

Equal chances by the third generation? Cognitive and language skills of second and third generation children of Turkish origin in Germany

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-- Preliminary version --

Abstract

Many studies have demonstrated a disadvantageous position for children of Turkish immigrants in the German educational system. This paper analyses whether an intergenerational assimilation process can be detected regarding the cognitive skills and German language skills of young children of Turkish origin in Germany. A 'forms-of-capital' model is applied that assumes that the families' endowment with various sorts of capital strongly affects the next generation's skill development and educational attainment. A detailed differentiation of children's generational status is used including second and third generation immigrant children as well as the 2.5 generation and children of intermarriages with natives. The data of the project 'Preschool Education and Educational Careers among Migrant Children' show large differences between native German children and all groups of migrant children with regard to German language skills. Also substantial differences with regard to cognitive skills are found for all children of Turkish origin except for those with one native German parent. Second and third generation children do not differ from each other on both tests while especially children with a first generation mother and a second generation father score worse than all other groups. All differences between the generational groups (including the difference to the Germans) regarding children's cognitive skills can be explained by the families socioeconomic status and educational resources while significant generational differences remain regarding children's German language skills. This latter skill is very specific for the receiving society and all remaining generational differences within the sample of Turkish children can be accounted for by the parents' endowment with receiving country specific resources (e.g., parental German language proficiency). The results contradict the notion of a straight-line assimilation of Turkish immigrants in Germany.

Key Words: assimilation, integration, immigrants, second generation, third generation, skill development, ethnic educational inequality.

1. Introduction

Ethnic educational inequality is a well-established phenomenon in most Western countries (for an overview, see Heath and Brinbaum 2007). Children of immigrants usually perform worse than native children at school although there are clear differences between various ethnic groups (Levels et al. 2008; Portes and MacLeod 1999). As the PISA study has revealed, the achievement gap between natives and children of immigrants is particularly large in Germany (see OECD 2006). Here the greatest disadvantages in the educational system can be found for children of Turkish immigrants (Levels et al. 2008). This existence of ethnic educational inequality is alarming because educational success is a key for a good position in the labour market (see Solga 2002; van de Werfhorst 2007). Thus, ethnic disadvantages in the educational system threaten the long-term socioeconomic (also termed ‘structural’) integration of migrant children (see Esser 2006).

Assimilation theories assume a reduction of inequalities on various dimensions across generations (Park 1950; Gordon 1964; Warner and Srole 1946; for an overview see Alba and Nee 1997).¹ This includes the reduction of educational inequality meaning that ethnic disadvantages in school performance should diminish from one generation to the next. The classical assimilation perspective has been strongly criticized and especially the so-called ‘new immigration’ has challenged its predictions (Rumbaut 1997; Zhou 1997). Instead of eventual convergence into the receiving society, persistent differences across generations have been observed for some ethnic groups (see Landale et al. 1998; Perreira et al. 2006). Alternatives such as the ‘segmented assimilation theory’ have been developed which sees ‘downward assimilation’ as one possible outcome for some migrants (Portes and Rumbaut 2001; Portes and Zhou 1993; Zhou 1997). Thus, the pathway of the intergenerational integration process is not the same for all migrants (Gans 1992). Some scholars argue that the pattern of the integration process depends on the families’ endowment with various sorts of capital (Nee and Sanders 2001; Perreira et al. 2006). This capital endowment influences the families’ subsequent acculturation strategies which finally determine the amount and the composition of resources that are available for the next generation.

¹ The term ‘generation’ is defined in this paper with regard to ‘country of birth’: ‘First generation immigrants’ are born in a foreign country and later migrated. ‘Second generation immigrants’ are born in the receiving country but have parents who were both born abroad while the children of this latter group are termed ‘third generation immigrants’ (a more precise description is given in the data section).

This paper examines generational differences of 3-year-old children of Turkish origin regarding their non-verbal cognitive skills and German language skills in Germany. These two sorts of skills are 'key competencies' for children's later educational success (Demie and Strand 2006; Durham et al. 2007; Fergusson et al. 2008). Ethnic differences in children's school performance can be found quite early in children's educational careers (e.g., Crosnoe 2007) which suggests that children already start school with different skills and therefore different chances of success (see Biedinger et al. 2008). The educational system seems not to be able to compensate and equate such initial differences. It may, on the contrary, even magnify such differences (Bourdieu 1977). Thus, children's initial endowment with some specific skills upon starting school is highly important for their later educational careers.

Children of Turkish immigrants are the most disadvantaged group in the German educational system (Levels et al. 2008). There is also some evidence suggesting long-term disadvantages for children of Turkish origin even across generations (Segeritz et al. 2010). Thus, it is questionable whether assimilation regarding these skills takes place and whether third generation Turkish immigrants have caught up with natives. The first aim of this paper is to examine whether or not there are differences between children of Turkish origin with different generational status and also in comparison to native German children. The result might be different for non-verbal cognitive skills and German language skills because the latter is more dependent on the parents' acculturation strategy (e.g., ethnic composition of parents' social network). The second aim of the paper is to explain these generational differences by the families' socio-economic status (SES), their endowment with educational resources and migrant parents' acculturation strategies. I test the hypothesis that differences regarding children's cognitive skills can be fully explained by the families' SES and educational resources. In contrast, for the explanation of differences regarding children's German vocabulary, also the receiving country specific resources need to be taken into account. For the empirical analyses, I use the data of the German project 'Preschool Education and Educational Careers among Migrant Children' which includes more than 1,200 3-4-year-old children and their families half of which have a Turkish origin.

This paper clearly adds to the existing literature on intergenerational integration of migrants by using a very detailed differentiation of children's generational status including second and third generation immigrants as well as the '2.5 generation' (one parent is a first generation immigrant and the other a second generation immigrant) and intermarriages with natives. A group of native German children is used for comparison. In Europe, the third migrant

generation has hardly been observed until now (Alders and Keij 2001) although many scholars point to the importance of comparisons between the second and third migrant generation to analyse long-term tendencies of integration patterns (e.g., Segeritz et al. 2010: 118). Also, the 2.5 generation is often not separated from other groups and mostly lumped together with the second generation. This is problematic since these couples with one second generation immigrant and one ‘imported bride or groom’ from the sending country might have special characteristics that also influence their children’s integration (see Duncan and Trejo 2007). Thus, a clear advantage of this paper is the differentiation of those groups. The results of this paper also bear policy implications. Migrants’ educational and occupational success is a key factor for their integration into the receiving society. ‘Key competencies’ at an early age build the preconditions on this path. So, it is important to know whether or not assimilation takes place regarding such skills. If some migrants group do not follow an assimilation pattern in this respect, the analysis of their intergenerational adaptation may lead to insights about hampering factors in this process helping to reveal approaches to solutions.

2. Theoretical Background

2.1 Intergenerational adaptation and the role of migrants’ capital endowment

Until the 1960s, assimilation into the receiving society was considered to be most likely form of immigrant adaptation in the USA. But after that time, several anomalies have been witnessed that challenged the classical assimilation theory (see Zhou 1997: 978-980). Alternative theories have been formulated like the ‘segmented assimilation theory’ that also considers other paths of immigrant adaptation (Portes and Rumbaut 2001; Portes and Zhou 1993; Zhou 1997). But today, even scholars who argue in favour of a new assimilation concept do not deny the existence of other models of immigrant adaptation (Alba and Nee 2004). And on the other side, assimilation into the mainstream is also recognised in the segmented assimilation theory as one possible path for certain groups of migrants (Portes and Rumbaut 2001). Thus, the question is not whether assimilation takes place or not but under which circumstances. My theoretical framework for this question is a ‘forms-of-capital model’ as proposed by Alba and Nee (2003) which I extend by further differentiating between ‘general’ capital and capital that is ‘specific’ for a certain society (Kalter 2003).

Immigrants arrive in the receiving country with varying amounts of economic, human, social and cultural capital. Alba and Nee (2003) argue that the mix of these forms of capital in the families affects their subsequent acculturation behaviour (also see Nee and Sanders 2001). Migrant families combine these forms of capital to produce the greatest perceived advantage. If assimilation occurs, it usually does in an intergenerational process. It is the cumulative and often unintended effect of ‘pragmatic decisions’ in everyday life. These decisions are guided and restricted by the opportunities that are set by conditions in the receiving country (e.g., discrimination, institutions) and the ethnic community (e.g., group size, institutional completeness).

I extend this forms-of-capital model by further differentiating between ‘general’ and ‘society-specific’ capital. This differentiation goes back to Gary Becker who distinguished two sorts of human capital (Becker 1975: 16-37): ‘Specific human capital’ means skills or competencies that are useful only in the context of a single employer (e.g., within a certain firm), whereas ‘general human capital’ is useful in all contexts (in all firms). This differentiation can also be applied to other sorts of capital and other than work-related contexts. For my research question, I distinguish between general and society-specific capital (Chiswick 2009; Kalter 2003). General capital is useful in various types of contexts and can be easily transferred between societies without losing its value. Financial resources are a typical example. In contrast, society-specific resources have different values in different societies and cannot easily and completely be transferred to other societal contexts. In the case of migration, some of the resources that are specific to the sending country might be not very useful in the receiving country and are therefore ‘devaluated’ (e.g., proficiency in sending country language), whereas migrants often lack receiving country specific resources (e.g., proficiency in receiving country language) (Kalter 2003: 64). Of course, sending country specific capital can be useful within an ethnic community in the receiving country. And since it can also be acquired in such ethnic communities and not only in the sending country, I will refer to it more generally as ‘ethnic capital’.

As already stated, the mix of various sorts of capital affects immigrants’ subsequent acculturation strategies. In this paper, I apply Berry’s concept of individual acculturation strategies (Berry 1991, 1997) but use it in a broader sense referring to the inclusion or exclusion of immigrants in general. Immigrants have to decide whether they want to be included into the ethnic community and/or into the society of the receiving country (RC). These decisions lead to different acculturation strategies: whether to invest in RC-specific

capital, in ethnic capital or in both sorts. A fourth alternative would be not to invest at all. This type is termed 'marginalization' in Berry's scheme but will not be considered further here. The acculturation strategy of immigrants may vary on different domains. Esser (2006) differentiates a structural, a cultural, a social and an emotional dimension of immigrant adaptation. So, for example, an individual may be bilingual (cultural dimension: RC-capital + ethnic capital), has only co-ethnics as friends (social dimension: only ethnic capital) but considers himself as belonging only to the RC-society (emotional dimension: only RC-capital).

Newly arrived migrants are endowed with different amounts of economic, human, social and cultural capital. A part of these is general capital while another part is ethnic capital. Probably only few migrants arrive with RC-specific capital that they have already accumulated in the sending country (e.g., by taking language courses). The mix of these various sorts of capital as well as the local opportunity structure influences their subsequent acculturation strategies. This dependency of migrants' adaptation behaviour on their previous capital endowment is a core claim of Alba and Nee's 'new assimilation theory' (Alba and Nee 2003: 50) and also of the 'segmented assimilation theory' (Portes and Rumbaut 2001: 68). For example, those immigrants arriving with low stocks of financial and human capital are more likely than others to find a job in the ethnic economy (Nee and Sanders 2001). Migrants' acculturation strategies, in turn, determine which sorts of capital they subsequently accumulate. Thus, the initial quantity and composition of migrants' capital as well as their subsequent acculturation strategies affect the quantity and composition of capital that is available for the next generation.

2.2 Application to migrant children's skill development and school performance

For migrant children's educational careers, intergenerational assimilation means that there is convergence in the distribution of migrant and native children's educational attainment over the course of generations. This also implies that migrant children become more similar to native children regarding their competencies and their school performance. In principle, this is possible in both directions, either as 'upward' or 'downward assimilation', depending on the migrant group's relative starting position. For example, Asian first generation immigrants often outperform US natives in the educational system (Hagya and Staniec 2002; Vartanian et al. 2007). For them, assimilation into the mainstream would therefore mean a poorer school

performance of subsequent generations (Perreira et al. 2006). But for less privileged migrant groups (which typically applies to labour migrants and their families in Europe), assimilation regarding their educational careers means upward assimilation with a better school performance in subsequent generations. The alternative to this kind of (upward) assimilation would be a persistent worse school performance in comparison to native children, even across generations. This form of permanent exclusion is termed ‘segmentation’ throughout this paper. It is also termed ‘downward assimilation’ in the segmented assimilation theory because these migrants assimilate to the native underclass rather than to the middle class or the ‘mainstream’ (Zhou 1997). Though, ‘in the case of those who start from the very bottom, of course, the outcome is not so much assimilating downward as staying where they are’ (Zhou 1997: 999). I therefore prefer the term ‘segmentation’ for this form of persistent exclusion.

In this paper, I analyse the intergenerational adaptation patterns of Turkish immigrants in Germany. Since they are a disadvantaged migrant group (see section 2.4), the two adaptation alternatives regarding education are either (upward) assimilation or segmentation. What determines whether assimilation or segmentation is more likely to occur? To answer this question, I apply the ‘forms-of-capital’ model that I introduced in the last section.

It is a well-established finding that various sorts of parental resources strongly affect their children’s educational careers: Several studies show that parents’ endowment with economic, human, social and cultural capital is associated with children’s educational success (e.g., Aschaffenburg and Maas 1997; Barone 2006; Büchel and Duncan 1998; Portes and MacLeod 1999). One mechanism for this association is that parents with more resources are better able to promote their children’s skill development and school performance in various ways (see Bradley and Corwyn 2002). In principle, this reasoning applies to native and migrant families to the same extent. Differences in the distribution of these resources in migrant and native families lead to differences in children’s skills and school performance accordingly. *An intergenerational equalisation in the endowment with these resources therefore predicts assimilation regarding children’s skills and school performance.*

But in migrant families, not only the quantity of various sorts of capital matters but also whether these are general, RC-specific or ethnic. Migrant children’s acquisition of RC-specific skills very likely depends on their parents’ endowment with RC-specific resources (Becker 2010a, 2010b). This is, for example, very obvious in the case of language skills: Parents’ RC-language skills influence their children’s RC-language skills, especially at an

early age. Thus, the composition of RC-specific and ethnic resources in migrant families may be a further important determinant influencing whether assimilation or segmentation is more likely to occur regarding children's competencies and educational performance. *Here, my prediction is that a larger quantity of RC-specific resources benefits the assimilation process, especially regarding children's RC-specific skills.* This might seem a bit trivial but it is not. The segmented assimilation theory states that especially *ethnic* capital is a vital resource for second generation children's academic achievement (Portes and Rumbaut 2001). Thus, I differentiate between three types of migrant families in the later empirical analyses regarding their society-specific capital: those with only RC-specific capital, those with only ethnic capital and those with both sorts. If my prediction was true and only RC-specific capital mattered, those with only RC-specific capital and those with both sorts should perform at an equal level and outperform those with only ethnic capital. In contrast, the segmented assimilation theory predicts that those with only ethnic or both sorts of capital do not differ from each other but outperform those with only RC-specific capital.

Figure 1 summarizes the model of migrant children's skill acquisition and educational attainment. Whether assimilation occurs as an intergenerational adaptation pattern or not depends on the capital endowment of the previous migrant generation, the local opportunity structure and migrants' acculturation strategies.

-- about here figure 1 --

2.3 Mixed generational groups

If an intergenerational (upward) assimilation process takes place regarding migrants' education, second generation children are supposed to attain higher educational levels than their (often low-educated) parents but are, in turn, exceeded by third generation children. But what happens to children with a 'mixed' generational status? Here, I want to discuss two groups that are often neglected in the literature on the intergenerational integration of migrants: children of intermarriages with natives and children with one first generation parent and one second generation parent (the 2.5 generation).

Children of intermarriage with natives (one immigrant parent + one native parent)

Children with one immigrant parent and one native parent may be in an advantageous position compared to other migrant children because the native parent has easy access to RC-specific capital. Also, migrants who marry a native may be positively selected on certain

characteristics like education and RC-language proficiency (Duncan and Trejo 2007; González-Ferrer 2006; van Tubergen and Maas 2007). A positive effect of intermarriage on children's education is confirmed in the study by van Ours and Veenma (2010) for mixed marriages between a Moluccan father and a native mother in the Netherlands.

The 2.5 generation (one first generation immigrant parent + one second generation immigrant parent)

Children with one first generation and one second generation parent may be in a middle position compared to second and third generation children. But it is also conceivable that second generation immigrants who marry a co-ethnic from the country of origin ('imported bride or groom') are a negatively selected group on various characteristics like socioeconomic status and RC-specific capital. For example, the results of Duncan and Trejo (2007) on Mexican immigrants in the USA support this possibility: US-born Mexicans married to first generation Mexican immigrants are less educated, less English proficient, less often employed and earn less compared to US-born Mexicans with spouses that are also US-born Mexicans. Studies on the educational attainment of the 2.5 generation (as defined above) do not exist. Ramakrishnan (2004) reports less high school drop out, more years of education and a higher rate of college graduates among the 2.5 generation compared to the second generation in the USA. But he uses a different definition of the 2.5 generation (one parent native-born + one parent foreign-born) that lumps together children with one first and one second generation parent and children of intermarriages between a first generation immigrant and a native (the same is done by Rumbaut 2004 with similar results). So, the educational attainment of children with one first and one second generation parent in comparison to second and third generation children still needs to be addressed.

2.4 Turkish immigrants in Germany

In the 1960s, the German industry was in need for low-skilled labour and started to recruit 'guestworkers'. Many of these labour migrants came from Turkey, beginning in 1961 with an official recruitment agreement between Germany and Turkey. Most of these 'guestworkers' came from rural areas, originated from the lowest socioeconomic strata in their home country and had little education (see Crul and Vermeulen 2003: 970-971). The economic recession after the oil crisis slowed the demand for labour migrants and in 1974 an official immigration stop was enacted. After that time, a period of family reunion followed. In the 1980s and 1990s, a new migration upturn occurred when the next generation reached marriage age and

quite a high proportion chose spouses from Turkey (see Crul and Vermeulen 2003: 970; González-Ferrer 2006: 175). About 2.5 million individuals of Turkish origin lived in Germany in 2008 constituting the largest migrant group in Germany (Statistisches Bundesamt Deutschland 2010: table 2).

Many studies show that children of Turkish origin are the most disadvantaged ethnic group in the German educational system: They are more likely to attend the lowest secondary school track ('Hauptschule'), are less likely to attend the highest secondary school track ('Gymnasium'), have a higher probability to leave the educational system without any certificate and have, on average, lower educational attainments compared to native Germans but also in comparison to other groups of labour migrants (Alba et al. 1994; Kristen and Granato 2007; Riphon 2004; Segeritz et al. 2010; von Below 2007). Children of Turkish origin in Germany also score worst on academic achievement tests like in the PISA study (Levels et al. 2008; OECD 2006). Now, the question arises whether this educational disadvantage diminishes over generations (upward assimilation) or whether it remains stable (segmentation).

Some studies compared Turkish first generation children, Turkish second generation children and native German children regarding their school performance and educational attainment. Whether these studies suggest assimilation or segmentation depends on the focus and which contrasts are emphasised. On one side, Turkish second generation children attain higher educational levels than Turkish first generation children which points to assimilation tendencies (Segeritz et al. 2010; von Below 2007). On the other side, there is still a very large gap between Turkish second generation children and native German children (Kristen and Granato 2007; Riphon 2004; Segeritz et al. 2010; von Below 2007). Some authors interpret this strong disadvantage of the Turkish second generation as an indication of segmentation especially because other migrant groups have made greater progress (Segeritz et al. 2010). But since the descendants of immigrant minorities 'assimilate at varying rates depending on the mix of family capital' (Alba and Nee 2003: 50) it is also possible that Turkish immigrants in Germany just assimilate at a slower rate rather than remaining permanently excluded (also see Diehl and Schnell 2006). Thus, to get a clearer picture about assimilation or segmentation tendencies in the education of children of Turkish origin in Germany, a comparison between the second and third generation is necessary.

From the findings in the literature, it can be prognosticated that Turkish second generation children have lower levels of cognitive and language skills than native German children. This difference can be expected because their parents (first generation immigrants) have, on average, a lower SES than German parents (Segeritz et al. 2010: table 2a). Whether the third generation has been able to catch up with native German children seems questionable but some progress in comparison with the second generation may be expected. Generational differences in children's skills may not only exist because of differences in parents' SES but also because of differences in their endowment with RC-specific capital. But here, I assume differences between the two types of skills: language skills (that are RC-specific) are more dependent on parents' endowment with RC-specific capital than cognitive skills. The concrete hypotheses of this paper are formulated in the next section after the generational groups have been defined in more detail.

3. Data and hypotheses

3.1 Data

For the empirical analyses, I use the data of the project 'Preschool Education and Educational Careers among Migrant Children' which is carried out at the Mannheim Centre for European Social Research at the University of Mannheim (Germany). In this project, we randomly selected German and Turkish families with a 3-4-year-old child from the data of resident-registration offices in 30 cities and communities of a local region in South-West Germany. A letter describing the study was sent to the families (Turkish families received this letter in both German and Turkish). Thereafter, interviewers contacted the families to arrange a date for the interview at their homes. A computer-assisted personal interview was conducted with the parent who spends the most time with the child (this was the mother in about 95 per cent of the cases). Turkish families were contacted by bilingual interviewers, and the parents could choose their preferred language for the interview. After the parent interview, the standardised developmental test 'Kaufman Assessment Battery for Children' (K-ABC) was conducted with the child (German version, see Melchers and Preuß 2003). It includes subtests of children's cognitive competence and of their German vocabulary. Altogether, we surveyed 627 Turkish and 610 German families in the first half of the year 2007. The response rates were 69 percent in Turkish families, and 63 percent in German families.

Children's generational status was defined with respect to their parents' and grandparents' place of birth. Their own place of birth was not used since only seven children in the sample were not born in Germany but migrated within the first two years of life. The following groups are differentiated:

- *Mo1Fa1 (mother is first generation immigrant + father is first generation immigrant):* Both of the child's parents are born in Turkey. This group is also referred to as 'second generation'.
- *Mo1Fa2 (mother is first generation immigrant + father is second generation immigrant):* The child's mother is born in Turkey. The father is born in Germany but at least one of his parents is born in Turkey. This group is also referred to as '2.5 generation'.
- *Mo2Fa1 (mother is second generation immigrant + father is first generation immigrant):* The child's father is born in Turkey. The mother is born in Germany but at least one of her parents is born in Turkey. This group is also referred to as '2.5 generation'.
- *Mo2Fa2 (mother is second generation immigrant + father is second generation immigrant):* Both of the child's parents are born in Germany but both have at least one parent born in Turkey. This group is also referred to as 'third generation'
- *Mixed Marriage (one parent is a native German and the other parent a first or second generation immigrant):* One parent is born in Germany as well as both of his or her parents. The other parent is either born in Turkey or at least one of his or her parents is born in Turkey. A further differentiation was not possible due to small sample sizes.
- *Both natives:* Both of the child's parents as well as both of their parents are born in Germany.

Cases with other than Turkish-German intermarriages (N=22) are not included in the analysis sample. A considerable drop of cases occurred for the comparison group of native Germans, because the original German sample included several cases where either at least one grandparent was born abroad or the place of birth of at least one grandparent was unknown to the respondent (N=112). Using only cases with full information on the model variables leaves an analysis sample of N=1,067 (the sample sizes of the different generational groups are shown in table 1). The sample sizes for the groups 'Mo2Fa2' (N=41) and 'mixed marriage' (N=35) are rather small. Thus, the results of these groups have to be interpreted with care. The operationalisation of the model variables is presented next.

Non-verbal cognitive skills (dependent variable 1):

The results of the following subtests from the ‘Kaufman Assessment Battery for Children’ (K-ABC) are used as indicators of children’s general cognitive competency:

- *Magic window:* The child has to identify and name an object whose picture is rotated behind a narrow slit, so that the picture is only partially visible at any point in time.
- *Face recognition:* The tester presents a face in a photograph to the child for five seconds, after which the child is then shown a group photograph. The child is required to recall the previously presented face and to select the correct face in the group photograph.
- *Gestalt closure:* An inkblot drawing is shown to the child and the child has to identify and name the object.
- *Number recall:* The child repeats a series of digits read aloud by the tester.

The test instructions could be given in either German or Turkish and child could also answer in either language. These subtests measure the children’s sequential processing and their simultaneous processing skills (for more details about these subtests, see Melchers and Preuß 2003). Instead of the aged-standardised test scores, which use only 3-month-intervals for the age adjustment, I utilise the raw test scores and control for age in months in the later analyses. All four subtests load on only one factor in a principal component factor analysis. Thus, the arithmetic mean of the four subtest scores (standardised for different ranges of value) is used as an overall measure of children’s cognitive skills. For a better interpretation, this test score is then z-standardised so that the overall mean is 0 and has a standard deviation of 1.

German language skills (dependent variable 2):

Children’s German-language proficiency is measured by the subtest ‘expressive vocabulary’ from the K-ABC. In this subtest, the children were shown pictures of objects and were asked to name them. The names of the objects had to be given in German, although the test instructions could be stated in either German or Turkish. Here again, the z-standardised raw test score is used.

Families’ socio-economic situation:

I use the parents’ educational level, their social class and the mother’s employment status as indicators for the families’ socio-economic situation:

Parents’ educational level: The highest educational level of both parents is used. Because of little variation in higher educational levels in the Turkish sample, I only use a dichotomous variable:

- *low*: no formal educational degree or compulsory elementary education (up to 9 years of schooling),
- *intermediate/high*: intermediate secondary school degree or higher (10 years of schooling or more).

Parents' class position: The highest class position of both parents is used. If a parent was not employed at the time of the interview, the class position of the former occupation is utilised. Because of little variation in the Turkish sample, I only use a dichotomous variable:

- *low*: manual workers and routine non-manuals,
- *intermediate/high*: professionals, administrative and managerial occupations, employers and self-employed.

Mother's employment status: 1: mother is employed, 0: mother is not employed.

Families' educational resources:

Several studies show that families' 'educational resources' strongly affect children's development in various domains (e.g., Bradley and Corwyn 2002; Ermisch 2008). I use this term as an umbrella term for everything that contributes to a positive learning environment at home. It includes stimulating materials in the home (like books and toys), but also favourable parental communication styles, parenting styles, joint parent-child activities etc. This is similar to the 'home environment' concept in the literature (Totsika and Sylva 2004). In this study, I use the following indicators:

Number of children's books: Three categories are distinguished (0-10, 11-30, > 30 books).

Familial activities: Additive index of eight items: doing the following activities at least several times a week: telling stories to child, reading books to child, singing together with child, playing cards or board games with child and doing a jigsaw puzzle; ever visited the following places together with child: a zoo or circus, a library and a museum or theatre.

Migrant parents' acculturation strategy:

In different domains, immigrants have the choice of rather investing in ethnic capital, in RC-specific capital, or in both. These different acculturation strategies affect the kind of resources that are available to foster their children's development. For each domain, it is differentiated whether the parents have only invested in ethnic capital ('only Turkish'), only in RC-specific capital ('only German'), or in both sorts ('Turkish + German'). 'Only Turkish' serves as the reference category in the later analyses. The few cases where no investment was made (e.g., parents have no friends at all) are also included in the reference category.

Political integration: parents' citizenship

- *only Turkish:* at least one parent has the Turkish citizenship, no parent has the German citizenship,
- *Turkish + German:* at least one parent has the German citizenship, at least one parent has the Turkish citizenship,
- *only German:* at least one parent has the German citizenship, no parent has the Turkish citizenship.

Social integration: composition of respondents' social network

- *only Turkish:* the parents have no or only a few German friends and at least half of their friends have a Turkish origin,
- *Turkish + German:* the parents have more than a few German friends and more than a few Turkish friends,
- *only German:* the parents have no or only a few Turkish friends and at least half of their friends are Germans.

Cultural integration: respondents' language proficiency and language use

a) Parents' native language

Because there are too few cases with German as the only native language in the family (N=7), I use a dichotomous variable indicating whether German is the native language of at least one parent or not.

b) Parents' language skills: respondents' self-reported proficiency in speaking and reading each language on a 5-point-scale ranging from 'not at all' to 'very well' (arithmetic mean of both items)

- *only Turkish:* the parents' proficiency in Turkish is at least 'good', their proficiency in German is worse than 'good',
- *Turkish + German:* the parents' proficiency in Turkish and German is at least 'good',
- *only German:* the parents' proficiency in Turkish is worse than 'good', their proficiency in German at least 'good'.

c) Parents' language use: frequency of using each language when visiting relatives or friends

- *only Turkish:* German is never or rarely spoken, Turkish is spoken at least half of the time,
- *Turkish + German:* Turkish and German are spoken more frequently than 'rarely',
- *only German:* Turkish is never or rarely spoken, German is spoken at least half of the time.

Emotional integration: respondents' identity measured by two questions about their sense of belonging to the receiving country and to the country of origin

- *only Turkish:* the parents identify not at all or only 'barely' with Germany and at least 'in some respects' with Turkey,
- *Turkish + German:* the parents identify at least 'in some respects' with Germany and Turkey,
- *only German:* the parents identify not at all or only 'barely' with Turkey and at least 'in some respects' with Germany.

Control variables:

In all multivariate models, the child's age in months, the child's sex, the number of children in the family and the mother's age at child's birth are also included.

3.2 Hypotheses

The literature has yielded ambiguous results about the intergenerational integration process of Turkish migrants in Germany. Thus, competing hypotheses are formulated about the generational differences in Turkish children's skills and the gap to native German children:

Assimilation hypotheses:

H1a) Third generation Turkish children (Mo2Fa2) have better cognitive skills and German language skills than second generation Turkish children (Mo1Fa1).

H1b) There is no difference between third generation Turkish children (Mo2Fa2) and native children ('both natives') regarding their cognitive skills and German language skills.

Segmentation hypotheses:

H2a) There is no difference between second (Mo1Fa1) and third (Mo2Fa2) generation Turkish children regarding their cognitive skills and German language skills.

H2b) Second and third generation Turkish children (Mo1Fa1 and Mo2Fa2) have lower cognitive skills and German language skills than native children ('both natives').

The results in the literature allow some predictions about the relative performance of children of intermarriages. About the 2.5 generation, competing hypotheses are tested.

Hypothesis about the intermarriages:

H3) Children of Turkish-German intermarriages have better cognitive skills and German language skills than the other groups of Turkish children.

Competing hypotheses about the 2.5 generation:

H4a) The 2.5 generation takes up a middle position between the second and third generation: The test results of the 2.5 generation (Mo1Fa2 and Mo2Fa1) are better than those of the second (Mo1Fa1) but worse than those of the third generation (Mo2Fa2).

H4b) Since the mother has usually more influence on young children's development, only the mother's generational status is relevant: The test results of the 'Mo2Fa1' group is similar to the third generation (Mo2Fa2) and the test results of the 'Mo1Fa2' group is similar to that of the second generation (Mo1Fa1).

H4c) Families with an 'imported bride or groom' from the home country might be a negatively selected population: The test results of the 2.5 generation (Mo1Fa2 and Mo2Fa1) are worse than those of the second and third generation (Mo1Fa1 and Mo2Fa2).

In a second step, I want to explain the differences between the generational groups in multivariate analyses by the families' endowment with various resources. Here, I have different hypotheses regarding the two different types of skills.

H5) All group differences regarding children's cognitive skills can be fully explained by the families' socioeconomic situation and educational resources.

H6) The group differences regarding children's German language skills cannot be fully explained by the families' socioeconomic situation and educational resources. Additionally taking into account migrant families' endowment with RC-specific capital can explain residual generational differences within the sample of Turkish children.

4. Results

Table 1 presents descriptive statistics of all model variables separated by generational groups. The first two rows show the means of children's test scores. There are no differences between second and third generation children (Mo1Fa1 vs. Mo2Fa2) regarding their cognitive skills and only a non-significant difference regarding their German language skills (this supports H2a and contradicts H1a). But here, it has to be considered that the sample size of the third generation immigrants (Mo2Fa2) is small and that this difference might have been significant with a larger sample size. All children of Turkish origin except the 'mixed marriage' group score significantly worse in the cognitive skills tests in comparison to the German comparison group ('both natives'). And all (including the 'mixed marriage' group) score significantly worse regarding their German vocabulary. This finding is in line with H2b while H1b can be

rejected. Thus, the intergenerational comparison of young children's skills indicates segmentation rather than assimilation.

The results regarding the other groups are also informative. Firstly, the children of mixed marriages are clearly better in both tests than all other children of Turkish origin (support for H3) and they are even better than the German comparison group regarding their cognitive skills (though the difference is not significant). However, their mean test score at the German vocabulary test is significantly worse than that of the native German children. Secondly, children with a first generation mother and a second generation father (Mo1Fa2) seem to be particularly disadvantaged. They have the worst mean scores in both tests. But especially the gap regarding the German language skills is notable: They score more than a standard deviation below the average and two standard deviations below the mean of the German comparison group. Thus, the hypothesis of the negative selectivity (H4c) seems to fit to the Mo1Fa2 group. In contrast, the Mo2Fa1 group does not differ from the second (Mo1Fa1) or the third (Mo2Fa2) generation.

-- about here table 1 --

There are also other differences between the generational groups (see table 1). Regarding parents' educational level and social class, there is a clear gap between the native Germans and all groups of Turkish families. Children of mixed marriages are in an intermediate position between the German children and the other children of Turkish origin. The same pattern emerges regarding the number of children's books. There are no differences in the frequency of familial activities between children of mixed marriages and German children, and both of these groups have significant higher means on this activity index than the other groups of Turkish children.

A comparison of migrant parents' acculturation strategies reveals that the parents in intermarriages are much more likely to possess RC-specific capital than the other migrant groups (all group differences are significant). The proportion of families with only ethnic capital ('only Turkish') is very small in this group. Families with a second generation mother (Mo2Fa1 and Mo2Fa2) have on average more RC-specific capital than families where the mother is a first generation immigrant (Mo1Fa1 and Mo1Fa2). But of course, it has to be considered that in most cases (95 per cent) the respondents were the mothers and that some of the questions refer only to the respondents. But comparing the second and the third generation

(Mo1Fa1 vs. Mo2Fa2) also reveals an intergenerational change regarding parents' endowment with RC-specific capital.

Next, I conducted multivariate analyses to test whether the families' endowment with various resources can explain the group differences in children's skills. In a first step, I use the whole sample (including the native German children) and examine whether the families' socioeconomic situation and educational resources can explain the group differences. The results of these analyses are presented in table 2. In a next step, migrant parents' acculturation strategies are additionally taken into account which is, of course, only possible for the subsample of migrant families. These results are shown in table 3. I use the third generation (Mo2Fa2) as reference category in all analyses because the differences of all other groups to this one are of great theoretical relevance (see hypotheses). But I also replicated the analyses with other reference categories (results available upon request).

-- about here table 2 --

Models 1-3 in table 2 show the results of OLS-regressions with children's cognitive skills as dependent variable. In model 1, the descriptive results of table 1 are repeated: Children of mixed marriages and native German children score better in the cognitive skills test than the third generation (Mo2Fa2) while there is no difference between the latter and the other generational groups. Model 2 adds the families' socioeconomic situation. As might be expected, these variables are positively associated with children's cognitive competency. Now, the effects of the 'mixed marriage' and the 'both natives' group strongly decline and the remaining effect of the 'both natives' group is not significant any more. Additionally taking into account the families' endowment with educational resources (model 3) reduces also the 'mixed marriage' effect to non-significance. So, all group differences regarding children's cognitive skills can be fully explained by the model variables (support for H5). Model 3 also shows that the number of children's books in the home and the frequency of familial activities have a significant positive impact on children's cognitive skills. The generational group differences of the models 1-3 are also illustrated in figure 2 (upper part).

Models 4-6 in table 2 show the analogous results for children's German vocabulary. Model 4 exhibits a large gap (>1 standard deviation) between the third generation (Mo2Fa2) and both the 'mixed marriage' as well as the 'both natives' group. On the other side, the Mo1Fa2 group performs worse while there is no significant difference between the second (Mo1Fa1) and the

third (Mo2Fa2) generation. In model 5, the socioeconomic situation of the families is additionally controlled and these variables have significant positive effects. The generational differences are a bit reduced in this model but remain significant. Model 6 additionally includes the families' educational resources which positively influence children's language skills. But the generational differences decline only slightly and remain significant. This supports the first part of hypothesis H6. The group differences of the models 4-6 are depicted in figure 2 (lower part).

-- about here figure 2 --

To sum up, figure 2 demonstrates that generational group differences exist in young children's competencies. These differences are much more pronounced in the case of language skills than in the case of cognitive skills. Controlling for families' SES and educational resources reduces these generational effects. Regarding children's cognitive skills, only small non-significant effects are left. In contrast, a large gap between the language skills of the third generation and children of mixed marriages and native children remains unexplained. Also, the model variables cannot fully account for the worse language skills of children with a first generation mother and a second generation father (Mo1Fa2).

In the case of children's cognitive skills, all group differences have been explained by the families' socioeconomic situation and educational resources. But regarding the children's German language skills, large differences were left. Since language skills are specific for the receiving country, migrant families' acculturation strategies might explain these remaining differences. Therefore, I examine the generational differences within the subsample of migrant families by additionally taking into account their endowment with RC-specific and ethnic capital. The results are presented in table 3.

-- about here table 3 --

Models 7-9 in table 3 replicate the results of models 4-6 from table 2 for the subsample of migrant families (without the 'both natives' group). Model 10 additionally includes migrant families' acculturation strategies. The coefficients of these 'integration indicators' are positive: Parents' investments in either only RC-specific capital ('only German') or both ethnic *and* RC-specific capital ('Turkish and German') are associated with better German language skills of their children compared to the strategy of only investing in ethnic capital

(‘only Turkish’, the reference category). Not all of the effects are significant, though. But this is hardly surprising since these integration variables are mostly correlated with each other. When all these integration indicators are included in one model, especially parents’ citizenship, their language proficiency and their language use turn out to be highly influential. Thereby, the effects of the ‘only German’ option tend to be larger than the effects of the ‘Turkish and German’ option. In model 10, the effects of the generational groups are strongly reduced compared to model 9. The disadvantage of the Mo1Fa2 group in comparison to the Mo2Fa2 group has mostly disappeared and is not significant any more. Also the large positive effect of the ‘mixed marriage’ group in model 9 is strongly reduced and only marginally significant. Thus, after families’ SES and educational resources have already been taken into account, the remaining generational differences can mostly be explained by migrant families’ acculturation strategies. This is also illustrated in figure 3.

-- about here figure 3 --

5. Discussion

The results in this paper have shown little signs for an intergenerational assimilation process regarding cognitive and language skills of children of Turkish origin in Germany. Third generation children did not differ in their test scores compared to second generation children and both groups lagged far behind native German children. Though, it has to be remembered that the sample size of the third generation group was quite small in this study and that these results should be seen as preliminary and replicated with a larger data set.

These findings point to intergenerational segmentation for children of Turkish origin. Because early skills are prognostic for children’s later skill development and educational success (Feinstein 2003) ethnic educational inequality is likely to continue in the third generation. This does not contradict the possibility of a ‘slow assimilation’, however. Alba and Nee (2003) have argued that assimilation occurs at varying rates for different groups depending on their mix of family capital. ‘Stagnation’ in the intergenerational assimilation process is likely to occur in cases of low-wage migration. But ‘their fate should not already been regarded as sealed’ (Alba and Nee 2004: 36, own translation). But Alba and Nee also see the possibility that long-term disadvantages remain for some migrant groups as it was also the case among the children of some European immigrants in the USA in former times who entered the urban working class (Alba and Nee 2003: 50). This would correspond to the ‘downward

assimilation' type in the segmented assimilation theory. Whether the descendants of Turkish immigrants in Germany will finally experience upward assimilation or persistent segmentation ('downward assimilation') remains an open question. But at least, the results of the present study indicate that there is no 'straight-line assimilation' for this group.

What are the reasons why Turkish third generation children still lag behind German children and why they are not better compared to second generation children? This paper has shown that the families of these Turkish third generation children are in worse socio-economic situations and less endowed with educational resources compared to German families. This completely explains the difference regarding children's cognitive competencies: German children with a similar socio-economic background are on the same level in the cognitive skills test. The reason why there is no progress compared to second generation children is that there is also only little (mostly non-significant) improvement in the families' socio-economic situation. But this last result should again be regarded with care because of the small sample size of the third generation: There are some differences between second and third generation children regarding their parents' SES and educational resources and all differences – albeit mostly not significant – are in favour of the third generation children. So, here is some hope that persistent segmentation does not need to be the outcome for subsequent generations.

Regarding children's German language skills, the situation is a bit different. Here again, there is a positive and a negative side of the story. The negative side is that the gap between Turkish third generation children and German children is much larger regarding their German language skills compared to their cognitive skills. And taking into account the families' SES reduces this difference only a bit. So here, an 'ethnic' disadvantage remains. The positive side is that on most dimensions, the parents of the third generation children are better equipped with RC-specific capital than the parents of the second generation children. Parents' endowment with RC-specific capital like their RC-language proficiency has turned out to be strongly associated with their children's RC-language skills. So, although the difference in the German language skills between the second and third generation has not been significant (here again, the small sample size has to be considered), there is hope for further intergenerational progress in this respect because the RC-specific capital has clearly increased over the generations.

Some other results of this study are also noteworthy. There is one group of children of Turkish origin that clearly follows the path of upward assimilation: the children of mixed

marriages between a Turkish immigrant and a native German. These children are better in their test results than all other groups of Turkish children. Regarding their cognitive skills, they are even better than native German children (though the difference is not significant). Only regarding their German language skills, they score worse than the children with two German parents. But also with respect to their German language skills, these children are on a good way because there is much RC-specific capital available in their families. All other groups of Turkish children score worse on the German language skills test compared to this group because of their lesser endowment with RC-specific resources.

One group of children that also attract attention are those with a first generation immigrant mother and a second generation immigrant father (Mo1Fa2). This group scores worse in both tests despite the fact that one parent is born in Germany. The educational attainment of this '2.5 generation' has not been studied so far. If the term '2.5 generation' appears in the literature, it mostly refers to children with one parent born abroad and one in the receiving country (e.g., Ramakrishnan 2004). But this definition lumps together children of intermarriages with one native parent and one immigrant parent and children with one first and one second generation immigrant parent. As the present study has shown, these are the best and the worst performing migrant group – and surely should not be mixed up. The reason why children with a first generation immigrant mother and a second generation immigrant father score worse than the other groups of Turkish children is their worse endowment with some sorts of capital, especially RC-specific capital. In this group, there is the highest proportion of parents with only ethnic capital and no RC-capital on various dimensions (e.g., 81 percent of the respondents are only proficient in Turkish but not in German). This is different for the group of children with a first generation father and a second generation mother – this group is quite similar to the third generation. Thus, there seems to be negative selectivity in the group of first generation mothers and second generation fathers. This points to an interpretation that, on the one side, especially second generation males who 'import' their brides from the country of origin may be negatively selected on various dimensions and, on the other side, their 'imported' spouses lack RC-specific resources. In these families, there may be a strong tendency to further invest in ethnic capital rather than accumulating RC-specific capital. But this interpretation cannot be tested with the current dataset because one cannot sure whether the first generation mothers are really 'imported for marriage' because the information about age of marriage is missing. So, this group should be analysed in more detail in future studies.

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Tables and figures

Table 1: Children's test scores and family characteristics by generational status (means or proportions)

	Mo1Fa1	Mo1Fa2	Mo2Fa1	Mo2Fa2	Mixed marriage	Both natives
Children's non-verbal cognitive skills	-0.25 e,f	-0.44 c,e,f	-0.16 b,e,f	-0.27 e,f	0.53 a,b,c,d	0.26 a,b,c,d
Children's German vocabulary	-0.78 b,e,f	-1.10 a,c,d,e,f	-0.78 b,e,f	-0.64 b,e,f	0.56 a,b,c,d,f	0.89 a,b,c,d,e
Number of children in the family	2.76 b,c,d,e,f	2.01 a,d	2.10 a,d	1.68 a,b,c,f	2.06 a	2.04 a,d
Mother's age at child's birth	29.63 b,c,d,f	24.46 a,c,e,f	26.33 a,b,e,f	25.66 a,e,f	30.89 b,c,d,f	32.57 a,b,c,d,e
Parents' educational level: >9 years of schooling	0.26 b,e,f	0.38 a,e,f	0.33 e,f	0.34 e,f	0.77 a,b,c,d	0.87 a,b,c,d
Parents' social class: intermediate or high	0.13 e,f	0.18 e,f	0.14 e,f	0.22 e,f	0.54 a,b,c,d,f	0.77 a,b,c,d,e
Mother employed	0.17 d,e,f	0.15 e,f	0.22 e,f	0.29 a	0.40 a,b,c	0.43 a,b,c
Number of children's books: #						
0-10	0.78	0.82	0.69	0.61	0.14	0.03
11-30	0.19	0.16	0.30	0.34	0.43	0.37
>30	0.03 d,e,f	0.01 d,e,f	0.02 e,f	0.05 a,b,e,f	0.43 a,b,c,d,f	0.60 a,b,c,d,e
Familial activities (index)	0.47 c,d,e,f	0.47 e,f	0.52 a,e,f	0.54 a,e,f	0.71 a,b,c,d	0.74 a,b,c,d
<i>Parents' citizenship: #</i>						
Only Turkish	0.62	0.68	0.46	0.44	0.03	
Turkish + German	0.25	0.28	0.48	0.37	0.49	--
Only German	0.13 c,e	0.04 c,d,e	0.06 a,b,d,e	0.20 b,c,e	0.49 a,b,c,d	
<i>Parents' social network: #</i>						
Only Turkish	0.82	0.92	0.71	0.63	0.11	
Turkish + German	0.14	0.07	0.21	0.27	0.14	--
Only German	0.04 c,d,e	0.01 c,d,e	0.07 a,b,e	0.10 a,b,e	0.74 a,b,c,d	
<i>Parents' native language:</i>						
At least one parent with German as native language	0.02 b,c,d,e	0.09 a,e	0.08 a,e	0.12 a,e	0.94 a,b,c,d	--
<i>Parents' language skills: #</i>						
Only Turkish	0.63	0.81	0.11	0.10	0.06	
Turkish + German	0.35	0.18	0.77	0.78	0.20	--
Only German	0.02 b,c,d,e	0.01 a,c,d,e	0.12 a,b,e	0.12 a,b,e	0.74 a,b,c,d	
<i>Parents' language use: #</i>						
Only Turkish	0.89	0.93	0.63	0.59	0.06	
Turkish + German	0.09	0.05	0.33	0.39	0.29	--
Only German	0.02 c,d,e	0.01 c,d,e	0.04 a,b,e	0.02 a,b,e	0.66 a,b,c,d	

- Continued on the next page -

Table 1 continued

	Mo1Fa1	Mo1Fa2	Mo2Fa1	Mo2Fa2	Mixed marriage	Both natives
<i>Parents' identity:</i> #						
Only Turkish	0.76	0.76	0.56	0.49	0.06	
Turkish + German	0.21	0.23	0.34	0.49	0.60	--
Only German	0.03 c,d,e	0.01 c,d,e	0.10 a,b,e	0.02 a,b,e	0.34 a,b,c,d	
Number of cases	327	74	108	41	35	482

Source: Project 'Preschool Education and Educational Careers among Migrant Children', own calculations

Notes:

Generational groups:

Mo1Fa1: both parents are first generation immigrants

Mo1Fa2: mother is first generation immigrant and father is second generation immigrant

Mo2Fa1: mother is second generation immigrant and father is first generation immigrant

Mo2Fa2: both parents are second generation immigrants

Mixed Marriage: one parent is a native German and one parent is a first or second generation immigrant

Both natives: both parents are native Germans

a-f) The difference to the group a) Mo1Fa1, b) Mo1Fa2, c) Mo2Fa1, d) Mo2Fa1, e) 'mixed marriage', f) 'both natives' is significant with $p \leq 0.05$.

#) Differences to 1 are due to rounding errors.

Table 2: The influence of parents' generational status on the children's test scores (results of OLS-regressions)

	Non-verbal cognitive skills			German vocabulary		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Parents' generational status: ^a						
Mo1Fa1	0.05 (0.18)	0.10 (0.17)	0.19 (0.15)	-0.13 (0.11)	-0.12 (0.10)	-0.07 (0.09)
Mo1Fa2	-0.09 (0.19)	-0.02 (0.19)	0.08 (0.17)	-0.43 (0.12) *	-0.40 (0.11) *	-0.34 (0.11) *
Mo2Fa1	0.12 (0.19)	0.16 (0.18)	0.19 (0.17)	-0.14 (0.10)	-0.12 (0.09)	-0.10 (0.08)
Mo2Fa2 (<i>reference category</i>)	-- --	-- --	-- --	-- --	-- --	-- --
Mixed Marriage	0.74 (0.24) *	0.52 (0.23) *	0.31 (0.21)	1.18 (0.15) *	0.99 (0.14) *	0.86 (0.13) *
Both natives	0.55 (0.18) *	0.23 (0.18)	-0.04 (0.18)	1.54 (0.11) *	1.29 (0.11) *	1.13 (0.11) *
Child's age in months	0.11 (0.01) *	0.11 (0.01) *	0.10 (0.01) *	0.04 (0.00) *	0.04 (0.00) *	0.04 (0.00) *
Child's sex (<i>ref.: boy</i>)	0.07 (0.06)	0.08 (0.05)	0.03 (0.05)	-0.03 (0.03)	-0.02 (0.03)	-0.04 (0.03)
Number of children in the family		-0.06 (0.04) +	-0.05 (0.03)		-0.01 (0.02)	-0.01 (0.02)
Mother's age at child's birth		0.02 (0.01) *	0.01 (0.01) *		0.01 (0.00) *	0.01 (0.00) *
Parents' educational level >9 years		0.16 (0.07) *	0.06 (0.07)		0.14 (0.04) *	0.09 (0.04) *
Parents' social class: intermed./high		0.20 (0.07) *	0.15 (0.07) *		0.16 (0.05) *	0.14 (0.04) *
Mother is employed		0.14 (0.06) *	0.12 (0.05) *		0.09 (0.03) *	0.08 (0.03) *
Number of children's books:						
0-10 (<i>reference category</i>)			-- --			-- --
11-30			0.24 (0.10) *			0.17 (0.07) *
>30			0.31 (0.11) *			0.23 (0.07) *
Familial activities (index)			0.93 (0.14) *			0.40 (0.09) *
Constant	-4.83 (0.34) *	-5.38 (0.36) *	-5.54 (0.36) *	-2.33 (0.21) *	-2.75 (0.20) *	-2.80 (0.20) *
R ²	0.2459	0.2788	0.3230	0.7422	0.7580	0.7696
N	1067	1067	1067	1032	1032	1032

Source: Project 'Preschool Education and Educational Careers among Migrant Children', own calculations

Notes:

Unstandardized regression coefficients with robust standard errors adjusted for post code clusters in parentheses.

a) generational groups: see table 1

* p≤0.05, + p≤0.1

Table 3: The influence of parents' generational status on the children's German vocabulary, only children with migration background (results of OLS-regressions)

	Model 7	Model 8	Model 9	Model 10
Parents' generational status: ^a				
Mo1Fa1	-0.13 (0.11)	-0.13 (0.10)	-0.07(0.10)	0.12 (0.10)
Mo1Fa2	-0.43 (0.12) *	-0.38 (0.11) *	-0.32(0.11) *	-0.08 (0.11)
Mo2Fa1	-0.14 (0.10)	-0.12 (0.09)	-0.10(0.08)	-0.07 (0.08)
Mo2Fa2 (<i>reference category</i>)	-- --	-- --	-- --	-- --
Mixed Marriage	1.17 (0.15) *	0.93 (0.14) *	0.76(0.14) *	0.26 (0.15) +
Child's age in months	0.05 (0.01) *	0.05 (0.01) *	0.04(0.01) *	0.04 (0.01) *
Child's sex (<i>ref.: boy</i>)	-0.04 (0.05)	-0.03 (0.05)	-0.06(0.04)	-0.04 (0.04)
Number of children in the family		-0.01 (0.03)	0.00(0.03)	0.02 (0.03)
Mother's age at child's birth		0.01 (0.01) *	0.01(0.01)+	0.00 (0.01)
Parents' educational level >9 years		0.16 (0.05) *	0.11(0.05) *	0.11 (0.04) *
Parents' social class: intermed./high		0.21 (0.07) *	0.16(0.07) *	0.08 (0.07)
Mother is employed		0.17 (0.06) *	0.15(0.06) *	0.12 (0.05) *
Number of children's books:				
0-10 (<i>reference category</i>)			-- --	-- --
11-30			0.16(0.07) *	0.07 (0.07)
>30			0.36(0.12) *	0.17 (0.11)
Familial activities (index)			0.44(0.12) *	0.35 (0.12) *
Parents' citizenship:				
Only Turkish (<i>reference cat.</i>)				-- --
Turkish and German				0.11 (0.05) *
Only German				0.32 (0.07) *
Parents' social network:				
Only Turkish (<i>reference cat.</i>)				-- --
Turkish and German				0.06 (0.08)
Only German				0.17 (0.11)
At least one parent with German as native language (<i>ref.: none</i>)				0.07 (0.11)
Parents' language proficiency:				
Only Turkish (<i>reference cat.</i>)				-- --
Turkish and German				0.22 (0.06) *
Only German				0.34 (0.11) *
Parents' language use:				
Only Turkish (<i>reference cat.</i>)				-- --
Turkish and German				-0.03 (0.08)
Only German				0.41 (0.16) *
Parents' identity:				
Only Turkish (<i>reference cat.</i>)				-- --
Turkish and German				0.11 (0.05) *
Only German				0.13 (0.14)
Constant	-2.54 (0.27) *	-3.12 (0.29) *	-3.16(0.30) *	-3.26 (0.29) *
R ²	0.3110	0.3592	0.3960	0.4812
N	569	569	569	569

Source: Project 'Preschool Education and Educational Careers among Migrant Children', own calculations

Notes:

Unstandardized regression coefficients with robust standard errors adjusted for post code clusters in parentheses.

a) generational groups: see table 1

* p≤0.05, + p≤0.1

Figure 1: Migrant children’s skills acquisition and educational attainment in an intergenerational perspective

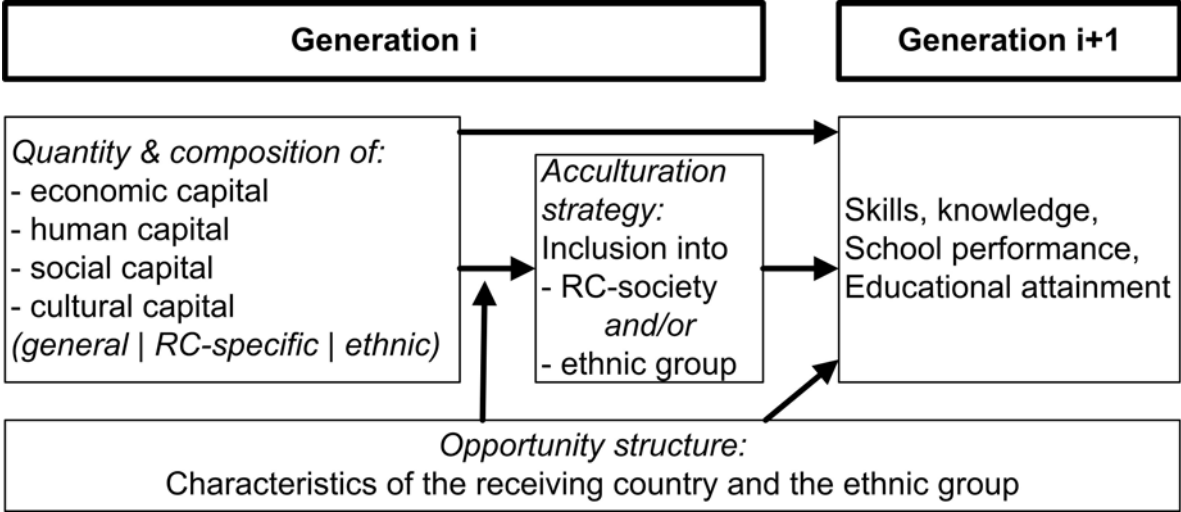
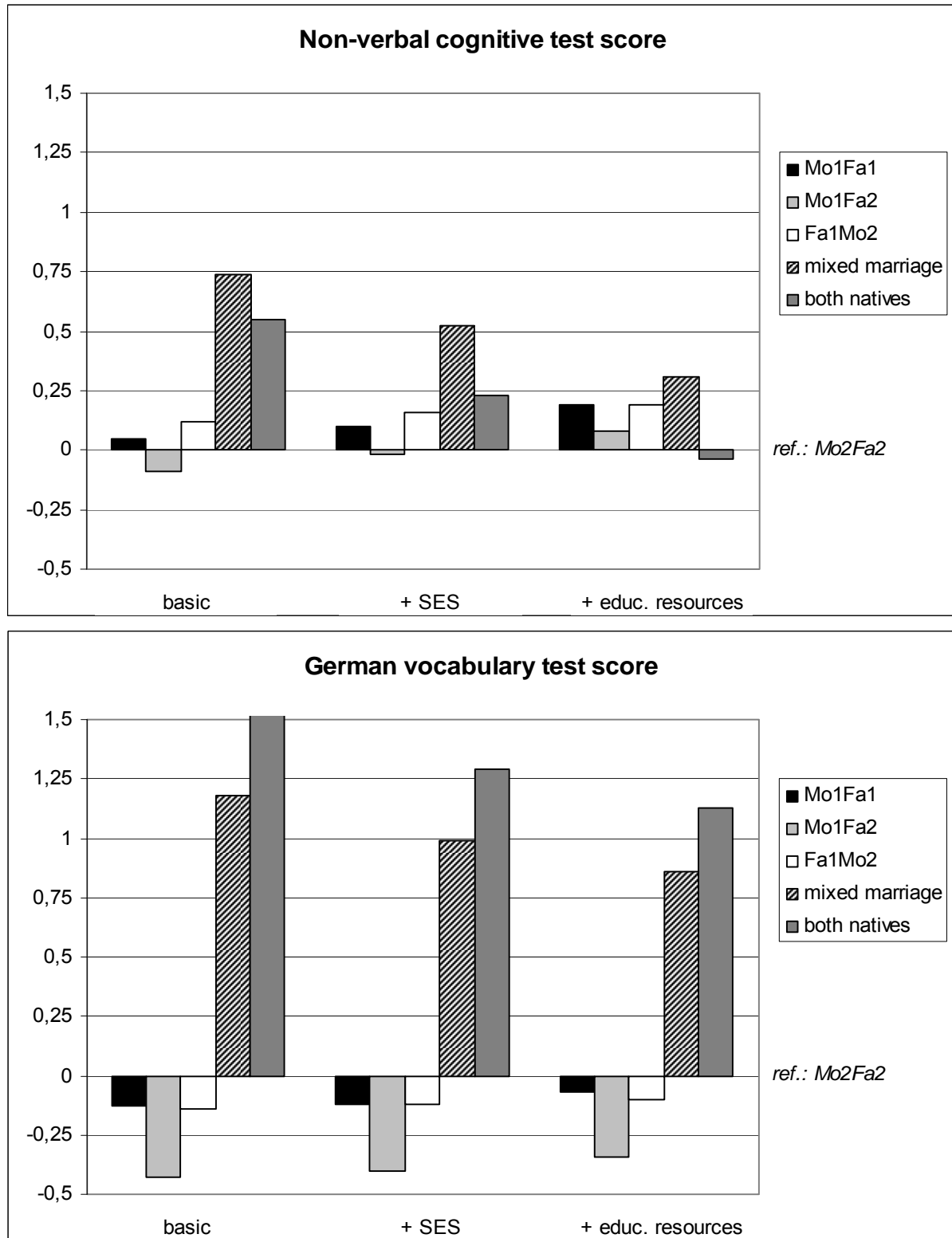


Figure 2: Children's test scores by generational groups

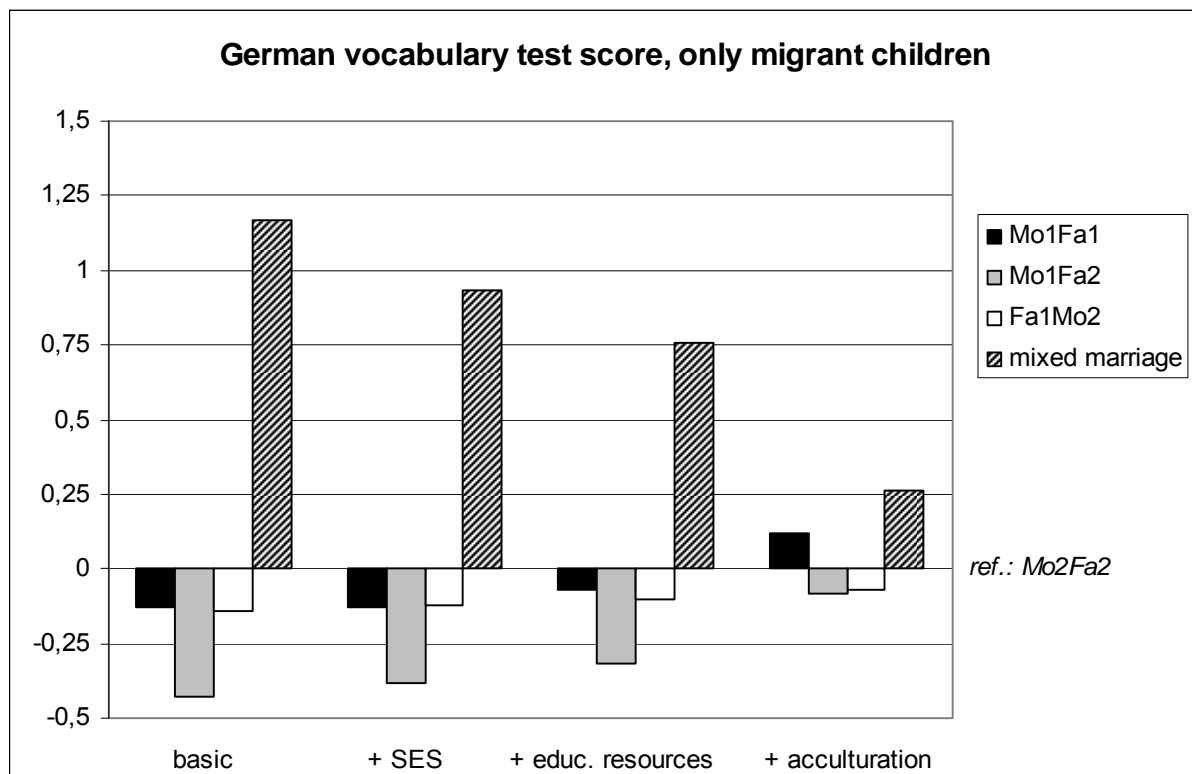


Source: Project 'Preschool Education and Educational Careers among Migrant Children', own calculations

Notes:

Regression coefficients of the generational groups from table 2, models 1-6. Generational groups: see table 1. The effect sizes are in standard deviation units and have to be interpreted as the difference in comparison with the reference group (Mo2Fa2).

Figure 3: Migrant children's German vocabulary test scores by generational groups



Source: Project 'Preschool Education and Educational Careers among Migrant Children', own calculations

Notes:

Regression coefficients of the generational groups from table 3, models 7-10. Generational groups: see table 1. The effect sizes are in standard deviation units and have to be interpreted as the difference in comparison with the reference group (Mo2Fa2).