area, the results for their realistic self-assessment in sports were quite different. In this field the treatment group demonstrated a very high positive net effect, i.e., the Mowglis, who, at the beginning of the project appraised their own athletic ability very unrealistically, now appraised their athletic ability in comparison to children from the control group with equally unrealistic self-assessment in sports much closer to reality (see Fig. 8).

Promotion of health-related quality of life

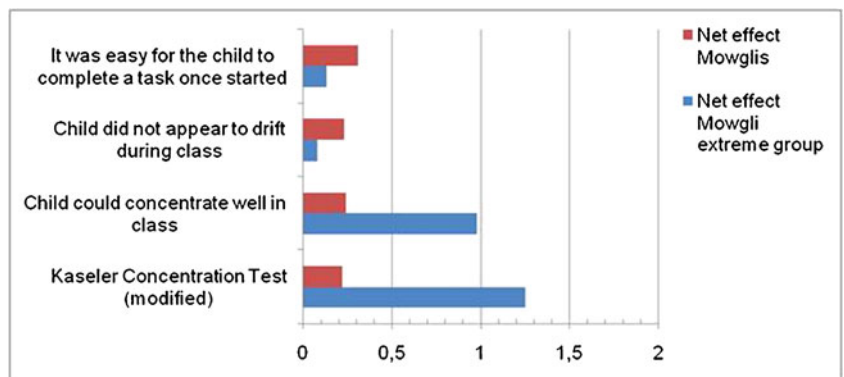
Along with the basic competencies, we surveyed the health-related quality of life. The children were asked to assess their subjective health and well-being themselves by using the KIDSCREEN questionnaire (medium-sized version with 27 items). The items contained in the KIDSCREEN can be allocated to five Rasch-scaled Health-Related Quality of Life dimensions. These are: physical well-being, psychological well-being, autonomy and parents, social support and peers as well as school environment (The KIDSCREEN Group Europe 2006). Possible effects of the mentoring program "Balu und Du" were, yet again, measured through the calculation of net effect size for the individual dimensions.

Fig. 5 Questions to the teachers concerning the children's decision making ability (net effects)



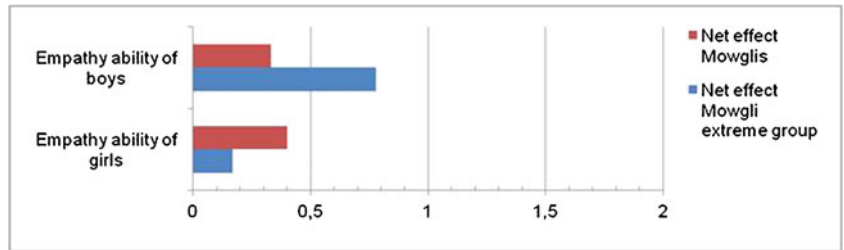
Effect size measurement: Cohen's d

Fig. 6 Questions to the teachers and concentration ability testing of the children (net effects)



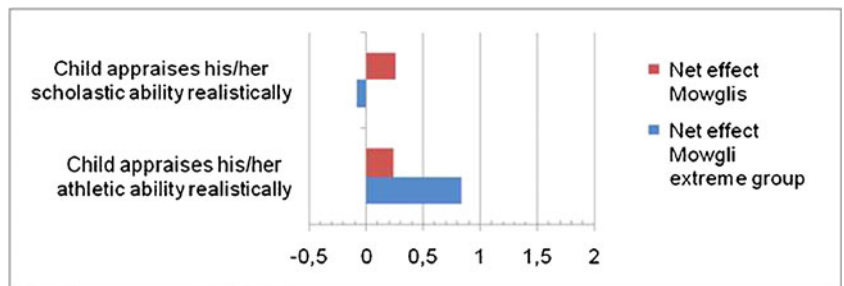
Effect size measurement: Cohen's d

Fig. 7 Children's self-assessment in reference to their empathy ability (net effects)



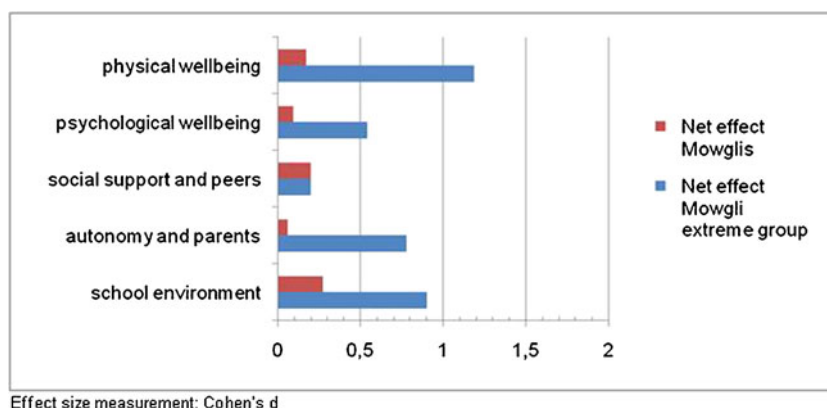
Effect size measurement: Cohen's d

Fig. 8 Questions to the teachers concerning the children's realistic self-assessment in sports and school (net effects)



Effect size measurement: Cohen's d

Fig. 9 Survey of the health-related quality of life of children with the KIDSCREEN (net effects)



Very small to slight net effects can be seen for the entire treatment group in reference to all five dimensions of health-related quality of life. The subgroup of Mowglis that had the poorest results at the beginning had much higher net effects overall with the exception of the dimension "social support and peers." They achieved mid-range effects in the dimension of "psychological well-being" and even high-range effects in the dimensions of "physical well-being," "autonomy and parents" and "school environment" (see Fig. 9).

Discussion

Sound measurement of basic competencies and health-related quality of life of children under the age of 10 requires closely adapted instruments. In order to improve the study design we combined well-established standard tests (KIDSCREEN, The Collection Inventory of Impulsivity, Risk taking and Empathy, The Kaseler Concentration Test) and questionnaires developed specifically for the project. Nevertheless, self-assessment of children in this age group comes with uncertainties.

Two limitations of the study were derived from ethical requirements. First of all, no child with teacher-defined need for participation could be excluded by random sampling or even wait until the start of the study before matching with her or his "Baloo." Therefore, the time of recruitment of the treatment group started 2 to 8 weeks after matching between mentors and mentees had taken place. This may have caused an underestimation of positive treatment effects. Another difficulty in the field of interpretation derives from the composition of the control group. Teachers were supposed to match class mates as controls in close relation to family background, personality and developmental problems of participants. However, they tended to choose the most impaired child for the treatment group and selected another class mate with slightly less impairment for the control group, which might have biased our results.

As the evaluation study shows, the mentoring program "Balu und Du" predominantly influenced the scholastic ability and motivation of the Mowglis. The willingness and ability of the children to hone knowledge and skills they will need for future problem solving (functional competencies) in a school setting grew with their participation in the project. The clear improvements in relation to scholastic success offer an explanation as to why the "Balu und Du" project was so well liked by elementary school teachers. Success in school benefits the children health-wise in the long run since education level is one of the most important predictors for health behavior and health-related quality of life (Paulus 2010). The fact that the Mowglis were able, on average, to function in school better at the end of the project year can certainly be correlated with the positive developments in the area of personal competencies (especially the improved ability for self-organization and an increased ability to concentrate) and in the social competencies (above all in the area of empathy). These results also correspond with the Mowglis' own self-appraisal. In their self-assessment, their health-related quality of life in school increased slightly in comparison with the control group; in the extreme group of Mowglis, who were quite unhappy in school previously, this even increased drastically. In reference to the further dimensions of health-related quality of life measured with KIDSCREEN, the Mowglis were able to profit slightly in the dimensions of "physical well-being" and "social support and peers." The extreme group, with its very low pre-study scores, showed middle to strong improvement in reference to "psychological well-being," "physical well-being" and "parents and autonomy."

Generally, it is noteworthy that particularly the children who at the beginning of the project had the lowest results in the individual basic competencies as well as in the dimensions of health-related quality of life were able to profit greatly from their participation in the project. Thus, the mentoring program "Balu und Du" was able not only to win over the often difficult to reach target group of socially

disadvantaged children for the project, but also to strengthen them markedly in their particular problem areas.

In opposition to the general, age-related trend of decreasing health-related quality of life, which has been observed for disadvantaged children and youth in several studies (Michel et al. 2009; Goldbeck et al. 2007), it is evidently possible, even in high-risk groups, to put a stop to this downward spiral.

Conclusion

The project "Balu und Du" was able to reach elementary school children from socially disadvantaged families and, by strengthening important basic competencies and their health-related quality of life, could prevent health-hazardous characteristics.

Conflict of interest The authors declare that they have no conflict of interest.

Funding The evaluation of the mentoring program "Balu und Du" was supported by a grant from the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung 01 EL 0802) to Prof. Dr. Hildegard Müller-Kohlenberg. The funder played no role in any phase of writing this paper, and the views expressed are solely those of the authors.

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