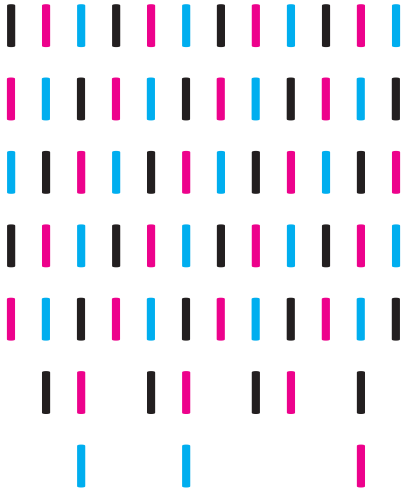

NEPS *SURVEY PAPERS*

Nadja Bömmel, Jacqueline Kroh,
Michael Gebel and Guido Heineck

SOCIAL INCLUSION AS RETURN TO EDUCATION IN THE NATIONAL EDUCATIONAL PANEL STUDY (NEPS): CONCEPTUAL FRAMEWORK AND MEASUREMENT

NEPS *Survey Paper* No. 100
Bamberg, December 2022

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at the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg

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Social Inclusion as Return to Education in the National Educational Panel Study (NEPS): Conceptual Framework and Measurement

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Bibliographic data:

Bömmel, N., Kroh, J., Gebel M., & Heineck G. (2022). *Social Inclusion as Return to Education in the National Educational Panel Study (NEPS): Conceptual Framework and Measurement.* (NEPS *Survey Paper* No. 100). Leibniz Institute for Educational Trajectories, National Educational Panel Study. doi:10.5157/NEPS:SP100:1.0

Social Inclusion as Return to Education in the National Educational Panel Study (NEPS)

Abstract

In the overarching framework of returns to education covered in the National Educational Panel Study (NEPS), social inclusion represents one of several dimensions of so-called non-monetary returns. By implementing this research scheme in the NEPS surveys, we pursue the goal of providing data that allow scholars to examine social inclusion as a (causal) educational return and trust as associated mechanism. To do so, it is necessary to implement adequate and relevant instruments in the NEPS studies. In this paper, we outline the theoretical framework for social inclusion as a return to education. Furthermore, we introduce the measurement concept for all starting cohorts (SC) of the NEPS and present first descriptive analyses of the corresponding items.

Keywords

Returns to education, NEPS, social inclusion, social participation, social belonging, trust

Content

1. Introduction

The overarching theoretical framework of the National Educational Panel Study (NEPS) succeeds in bringing together different perspectives on education from different disciplinary backgrounds (Blossfeld et al., 2011). Among them, returns to education are a research area that is not only of scientific interest but also has substantial societal relevance. The NEPS therefore provides appropriate instruments to capture returns to education across the life course (for an overview, see Bela et al., 2018). This allows the scientific community to examine the impact that education may have in the lives of individuals.

The NEPS comprises a survey program covering economic or monetary and non-economic or non-monetary returns to education over the life course. In particular, it addresses labor market outcomes, civic engagement, health, and subjective well-being. The term civic engagement is used here as bracket for the sub-categories political participation and social inclusion. Following Verba et al. (1995, p. 38), political participation is defined as all types of activities that aim at (directly or indirectly) influencing governmental actions or decisions. This survey paper focuses on social inclusion, which is defined as individuals' active participation in society and as their perception of being part of the community or society.

Aspects of social inclusion are important non-monetary returns to education for both the individual and society as a whole (Oreopoulos & Salvanes, 2011). For example, there is evidence at the individual level that social inclusion positively relates to physical and psychological well-being through a variety of mechanisms (Thoits, 2011). In a review article, Dolan et al. (2008) summarize that, next to other factors like unemployment or bad health, lacking social contacts is strongly negatively related to subjective well-being. The complex relationships between the need for belonging and various aspects of satisfaction are highlighted by Mellor et al. (2008).

Moreover, social capital as concept can be seen as a more comprehensive approach that also incorporates social inclusion and social participation. A large established literature shows that social capital affects individuals' physical and mental health (for a review see for example Hawe & Shiell, 2000 or Almedom, 2005). Social capital is also correlated with the probability of finding a job (Yakubovich, 2005), better non-monetary job characteristics (Franzen & Hangartner, 2006), or individual earnings (Growiec & Growiec, 2016). However, Tegegne (2015) shows that relying on close social ties has a detrimental effect on occupational prestige and earnings of some immigrant groups. Another research strand addresses interpersonal and institutional trust and highlights its relevance for social functioning and economic behavior (Evans & Krueger, 2009; Algan, 2018). For example, interpersonal trust matters for economic growth (Algan & Cahuc, 2010), for individuals' well-being (Algan, 2018), or for different dimensions of health (Giordano et al., 2012; Giordano & Lindström, 2016). Institutional trust is an important factor for democracies' political health inasmuch as it facilitates democratic consolidation (for further references, see Hakhverdian & Mayne, 2012), engages individuals in political participation (Mishler & Rose, 2005), and is related to public policy preferences, as well as to social trust (Zmerli & Newton, 2008; Sønderskov & Dinesen, 2016). However, rather than considering trust as outcome of education, it is embedded in the NEPS concept as mechanism that enables and improves social inclusion.

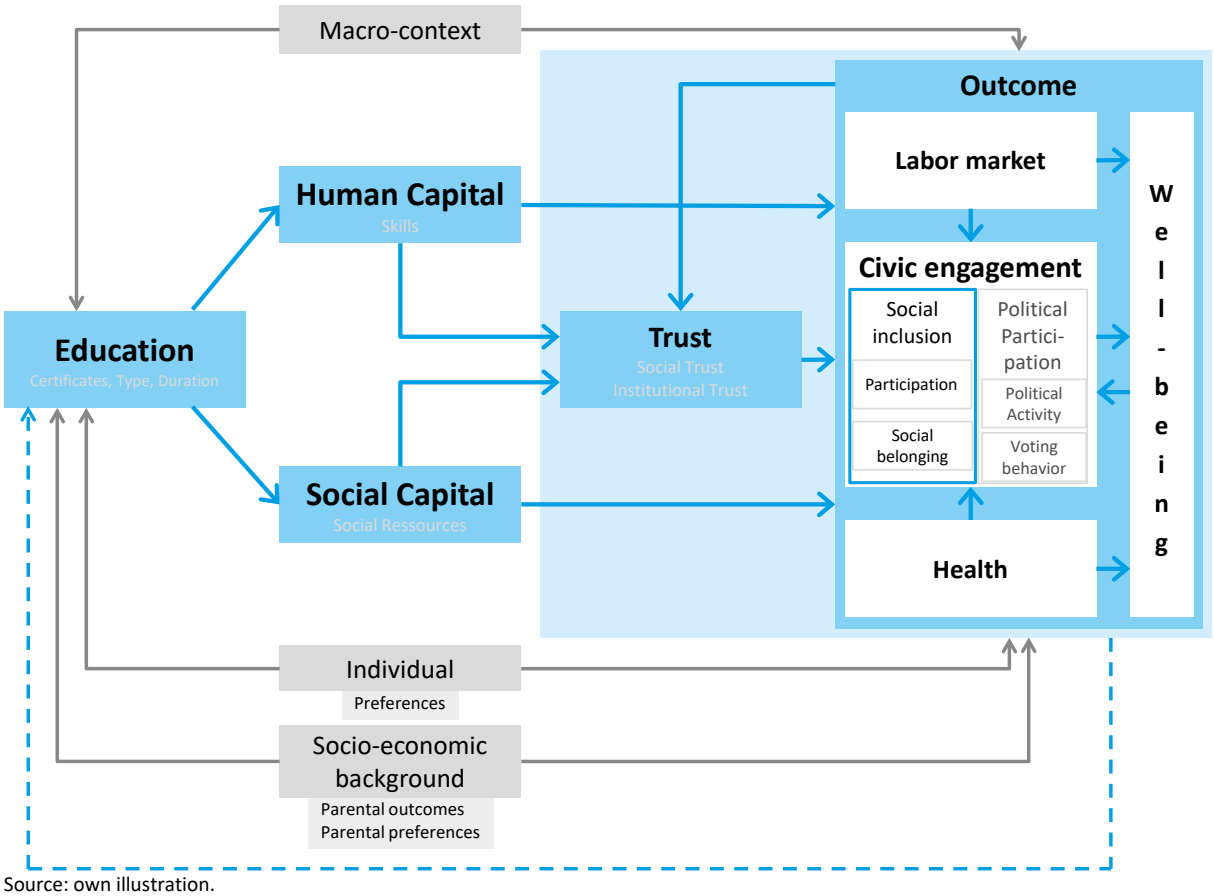
This paper describes in Section 2 the conceptual and theoretical framework underlying the design of the NEPS questionnaire program that addresses social inclusion as a return to education. Section 3 describes the operationalization, i.e. which measurement concepts are

used to capture the theoretical concepts. Section 4 documents the corresponding measures and provides descriptive analyses on the key outcome variables and mediating variables.[1]

2. Theoretical background

Section 2.1 first defines key terms before explaining the theories on the relationship between education and social inclusion in the following sections. Empirically, the relationship between education and social capital is well depicted by Helliwell and Putnam (2007) as well as in the meta-analytic summary by Huang et al. (2009). To get a theoretical idea of why social inclusion is considered an important return to education, the following section addresses the theoretical underpinnings of the relationship between the two. In Section 2.2, we discuss theories of several mechanisms that speak for a causal effect of education on social inclusion. In section 2.3, we address the problem of confounding bias, i.e. non-causal (spurious) associations resulting from common causes for the causal variable of interest (education) and the outcome variable (social inclusion) (Elwert & Winship, 2014).

Figure 1 depicts the causal and non-causal (spurious) relationship between education and social inclusion, which is described in detail in the following. We interpret education as a multi-faceted concept that captures different aspects such as years of schooling, certificates, type of school, educational trajectories, qualifications and the like.



Source: own illustration.

Figure 1: Relationship between education and social inclusion

[1] The information provided in the following largely represents the current state following a comprehensive consolidation in 2017. Where necessary, additional information is provided in footnotes.

2.1 Definitions of social inclusion and trust

In addition to social inclusion, we cover *trust* as an important causal mechanism between education and social participation.[2] In general, trust can be specified as the expectation of an actor that others will act in their interest or that their actions will at least not be detrimental for them (Newton, 2001, p. 202; Offe, 2001, p. 249). According to Paxton (1999) and Itzenplitz and Seifferth-Schmidt (2011), trust should not be understood as a one-dimensional construct, but as multi-faceted and tied to specific actors. In our concept, we follow the aforementioned authors and distinguish between *social trust* and *institutional trust*.[3] Social trust[4] is impersonal and reflects the abstract level of trust between individuals who do not know each other. Ripperger (1998) aptly described social trust as the universal willingness of an actor to trust regardless of circumstances. Institutional trust, sometimes referred to as political trust, refers to the level of trust citizens put in organizations or institutions and their ability to act.

2.2 Theories on the causal effect of education on social inclusion

In line with the overall concept of educational returns in the NEPS (Bela et al., 2018), we concentrate on aspects of human capital theory (Section 2.2.1) and social capital theory (Section 2.2.2) to explain the causal effect of an individual's education on social inclusion. We also address the role of trust (Section 2.2.3) and other outcomes of education (Section 2.2.4) as mechanisms. See Figure 1 for an illustration of these causal mechanisms, highlighted in blue boxes.

2.2.1 Human capital theory

Starting with theories representing the causal effect of education on social inclusion, human capital theory interprets education as an investment in individual human capital. According to this theory, education equips people with a higher level of cognitive competencies, information-processing capabilities, or skills, which in turn lower the costs of active social inclusion (Gesthuizen & Scheepers, 2012; Hauser, 2000), as they can be used, for example, for administrative tasks in different types of associations or for all types of participation in general. Another example: High verbal skills can be helpful in making contacts with others or coordinating participation in social groups.

Furthermore, Hoskins et al. (2008) argue that education also promotes the formation of civic competencies, which in turn are prerequisites for becoming a socially integrated citizen. This is not only due to special school subjects, such as social studies, but also to the teaching methods used in the classroom (group work, interaction with peers and teachers, etc.). As an example, Gesthuizen and Scheepers (2012) claim that education trains children to help others (even later on in life), which increases their willingness to participate in society. Hence, educational processes have a share in advocating norms and values that may establish a sense of civic duty and a preference for participation.

2.2.2 Social capital theory

In addition to the human capital perspective, education enhances one's social inclusion by the causal mechanism of higher individual social capital. The notion of social capital is used in a variety of ways in the literature. Here, we follow Granovetter (1973) and Lin (1999) who

[2] From the opposite perspective, trust can equally be seen as as outcome of education (e.g. Huang et al. (2009, 2011).
[3] In the NEPS Starting Cohort (SC) 3, we also asked for trust in certain groups of people in 2016.
[4] What we call social trust here corresponds to thin trust in the words of Putnam (2000).

understand social capital as access to resources that individuals obtain through their social network which can use to achieve their goals. Social networks are important, then, because they are important structural components of social capital (Bourdieu, 1983; Putnam, 1995). The particular context of schools or other educational institutions provides ideal opportunities for establishing these kinds of connections.

Theoretically, we assume that two sub-mechanisms are at work. First, higher education is useful for establishing or expanding social networks because it provides more opportunities to connect with (new) people. Second, higher education also influences the composition of social networks. According to the principle of homophily, individuals with higher levels of education are more likely to associate with other individuals with higher levels of education who are thought to be more socially included. This process is further reinforced with tracking in the education system as tracking leads to greater homogeneity in schools and classes. Thus, education influences the quantitative size and the qualitative composition of individual social networks, which in turn is important for acquiring useful information, adapting shared norms and values (Dee, 2004), and stimulating desirable behavior (Klandermans & Oegema, 1987). Members of a social network sensitize others to the importance of social inclusion and may even motivate them to participate in social associations or volunteer activities. Moreover, barriers to joining social groups are reduced when established members mobilize others within their network and provide easy entry (Verba et al., 1995). Assuming that higher education leads to a larger network and to a network of individuals with higher levels of education who are more willing to engage in social activities, this should translate into higher levels of social inclusion.

Education is not only important for the quantitative size and the qualitative composition of social networks, but also has a positive impact on the individual's social status through its economic returns. According to Hauser (2000), social associations more likely recruit new members with high social status, as their higher status can be seen as a resource from which the association can benefit. Members with high social status are considered to make a positive contribution to the association's goals, for example, by creating a favorable public image or attracting further potential members from the general public and their own networks. In addition, other resources, such as income, are often available due to social status. These can be used to cover certain expenses associated with participation, such as membership fees, travel costs and the like.

2.2.3 Trust as mechanism

Another mechanism for the effect of education on social inclusion runs through trust. Regarding the effect of education on social inclusion as the first part of the mechanism, Helliwell and Putnam (2007) as well as Hooghe et al. (2012) empirically show that education is positively associated with social trust. Following Eshuis and van Woerkum (2003), one could theoretically argue that institutions such as schools and universities positively influence trust levels because they structure individual behavior, which enhances predictability.

Regarding the effect of trust on social inclusion as the second part of the mechanism, Zmerli's (2013) empirical analysis finds that trusting people are more likely to volunteer, are more active in local organizations, and show more interest and commitment to the community. There is further empirical evidence that social trust is associated with participatory behavior (Helliwell & Putnam, 2007; Hooghe et al., 2012). Theoretically, one could argue that high levels of trust reduce costs, since the absence of trust would entail the establishment of rules and their enforcement (Helliwell & Putnam, 2007). Trust can also reduce the costs of social

inclusion because it diminishes the transaction costs of daily social interactions (Putnam, 2000). However, the direction of the causal link between trust and social inclusion is not clear. According to Putnam (1995), the more connected individuals are to others, the more they trust, and vice versa, so trust and social connections are related. Determining the direction of causation is indeed difficult, and previous research provides evidence for both perspectives (see Brehm & Rahn, 1997; Uslaner, 2002). We follow the perspective of Uslaner (2002), who argues that the causal chain leads from trust to social inclusion. Accordingly, a certain level of trust is a necessary precondition for a sense of belonging and active participation in society. At the same time, we do not want to exclude the possibility that causality may be reversed in some cases. The idea of a reciprocal relationship also seems plausible, since forms of civic engagement in interaction with people who are strangers to us both depend on and reinforce trust (Uslaner, 2002).

2.2.4 Other returns to education as mechanisms

Another set of mechanisms of the effect of education on social inclusion runs through other monetary and non-monetary returns to education. There are several theoretical arguments and empirical evidence for an effect of education on, for instance, income and other labor market outcomes, as well as health and well-being (for detailed overviews, see Bela et al., 2018; Lettau et al., 2020).

However, one could also argue that these factors are crucial determinants of trust. In the context of the "winner's hypothesis" Zmerli (2012), Delhey and Newton (2003) as well as Alesina and La Ferrara (2002) argue that trust is the product of positive experiences in adulthood. Successful individuals, for example in social or economic terms or people that are used to being treated fairly, generally trust more or are more inclined to do so than individuals experiencing poverty, unemployment, or discrimination. Delhey and Newton (2003) further argue that trusting others always involves some risk. For the poor, trust is riskier than for the rich because they cannot afford to lose anything if their trust is abused. In comparison, the rich can trust more generously because they lose comparatively less (Zmerli, 2012) and can benefit more from trusting behavior. Putnam (2000) adds that individuals with positive experiences also are treated more honestly and respectfully, which can also strengthen their social trust. Similarly, Zmerli (2012) argues that "winners" exhibit higher levels of trust because they live in a more trustworthy environment. Taking up these arguments, different authors define being a "winner" in society by several factors, such as income or status, but also by a high level of satisfaction with one's job or life in general, as well as by subjective well-being (Newton, 1999; Orren, 1997; Whiteley, 1999).

Using a broad set of these measures, Delhey and Newton (2003) provide results that subjective measures of success and well-being (such as life satisfaction, standard of living, or low anxiety) perform better in determining trust than more objective measures such as standard of living, occupation, or income. A positive relation between life satisfaction and social trust has also been demonstrated by, for example, Kunz (2004), Zmerli (2012), and Zmerli and Newton (2011). Itzenplitz and Seifferth-Schmidt (2011) show a positive influence of self-rated health on social trust. Ananyev and Guriev (2019), who employ an economic crisis in Russia as natural experiment, show that a decline in income has a negative effect on social trust. Alesina and La Ferrara (2002) provide similar results with data from the US.

2.3 Confounding

In addition to the aforementioned causal mechanisms, a non-causal (spurious) relationship between education and social inclusion may arise due to confounding variables, i.e. variables that affect both educational attainment and social inclusion. Based on the illustration in Figure 1, these confounding factors can be divided into three groups, namely (1) macro-context, (2) individual factors, and (3) socio-economic background. Examples of relevant factors at the macro level may be period effects, but also diverging regional structures or different designs of the education system in Germany's federal states. Examples of individual confounding factors that influence both education and social inclusion include gender, age, and ethnic origin. Individual preferences and personality can also play a role as confounding factors. For example, Schechter (2007) shows that risk attitudes have high predictive power for individual behavior in social trust experiments. As another example, risk aversion influences investments in education (Belzil & Leonardi, 2007; Wölfel & Heineck, 2012). Personality traits are another example of individual-level confounding factors. Several studies show that the Big Five personality traits, particularly conscientiousness, are crucial for educational attainment (O'Connor & Paunonen, 2007; Poropat, 2009; Richardson et al., 2012). Furthermore, according to Bekkers (2005), the Big Five are associated with both membership in social associations and voluntary activities within those associations.

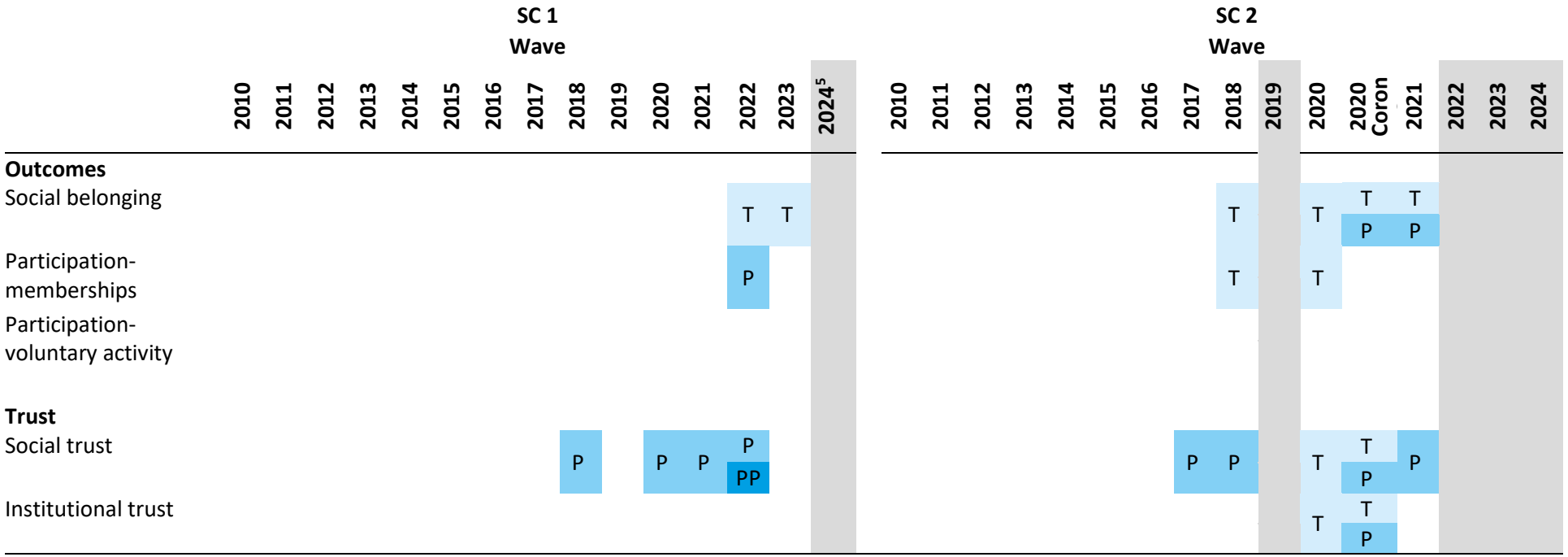
An individual's social background and socialization processes within the family are also assumed to act as confounding variables. Several theories and numerous empirical studies explain and describe the effects and transmission mechanisms of parental background on an individual's education (Breen & Goldthorpe, 1997; Stocké et al., 2011). Transmission processes within families with regard to social inclusion theoretically occur in two distinct ways: direct and indirect. Direct transmission follows the logic of social learning theory (Bandura, 1977). According to this, parents act as role models for their children, who are expected to adopt their parents' attitudes and behaviors. In indirect transmission, parents do not pass on their attitudes or behaviors but rather the ability to include socially. This is mainly because children benefit from their parents' resources that enable them to participate in social activities (Bekkers, 2007). Financial distress in families instead constrains social inclusion because membership fees, the cost of transportation, and other expenses may not be covered (Fahmy, 2006). For example, limited financial resources and material deprivation are detrimental to membership in voluntary associations (Böhnke, 2009; Mood & Jonsson, 2016) or integration in social networks (Böhnke, 2007; Mood & Jonsson, 2016).

From a methodological perspective, there are several identification strategies to address confounding bias. These aim to purge an observed association of all non-causal (spurious) components so that the causal effect is isolated (Elwert & Winship, 2014). Next to using exogenous sources of variation (e.g. in instrumental variable approaches) or longitudinal within-estimators to eliminate time-constant confounders, there is the strategy of controlling for observed confounding variables to, at least, eliminate this type of bias. The NEPS provides such variables as gender, age, ethnic origin, individual preferences, and personality, which are potential confounders. There are also several measures on parental background and socialization processes. In this regard, we would like to highlight that the NEPS children's cohorts also survey parents' social trust.

3. The measurement concept in NEPS

To translate the aformentioned theoretical arguments into a suitable questionnaire program for the NEPS, appropriate operationalization is required. This section addresses operationalization in detail and provides the exact wording, names and sources of all questions asked in NEPS that feed into the concept of social inclusion as a return to education. Tables 1, 2 and 3 provide an overview of all starting cohorts.

Table 1: Overview Starting Cohorts (SC) 1 & 2



[5] The gray shaded cells indicate that no interview has taken place (or will take place) in the corresponding year.

Table 2: Overview SC 3 & 4[6]

	SC 3 Wave															SC 4 Wave														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 Corona	2020	2021	2022	2023	2024	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020 Corona	2021	2022	2023	2024
Outcomes																																
Social belonging							T_i	T	T T_i	T_i	T_i	T_i	T_i										T_i		T_i	T_i	T_i	T_i	T_i	T_i	T_i	T_i
Participation-memberships[7]						T	T						T_i				T		T T_i											T_i		
Participation- voluntary activity[8]				T T_i									T_i																	T_i		
Trust																																
Social trust							T T_i			T_i	T_i	T_i	T_i						T			T_i				T_i	T_i	T_i		T_i		
Institutional trust										T_i	T_i		T_i												T_i	T_i	T_i	T_i	T_i		T_i		

Key: T=Targets; Ti=individually retraced Targets

[6] In SC 3 and 4, two questions were asked about anomia (for example, in SC3 in 2016, and in SC4 in 2012 and 2016), but they are no longer part of the questionnaire program.

[7] In SC 3 and 4, these items were included in the questionnaire by Pillar 2.

[8] In SC 3, additional questions about leisure activities with social or political goals and on satisfaction with opportunities to have a say in school, family, and society were part of the survey in 2013.

Table 3: Overview SC 5 & 6[9]

	SC 5 Wave														SC 6 Wave													
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020 Corona	2021	2022	2023	2024	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 Corona	2020	2021	2022	2023	2024
Outcomes																																
Social belonging								T	T	T	T	T	T										T	T	T	T	T	T	T	T	T	T
Participation-memberships[10]																				T				T						T		
Participation-voluntary activities[11]		T											T							T				T						T		
Trust																																
Social Trust		T				T			T		T	T								T				T			T	T	T		T	
Institutional Trust									T		T	T												T[12]		T	T	T	T		T	

Key: T=Targets

[9] In SC 5 and 6, two questions were asked about anomia (for example, in SC5 in 2012 and 2016 and in SC6 in 2013), but they are no longer part of the questionnaire program.

[10] In SC 5 and 6, these items are included in a module specifically dedicated to volunteering (for further information, see Costa et al. (forthcoming)).

[11] In SC 5 and 6, these items are included in a module specifically dedicated to volunteering (for further information, see Costa et al. (forthcoming)).

[12] Measurement of institutional trust without covering trust in the police.

3.1 Outcome variables

As mentioned before, we model social inclusion as consisting of a passive and an active component. For active participation in social activities, there are questions about membership in a social group, a club or an association, and volunteering in social contexts to reflect different aspects of involvement, as suggested by Huang et al. (2009). Asking for memberships in social groups, we use different items for children, adolescents, and adults, because some clubs have age limits that exclude children or are not suitable for them, as they explicitly relate to the labor market (employee associations) or are not part of the children's living environment (citizens' initiatives). The instrument for children and adolescents is based on the corresponding measure in AID:A (German Youth Institute, 2012) (Table 4). In this group, we ask about membership in voluntary aid organizations such as fire brigades, sports clubs, youth groups run by churches or other religious institutions, fan clubs, political associations, and cultural groups, such as theater, orchestra, or folklore. Those respondents who do not see their association represented have the opportunity to give a plain-text answer.

Table 4: Measurement of memberships for children and adolescents

SUF-File	Variable	German text	English text
pTarget	t27270a - t27270h_O	Auf dieser Liste haben wir verschiedene Vereine oder Gruppen zusammengestellt. Machst du dort mit?	We have compiled a list of different clubs or groups. Do you participate in any of them?
		1 - Freiwillige Hilfsorganisationen wie Feuerwehr, Technisches Hilfswerk (THW), Deutsches Rotes Kreuz (DRK), Deutsche Lebensrettungsgesellschaft (DLRG) etc.	1 - Voluntary aid organizations such as fire department, Technical Relief Service (THW), German Red Cross (DRK), German Lifesaving Association (DLRG), etc.
		2 - Sportverein	2 - Sports club
		3 - Kirchliche, konfessionelle oder religiöse Jugendgruppen (auch CVJM, BDKJ, DITIB, AAGB)	3 - Church, denominational or religious youth groups (including YMCA, BDKJ, DITIB, AAGB)
		4 - Fanclub	4 - Fan club
		5 - Kulturverein wie Theaterring, Jugendorchester, Heimatverein, Folkloreverein etc.	5 - Culture club such as a theater group, youth orchestra, club cultivating local history, folklore club, etc.
		6 - Politische Vereinigung wie Jugendorganisation einer Partei, Bürgerverein, Gewerkschafts-jugend	6 - Political association such as a youth party organization, citizens association, labor union youth group
		7 - Sonstiges, und zwar:	7 - Other, namely:
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

The measure of memberships among adults and the instrument on participation in voluntary activities are part of a special module that addresses volunteering. There, information is collected on the type of organization as well as the type of volunteer activity the respondent is engaged in (based on the categories of the German Survey on Volunteering, see Simonson et al., 2017). Additionally, respondents are asked about the start date and frequency of these activities.

For the passive part of social inclusion, we include a measure of social belonging as the feeling of being a part of the community or society. Again, we provide different instruments for children and adults. The rationale behind this is that children have to develop an understanding of what society is to be able to assess if they feel like belonging to it or not. Yet, since they do not have this understanding, or only to a limited extent, until they are 15 years old, we refer to the micro level when surveying children. In contrast to the measurement for

adults, we rely heavily on the psychological perspective of social belonging (Baumeister & Leary, 2017). Hence, for children, the question frame is not set on society as a whole, but on generalized others (e.g. friends, other people). Doing this, we make sure that children are able to cope with the question but at the same time do not refer too much to specific people they know. More specifically, we ask about the degree of agreement with several statements, for example, whether the respondent finds it easy to make new friends or whether he or she often feels lonely. The measurement for children is taken from the Youth Survey of the German Youth Institute (2010). As the German Youth Institute uses it for children aged 12–15 years, we additionally tested it in a development study for children under 12. For further information, see Appendix B.

Table 5: Measurement of social belonging for children

SUF-File	Variable	German text	English text
pTarget	t517450- t517454	Wie würdest du deine Beziehung zu anderen Menschen beschreiben?	How would you describe your relationship with other people?
		Mir fällt es leicht, neue Freundschaften zu schließen.	I find it easy to make new friends.
		Ich fühle mich oft einsam.[13]	I often feel lonely.
		Ich möchte mehr Kontakt zu anderen Menschen haben.	I would like to have more contact to other people.
		In meinem Freundeskreis unternehmen wir viel gemeinsam.	We do a lot together in my circle of friends.
		In meinem Freundeskreis finde ich Unterstützung, wenn ich Sorgen und Probleme habe.	In my circle of friends, I find support when I have worries and problems.
		1 - trifft gar nicht zu	1 - does not apply at all
		2 - trifft eher nicht zu	2 - does rather not apply
		3 - teils/teils	3 - does partly apply
		4 - trifft eher zu	4 - does rather apply
		5 - trifft völlig zu	5 - does completely apply
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

The corresponding measure for adults is taken from the Panel Study Labour Market and Social Security (PASS) (Trappmann et al., 2019) of the Institute for Employment Research (IAB). Because measures of social belonging play a crucial role in the concept of social inclusion as a

[13] To save space in the survey and because the items on loneliness and the desire for more social contacts are more similar than the others, this item is omitted in some survey waves.

return to education, and because social belonging can vary due to different life-course events, we implemented this measure annually in all starting cohorts since 2017.

Table 6: Measurement of social belonging

SUF-File	Variable	German wording	English wording
pTarget	t517400	Man kann das Gefühl haben, am gesellschaftlichen Leben teilzuhaben und dazuzugehören oder sich eher ausgeschlossen fühlen. Wie ist das bei Ihnen? Inwieweit fühlen Sie sich eher dazugehörig oder eher ausgeschlossen? Bitte antworten Sie auf einer Skala von 0 bis 10. ‚0' bedeutet, dass Sie sich ganz und gar vom gesellschaftlichen Leben ausgeschlossen fühlen, ‚10' bedeutet, Sie fühlen sich ganz und gar dazugehörig. Mit den Zahlen dazwischen können Sie Ihr Urteil abstufen.	You may feel that you are part of society and that you belong to it, or that you feel excluded. What about you? To what extent do you feel more like belonging or excluded? Please answer on a scale from 0 to 10. '0' means that you feel completely excluded from social life, '10' means that you feel completely belonging to it. With the numbers in between, you can scale your assessment.
		0 - ganz und gar ausgeschlossen	0 - completely excluded
		1 - 1	1 - 1
		2 - 2	2 - 2
		3 - 3	3 - 3
		4 - 4	4 - 4
		5 - 5	5 - 5
		6 - 6	6 - 6
		7 - 7	7 - 7
		8 - 8	8 - 8
		9 - 9	9 - 9
		10 - ganz und gar dazugehörig	10 - completely belonging
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

3.2 Different dimensions of trust

To cover relevant aspects of trust, we employ instruments that reflect different dimensions of the construct. As Paxton (1999) and Itzenplitz and Seifferth-Schmidt (2011) argue, trust should not be considered as a general phenomenon, but as one that is linked to specific actors, such as generalized others, specific others, or institutions. We therefore address both, general

social trust and trust in institutions. The item on generalized social trust covers whether respondents are trusting of most people. The item was adapted from the European Social Survey (2014) and is well established in many surveys.

Table 7: Measurement of social trust

SUF-File	Variable	German wording	English wording
pTarget	t517100	Ganz allgemein gesprochen: Glauben Sie, dass man den meisten Menschen vertrauen kann, oder dass man im Umgang mit anderen Menschen nicht vorsichtig genug sein kann? Bitte antworten Sie auf einer Skala von 0 bis 10, wobei 0 bedeutet „man kann nicht vor-sichtig genug sein“ und 10 “man kann den meisten Menschen vertrauen“.	Generally speaking: Do you believe that you can trust most people or that you can never be careful enough when dealing with other people? Please answer on a scale from 0 to 10, whereby 0 means ‘you can never be careful enough’ and 10 means ‘you can trust most people’.
		0 - man kann nicht vorsichtig genug sein	0 - one can never be careful enough
		1 - 1	1 - 1
		2 - 2	2 - 2
		3 - 3	3 - 3
		4 - 4	4 - 4
		5 - 5	5 - 5
		6 - 6	6 - 6
		7 - 7	7 - 7
		8 - 8	8 - 8
		9 - 9	9 - 9
		10 - man kann den meisten Menschen vertrauen	10 - one can trust most people
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

The items on trust in institutions cover different political, legal, and other institutions. The basis for this instrument is taken from the World Values Survey (2014) (Inglehart et al., 2014) and the German General Social Survey (GESIS, 2018). The selection we made from the two sources covers different kinds of institutions, namely national ones in Germany, but also some on the European level and the media. The national institutions refer to different dimensions of the vertical and horizontal separation of powers. We cover the highest institutions on the federal level (vertical dimension) for the three powers legislative, executive and judiciary (horizontal dimension). Since 2019, we also refer to the police because the police represents a part of the executive most people are familiar with from their daily experiences. Further, we ask for trust in the European Union to cover politics on the European level and for trust in banks to account for the financial system. Another focus is set on trust in the media. Here we cover trust in more traditional media such as press and television but also in social media.

Table 8: Measurement of institutional trust

SUF-File	Variable	German wording	English wording
pTarget	t517050-t517057	Nun nenne ich Ihnen einige Namen von Institutionen. Sagen Sie mir, ob Sie sehr viel, ziemlich viel, wenig oder überhaupt kein Vertrauen in die jeweils genannten Institutionen haben.	Now I'll give you some names of institutions. Tell me whether you have very much, pretty much, little or no trust at all in these institutions.
		Die Bundesregierung	The Federal Government
		Der Bundestag	The Parliament of the Federal Republic
		Das Bundesverfassungsgericht	The Federal Constitutional Court
		Die Europäische Union	The European Union
		Die Banken	Banks
		Das Zeitungswesen	The press
		Das Fernsehen	Television
		Die Sozialen Medien, wie Facebook oder Twitter	Social media, such as Facebook or Twitter
		Die Polizei *(ab 2019)*	The police *(since 2019)*
		1 - sehr viel Vertrauen	1 - very much trust
		2 - ziemlich viel Vertrauen	2 - pretty much trust
		3 - wenig Vertrauen	3 - little trust
		4 - überhaupt kein Vertrauen	4 - no trust at all
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

4. Descriptive empirical analyses

In the following, we present descriptive analyses of the survey items outlined previously, using NEPS data from Scientific Use Files of different SCs.[14] We look at differences mainly by gender and age to provide an overview of the data. Analyses for adolescents are based on data from SC 2 and 3, while those for adults are based on data from SC 6.[15] Counts for missing values for

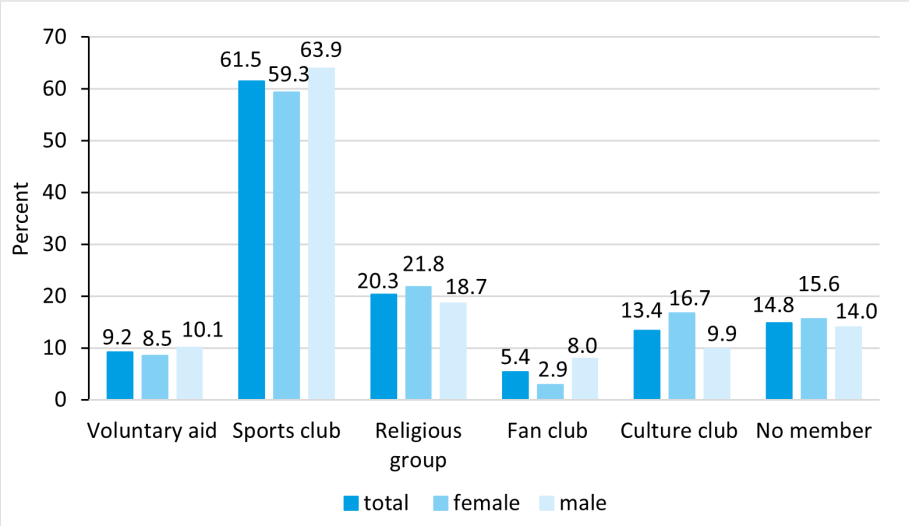
[14] Note that Scientific Use Files are published on an ongoing basis so that new data are available on a regular basis. The analyses provided here represent the state at the time of writing this survey paper.

[15] This paper uses data from the National Educational Panel Study (NEPS; see Blossfeld & Roßbach, 2019): SC Kindergarten (NEPS Network, 2020a), SC Grade 5 (NEPS Network, 2020b), and SC Adults (NEPS Network, 2020c). The NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi, Germany) in cooperation with a nationwide network.

the respective SCs are given in tables A2, A3 and A4 in Appendix A. Overall, missing values due to item nonresponse are very low for the items analyzed here (less than 1% in most cases).

4.1 Outcome variables

In NEPS, information on youth participation in clubs or organized groups, as a measure of the active component of social inclusion, is available in SC 2, 3 and 4.[16]



Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0; N=3791 (Male=1981; Female=1810); own calculations.

Figure 2. Club memberships by gender in SC 2, wave 2018 (age 12 to 13)[17]

According to data from SC 2, wave 2018, nearly 90% of respondents attending 7th grade report being members of at least one club or association (not shown). As could be expected, memberships in sports clubs were most frequently reported both by girls and boys. When we distinguish by different types of associations, gender differences emerge (Figure 2): Boys are more often active in sports clubs, voluntary aid organizations and fan associations, while girls more often attend groups with a cultural or religious background. Testing the statistical significance of the gender differences using two-sample t-tests shows that all differences are statistically significant, at least on the 5% level.

The same response patterns can be observed in SC 3 in which adolescents in grades 9 and 10 were asked about their membership in clubs and associations (not shown). Since respondents are somewhat older, memberships in political organizations are also recorded. Here, the proportion of males, at 5.2%, is more than twice as high as for females, at 2.5%. This suggests that politics is more important among male youth, which is plausible given that politics is a male-dominated field (for an overview of empirical research, see Paxton et al., 2007).

A comparison of the NEPS SC 2 data with the most recent AID:A dataset shows that the overall patterns seem to be quite similar (Table 9). Memberships in sports clubs are most frequently reported by both genders. About the same proportion of respondents report participation in voluntary aid organizations and religious groups. In NEPS, a higher proportion of adolescents

[16] For a possible use in younger age cohorts, we conducted a cognitive pretest to test whether children attending grades 4 and 5 could classify their activities into the given categories. For further information, see Appendix C.

[17] Respondents may indicate their membership in more than one club or association, so the percentages shown in Figure 2 do not add up to 100%.

are members of sports clubs, whereas the proportion of participants in clubs with cultural purposes, such as theater or music, is higher in AID:A. In both surveys, boys are more likely to be members of voluntary aid organizations and sports clubs. In contrast to NEPS, in AID:A there is no gender difference in reporting participation in religious groups and culture clubs.

Table 9: Club memberships in NEPS SC2, wave 2018 compared to AID:A wave 2019

	NEPS SC2, wave 2018				AID:A, wave 2019[18]			
	female	**male**	**total**	**N**	**female**	**male**	**total**	**N**
voluntary aid organizations	10.7	13.1	11.8	401	7.3	10.8	9.1	38
sports clubs	71.8	75.5	73.6	2564	54.4	60.6	57.5	241
religious groups	27.1	23.3	25.3	851	24.3	25.4	24.8	104
Fan clubs	3.7	9.4	6.5	214	-	-	-	-
Culture clubs	20.4	11.9	16.3	541	22.3	22.1	22.2	93

Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0; N=3393 (Male=1639; Female=1754); Kuger et al. (2020); N=431 (Male=220; Female=211); own calculations.

For adults, some information on memberships is also available (from the module on volunteering), and respondents are asked about the organizational setting in which their volunteering takes place. As with younger respondents, gender differences are evident. While men are more often involved in trade unions, political parties or state/municipal institutions, women are more involved in churches and religious groups.

For the passive part of social inclusion, represented by items on social belonging, we again first consider the youth cohorts. To examine the interdependencies between the five items implemented in SC 2, we estimate pairwise correlation coefficients. Since the two items on the feeling of loneliness and the desire for more contacts are reverse coded, the correlations with these items are negative. Overall, we observe correlations at a medium level (Table 10). Only the correlations with the item on the desire for more contacts seem to be lower.

A Cronbach's alpha of 0.65 (with two reversed items) indicates that the reliability of the five-item scale is not ideal but is close to the commonly used threshold of 0.7; the average interitem covariance is 0.27.[19]

[18] For better comparability with the NEPS sample, AID:A data were limited to respondents who were in the 7th grade at the time of the 2018 survey, similar to NEPS respondents.

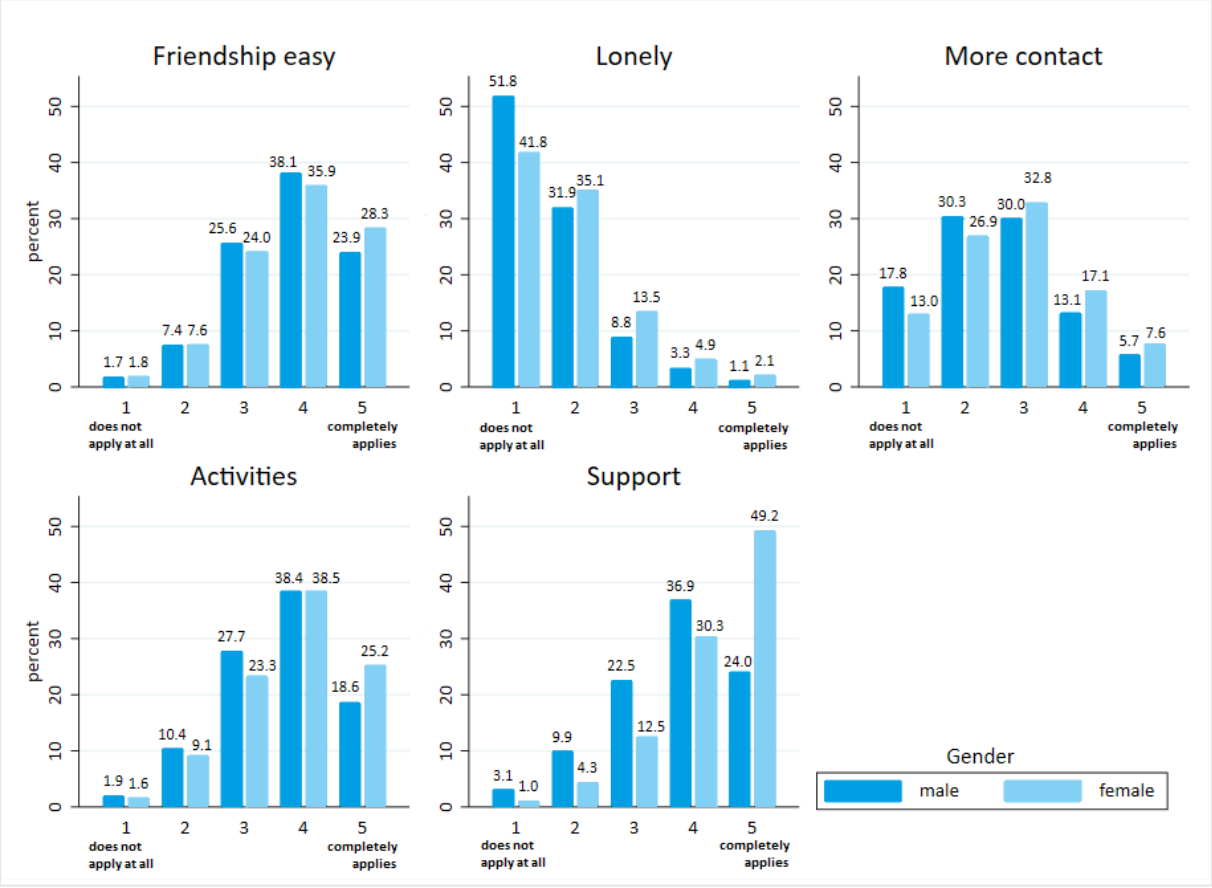
[19] Excluding the item on loneliness yields a Cronbach's alpha of 0.55 and an average interitem covariance of 0.25.

Table 10: Pairwise correlations of social belonging items in SC2, wave 2018

	friendship easy	lonely	more contact	activities	support
friendship easy	1.0				
lonely	-0.4	1.0			
more contact	-0.1	0.3	1.0		
activities	0.4	-0.3	-0.1	1.0	
support	0.3	-0.3	-0.1	0.5	1.0

Note: For item wording see table 5.
Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0; N=3477; own calculations.

We provide further descriptive analyses to get a better sense of the data. Figure 3 provides histograms of the five items, based on data from SC 2, wave 2018, by gender. Some interesting gender differences emerge here.



Note: For item wording see table 5.
Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0; N=3477 (Male=1667; Female=1810); own calculations.

Figure 3. Social belonging by gender in SC 2, wave 2018 (age 12 to 13)

The comparison of the mean values shows that girls state that they easily make new friends more often than boys. Using a two-sample t-test, this difference is statistically significant at the 10%-level only. Further gender differences are found also for the other items of the scale. On average, females state more often that they feel lonely and that they would like to have more contacts than males. For both differences, two-sample t-tests indicate that they are

statistically significant at the 0.1% level. At the same time, girls rate their level of activities with friends higher and indicate that, on average, they feel more supported in their circle of friends than boys. These differences are statistically significant at the 0.1% level and are in line with the findings of Colarossi (2001). This study finds that girls have a greater number of supportive peers and receive help more often than boys. Since satisfaction levels are similar, the results indicate a bigger need among female adolescents for contact with and support from their peers.

To get an impression of the external validity of the data, we compare NEPS data from SC 2, wave 2018, in which the adolescents attended the 7th grade (age 12–13), with data from the Youth Survey of the German Youth Institute (DJI), from which the corresponding items were adapted (Table 11).

Table 11: Social belonging in NEPS SC2, wave 2018 compared to DJI youth survey, wave 2003

	NEPS SC2, wave 2018					**DJI youth survey, wave 2003**				
	mean	**median**	**std. dev.**	**min**	**max**	**mean**	**median**	**std. dev.**	**min**	**max**
friendship easy	3.8	4	1.0	1	5	4.6	5	1.2	1	6
lonely	1.8	2	0.9	1	5	1.9	2	1.2	1	6
more contact	2.7	3	1.1	1	5	3.1	3	1.5	1	6
activities	3.7	4	1.0	1	5	4.8	5	1.2	1	6
support	4.0	4	1.0	1	5	4.9	5	1.2	1	6

Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0; N=3477; German Youth Institute (2010); own calculations.

A comparison of the NEPS data with the data of 12- to 15-year-old respondents from the 2003 Youth Survey of the DJI shows very similar patterns, although a 6-point Likert scale is used in the Youth Survey. A minor, but striking difference is seen in the distribution of the item on the desire for more contacts. In the Youth Survey, the responses cluster at the lower end of the scale, while the NEPS values correspond more to a normal distribution.

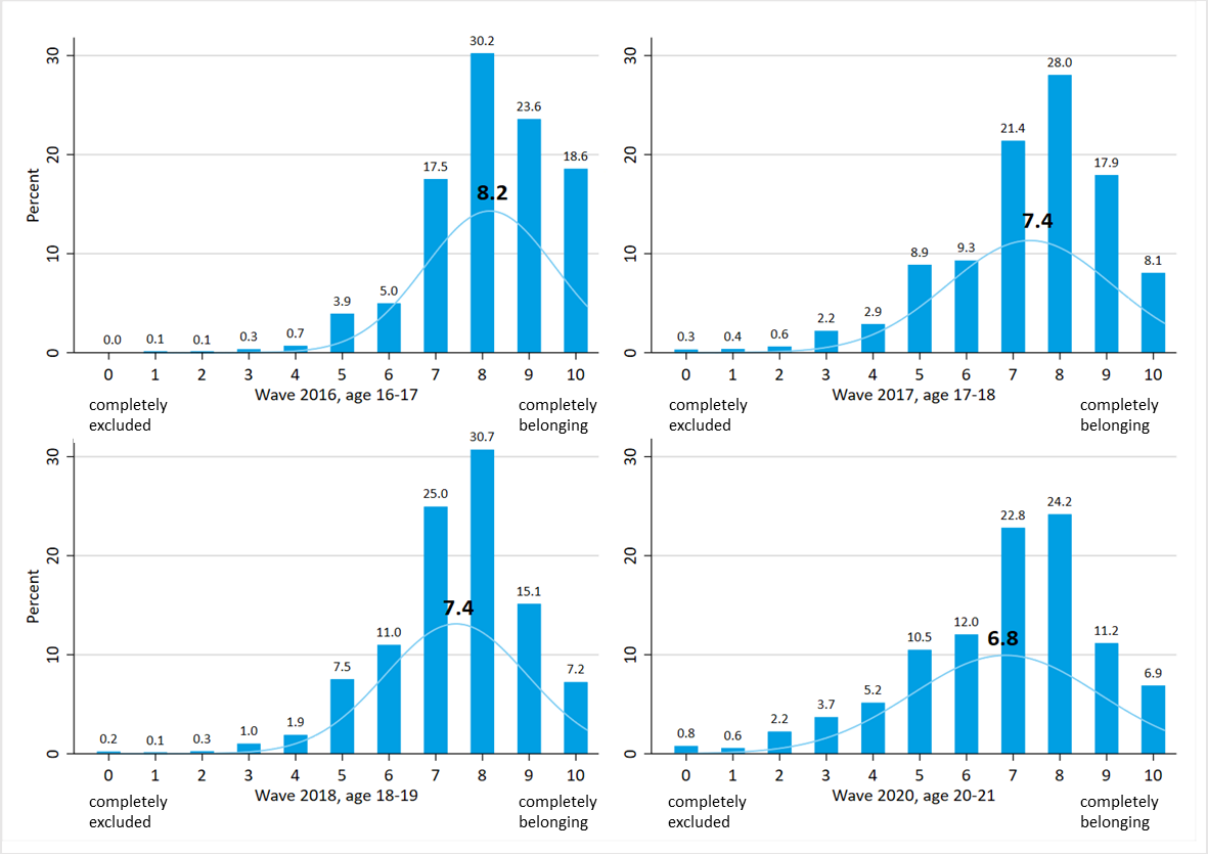
Since social belonging is measured with a different instrument for different age groups, we next turn to the item for adult respondents. For adults and adolescents, we cover the subjective feeling of belonging to society with a single item adapted from PASS. First, we take a look at the data for younger adults from SC 3, waves 2016–2020.

The descriptive statistics in Table 12 show that the sense of belonging to society is generally high for SC 3 respondents. For example, the median score in the 2016, 2017, and 2018 waves is 8, meaning that 50% of respondents rate themselves as 8 or higher on the 0 to 10 scale. Comparing the mean values of these three waves indicates that they decrease slightly over time. Parallel to this, the standard deviation increases, indicating that a larger part of the response scale is used. A closer look at these changes is given in Figure 4.

Table 12: Social belonging in SC 3 across waves

	mean	median	std. dev.	N
Social belonging				
wave 2016	8.2	8	1.4	2031
wave 2017	7.4	8	1.8	2871
wave 2018	7.4	8	1.5	3843
wave 2020	6.8	7	2.0	1030

Source: NEPS SC3 doi:10.5157/NEPS:SC3:10.0.0; own calculations.



Source: NEPS SC3 doi:10.5157/NEPS:SC3:10.0.0; N (2016) = 2031, N (2017) = 2871, N (2018) = 3843, N (2020, Corona) = 1030; own calculations.

Figure 4. Social belonging in SC 3, waves 2016, 2017, 2018 and 2020 (Corona)

Figure 4 shows the frequency distribution of the item for the different waves. A common feature is that the lower response options are not used very often. However, as the age of the SC 3 respondents increases, the proportion of those who rank themselves at the lower end of the scale increases. At the same time, the categories at the upper end of the scale are used less frequently. For example, the proportion of respondents who rate themselves highest more than halved when comparing the 2016 and 2017 waves and remains at a similar level in the 2018 wave. Possible reasons for this development may be that when young people leave school, they have to find a position on the labor market or an apprenticeship, and they also

become more independent from their parents. All this is part of the transition process into adulthood and carries the risk of feeling more lonely and excluded.

More pronounced changes are seen when the results of the additional 2020 Corona survey (also shown in Table 12 and Figure 4) are taken into account. The median score decreases from 8 to 7 and the mean value shrinks from 7.4 in wave 2018 to 6.8 in wave 2020, indicating a decrease in the feeling of belonging to society in times of the Corona crisis. At the same time, the range of the scale is used more broadly, as indicated by increasing standard deviations. This can also be seen in Figure 4, as the normal distribution curve is somewhat flatter for the 2020 wave, compared to previous waves. Another trend evident in Figure 4 is the higher proportion of respondents who rank themselves at the lower end of the scale.

Looking at the NEPS data for the adults cohort (SC 6), the overall mean of 8.3 in wave 2018 is roughly in line with findings from the PASS data, from which the item was adapted: Results from waves 1 and 2 of PASS indicate an overall mean of just below 8 (Gundert & Hohendanner, 2011). We next account for age differences in the social belonging item in SC 6 of the NEPS. Table 13 shows descriptive statistics for different age groups between 32 and 74 years. In all age groups, the median is 8, just as in SC 3 (Table 12). The mean values range from 8.0 and 8.3 and remain fairly constant across age groups. The standard deviation is also almost the same in all age groups.

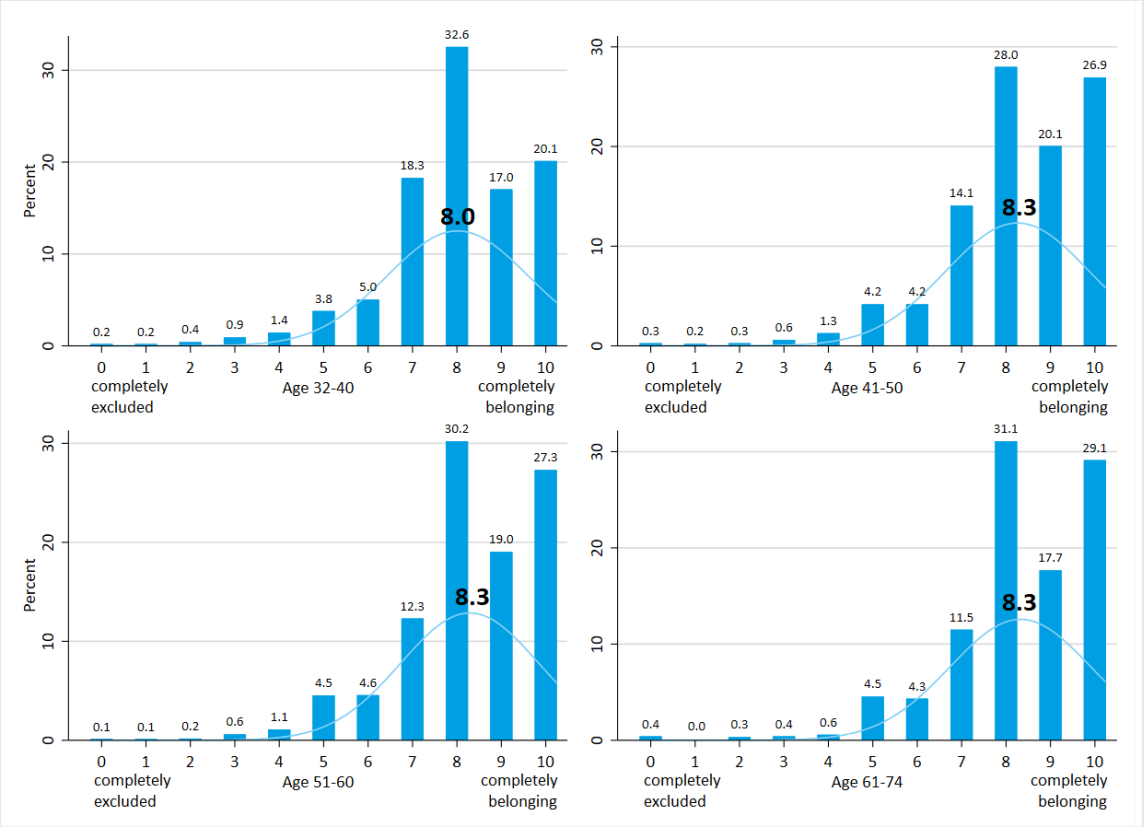
Table 13: Social belonging in different age groups in SC 6, wave 2018

	wave 2018			
	mean	**median**	**std. dev.**	**N**
overall	8.3	8	1.6	7687
Age 32-40	8.0	8	1.6	974
Age 41-50	8.3	8	1.6	1486
Age 51-60	8.3	8	1.6	2827
Age 61-74	8.3	8	1.6	2400

Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N= 7687; own calculations.

Figure 5 gives a more detailed impression of the corresponding distributions for the different age groups in SC 6. In all age groups, most respondents rate their feeling of belonging at the upper end of the scale. However, the youngest respondents, 32 to 40, have the lowest proportion of reply option 10, the highest possible value. At the same time, this age group has the highest value when cumulating the proportions of the replies 0 to 4.

The stable pattern of mean values may be unexpected at first glance, as public and scientific debates may tend to expect declining levels of belonging over age. According to Nicholson (2012), there are several factors that influence social isolation: physical, psychological and economic factors, changes in work and family environments; and environmental and demographic factors. Comparing these factors with those driving panel attrition in NEPS SC 6 (Stöckinger et al., 2018), we find a considerable overlap, e.g., educational attainment, income, or employment status. Therefore, we argue that those respondents who are most likely to report a low level of social belonging are also most likely to drop out of the panel and that this might be the reason why we do not observe a decreasing level of belonging here.



Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N (total) = 7687, N (32-40) = 974, N (41-50) = 1486, N (51-60) = 2827, N (61-74) = 2400; own calculations.

Figure 5. Belonging in SC 6, wave 2018

4.2 Different dimensions of trust

As a key mechanism for the effect of education on social inclusion, a measure of social trust is included in all NEPS starting cohorts. Initially, NEPS first adapted the Social Trust Scale of the European Social Survey. The scale contains three items and is well established in several large-scale surveys (for German see, for example, Breyer (2015)).

Since 2017—following the World Values Survey and the US General Social Survey—social trust is surveyed with a one-item measurement, keeping only the first question of the Social Trust Scale.

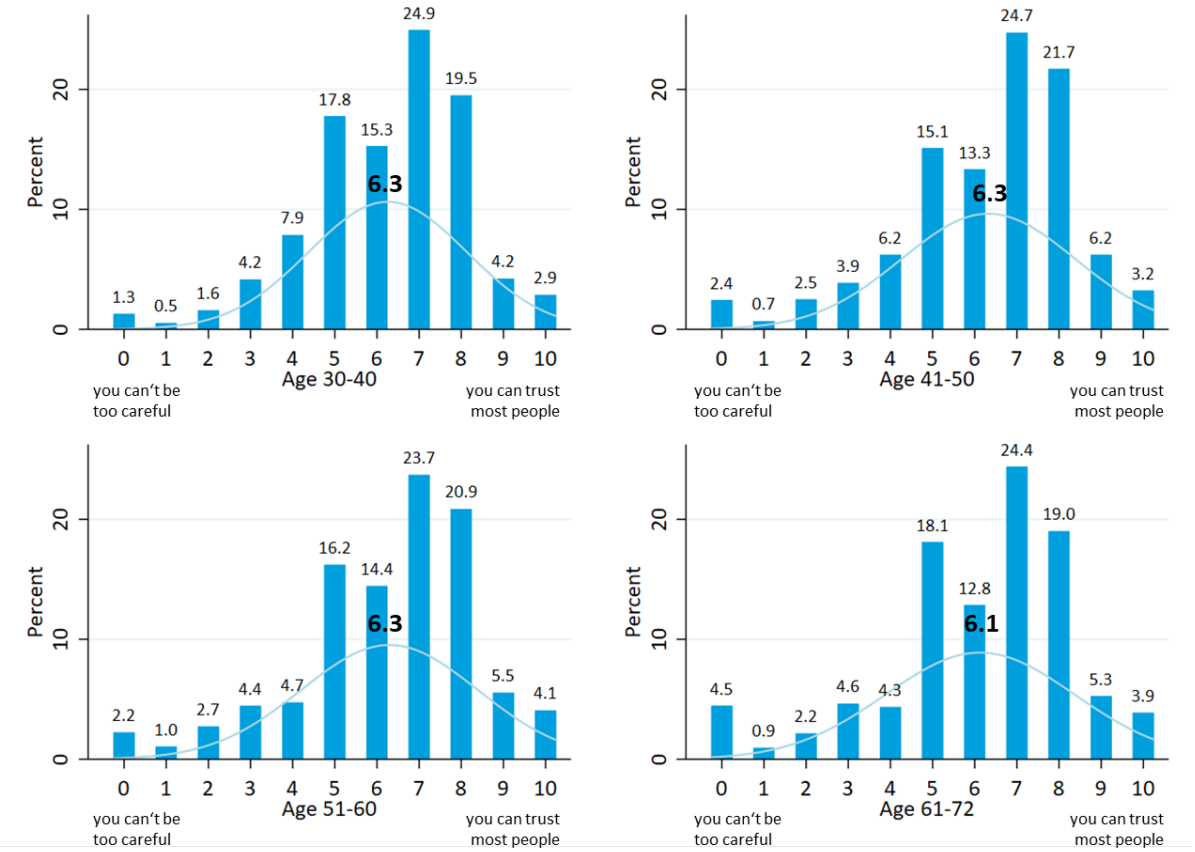
Table 14: Social trust in different age groups in SC 6, wave 2017

	wave 2017			
	mean	**median**	**std. dev.**	**N**
overall	6.3	7	2.1	9552
Age 30-40	6.3	7	1.9	1323
Age 41-50	6.3	7	2.1	2046
Age 51-60	6.3	7	2.1	3443
Age 61-72	6.1	7	2.2	2740

Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N=9552; own calculations.

Table 14 shows some descriptive statistics. On a scale of 0 to 10, the overall mean of social trust in the 2017 wave of SC 6 is 6.3; the median value is 7 and the standard deviation is 2.1. Differentiated by the age of the respondents, the group-specific values deviate only slightly from the overall values for mean, median, and standard deviation. The median is always a value of 7. The mean value is very similar in the age groups between 30 and 60 and only slightly lower for respondents older than 60. This is in line with evidence from trust experiments of Sutter and Kocher (2007), who report stable levels of trust in different age groups of adults.

The distributions also make clear that there are hardly any differences between the age groups. At most, it is noticeable that, compared with the two middle age groups, significantly fewer people in the younger group have no social trust at all, while there are significantly more people in the over-60s group who have no trust at all (Figure 6).



Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N (total) = 9552, N (30-40) = 1323, N (41-50) = 2046, N (51-60) = 3443, N (61-72) = 2740; own calculations.

Figure 6. Social trust by age in SC 6, wave 2017

To see if the construct validity of the single item is comparable to that of the Social Trust Scale, we replicate part of Breyer's (2015) approach: We correlate the social trust item with other constructs that are the focus of this paper and check if the correlations are consistent with Breyer's theoretical expectations and her results.

Table 15: Correlates of social trust in SC 6, wave 2017, compared to Breyer (2015)

	NEPS SC6, wave 2017	Breyer (2015)	Theoretical expectation
Political/institutional trust	0.4 (Federal Government) 0.4 (Federal Parliament)	0.4 (Political trust scale)[20]	+ (see Zmerli & Newton, 2017)
Participation in voluntary organizations	0.2	0.1	+ (see Newton, 2001)

Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N= 9472

The correlations from Breyer's (2015) validation study are similar in sign to the correlations we calculated with NEPS data from SC 6. We also see very similar results in terms of the magnitudes of the correlations, although NEPS does not provide the very same indicators that Breyer used. To correlate social trust measured by the three-item Social Trust Scale with political trust, Breyer uses a political trust scale that includes trust in political institutions at the national and European level, the legal system, the police, politicians, political parties, and the United Nations. Since it was not possible for us to reproduce Breyer's findings with items on the same institutions, we first used trust in the (German) federal government and then trust in the (German) federal parliament as substitutes. Both items correlate positively with the one-item measure of social trust, and the magnitude of the correlation is only slightly smaller than for the political trust scale used by Breyer (2015). For the second indicator, participation in volunteer organizations, we used the information on whether the respondent volunteered in the last 12 months. Breyer, on the other hand, used the frequency of participation in volunteer organizations (also in the past 12 months). Again, we find positive correlations that are quite comparable in magnitude.
Taken together, we consider the results as evidence that reducing the three-item Social Trust Scale to the one-item measure does not significantly affect outcome quality and also helps save interview time in the NEPS surveys.

The second component of our measurement concept addresses trust in several political and other institutions. Table 16 shows descriptive statistics from SC 6, wave 2017. For all items, the median value is either 2 or 3[21]. The mean ranges from 1.9 to 3.3, indicating that NEPS respondents have quite different opinions about how trustworthy various institutions are. The most trust is placed in the Federal Constitutional Court (mean: 1.9), followed by the Federal Parliament (2.4) and the Federal Government (2.4). Social media (3.3) and banks (3.0) are rated as less trustworthy. Medium trust is placed in the Press (2.5), the European Union (2.6) and Television (2.7).

[20] The scale contains trust in the parliament, the legal system, the police, politicians, political parties, the European Parliament, and the United Nations.

[21] Mind, that lower values indicate a higher level of trust.

Table 16: Institutional trust in NEPS SC 6, wave 2017, compared to World Value Survey, wave 2017

	NEPS SC6, wave 2017					World Value Survey (Germany, wave 2017)				
	mean	**median**	**std. dev.**	**min**	**max**	**mean**	**median**	**std. dev.**	**min**	**max**
Federal Government	2.4	2	0.7	1	4	2.6	3	0.5	1	4
Federal Parliament	2.4	2	0.7	1	4	2.6	3	0.5	1	4
Federal Constitutional Court	1.9	2	0.8	1	4			-		
European Union	2.6	3	0.7	1	4	2.6	3	0.5	1	4
Banks	3.0	3	0.7	1	4	2.9	3	0.6	1	4
Press	2.5	3	0.7	1	4	2.8	3	0.6	1	4
Television	2.7	3	0.6	1	4	2.8	3	0.7	1	4
Social Media	3.3	3	0.6	1	4			-		
Police[22]			-			1.9	2	0.5	1	4

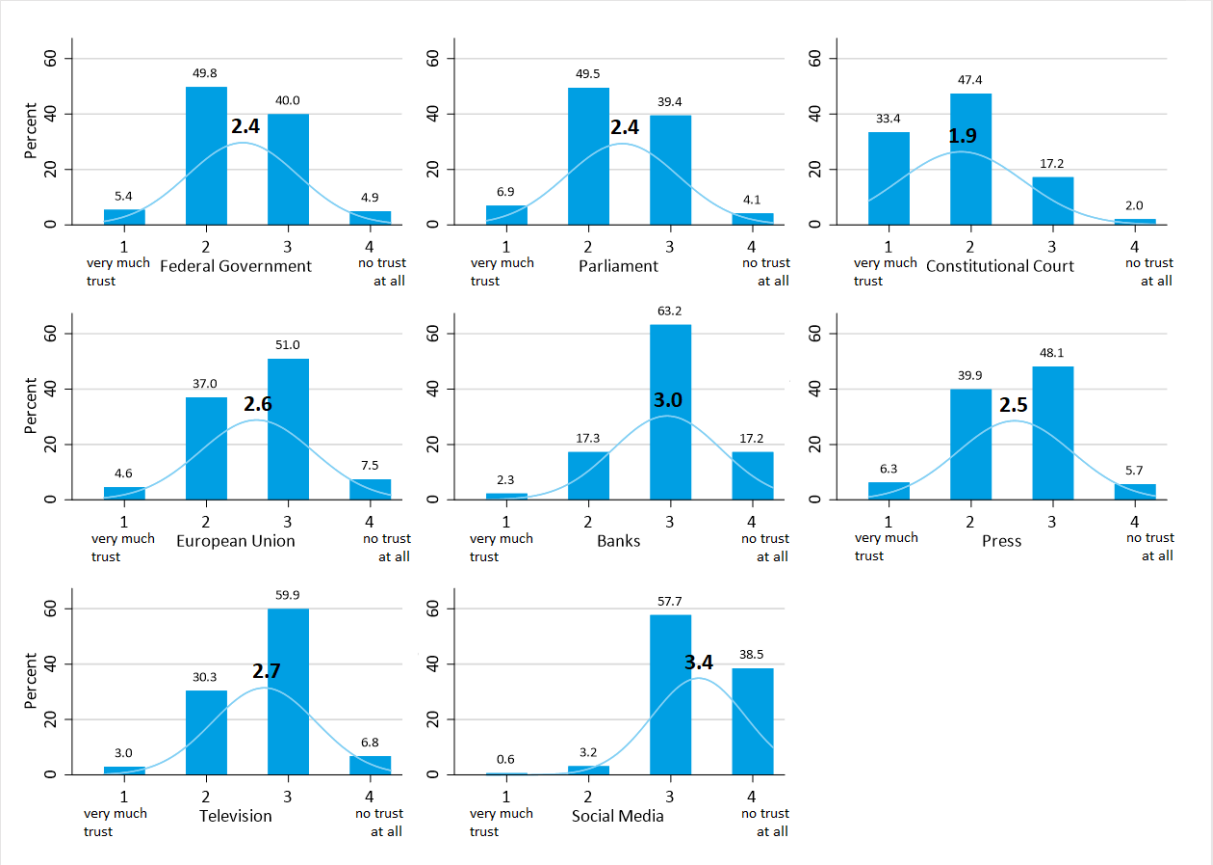
Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0, N(NEPS)= 8,744; own calculations. World Values Survey (Haerpfer et al., 2021); N(WVS) = 1,528).

Table 16 further allows for cross-validation of NEPS data from SC 6 with data from the 2017 wave of the World Value Survey[23]. Overall, WVS respondents rate their trust in institutions somewhat lower than NEPS respondents. This is reflected in higher median as well as higher mean values. Apart from this, the trust level patterns are very similar in both datasets. The most trust is placed in the political institutions, the least in banks. The EU and traditional media lie in between.

Figure 7 provides a more detailed picture of the distributions of trust in institutions in the NEPS data. For most institutions, trust frequencies accumulate around two response options, mainly options 2 and 3, which reflects a medium level of trust in the institution in question. An exception can be seen for trust in the Federal Constitutional Court, in which, together, 80 percent of NEPS respondents trust or trust very much. On the other hand, about 80 percent of the NEPS respondents have no trust (at all) in banks and there is barely any trust in social media: together, 95 percent of respondents state to have no trust or no trust at all.

[22] Trust in the police was not surveyed in the 2017 wave.

[23] Since the World Value Survey does not provide data on trust in the Federal Constitutional Court and the social media, no comparison can be made with NEPS data.



Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; N= 8744; own calculations.

Figure 7. Trust in institutions in SC 6, wave 2017

Compared to the other constructs we addressed in this paper, the proportion of missing values is higher for the items on trust in institutions (see Appendix, Table A4). In particular, there is a higher proportion of missing values for trust in social media, such as Facebook or Twitter. A closer look shows that it is mainly older respondents who do not give an answer. This seems plausible and unproblematic, as this group of respondents may have little or no experience with social media.

5. Conclusion

In this paper, we described the theoretical foundations and the measurement concept of social inclusion as a return to education in the National Educational Panel Study. Our paper follows the conceptual and theoretical framework of the NEPS Working Unit "Returns to Education Across the Life Course", which includes economic or monetary and non-economic or non-monetary returns to education at different stages of the entire life course, as outlined by Bela et al. (2018). Drawing on sociological and economic theories, we provided several arguments that education affects social inclusion through the mechanisms of human capital, social capital, trust, and other returns to education. We also provided arguments for a non-causal (spurious) association between education and social inclusion due to various confounding variables. Based on the theoretical framework presented, we subsequently introduced our measurement concept, which consists of active social inclusion (e.g. participation or membership in social clubs, associations or organized groups, and

volunteering) , passive social inclusion (e.g. individual's feeling of being part of society) and measurements for important mechanisms (e.g. social trust and trust in institutions).

The descriptive results for the NEPS starting cohorts 2, 3 and 6 provide an initial overview of the available data at different ages. To validate the data, we used different approaches: We showed descriptive statistics for different groups of respondents, for example, by age or gender or across survey waves. Where possible, we examined the interrelations between the items of a scale or the parameters of a scale, like Cronbach's Alpha. We also cross-validated NEPS data with other datasets, reports, or methodological literature, using the sources from which the items were taken to match the NEPS wording as closely as possible and to ensure as comparable a target group of respondents as possible. With only very few exceptions, we see for all items considered here plausible descriptive statistics, low numbers of missing values and a high similarity of the NEPS data to other data sources. We therefore argue that the items used for measuring social inclusion as a return to education in NEPS work well and are valid.

Finally, we point out the limitations of the survey program sketched in this paper. The focus of the NEPS is on individuals' education and competencies, from a longitudinal perspective. Therefore, only selected indicators of social inclusion are included in the survey program. Compared to cross-sectional surveys, this results in a smaller survey program that does not cover all nuances of social inclusion. However, the greatest strength of the NEPS is its longitudinal design, which provides more opportunities for causal inference about the effects of education on social inclusion than do conventional cross-sectional designs. Implementing a survey program that focuses on longitudinal measurement of a few selected, relevant indicators allows the user to exploit this unique feature of the NEPS.

6. References

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Appendix A

Table A1: Additional measurement of social trust (until 2016)

SUF-File	Variable	German wording	English wording
pTarget	t517101	Glauben Sie, dass die meisten Menschen versuchen, Sie auszunutzen, wenn sie die Gelegenheit dazu haben, oder versuchen die meisten Menschen, sich fair zu verhalten? Bitte antworten Sie auf einer Skala von 0 bis 10, wobei 0 bedeutet „Menschen versuchen, einen auszunutzen“ und 10 „Menschen verhalten sich fair“.	Do you believe that most people try to exploit your kindness if an opportunity arises, or do most people try to be fair? Please respond on a scale from 0 to 10, where 0 means ‘people try to exploit one's kindness’ and 10 ‘people are fair’.
		0 - Menschen versuchen einen auszunutzen	0 - People try to impose on someone's kindness
		1 - 1	1 - 1
		2 - 2	2 - 2
		3 - 3	3 - 3
		4 - 4	4 - 4
		5 - 5	5 - 5
		6 - 6	6 - 6
		7 - 7	7 - 7
		8 - 8	8 - 8
		9 - 9	9 - 9
		10 - Menschen verhalten sich fair	10 - People behave fairly
		-97 - Verweigert	-97 - Refused
		-98 - Weiß nicht	-98 - Don't know

SUF-File	Variable	German wording	English wording
pTarget	t517102	Und glauben Sie, dass die Menschen meistens versuchen, hilfsbereit zu sein, oder dass die Menschen meistens auf den eigenen Vorteil bedacht sind? Bitte antworten Sie auf einer Skala von 0 bis 10, wobei 0 bedeutet ‚Menschen sind auf ihren eigenen Vorteil bedacht‘ und 10 ‚Menschen versuchen hilfsbereit zu sein‘.	And do you believe that people mostly try to help others or that people mostly act in their own interest? Please answer on a scale from 0 to 10, where 0 means “people act in their own interest” and 10 means “people try to help others”.
		0 - Menschen sind auf ihren eigenen Vorteil bedacht	0 - People take care of their own advantage
		1 - 1	1 - 1
		2 - 2	2 - 2

3 - 3	3 - 3
4 - 4	4 - 4
5 - 5	5 - 5
6 - 6	6 - 6
7 - 7	7 - 7
8 - 8	8 - 8
9 - 9	9 - 9
10 - Menschen versuchen hilfsbereit zu sein	10 - People try to help other people
-97 - Verweigert	-97 - Refused
-98 - Weiß nicht	-98 - Don't know

Table A2: Missing values in SC 2, waves 2016 and 2018[24]

	Missings [%]			
	Implausible value	**Unspecific missing**	**Don't know**	**Refused**
Outcomes				
Social belonging				
Friendship easy	0.11	2.73	-	-
Lonely	0.06	2.84	-	-
More contact	0.06	2.81	-	-
Activities	-	2.67	-	-
Support	0.08	3.03	-	-
Participation-membership				
Voluntary aid	-	6.58	-	-
Sports club	0.03	4.05	-	-
Religious group	-	7.21	-	-
Fan club	-	8.98	-	-
Culture club	0.03	8.56	-	-
Other	0.11	27.92	-	-
Trust				
Social trust (Parents)				
Wave 2016	-	-	0.07	0.07
Wave 2018	-	-	-	0.18

Source: NEPS SC2 doi:10.5157/NEPS:SC2:9.0.0**.**

[24] Here, missing values are higher because respondents fill in the questionnaire themselves, leading to more missing values compared to interview situations with an interviewer.

Table A3: Missing values in SC 3, wave2016, 2017, 2018, 2020 (Corona)

	Missings [%]			
	Implausible value	**Unspecific missing**	**Don't know**	**Refused**
Outcomes				
Social belonging				
Wave 2016	-	-	-	0.10
Wave 2017	-	0.90	-	0.21
Wave 2018	-	-	0.08	-
Wave 2020 (Corona)	-	-	0.10	-
Trust				
Social Trust				
Wave 2016	-	0.42	0.02	0.02
Wave 2020 (Corona)	-	-	-	-
Institutional Trust				
Wave 2020 (Corona)				
Federal Government	-	-	1.16	-
Federal Parliament	-	-	1.07	-
Federal Constitutional Court	-	-	0.87	-
European Union	-	-	0.58	-
Banks	-	-	0.68	-
Press	-	-	0.48	-
Television	-	-	0.19	-
Social Media	-	-	-	-
Police	-	-	0.19	-

Source: NEPS SC3 doi:10.5157/NEPS:SC3:10.0.0; own calculations.

Table A4: Missing values in SC 6, wave 2013, 2016, 2017 and 2018

	Missings [%]			
	Implausible value	**Unspecific missing**	**Don't know**	**Refused**
Outcomes				
Social belonging				
Wave 2016	-	-	0.05	0.01
Wave 2017	-	-	0.08	0.04
Wave 2018	-	-	0.06	0.01
Trust				
Social Trust				
Wave 2013	-	-	0.02	0.03
Wave 2017	-	-	0.03	0.01
Institutional Trust				
Wave 2017				
Federal Government	-	-	0.27	0.09
Federal Parliament	-	-	0.58	0.16
Federal Constitutional Court	-	-	1.09	0.18
European Union	-	-	0.94	0.15
Banks	-	-	0.39	0.06
Press	-	-	0.64	0.15
Television	-	-	1.09	0.15
Social Media	-	-	5.30	0.35

Source: NEPS SC6 doi:10.5157/NEPS:SC6:11.1.0; own calculations.

Appendix B

General information about the development study

With a development study in 2018 (B153[25]), we tested our items on the construct of social belonging for children[26] under 12. The aim of this development study was to test the adequacy of the questions for the respective target groups to ensure that newly developed or revised questions would meet the quality standards of the NEPS surveys.

The sample relevant for testing our items contains N=800 pairs of children aged 10 to 16 and one parent each. Respondents with a migration background, particularly Russian and Turkish, were overrepresented in the sample. Children were asked to complete a paper questionnaire (PAPI, 15 pages), whereas parents were questioned by telephone (CATI, 40 minutes). All interviews were conducted in German, regardless of migration background.

Results

First, in column 4 of Table B1, we compare the proportion of missing values in our items for respondents under age 12 and between ages 12 and 15.

Table B1: Comparison of missing values

Item	Sample	N	Missing Values	Mean	T Test
Friendships easy	Younger than 12 years	116	0,9%	3.8	Not significant
	12–15 years	627	0,8%	3.8	
Lonely	Younger than 12 years	117	-	1.8	Not significant
	12–15 years	625	1,1%	1.7	
More contact	Younger than 12 years	116	0,9%	2.6	Not significant
	12–15 years	625	1,1%	2.7	
Activities	Younger than 12 years	116	0,9%	4.0	**
	12–15 years	628	0,6%	3.8	
Support	Younger than 12 years	117	-	4.4	*
	12–15 years	628	0,6%	4.2	

Source: NEPS (2018), development study B153; own calculations.

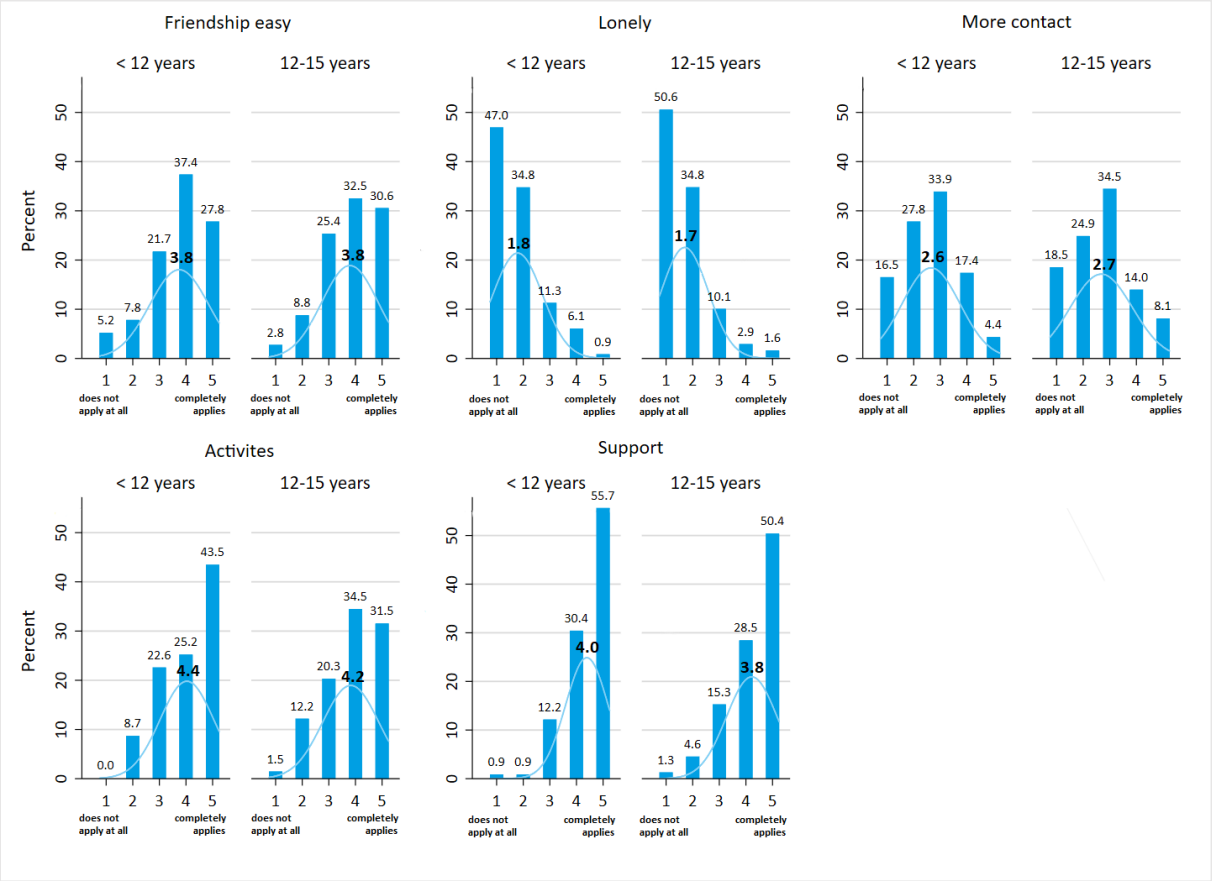
In general, the proportion of missing values is very low at around 1% in both age groups. In the subsample of respondents younger than 12, the share of missing values is no greater than in the comparison group, which means that younger respondents do not have greater problems answering the questions. The mean values are also very similar in both groups. Statistically, using t-tests, the answers to two of our items differ significantly between the

[25] The study was conducted by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with infas, Institute for applied social sciences GmbH, Bonn.

[26] For item wording, see Table 5.

groups: Children younger than 12 years report more joint activities and more support within their group of friends than those 12–15 years old.

To get a better impression of differences in the distributions of the items, we again compare the two age groups in Figure B1.



Source: NEPS (2018), development study B153, N= 741-745; own calculations.

Figure B1. Social Belonging by age, development study

At first sight, the distributions for both age groups look very similar and for most items there is a sufficient number of responses in all categories. In some cases, a shift of the distribution towards either side of the distribution can be seen. Table B1 shows statistically significant differences for children under 12 and 12–15 for the items on joint activities with friends and peer group support. For the first of these items, a shift in responses towards the upper end of the scale can be seen in the younger age group. For the second item, the younger respondents also answered less often at the lower end of the scale, which leads to a compression of the distribution.

In the dataset of the German Youth Institute, from which the items were adapted, a principal factor analysis[27] showed that the items form two factors with an eigenvalue greater than 1. The first factor dimension refers to different facets of friendship (items 1, 4, and 5), and the second comprises aspects indicating a lack of social contacts (items 2 and 3). Using data from

[27] Items 2 and 3 were recoded, so that higher values indicate a higher feeling of inclusion.

the NEPS development study, an equivalent factor structure can be reproduced. The results of varimax rotation for both datasets are shown in Table B2.

Table B2: Rotated factor loadings (DJI Youth Survey and NEPS B153)

	DJI Youth Survey 2003 (N=2144)		**NEPS B153** (N=856)	
	Factor 1	*Factor 2*	*Factor 1*	*Factor 2*
Friendships easy	0.6		0.7	
lonely		0.7		0.6
more contact		0.8		0.9
activities	0.8		0.8	
support	0.8		0.8	

(blanks represent abs(loading)<.4)

Source: NEPS (2018), development study B153; German Youth Institute (2010), DJI Youth Survey 2003; own calculations.

Therefore, the results of the development study suggest the suitability of the tested items for respondents under 12.

Appendix C

General information on the cognitive pretest

In 2020, we conducted a cognitive pretest to test the items on the active dimension of social belonging, i.e. the active participation in organized clubs or associations, on a sample of children in grades 4 and 5. The aim of the pretest was to see whether young children are able to classify their activities into the given categories that we already use for adolescent respondents in the NEPS surveys. According to Borgers et al. (2000), there are several steps to go through when responding to a survey. The first three steps are: (1) understanding the question, (2) locating relevant information in memory and generating a response, and (3) selecting the appropriate response category. In our cognitive pretest, we aimed to gain insight into these processes in our child sample. For the items on the active participation in clubs, we particularly focused on steps 2 and 3.

The interviews were conducted by telephone in September and October 2020 as semi-standardized interviews, lasting an average of 18 minutes. All interviews were conducted in German, so the respondents had to have at least some knowledge of German to understand the questions correctly. The interviews were recorded, transcribed, and transferred to a Stata dataset. Each child received an incentive of 20€ in the form of a voucher for a selection of different online services and online stores.

In total, we interviewed N=26 children about their leisure activities in social groups, clubs, or associations. The age of the respondents ranged from 9 to 11 years, with an average of 9.6 years. 16 of the respondents were attending grade 4, 10 were attending grade 5 at the time of the interview. There were 17 females and 9 males and a total of five respondents with a second-generation migration background.

Procedure implemented in the pretest

To find out whether young children are able to assign their activities to the given categories, we decided to use a combination of open-ended and closed-ended questions. The closed-ended question is the same one that we use for older children in the NEPS (Table C1). Before the interview, we sent households a card with a list of the different categories of clubs or associations. This list was used during the interview to get closer to the interview situation in the NEPS surveys: Children of this age are usually not interviewed by phone, but interview modes are used where children can see the questions and possible answers on a screen or on paper. The interviewer reads out the list one by one and the respondents are asked to indicate whether or not they participate in the respective club. To check this assignment process, we asked the children in a second step to name the clubs or groups they had in mind when answering the closed-ended question. This approach is used to understand whether children are able to grasp what is meant by the categories provided in the NEPS surveys and whether they can place their own activities into these categories. Finally, the respondents were asked to indicate how difficult it was for them to match the association or club they participate in into the provided categories.

Table C1: Survey questions and probes in cognitive pretest

Type of Question	German wording	English wording
Survey Question	Auf dieser Liste haben wir verschiedene Vereine oder Gruppen zusammengestellt. Machst du dort mit?	We have compiled a list of different clubs or groups. Do you participate in any of them?
	1 - Freiwillige Hilfsorganisationen wie Feuerwehr, Technisches Hilfswerk (THW), Deutsches Rotes Kreuz (DRK), Deutsche Lebens-rettungsgesellschaft (DLRG) etc. 2 - Sportverein 3 - Kirchliche, konfessionelle oder religiöse Jugendgruppen (auch CVJM, BDKJ, DITIB, AAGB) 4 - Fanclub 5 - Kulturverein wie Theaterring, Jugendorchester, Heimatverein, Folkloreverein etc. 6 - Sonstiges, und zwar: -97 - Verweigert -98 - Weiß nicht	1 - Voluntary aid organizations such as fire department, Technical Relief Service (THW), German Red Cross (DRK), German Lifesaving Association (DLRG), etc. 2 - Sports club 3 - Church, denominational or religious youth groups (including YMCA, BDKJ, DITIB, AAGB) 4 - Fan club 5 - Culture club such as a theater group, youth orchestra, club cultivating local history, folklore club, etc. 6 - Other, namely: -97 - Refused -98 - Don't know
Probing Questions	Welche/r Verein/e oder welche Gruppe/n ist/sind das genau?	Which clubs or groups are that in particular?
	Wie schwer ist es dir gefallen, den Verein oder die Gruppe, bei der du mitmachst, in die vorgegebenen Kategorien einzuordnen?	How difficult was it for you to assign the club or group you are into the provided categories?

Results of the pretest

First, we provide a brief description of the results of the closed-ended question. Respondents indicated participation in all types of clubs asked about. From this, we conclude that the selection of the listed associations is appropriate for this age group. The option of a plain text response[28] in case that none of the listed categories seemed appropriate ensured that every type of club, association, or organized group could be covered.

Overall, the highest proportion of respondents reported participating in sports clubs whereas the lowest proportion reported active participation in voluntary aid organizations;

[28] In our cognitive pretest, only five respondents gave a plain-text answer. Two of them repeated what they had stated in the closed-ended question, and in two other cases participation in a club was stated, although a suitable category was given in the closed-ended question. The remaining plain text response provided information about a leisure activity for which it is unclear in which organizational setting it takes place. Therefore, it is also unclear whether this activity is of interest for the purpose here. Ultimately, the plain-text response did not prove to be very informative.

participation in fan clubs, religious groups, or cultural clubs fell in between. This pattern is similar to what we saw in NEPS SC 2 (see section 4.1) for a sample of older respondents[29].

Since the comparison of closed-ended and open-ended responses was relevant, the four-eyes principle was applied, i.e. two people checked the data independently. There was only one discrepancy[30], so the overall results were not affected by subjectivity.

The results of the comparison of open-ended and closed-ended responses show that, overall, children in grades 4 and 5 are able to select the category that corresponds to their club or association. In ten cases, the answers matched completely, i.e. the clubs or associations mentioned in the open format question were also correctly reflected in the closed format[31]. In five cases, the answers to both types of questions partially coincided. It is noticeable that fewer groups are mentioned in the open format than in the categorized format. A possible explanation for this could be that it is easier for children to go through their activities and evaluate whether they fit the question when a certain framework is given. Given categories can help children to structure their thoughts. In two cases, the responses in the open and closed formats did not fit. That means that the children either openly reported activities that they did not indicate in the closed format question, or vice versa. One child was unable to openly verbalize the activity. In this case, the child also did not indicate participation in any club or association in the closed-ended question and said that it was difficult to explain which particular group he or she was referring to. It seems likely that this child had rather general problems with the whole set of questions about participation in organized groups.

In five cases, the open-ended question was not asked due to an oversight on the part of the interviewer. Three other cases had to be excluded, because the interviewer changed the neutral wording of the question, for example by naming the category in which the respondent had previously indicated his or her participation.

When asked about difficulties in assigning clubs to response categories, most respondents indicated no problems. Only three respondents said that it was difficult for them, five indicated a medium level of difficulty, and sixteen reported that it was easy or no problem at all. In five cases, there was no answer to this question. The overall picture corresponds to the impression the interviewers had. They were asked to note any type of problem during the interview. In six cases, the interviewer noted uncertainties of the respondent that involved problems with the categories. In two of these cases, the problems appeared to be minor and were easily resolved by the interviewer repeating or rephrasing the question or by encouraging the respondent to give an answer even if he or she was not entirely sure[32].

[29] Because of the small sample size of the cognitive pretest, we refrain from further analyses here, for example for subgroups.

[30] In this specific case, the water rescue association (Wasserwacht) was interpreted differently, as a sports club or as a voluntary aid organization. For the further interpretation of the results, the interpretation as voluntary aid organization was chosen.

[31] In two cases, we found that participation in a church choir was difficult to categorize because it can include both religious and artistic components. We therefore decided to allow both interpretations, church choirs as religious groups or as cultural groups, to the extent possible.

[32] Other types of problems reported by the interviewer were errors on their own part, such as not asking all questions that should be asked, errors in reading the questions aloud, or parent interventions.