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Continuation and changes in civil participation during adulthood. A matter of education and learning?

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Ina E. Rüber

Continuation and changes in civil participation during adulthood: A matter of education and learning?

Abstract

This paper revisits the associations between education and learning with civil participation during adulthood, focusing on the questions whether and how adult learning may exert an effect on civil participation. Adult learning is distinguished upon its degree of institutionalization. Using data from the German National Educational Panel Study (NEPS) further allows to differentiate recurring civil participation and the uptake of civil participation. Multinomial logistic regression models reveal that the odds of recurring civil participation, against the odds of no civil participation, increase with educational degree, non-formal and informal learning. This result supports earlier research. The models further show that the odds of taking up civil participation during adulthood, against the odds of no civil participation, do not change with educational degree but with informal learning and especially with non-formal learning. The results on the one hand, speak in favor of the continuity theory of aging; civil participation behavior establishes early in life and upon similar determinants as the dispositions for adult learning. On the other hand, non-formal learning may trigger adults to uptake civil participation by providing opportunities to extend social networks.

Keywords

Adult learning; Education; Adult education; Civil participation; Volunteering

Kontinuität und Wandel zivilgesellschaftlicher Partizipation im Erwachsenenalter: Eine Frage der Bildung und des Lernens?

Zusammenfassung

Dieser Artikel untersucht den Zusammenhang zwischen Bildung und Lernen mit zivilgesellschaftlicher Partizipation (zP) im Erwachsenenalter. Fokussiert wird die Fragestellung inwieweit das Lernen Erwachsener einen Effekt auf die

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zP hat. Es werden formales, non-formales und informelles Lernen unterschieden. Anhand der Daten des Nationalen Bildungspanels (NEPS) kann weiterhin zwischen wiederkehrender zP und der erstmaligen Aufnahme von zP unterschieden werden. Die Ergebnisse multinomialer logistischer Regressionsmodelle zeigen, dass wiederkehrende zP im Vergleich dazu nicht zu partizipieren mit Bildung, non-formalen und informellen Lernen wahrscheinlicher wird. Das zeigte bereits frühere Forschung. Die Modelle zeigen jedoch auch, dass die Aufnahme zP im Erwachsenenalter unabhängig von Bildung ist, aber mit informellen und insbesondere mit non-formalen Lernen wahrscheinlich wird. Einerseits stützen die Ergebnisse die Theorie der Kontinuität des Alterns; zP festigt sich bereits in der Jugend und im jungen Erwachsenenalter durch ähnliche Einflüsse, die auch die Dispositionen zum Lernen im Erwachsenenalter prägen. Andererseits kann die Aufnahme von zP teilweise durch non-formales Lernen erklärt werden, denn es ermöglicht die Erweiterung sozialer Netzwerke, die entscheidend für die Aufnahme zP sind.

Schlagworte

Lernen Erwachsener; Bildung; Erwachsenenbildung; Zivilgesellschaftliche Partizipation; Freiwilliges Engagement

1. Introduction

Civil participation includes regularly performed activities that serve the good of the society. It builds the fundamental base for a cohesive, integrative and functioning democratic society (Priemer, Krimmer, & Labigne, 2017; Putnam, 2000). Consequently, there is great political and public interest in achieving high civil participation rates, and there is great academic interest in explaining differences in individual civil participation behavior. In the academic discourse, one of the most robust findings is that there is a positive association between civil participation and education. The more time an individual spends in formal education and the higher the educational degree, the greater is his or her chance for civil participation (Gesthuizen, Van der Meer, & Scheepers, 2008; Mascherini, Vidoni, & Manca, 2011; Wilson, 2012). This is not limited to full time primary and higher education; also indeed, participation in adult learning positively relates to civil participation (Schuller, Preston, Hammond, Brassett-Grundy, & Bynner, 2004; Thomas, 2017; Vera-Toscano, Rodrigues, & Costa, 2017). Whether these associations, especially the one with adult learning (Field, 2011), are causal, to what extent, and at which stage of life they occur, are all, however, still matters for investigation. This article closely investigates the association of adult learning and civil participation.

In line with the continuity theory of normal aging, which implies that individuals are inclined towards psychological continuity and continuity of social behavior (Atchley, 1989; Wilson, 2012), for the majority of adults, civil participation behav-

ior does not change much over the life course (Lancee & Radl, 2014). Accordingly, civil participation during childhood and adolescence substantially increases the probability for recurring civil participation during adulthood (Oesterle, Johnson & Mortimer, 2004). The positive association between an adult's educational degree and his or her civil participation may, hence, only manifest due to an effect of education on civil participation early in life and the continuity of civil participation behavior thereafter (Schnittker & Behrman, 2012). The plausibility that further educational activities during adulthood, adult learning, exerts an effect on civil participation is also low, when civil participation tends to remain stable. However, if civil participation changes over the life-course, these changes may partly be triggered by adult learning.

Changes in civil participation behavior are functions of its changing determinants, such as the individuals' motivations, capacities and networks of recruitment (according to the *Civic Voluntarism Model* by Verba., Schlozman, & Brady, 1995) or the interplay of individuals' preferences, resources and external constraints (or opportunities) with those of public organizations (according to the volunteering and membership market model by Wiertz, 2016). Several studies assume key determinants of civil participation on the individual level to change with adult learning and, therefore, they expect an effect of adult learning on civil participation (for an overview, see Rüber, Rees, & Schmidt-Hertha, 2018). The empirical evidence for such an effect, however, is rather weak and even weaker when it comes to identifying the mechanisms at play. The majority of the studies either worked with cross-sectional data (e.g. Vera-Toscano, et al., 2017), investigated very specific cases (e.g. McIntyre, 2012) or analyzed a peculiar type of adult learning (e.g. Ruhose, Thomsen, & Weilage, 2019). As a consequence, they run into problems of unobserved heterogeneity, problems of weak generalizability of the results or the implications of the results for the potential mechanisms of an effect remain rather limited. The present article, aims at furthering the debate by adding an empirical analysis on a representative sample for Germany, which targets high generalizability, relatively low problems of unobserved heterogeneity and an advanced discussion of mechanisms. It theoretically follows the approach by Rüber et al. (2018), who argue that the mechanisms by which adult learning may exert an effect on civil participation depend on the degree of institutionalization of adult learning. Therefore in the analysis, I distinctively model the associations of formal, non-formal and informal adult learning with civil participation. To further the debate on causality in the association, I distinguish between recurring civil participation and the recent uptake of civil participation. The results reveal important insights on the potential mechanisms between adult learning and civil participation, which will be discussed further in the course of this article.

The next section entails a brief conceptualization of civil participation and adult learning and discusses the German context. The following section entails theories on the mechanisms behind the associations of informal, non-formal and formal adult learning with recurring civil participation and the uptake of civil participation. After a description of the data and the analytical strategy, I present the main

empirical results of the analysis. The remainder of the article entails a comprehensive discussion of the findings.

2. Civil participation and adult learning in the German context

2.1 Civil participation

From a political science point of view, civil participation is a latent form of political participation (e.g. Ekman & Amnå, 2012) and includes two dimensions: involvement (e.g. personal interest in politics) and civic participation (e.g. volunteering). Putnam (2000) uses the term in an even broader manner; civil participation includes any kind of individuals' cultural, social and political participation as well as values and attitudes towards the society. Both conceptualizations of the term include observable characteristics, such as actions, and unobservable characteristics, such as perceptions. In the center of interest of this article are the observable characteristics of civil participation, hence actions, and it further focusses only on collective forms of civil participation (e.g. volunteering), which are strongly embedded in the functioning of the German society.

Alscher, Droß, Priller, and Schmeißer (2013) refer to Germany as the country of clubs and civil organizations. There are more than 600,000 civil organizations in Germany and on average memberships are rising. At the same time, the number of individually organized and project-shaped civil activities has also significantly increased (Simonson & Vogel, 2017). According to data from the *German Survey on Volunteering*, the number of voluntarily engaged citizens rose from 35.5 percent in 1991 to 44.3 percent in 2014 (Vogel, Hagen, Simonson, & Tesch-Römer, 2017). 52 percent of highly educated respondents and 55 percent of the respondents who are still in education report on civil participation in 2014. The share among respondents with low education levels is significantly lower (28 %). Compared to earlier survey years, the differences in civil participation rates between educational groups increased, while the differences in civil participation rates between age groups decreased. The civil participation share among adults above the age of 65 is significantly lower, as compared to younger age groups. Still, civil organizations and associations are confronted with a rising average age amongst their members and they face difficulties in the recruitment of new and younger active members (Alscher et al., 2013).

A study by Lancee and Radl (2014) revealed that in Germany, the majority of individuals show high continuity in their civil participation behavior over the life course. Using data from the German *Socio-Economic Panel* (SOEP), the authors demonstrate that about two thirds of the respondents do not change their volunteering behavior during 25 years of observation. Half of the respondents never volunteered, while 15 percent of the male respondents and 10 percent of the female

respondents volunteered throughout. A third of the respondents change their volunteering behavior, by either taking up volunteering or by ceasing to volunteer during adulthood.

2.2 Adult learning

Following earlier research, I differentiate adult learning, the learning of adults after completing initial full-time education and entering the labor market, into formal, non-formal and informal learning (Buchholz, Unfried, & Blossfeld, 2014; Eisermann, Janik, & Kruppe, 2014; Eurostat, 2017). Formal adult learning activities are the most institutionalized learning activities. They culminate in the acquisition of a nationally accredited degree and therefore follow pre-established curricula. Non-formal adult learning does not lead up to a nationally accredited degree, but also incorporates pre-established curricula. It encompasses adult education courses and further training. Finally, informal learning is the least institutionalized type of adult learning. It is not bound to a curriculum, or to certain places or times. It comprises any individual and independent knowledge acquisition.

The *Adult Education Survey 2016* (AES) provides data on adult learning activities from a representative sample of the German residential population (age 18-69). The respondents report on their participation in learning during the time period of twelve months prior to the interview. The data reveals that formal learning is the least dominant type of adult learning, with a participation rate of 10 percent (Kuper, Christ, & Schrader, 2017). Formal adult learning, here, also includes learning that the respondents would describe as part of their initial education. The percentage drops to about 3 percent, when counting only those adults, who regard their formal learning as further education. Half of the AES respondents between the ages of 18 and 64 took part in non-formal learning activities (Bilger & Strauß, 2017) and 43 percent engaged in informal learning activities (Kaufmann-Kuchta & Kuper, 2017). Informal learning here comprises acquiring knowledge from friends, family or colleagues, from books, by searching online or using other media, or by visiting museums or libraries. Eisermann and colleagues (2014) show that adult learning participation rates differ substantially between different data sources because of measurement heterogeneities. Accordingly, using NEPS data, Kruppe and Trepesch (2017) found much higher informal learning participation rates compared to the AES. As such, 63 percent of the NEPS-respondents took part in informal learning within a time period of 12 months (2012/13), while informal learning, here, comprised reading specialized literature, attending lectures or congresses or using self-learning programs. The figures that Kruppe and Trepesch (2017) show for formal learning do not refer to a time period of 12 months, but they refer to the entire life course. Naturally, the reported formal learning rate of 39 percent is higher as compared to the AES formal learning rate. The share of NEPS respondents, who engage in non-formal learning, is a little lower (around 40 %) compared to the AES figures.

According to AES data, 60 percent (57 %) of adults who are highly educated participate in non-formal (*informal*) learning, while only 35 percent (32 %) of low educated adults do. Similarly, large differences occur when comparing non-formal learning participation between employed (56 %) and unemployed (27 %) adults (Bilger & Strauß, 2017). These figures correspond to the observation that in 2016, 71 percent of non-formal adult learning in Germany was in-service training and another 10 percent was still at least work-related. Even participants' purposes for engaging in informal adult learning are principally job-related (Rüber & Bol, 2017).

3. Mechanisms behind the associations of learning and civil participation during adulthood

As touched upon in the introduction, there is a rich set of empirical work that reports a positive association between adult learning and a variety of civil participation measures, such as volunteering or active club memberships (Bynner & Hammond, 2004; Feinstein, Hammond, Woods, Preston, & Bynner, 2003; Preston & Feinstein, 2004; Ruhose et al., 2019; Schuller & Desjardin, 2010). Rarely, however, these civil participation measures capture change. They often represent a snapshot of whether or not respondents take part during a certain period of time related to the interview. Those reporting on civil participation may have recently started civil participation or they may report on recurring civil participation. To reach a better understanding on mechanisms behind the association of adult learning and civil participation, I separately discuss recurring civil participation and the uptake of civil participation.

3.1 Adult learning and recurring civil participation

According to the continuity theory of aging (Atchley, 1989; Wilson, 2012), recurring civil participation during adulthood results from learned behavior in earlier phases of the life course. This is in line with research on the determinants of civil participation, which shows that the strongest predictors of civil participation are those, which tend to remain rather stable over the life course, such as education (Nie, Junn, & Stehlik-Barry, 1996; Wilson, 2012). Further, Verba and colleagues (1995) state that socialization processes in family and school lay the foundations for the main determinants of civil participation: individuals' motivations, capacities and networks of recruitment. In regards to the mechanisms behind the association between adult learning and recurring civil participation, this implies that either the association only comes about due to common stable determinants (1) or because recurring civil participation opens up opportunities for adult learning (2).

(1) Similarly to civil participation, especially non-formal and informal adult learning are more common among highly educated adults (Kruppe & Trepesch,

2017). Positive experiences with education and learning in early life further increase the chances of education and learning later in life (Gorges, 2018). Besides initial education, other common determinants of civil participation and adult learning are personality traits, such as prosocial behavior, intelligence and general curiosity (Van Ingen & Dekker, 2011). (2) Civil participation often includes possibilities for non-formal and informal adult learning. For example, clubs or associations often offer trainings to their volunteers, to increase their motivations and performances (Simonson & Gordo, 2017). Moreover, volunteers, who want their actions to have a positive impact, often engage in informal learning to increase their efficacy (Brödel, 2006).

3.2 Adult learning and the uptake of civil participation

Taking up civil participation during adulthood means to change civil participation behavior and therewith to break with continuity. However, the same theoretical models that explain recurring civil participation, may also explain changes in civil participation. Even if the foundations of motivations, capabilities and networks of recruitment are laid early in life, they may still become subject of change over the life course. Earlier research for instance reveals that life-course transitions related to the family domain can trigger such changes (Janoski & Wilson, 1995). Lancee and Radl (2014) show on the basis of fixed effects models with German panel data that having pre-school children decreases parents' volunteering, while having children in school increases parents' volunteering. Here, the capabilities in terms of free time available for civil participation change dramatically. Marriage and divorce also showed to decrease volunteering. Here, both motivations but also networks of recruitment possibly change. For my research question, this, in connection with the earlier considerations, implies that there are three possible explanations for a positive association between adult learning and the uptake of civil participation.

First, adult learning can be a requirement for the uptake of civil participation. For example, volunteering for ambulance services is only possible if the volunteer took part in some preparatory training. This proposition, however, does not apply to formal and informal adult learning and therewith only suggests an association between non-formal adult learning and the uptake of civil participation. Second, certain life-course transitions or events may affect both participation in adult learning and the uptake of civil participation. Here, one important factor is time, which is both required for adult learning (Mania, 2019) and civil participation. The positive effect of children turning into school age on civil participation for parents, equally holds for participation in adult learning. The surplus of free time can be invested especially in informal learning activities, which are not bound to a certain schedules. Third, adult learning may trigger the uptake of civil participation by changing motivations, capabilities or networks of recruitment for civil participation (Verba et al., 1995; or resources, beliefs and external constraints as of Wiertz, 2016).

Reviewing studies on returns to adult learning and theoretical approaches on determinants of civil participation, Rüber et al. (2018) provide a theoretical framework, which summarizes five potential mechanisms of an effect of adult learning on the uptake of civil participation. First, successful participation in formal adult learning and, occasionally, participation in non-formal adult learning, improve individuals' *economic conditions*. The obtained qualifications can result in a wage increase, a promotion or a change of employer (Ehlert, 2017; Hanushek, Schwerdt, Woessmann, & Zhang, 2017). Economic conditions are comparable to individuals' capabilities or resources for civil participation (Verba et al. 1995; Wiertz, 2016). Civil participation requires investing time, which is unpaid. The investment of unpaid time may only be possible and desirable if there are no private economic shortages. Second, formal and non-formal adult learning often take place within social groups. Depending on the teaching style and the focus of the course, the learner is able to expand his or her *social networks* (networks of recruitment, opportunities). The greater and the more heterogenic the number of social contacts, the likelier it is that the participant will meet people who are engaged in civil participation. Contact with other civil participants increases the chance of being asked to engage in civil participation. Being actively recruited has strong effects on the decision and the opportunities to engage in civil participation (Einolf & Chambré, 2011; Hustinx, Cnaan, & Handy, 2010). Third, the new knowledge acquired via adult learning can alter one's *attitudes and values* towards civil participation and therewith motivations for civil participation or beliefs on civil participation may change. This applies to all types of adult learning. A simple example is adult learning about environmental issues. If the learner did not know about issues like global warming or ocean pollution before, the learning activity is likely to trigger a change in the learner's attitudes towards consumption behavior, and may trigger engagement within environment protection. Fourth, if the learning activity connects to a sphere of civil participation, as in the given example, it may not only change the learners' attitudes and values. It may also facilitate the learner with new *qualifications* (capabilities or resources) for civil participation. Owning these qualifications in turn can increase the motivation to uptake civil participation. Finally, positive learning experiences in every context may change adults' *low-level personality trait characteristics* (motivations, capabilities, resources). It can foster the individual's self-efficacy and self-confidence. These character traits are likely to increase the chance of starting new activities such as civil participation.

In regards to a potential effect of adult learning on the uptake of civil participation, Rüber et al. (2018) suggest that the mechanisms related to personality, values, or knowledge and skills may apply to all types of adult learning. Mechanisms related to networks and communities call for a social setting, which does not occur in informal learning. Economic conditions change most significantly with formal adult learning. Hence, if all types of adult learning show the same association with the uptake of civil participation, only those mechanisms, which work equally for all types are plausible. Respectively, if the association only shows for specific types of adult learning, only the respective mechanisms may apply.

Rüber et al. (2018) acknowledge that next to the degree of institutionalization, the status and the content of adult learning are relevant as to whether (and to what extent) they might affect civil participation. In this analysis, however, I only focus on the degree of institutionalization.

To sum up the theoretical considerations of the article, there are three ways by which the association between adult learning and civil participation may come about: common determinants, an effect of civil participation on adult learning and an effect of adult learning on civil participation. My focus is on the latter, which I conjecture to be only plausible for the uptake of civil participation and to vary between formal, non-formal and informal adult learning. An effect of civil participation on formal adult learning is not expected.

4. Data

To investigate the associations of adult learning and civil participation, I use data from the German *National Educational Panel Study* (NEPS) (Blossfeld, Roßbach, & von Maurice, 2011). The NEPS collects longitudinal data from adults within its sixth starting cohort *Adult Education and Lifelong Learning* (SC6) via computer-assisted personal interviewing and telephone interviewing (CAPI and CATI). While it meets the aim of capturing learning activities within different contexts across the whole life span, it is not equally able to capture civil participation. Data on civil participation was, so far¹, only captured in the fifth NEPS-main survey wave (2013/2014) out of eight available waves. The models in this article, therefore, mainly build on a cross-sectional sample. However, since the NEPS is a panel study it is possible to incorporate control variables related to life-transitions that are shown to influence volunteering during adulthood and to run robustness checks with lagged predictors. This improves the chances of eliminating problems of unobserved heterogeneity and reversed-causality.

The original sample of the fifth NEPS wave ($N = 10,639$) consists of three subsamples. The first subsample builds on the predecessor study *Working and Learning in a Changing World* (ALWA 2007/2008) (Kleinert et al., 2011). The second subsample is a refreshment sample and a pile up sample drawn from the first NEPS wave (2009/2010). The third subsample is a refreshment sample in the third NEPS wave (2011/2012). Using a two-stage cluster sampling approach with municipalities as first sampling unit and persons as second sampling unit, the NEPS aims to achieve a representative sample for the German working-age population (cohorts 1944–1986) in each wave (Aßmann et al., 2011). Next to the refreshments that combat panel attrition, the data also entails weights that are calculated using *Mikrozensus* data. Each analysis presented in this paper incorporates both the design weights and the post-stratification weights.

1 doi:10.5157/NEPS:SC6:8.o.o

5. Variables

Within the scope of this paper, I discuss the associations between formal, non-formal and informal learning and civil participation, focusing on potential effects of adult learning on civil participation. I measure civil participation with a categorical variable: (1) no civil participation, (2) recurring civil participation, (3) uptake of civil participation. It builds on two survey questions. The first question asks whether the respondent “has been actively involved in one or more areas since the last interview”. Four areas² are mentioned to the respondent successively and the respondent is requested to indicate whether he or she was actively involved. It is not possible to accurately demarcate in which area the respondent was involved from the data, which leads to a very broad measurement of civil participation. To distinguish between recurring civil participation and recent uptake of civil participation, I use additional information from the follow-up question, which asks whether the respondent has “ever been actively involved in clubs, organizations or self-help groups before”. If the respondent indicates having been involved before, I rate the civil participation as recurring civil participation. If the respondent indicates not having been involved in civil participation in the past, I assume that the respondent took up civil participation between the current and the latest interview date. To ensure that the uptake of civil participation took place in this period, I delete the cases that report on civil participation, but that temporarily dropped out of the survey in the previous wave. This step leads to losing 101 observations, but it is a necessary step, since the predecessor question asks for participation between the last interview and the current date and that period differs strongly in the case of a temporary drop out.

I generate four dummies for the independent variables; one variable each for formal and non-formal and two variables for informal adult learning. The formal learning dummy takes on the value 1 if the respondent reported on at least one education spell³ in the twelve months period prior to the interview (after having left initial full-time education for a minimum of 12 months). Using the *Further Education* data file, the non-formal learning dummy takes on the value 1 if the respondent took part in at least one course in the 12 months prior to the interview. Finally, I use two measures for informal learning, out of four measures that are provided in the NEPS data. The measures that are not included in this analysis are strongly tied to the world of work and have a weaker match to earlier research on individual informal learning. The selected measures (see Table 1) correspond to the measures used in the AES.

2 (1) clubs or organizations, including sports clubs, political parties, trade unions and church communities, (2) voluntary fire services and rescue services, carnival associations and welfare organizations, (3) citizens’ initiatives and citizens’ clubs, parents’ associations, theatre and music groups or initiatives for the unemployed, and (4) work as a lay judge, visiting the sick or participation in solidarity projects.

3 sptype = School, VocPrep or VocTrain in Biography data file.

Table 1: Weighted descriptive statistics of dependent, independent and control variables

	<i>M</i>	<i>SD</i>	Range	Description / Survey Question
<i>Civil participation (cp)</i>				
No cp	.53	.50	0/1	(1) No civil participation since the last interview (0) else
Recurring cp	.27	.45	0/1	(1) Civil participation since the last interview and before (0) else
Uptake of cp	.19	.40	0/1	(1) Civil participation since the last interview but not before (0) else
<i>Adult Learning</i>				
Formal	.07	.25	0/1	(1) Yes (0) No
Non-formal	.48	.50	0/1	(1) Yes (0) No
Informal: Reading	.57	.49	0/1	<i>Since the last interview, did you read textbooks and specialized books or professional magazines, to learn more in the professional or private field?</i> (1) Yes (0) No
Informal: Media	.23	.42	0/1	<i>Have you used any computerized learning programs, learning CDs or DVDs or similar materials since the last interview in order to enhance your private or professional knowledge?</i> (1) Yes (0) No
<i>Controls</i>				
<i>Education</i>				
Low	.27	.44	0/1	(1) no or elementary education (0) else
Medium	.53	.50	0/1	(1) intermediate and general/vocational maturity (0) else
High	.21	.40	0/1	(1) lower and higher tertiary education (0) else
Gender	.50	.50	0/1	(1) Female (0) Male
<i>Migration status</i>				
Native	.75	.43	0/1	
1st generation	.17	.38	0/1	
2nd generation	.08	.27	0/1	
<i>Parents' education</i>				
None	.83	.38	0/1	(1) No parent has tertiary education (0) else
One	.12	.33	0/1	(1) One parent has tertiary education (0) else
Both	.05	.21	0/1	(1) Both parents have tertiary education (0) else
<i>Health</i>				
(Very) good	.67	.47	0/1	<i>I now have a brief question about your health. How would you generally describe your state of health?</i>
Average	.28	.45	0/1	
(Very) poor	.05	.23	0/1	
Age	47.39	11.50	26-69	Mean centered in the analysis
Children in HH	.45	.50	0/1	(1) at least one child lives in the household (0) no child
Household income	2058.70	877.94	849-6010	Net household income divided by square root of the household size; mean centered in the analysis
East	.20	.40	0/1	Residence in (1) East Germany (2) West Germany
<i>Transitions</i>				
Div./wid.	.01	.07	0/1	(1) divorced or widowed in past 12 months (0) no
Married	.02	.13	0/1	(1) married in past 12 months (0) no
Parent	.02	.13	0/1	(1) started living with child in past 12 months (0) no

Note. *N* = 8317. Source: Own calculations using 5th orig. NEPS wave (SC6), version 8.0.0, doi:10.5157/NEPS:SC6:8.0.0.

To account for theoretical propositions that adult learning and civil participation have common determinants, I control for variables that earlier research showed to influence both adult learning and civil participation. These include both stable variables; the educational level, sex, migration background and parental education, and variables that are subject to change during the life-course; presence of children in the household, household income, residency in East or West Germany and health condition. I also compute variables to capture recent life-course transitions within the 12 months prior to the interview, such as getting a divorce or being widowed, having a child or getting married. Table 1 includes the descriptive statistics for all variables. The analytic sample shrinks down to 8,316 respondents, since I exclude all missing values. The inclusion of the household income leads to the greatest loss of cases, but is worth including since research showed its potential connection with civil participation (Mascherini et al., 2011).

6. Analytical strategy

The analytical strategy which underlies the empirical analyses presented in this paper, targets at disentangling which mechanisms of the ones described in the theory section apply in regards to the associations between adult learning and civil participation. Following the theoretical approach, civil participation is measured using a nominal categorical variable, distinguishing between recurring-, uptake of- and no civil participation. This calls for an estimation technique that accounts for the nonlinearity and disordered nature of the outcome categories. Therefore, I employ multinomial logistic regression models. Multinomial logistic regressions are effectively an extension of binary logistic regressions, while modeling each pair of the outcome categories simultaneously (Agresti & Finlay, 2009, pp. 51ff.; Treiman, 2009, pp. 336ff.). It predicts the odds of being in one category of the outcome variable against a baseline category. In my models I define the baseline category as being in the group with no civil participation. Hence, I estimate the odds of respondents falling into the group of recurring civil participation or uptake of civil participation against falling into the group of no participation.

To disentangle the different explanations, I apply a stepwise approach. The first model solely estimates the associations of the different types of adult learning with civil participation. The second model adds initial education as the main common determinant of civil participation and adult learning. The third model incorporates all control variables.

7. Results

Prior to the multivariate results, some descriptive statistics already provide insights into the major contribution of this article.

7.1 Descriptive results

Table 2 provides an overview of civil participation for initial education and adult learning. In general, the largest group of respondents do not report on civil participation (59 %), while 23 percent are recurring participants and 18 percent took up civil participation in the year prior to the survey interview. These figures correspond to the figures from the German Survey on Volunteering (*FWS 2014*), which reports a civil participation rate of 44 percent (Simonson, Hameister, & Vogel, 2017). This is a good indicator for the accuracy and comparability of the NEPS civil participation measure, sampling and weighting strategy.

Table 2: Weighted proportions of civil participation by education, formal, non-formal and informal adult learning

		Civil Participation		
		No	Recurring	Uptake
Education				
	Low	.64	.18	.19
	Medium	.59	.22	.18
	High	.52	.32	.16
Formal adult learning				
	No	.59	.23	.18
	Yes	.61	.21	.18
Non-formal adult learning				
	No	.64	.19	.16
	Yes	.53	.27	.20
Informal adult learning: Reading books and specific literature				
	No	.68	.15	.17
	Yes	.52	.29	.19
Informal adult learning: Using digital media for knowledge acquisition				
	No	.61	.21	.18
	Yes	.54	.29	.18
Total		.59	.23	.18
Number of observations		8317	8317	8317

Note. Source: Own calculations using 5th orig. NEPS wave (SC6), version 8.0.0, doi:10.5157/NEPS:SC6:8.0.0.

As expected from earlier research, the share estimate for recurring civil participation is highest for highly educated respondents (32 %) and substantially lower for those with medium (22 %) and low education (18 %). This pattern, however, does not hold for those, who took up civil participation. The share estimates are comparatively similar between the educational groups with opposing tendencies as compared to recurring civil participation. 19 percent of the low-educated, 18 percent of the medium educated and 16 percent of the highly educated took up civil participation. The relatively low share of highly educated adults in this group is likely to result from the high share in the group of recurring civil participation.

There are no substantial differences in civil participation behavior between respondents, who took part in formal learning and those, who did not. Large differences in civil participation behavior exist in regards to non-formal learning. 27 percent of non-formal learners report recurring civil participation, while only 19 percent of those, who do not take part in non-formal learning, report on recurring civil participation. Comparable figures show for the uptake of civil participation (20 % vs. 16 %). Table 2 further reveals that the measures chosen for informal learning show differing associations with civil participation. While the acquirement of knowledge by reading books and specific literature shows similar patterns as those described for non-formal learning, using new media for knowledge acquisition is unrelated to taking up civil participation, but occurs more often in relation to recurring civil participation.

7.2 Multivariate results

Table 3 reports the results from the multinomial logistic regression models. Model 1 shows significant associations of adult learning and recurring civil participation for formal, non-formal and informal learning by reading books or specific literature. Informal learning using digital media does not significantly associate. Non-formal and informal learning by reading increase the odds of recurring civil participation against no civil participation, while formal learning decreases the odds. The strongest association shows with informal learning by reading. The odds to uptake civil participation against no civil participation do not associate with formal and informal learning by using digital media, but the odds increase with non-formal learning and informal learning by reading.

Adding the highest educational degree to the model leads to significant changes in the associations between non-formal learning and informal learning by reading on recurring civil participation. The effect sizes both decrease significantly. There is no such change in the other associations. Concerning education, model 2 reveals that higher education positively associates with the odds of being in the group of recurring civil participation rather than in the group of no civil participation. A higher educational degree however does not increase the odds of taking up civil participation against no civil participation. These findings also hold for model 3.

Table 3: Weighted multinomial logistic regressions of civil participation

	Recurring civil participation			Uptake of civil participation		
	1	2	3	1	2	3
Formal learning	-0.438 [*] (0.17)	-0.455 ^{**} (0.17)	-0.235 (0.18)	-0.231 (0.19)	-0.223 (0.19)	-0.075 (0.19)
Non-formal learning	0.428 ^{***} (0.08)	0.396 ^{***} (0.09)	0.332 ^{***} (0.09)	0.348 ^{***} (0.08)	0.362 ^{***} (0.09)	0.377 ^{***} (0.09)
Informal: Reading	0.832 ^{***} (0.09)	0.761 ^{***} (0.09)	0.755 ^{***} (0.09)	0.344 ^{**} (0.10)	0.373 ^{***} (0.10)	0.390 ^{***} (0.11)
Informal: Media	0.165 (0.09)	0.163 (0.10)	0.199 [*] (0.10)	-0.035 (0.11)	-0.034 (0.11)	-0.014 (0.11)
Education (<i>Ref. = Low</i>)						
Medium		0.117 (0.12)	0.185 (0.13)		-0.048 (0.12)	0.015 (0.13)
High		0.411 ^{**} (0.13)	0.407 ^{**} (0.14)		-0.185 (0.13)	-0.039 (0.14)
Age			0.016 ^{**} (0.00)			0.013 ^{**} (0.01)
Sex			-0.160 (0.09)			0.016 (0.10)
Migration (<i>Ref. = Native</i>)						
1st generation			-1.094 ^{***} (0.16)			-0.299 (0.16)
2nd generation			-0.333 ^{**} (0.13)			-0.059 (0.14)
Child in HH			0.624 ^{***} (0.08)			0.411 ^{***} (0.09)
Health (<i>Ref. = Good</i>)						
Medium			-0.052 (0.10)			-0.157 (0.11)
Poor			-0.315 (0.19)			-0.643 ^{**} (0.20)
Household income			0.000 ^{***} (0.00)			-0.000 (0.00)
Employment (<i>Ref. = Not employed</i>)						
Part-time			-0.125 (0.13)			-0.017 (0.14)
Full-time			-0.365 ^{**} (0.13)			-0.161 (0.15)
East			-0.397 ^{***} (0.10)			-0.069 (0.10)
Parents education (<i>Ref. = None</i>)						
One			0.034 (0.12)			-0.091 (0.13)
Both			0.084 (0.21)			-0.600 ^{**} (0.22)
Transitions						
Divorced / Widowed			1.206 (0.76)			-0.213 (0.61)
Birth			-0.540 [*] (0.27)			0.523 (0.30)
Married			0.309 (0.36)			-0.625 [*] (0.30)
Constant	-1.683 ^{***} (0.09)	-1.777 ^{***} (0.11)	-1.525 ^{***} (0.18)	-1.523 ^{***} (0.08)	-1.487 ^{***} (0.11)	-1.505 ^{***} (0.18)
<i>N</i>	8317	8317	8317	8317	8317	8317

Note. Reference category is no civil participation. Multinomial logistic regression coefficients are displayed with standard errors in parentheses. Source: Own calculations using 5th orig. NEPS wave (SC6), version 8.0.0, doi:10.5157/NEPS:SC6:8.0.0.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Model 3 includes all control variables. Here, the association of formal adult learning and recurring civil participation loses significance, while the one with informal learning by media gains significance. The model unfolds that, controlling for major common determinants of adult learning and civil participation, non-formal learning increases the odds of recurring civil participation by 39 percent ($e^{0.332}$) and it increases the odds of taking up civil participation by 46 percent ($e^{0.377}$) as compared to no civil participation. The increase of the odds is even higher for informal learning by reading. Further, all else being equal, the odds to uptake civil participation for non-formal learning against the odds to be in recurring civil participation for non-formal learning are 5 percentage points higher ($e^{(0.377-0.332)}$). In the case of informal learning, the odds decrease by 70 percentage points ($e^{(0.390-0.755)}$).

A glance at the coefficients of the control variables manifests the picture that the determinants of recurring civil participations and the determinants of taking up civil participation differ quite substantially. The model also replicates earlier findings, showing a strong negative association of marriage and taking up civil participation and a positive effect of children in the household on taking up civil participation (cf. Lancee & Radl, 2014; Rotolo, 2000). A migration background shows a negative influence on recurring civil participation, but not on taking up civil participation (cf. Wiertz, 2016). Quite comprehensibly, poor health significantly decreases the odds of taking up civil participation, while it does not significantly associate with recurring civil participation.

There are three major conclusions that can be drawn from the results. First, the explanatory power of the variables differs substantially between estimating recurring civil participation and taking up civil participation. Second, formal adult learning and media supported informal adult learning are not associated with taking up civil participation. Third, non-formal adult learning and informal learning by reading books and specific literature are likely to contribute to the uptake of civil participation, although adult, who engage in informal learning are much more likely to be in the group of recurring civil participation against taking up civil participation.

7.3 Robustness checks

The analyses presented above have a couple of limitations, when it comes to their potential for causal inference. Some of them can be tackled by separately employing different estimation techniques. In this section, I present a summary of the main findings from two robustness checks. A detailed description may be drawn from the supplementary material.

First, the measures used for civil participation and adult learning refer to the same time period. This means that the main model may not differentiate between an effect of civil participation on adult learning and an effect of adult learning on civil participation. To combat this problem of reversed causality to a certain extent, I make use of the NEPS panel structure running two wave multinomial logistic re-

gressions. Therein, the fourth NEPS main wave provides the data for adult learning activities. This ensures that the learning activity precedes the uptake of civil participation. Apart from one major exception and slight decreases in the size of the coefficients, the results are similar to the results from the main model. The major exception is, that the association of informal learning with taking up civil participation loses significance. This supports the implication that non-formal learning contributes strongest to the chances of taking up civil participation.

Second, I run the models separately for each adult learning activity to avoid collinearity. The results are similar to modelling them all together.

8. Conclusion and discussion

This article revisited the associations between education and learning with civil participation during adulthood, focusing on the questions whether and how adult learning may exert an effect on civil participation. The political faith in such an effect is strong (Dohmen, 1998; European Commission, 2002; United Nations General Assembly, 2015), as is the empirical evidence for a positive association, but not particularly for an effect. Viewing civil participation behavior from a life course perspective, even raises considerable doubts on the plausibility of an effect, since civil participation often establishes early in life and then remains rather stable. Hence, I distinguished recurring civil participation from the uptake of civil participation during adulthood. In regards to the association of civil participation and education the results support that the continuity theory of aging applies to civil participation. Education positively associates with recurring civil participation, while the uptake of civil participation during adulthood does not relate to education.

To analyze the associations of adult learning and civil participation, following earlier work, I distinguished formal, non-formal and informal adult learning. I draw 4 main conclusions from the empirical analyses, which allow for drawing inferences about the mechanisms underlying the associations between adult learning and civil participation.

First, in every model specification formal adult learning neither significantly associates with recurring civil participation, nor with the uptake of civil participation. In line with the theoretically derived expectation, this implies that there is no effect of civil participation on formal adult learning. However, against the expectations, there are also no common determinants of civil participation and formal adult learning and there is no effect of formal adult learning on the uptake of civil participation. The absence of an effect of formal adult learning on the uptake of civil participation indicates that the proposed mechanism by which adult learning may exert an effect on civil participation and which only applies to formal learning, does not show. The *economic conditions* of adults were expected to change with formal learning and to influence the capabilities or resources for civil participation. The results indicate, they do not. Further, those mechanisms, which were expected

to apply equally to all types of adult learning, either do not apply to formal learning, or are too weak to actually trigger changes in civil participation.

The implications regarding the association of formal adult learning and civil participation are subject to some important limitations of the analysis. The described mechanism for an effect of formal adult learning on the uptake of civil participation may only set in after the completion of formal adult learning, which is not specified as such in the analysis. Ongoing formal adult learning is often very time consuming and it poses a considerable additional financial expenditure (Kuper et al., 2017). It is quite likely that adults engaging in formal learning rather lack resources to continue or to uptake civil participation. Focusing on completed accredited courses, Feinstein et al. (2003) did find a positive association with civil participation.

Second, non-formal adult learning positively associates with both recurring civil participation and the uptake of civil participation in every model specification, while the size of the log odds decreases with the restrictiveness of the models. Hence, all explanations given for the positive associations may hold; there are common determinants and there are likely to be effects in both directions. In line with earlier research, civil participation, whether timely or planned, can increase the chance for participation in non-formal learning activities. Non-formal learning can, through the suggested mechanisms, increase the chances for adults to continue or to uptake civil participation, while the evidence for the latter is stronger, also considering that the vast majority of non-formal learning activities are job-related.

Third, the association of informal learning and civil participation differs upon the type of informal learning. Informal learning by using digital media does not significantly associate with civil participation, suggesting no common determinants and no effects. Informal learning by reading books and specific literature shows strong positive associations with recurring civil participation, which weaken with the introduction of controls, and moderate positive associations with the uptake of civil participation, which strengthen with the introduction of controls and become insignificant in the two-wave model. These results hint towards common determinants and towards civil participation to raise opportunities for informal learning by reading books and specific literature. The likelihood of an effect of this type of informal learning on the uptake of civil participation is rather low. The results on informal learning, again, point towards the interpretation that proposed mechanisms that shall apply to all types of adult learning may either be too weak to exert an effect on civil participation or the theoretical considerations may not hold.

Fourth, synthesizing all findings and theoretical implications on the potential mechanisms of an effect of adult learning on the uptake of civil participation suggests that only those mechanisms that apply to non-formal learning may hold. These refer to *social networks*, which are argued to have high explanatory power for civil participation behavior (Verba et al., 1995; Wiertz, 2016; Wilson, 2012). Non-formal adult learning takes place within social settings and therewith often opens up opportunities for the participants' to expand their social networks. This increases the chance to get in touch with civilly active people, and simultaneous-

ly it increases the chances to be recruited or to develop an interest in civil participation.

With this conclusion, I do not intend to reduce non-formal adult learning simply to a place of social encounters. The analysis does not stand against theories which imply that adult learning generates knowledge, skills or self-perceptions that may lead someone into civil participation. It only confirms that on the aggregate level and irrespective of the content, there is still an effect emerging from a different causal path. This also implies that more specified types of informal or formal adult learning might increase the chance to uptake civil participation. Further, the positive effect through social mechanisms is likely to become stronger or weaker when controlling for other course characteristics. Assuredly, the next step is to distinguish between more nuanced types of non-formal adult learning.

This also bridges over to the remaining limitations of this article. The study focusses on the degree of institutionalization of adult learning, but disregards the content, how it is financed and how long the learning activities lasts. It is likely that the learner enters and leaves the learning activity differently depending on whether it was self- or externally financed. Similarly, a two-week-course probably differs from a two-day course in its opportunities to connect with other course participants. On the other hand, if it is about the content more than about intensity or institutionalization, it might be sufficient to read just one journal entry to be motivated to uptake civil engagement. This might apply or should apply in particular to the learning opportunities connected to civic education. Another limitation to the present study is that it is unable to fully identify the direction of a potential causal effect and it is still subject to unobserved variable bias. Moreover, the analysis does not include interactions with education, gender or age groups. I strongly suggest that future research looks closely into the effect of non-formal adult learning including those interactions, since there is evidence that the effect may differ between these groups (e.g. Van Ingen & van der Meer, 2011). Finally, future research may facilitate data which allows for differentiation between civil participation activities, such as active membership versus volunteering. It may further determine whether the uptake of civil participation lasts or whether it is only short term.

In spite of its limitations, this study points out the important but insufficiently addressed differences in explaining recurring civil participation and the uptake of civil participation during adulthood in connection with education and learning.

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Appendix

Supplementary material – Robustness checks

Supplement A – Two wave linear regression

In the main analysis, I use cross-sectional data. It is, therewith, not fully possible to identify a causal relationship between adult learning and civil participation. One of the reasons is that in a cross-section the predictor does not necessarily precede the outcome. Since the NEPS is a panel study and adult learning behavior is part of the annual questionnaire, it is possible to include adult learning participation from the previous wave and thereby control for the time-order of predictor and outcome. I employ a two-wave multinomial logistic regression, wherein the predictor variables (adult learning) are constructed on the basis of the fourth NEPS-main wave, and where the outcome and controls stem from the fifth wave. The results are displayed in Table A. The estimates do not meaningfully change regarding the significance levels in comparison to the main model. But they do drop quite significantly in size. Nevertheless, the main implications hold.

Supplement B – Separate models per type of adult learning

In the main analysis, I simultaneously introduce formal, non-formal and informal learning to the model. This strategy might lead to skewed results since adult learners are likely to take part in more than one type of adult learning. Non-formal and formal learning participation may predict informal learning participation especially well. To rule out screwed results due to multicollinearity, I run the main models separately for the three different types of adult learning. The results are displayed in Table B. The coefficients of formal learning remain insignificant and are smaller (but positive) when compared to the main model. The coefficients of non-formal and informal learning are comparable to those in the main models, although they are slightly higher. The main implications hold.

Table A: Weighted two-wave multinomial logistic regressions of civil participation

	Recurring civil participation		Uptake of civil participation	
	2	3	2	3
Formal learning (<i>previous wave</i>)	0.067 (0.19)	0.328 (0.20)	0.083 (0.20)	0.233 (0.21)
Non-formal learning (<i>p.w.</i>)	0.413*** (0.09)	0.302** (0.10)	0.262** (0.09)	0.228* (0.09)
Informal: Reading (<i>p.w.</i>)	0.587*** (0.10)	0.574*** (0.10)	0.185 (0.10)	0.204 (0.11)
Informal: Media (<i>p.w.</i>)	-0.051 (0.11)	-0.011 (0.11)	0.108 (0.12)	0.136 (0.12)
Education (<i>Ref. = Low</i>)				
Medium	0.089 (0.13)	0.195 (0.14)	-0.026 (0.12)	0.023 (0.13)
High	0.340** (0.13)	0.387* (0.15)	-0.097 (0.14)	0.019 (0.14)
Age		0.018*** (0.00)		0.013* (0.01)
Sex		-0.159 (0.10)		0.015 (0.10)
Migration (<i>Ref. = Native</i>)				
1st generation		-0.997*** (0.17)		-0.252 (0.17)
2nd generation		-0.333* (0.14)		-0.091 (0.15)
Child in HH		0.538*** (0.09)		0.422*** (0.10)
Health (<i>Ref. = Good</i>)				
Medium		0.088 (0.11)		-0.147 (0.11)
Poor		-0.153 (0.20)		-0.649** (0.20)
Household income		0.000*** (0.00)		-0.000 (0.00)
Employment (<i>Ref. = Not employed</i>)				
Part-time		-0.156 (0.14)		0.034 (0.14)
Full-time		-0.468** (0.13)		-0.119 (0.15)
East		-0.479*** (0.09)		-0.069 (0.10)
Parents education (<i>Ref. = None</i>)				
One		0.116 (0.12)		-0.071 (0.143)
Both		0.215 (0.22)		-0.552* (0.23)
Transitions				
Divorced / Widowed		1.416 (0.77)		0.074 (0.58)
Birth		-0.349 (0.27)		0.375 (0.31)
Married		0.128 (0.42)		-0.587 (0.33)
Constant	-1.714*** (0.12)	-1.423*** (0.18)	-1.283*** (0.11)	-1.314*** (0.18)
<i>N</i>	7870	7870	7870	7870

Note. Reference category is no civil participation. Multinomial logistic regression coefficients are displayed with standard errors in parentheses. Source: Own calculations using 4th and 5th orig. NEPS wave (SC6), version 8.0.0, doi:10.5157/NEPS:SC6:8.0.0.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table B: Weighted multinomial logistic regression models of civil participation, separate predictions per type of adult learning

	Recurring civil participation				Uptake of civil participation			
	1	2	3	4	1	2	3	4
Formal	-0.036 (0.18)				0.097 (0.18)			
Non-formal		0.398*** (0.09)				0.411*** (0.08)		
Informal: Reading			0.821*** (0.09)				0.426*** (0.10)	
Informal: Media				0.404*** (0.10)				0.129 (0.10)
Education (<i>Ref.</i> = <i>Low</i>)								
Medium	0.329* (0.13)	0.291* (0.13)	0.222 (0.13)	0.299* (0.13)	0.095 (0.13)	0.063 (0.13)	0.039 (0.13)	0.088 (0.13)
High	0.678*** (0.14)	0.624*** (0.14)	0.442** (0.14)	0.643*** (0.14)	0.116 (0.14)	0.070 (0.14)	-0.007 (0.14)	0.109 (0.14)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.085*** (0.16)	-1.183*** (0.16)	-1.455*** (0.17)	-1.170*** (0.16)	-1.264*** (0.17)	-1.362*** (0.17)	-1.433*** (0.18)	-1.280*** (0.17)
<i>N</i>	8317	8317	8317	8317	8317	8317	8317	8317

Note. Reference category is no civil participation. Multinomial logistic regression coefficients are displayed with standard errors in parentheses. Source: Own calculations using 5th orig. NEPS wave (SC6), version 8.0.0, doi:10.5157/NEPS:SC6:8.0.0.
* $p < .05$. ** $p < .01$. *** $p < .001$.