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Barriers to the participation of low-educated workers in non-formal education

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ABSTRACT

Despite the increasing pace of technological change and digitalisation of workplaces, low-educated workers continue to participate in non-formal adult education (NFE) to a significantly lesser degree than do other workers. At the same time, low-educated workers also face many other barriers to participation. One key question related to their non-participation is what role the different types of perceived barriers play. Based on an earlier investigation, we have identified dispositional, situational, and institutional barriers to non-participation in NFE. The aim of the present two-step empirical research is to determine the structure (first step) and occurrence (second step) of these barriers in low-educated workers. For this purpose, we have used the specially developed research tool Non-Participation in Non-formal Education Questionnaire (NP-NFE-Q). Based on this validated tool, we have done a two-step empirical investigation on representative sample of low-educated workers from the Czech Republic that shows the strength of situational barriers related to the workplace, and distinguishes individual groups of non-participants through a cluster analysis. The results expand knowledge in the field of adult education and offer practical implications towards the higher participation of low-educated workers in NFE.

Introduction

Technological changes in the form of increased digitisation, automation and the massive introduction of ICT into the workplace along with the associated structural transformation of the economy and labour market represent key processes transforming twenty-first-century societies (Acemoglu and Restrepo 2017; Iversen and Soskice 2019). These developments have been accompanied by an increase in the skills requirements of the general workforce, a situation which is faced by an average of 40% of European companies according to the latest European Company Survey from 2019 (Eurofound and Cedefop 2020). At the same time, deindustrialisation leads to the obsolescence of worker skills and continues to reduce employment demand in the industrial sector. According to the latest CEDEFOP empirical data, half of existing professions in Europe face skills obsolescence (CEDEFOP 2018, 26). As a result, the requirements for upskilling and reskilling of workers are escalating, especially among low-educated workers, the population most at risk from the effects of deindustrialisation (Berger and Frey 2016; Brynjolfsson and McAfee 2014; ILO 2019). In line with previous studies in the field (e.g., Kyndt et al. 2011, 2013a; Van Nieuwenhove and De Wever 2021), the term low-educated workers is used to refer to workers with primary or secondary education without school-leaving exam (up to ISCED 3c), which does not allow them to continue their higher education directly.

The global response to the COVID-19 pandemic has not weakened these structural trends, but it is rather strengthening them. According to a study by the McKinsey Global Institute (Smit et al. 2020), the pandemic response ended a period of strong employment in European countries which had been fuelled by high international mobility. Due to the restrictions caused by the anti-epidemiological measures, workers in 26% of the jobs in Europe now face increased risk. Further, according to some researchers (Boeren, Roumell, and Roessger 2020; Waller et al. 2020), these risks will be particularly felt by low-educated workers, who in the previous decades were already in a difficult situation.

The impact of such processes on the low-educated workers can be high if we consider that they account for 20% to 45% of all employees among European states (ILO 2019). In the case of the Czech Republic, their share is 38% (MWSA 2021).

Since at least the 1980s, barriers to lifelong learning (LLL) have been the subject of a great deal of long-term research (e.g. Cross 1981; Darkenwald and Valentine 1985; Valentine and Darkenwald 1990; Hovdhaugen and Opheim 2018; Roosmaa and Saar 2017; Rubenson and Desjardins 2009; Van Nieuwenhove and De Wever 2021). Building on the foundational work of Patricia Cross (1981), the former research has concluded that three groups of factors have utmost importance for perceived access to adult education. These are: (1) *dispositional barriers*, which are related to attitudes and self-efficacy of adults towards further learning; (2) *institutional barriers*, covering the educational opportunities and support for potential learner or their lack off; and (3) *situational barriers*. This type includes factors hindering adults' participation that are directly related to their social roles and obligations (e.g., family or civic obligations) or physical state (e.g., health).

In the context of these three constraints, the research also pointed out that situational barriers have the highest frequency of occurrence across countries and social groups (xDesjardins, Rubenson, and Milana 2006; Roosmaa and Saar 2017; Rubenson 2018). Moreover, the appearance of institutional barriers is strongly influenced by characteristics of welfare-state regimes and adult education systems in particular countries and thus vary a lot internationally (Rubenson and Desjardins 2009). Finally, dispositional barriers are typical of high occurrence among low-educated adults, migrants and retired persons. Those usually perceive a lower level of self-efficacy, preparedness and negative attitudes towards adult education and training (Boeren 2016; Darkenwald and Valentine 1985; Hovdhaugen and Opheim 2018).

Aims of the study

The main research aim is to identify the structure and strength of barriers to the participation of low-educated workers in NFE. Firstly, we aim to determine a typology of non-participants among low-educated workers according to the predominant type or a combination of types of barriers to NFE – dispositional, institutional, and situational. Secondly, we aim to evaluate the strength of barriers towards participation in the context of typology of non-participants among low-educated workers and in the context of chosen sociodemographic as well as work-related determinants.

For this purpose, we present the results of a two-step empirical investigation based on our quantitative survey with a representative sample of respondents among low-educated workers from the Czech Republic. In the first step, we distinguish typology of non-participants through cluster analysis, while in the second step, we evaluate the strength of barriers and also significance of chosen sociodemographic as well as work-related factors on belonging to specific cluster of non-participants.

Theoretical background

Looking at the previous research in a the field of barriers to NFE, five important limits can be delineated in empirical research on barriers in low-educated workers.

First, in international surveys such as the Adult Education Survey (AES) and the Programme for the International Assessment of Adult Competencies (PIAAC), i.e. two primary sources of empirical data, typically only a small number of items are used to focus directly on barriers to NFE. In addition, these items are content-inconsistent in individual surveys and most have not been validated (Widany et al. 2019).

Second, these surveys generally do not include items directly focused on the so-called dispositional or psychosocial barriers related to the attitudes to education of the individual respondents (Hovdhaugen and Opheim 2018; Van Nieuwenhove and De Wever 2021). Such is the case with the AES surveys from 2011 and 2016. When psychosocial factors are measured, as was the case in AES 2007, the investigations are often quite unfocused, i.e. featuring only two or three items, even though the stated research goals involve complex phenomena such as self-efficacy and value/meaning of learning. In addition, these types of barriers are situation-specific and conditioned by both the family environment (Rubenson 2010; Rubenson and Salling Olesen 2007) and the work circumstances (Kondrup 2015). Such specificity, e.g. how multifarious variables influence each other, is seldom taken into account when barriers to NFE are measured in low-educated workers.

Third, to compound the lack of specificity in these large-scale international surveys, neither has much small-scale quantitative research been conducted (Darkenwald and Valentine 1985; Valentine and Darkenwald 1990) which has directly focused on barriers to NFE in low-educated workers. Likewise, only a few small-scale qualitative research (Paldanius 2007) has been published. As a result, we lack sufficiently specific knowledge regarding the barriers in low-educated workers which would delineate the critical obstacles of this group of employees, at least represented at the national level.

Fourth, another significant problem is the strength of the barriers themselves. To what extent are barriers perceived as eliminating participation in organised lifelong learning altogether, or are barriers seen merely as decreasing willingness to become involved in education and training? Although this issue has been critically discussed (Rubenson 2010, 2018), it has seldom been given sufficient empirical attention. The relative strength of barriers is particularly relevant in groups with low participation in NFE, for which identifying the factors that 'fundamentally hinder' and those which only 'slightly limit' participation is essential for the formulation of targeted social policies.

Fifth, when barriers to the participation of low-educated workers in NFE have been researched, this population is often opposed to other social groups, especially high-educated workers (Hovdhaugen and Opheim 2018; Roosmaa and Saar 2017; Van Nieuwenhove and De Wever 2021). As a result, not enough information has been made available regarding patterns of barriers that may occur with low-educated workers. In other words, we do not have enough knowledge about the differences in barriers among different types of low-educated workers, a population who according to some studies (Arntz, Gregory, and Zierahn 2016; Pouliakas and Russo 2015) cannot be considered a homogeneous group in terms of skills obsolescence. One of the intentions behind the research design of our study is to address most of these limits. In this regard, our analysis works with a research tool validated explicitly for this purpose (Kočvarová, Vaculíková and Kalenda 2022) – Non-Participation in Non-formal Education Questionnaire (NP-NFE-Q). Detailed information about items, factor structure, reliability, and construct validity of the tool can be found in supplementary materials. Using this tool helps us address the limit no. 1 of previous research mentioned above. On the one hand, for this tool is typical that it works with a set of questions focused on dispositional barriers to participation in NFE. On the other hand, the instrument was created in part with the help of qualitative research that reflects the influence of the social worlds of low-educated workers on their participation in education and training (limits no. 2 and 3). Combining our research questions makes it possible to supplement the existing knowledge in the field with findings on the relative strength of barriers and barrier patterns within the low-educated worker population (limits no. 4 and 5) of the Czech Republic.

Hypotheses

Despite the existence of various classifications and typologies of barriers or constraints affecting adult non-participation in NFE, a look at the current literature (Desjardins, Rubenson, and Milana 2006; Hovdhaugen and Opheim 2018; Roosmaa and Saar 2017; Rubenson and Desjardins 2009; Van Nieuwenhove and De Wever 2021) can provide a broad consensus based on the original typology of Patricia Cross (1981) regarding three basic categories of barriers: dispositional, situational, and institutional.

Supplementing this basic typology, discussions have emerged regarding the inclusion of a number sub-types of obstacles within these three categories as well as separate types outside of these categories, such as information barriers (Rubenson 2010). In this context, the discussion of the position of financial resources has taken a prominent place. While some authors (Cross 1981) classify financial concerns as situational barriers or refer to them as separate factors (Darkenwald and Valentine 1985; Larson and Milana 2006), many recent studies rank financial considerations among institutional barriers (Hovdhaugen and Opheim 2018; Rubenson and Desjardins 2009; Van Nieuwenhove and De Wever 2021). The reason for ranking financial concerns among institutional barriers is that the costs associated with education can often be borne by welfare services or employers, the latter of which are increasingly becoming the primary NFE providers (Desjardins and Ioannidou 2020; Rubenson 2018). As a result, financial barriers are more closely linked to the offer of education and training than to the situation of the various groups of actors. Financial concerns are more deeply interrelated with the specific tools of the welfare state within a given country (Rubenson and Desjardins 2009) and/or the employers' willingness to invest in the training of their employees (Busemeyer and Trampusch 2012).

Based on the validation NP-NFE-Q, we found that the traditional classification of the barriers to dispositional, situational, and institutional still has relevance (Anonymised, 2021). The validation procedure provided evidence that information barriers are part of the institutional factors, while financial concerns do not figure as a relevant perceived barrier. Therefore, in this study, we will focus only on the perception of dispositional, situational, and institutional barriers. The validation procedure provided evidence of five factors representing barriers towards participation in NFE. At the same time, the five factors represent three types of barriers, which we will focus on in this study: dispositional (Needs, Worries), situational (Work, Time), and institutional (Offer).

In the next section, we first start with our typology of non-participants among low-educated adults and related hypotheses. Then, we turn our attention to the strength of perception of different types of barriers.

Typology of non-participants

To our knowledge, creating a typology of NFE non-participants strictly among low-educated workers is an unexplored phenomenon, i.e. the typologies of non-participants that do exist extend across all socio-demographic categories. Darkenwald and Valentine (1985; Valentine & Darkenwald 1990) used cluster analysis to identify five specific groups of non-participants in organised adult education based on: (1) personal issues; (2) lack of self-confidence; (3) prices of the education offered; (4) lack of interest in organised education; and (5) lack of interest in available courses.

While the personal problems in their classification correspond to situational barriers, the categories 'lack of self-confidence' and 'lack of interest in organized education' lie close to the concept of dispositional barriers presented above. Non-participation based on the price of the education offered and lack of interest in available courses then concerns groups of non-participants with overwhelming institutional barriers.

Following Darkenwald and Valentine (1985; Valentine & Darkenwald 1990), we contend that non-participants from the ranks of low-educated workers will include respondents of all three types, i.e. non-participants due to dispositional, institutional and situational barriers. According to the current knowledge (e.g. Boeren 2016; Kondrup 2015; Rubenson 2010, 2018) regarding the strength of

dispositional barriers, we suppose that this type will be most significantly represented in most clusters and will thus form the most numerous cluster of participants. Based on this presupposition, we have formulated the following hypothesis.

H1: NFE non-participants due to dispositional barriers form the most numerous cluster in low-educated workers.

Nevertheless, low-educated workers cannot be considered a single homogenous group, as other critical micro-social characteristics such as age, gender, and job characteristics create barriers that significantly affect participation in NFE in various ways. For example, the perception of situational barriers increases with the age of adults (Desjardins 2020; Desjardins, Rubenson, and Milana 2006). In contrast, situational barriers are experienced much more often by women than men (Dämmrich, Kosyakova, and Blossfeld 2015; Vaculíková, Kalenda, and Kočvarová 2020) since this population is more often responsible for caring for the family, and it is thus more difficult for women to harmonise their work and non-work lives (Gatta 2008; Gatta and Deprez 2008). On the contrary, institutional barriers are much more related to the offer of NFE within the work environment and the nature of the individuals' employment contracts or agreements. In this regard, research has shown that those employed in the industrial sector have far fewer training opportunities than those in the service sector (Iversen and Soskice 2019). Employees with time-limited contracts also have fewer opportunities (Brunello, Garibaldi, and Wasmer 2007). The role of these variables is then taken into account in the following two hypotheses:

H2: In the cluster of non-participants with the highest incidence of situational barriers, people over the age of 50+ (H2a) and women (H2b) predominate.

H3: In the cluster of non-participants with the highest incidence of institutional barriers, persons working in industry (H3a) as well as employees with a time-limited employment contract (H3b) predominate.

Dispositional barriers

These are barriers connected to negative attitudes of adults towards education and lower levels of self-efficacy in terms of organised learning (Cross 1981). In cases when adults feel a lower level of self-efficacy, they may feel concerned about their readiness for further education. According to Darkenwald and Merriam (1982), dispositional barriers represent psychosocial barriers that do not rank among the individual's psychological constitution, but grow out of life and biographical experience.

In line with many studies (e.g. Boeren 2016; Kondrup 2015; Rubenson 2010, 2018; Paldanius 2007), dispositional barriers have the most significant effect on the non-participation of low-educated workers, as they represent a lower intrinsic need for learning in low-eduacted workers as compared to other categories of workers. For this reason, some authors (Dæhlen and Ure 2009; Illeris 2003; Gorard and Selwyn 2005) argue that low-educated workers generally join NFE only if they have to.

According to Rubenson (2010; see also Illeris 2006; Kyndt et al. 2011), a hostile or indifferent attitude towards further education results from specific socialisation and the experience from the initial schooling. Due to influence of the family environment, in which employment and earnings are generally prioritised over education, individuals from a low-educated background internalise lower educational aspirations at an early stage of their socialisation, i.e. the identity of individuals in this population is formed by early employment experiences and earnings, not to the highest level of education attained. As a result, they see education merely as a means of obtaining (higher) paid employment in the relative short term, not as a tool for forming an identity or a long-term

investment in their working career. Through socialisation, the so-called Mathews effect is reproduced when people with lower levels of parental education achieve less education in their own lives (Blossfeld et al. 2020; Boeren 2016; Rubenson 2018; Van Nieuwenhove and De Wever 2021).

At the same time, many low-educated workers describe negative experiences in the formal education system, accompanied by feelings of inferiority, boredom, and shame, reinforcing their negative attitudes towards organised learning (Kyndt et al. 2013a, 2013b). According to some researchers (e.g. Boeren 2016; MacKeracher, Suart, and Potter 2006; Vermeersch and Vandenbrouck 2010), these experiences may cause low-educated workers to be more concerned about returning to further education, and they believe they have an insufficient aptitude for organised learning. Based on these conditions, a situationally conditioned rationality towards non-participation is formed (Kondrup 2015; Paldanius 2007). These individuals do not perceive further organised education and training as a sensible strategy, as it would not allow them to directly improve their position in the labour market or perform their job better. Instead of organised learning, low-educated workers then prefer informal learning from others as well as experiential learning (Vermeersch and Vandenbrouck 2010).

Institutional barriers

Institutional barriers most often include factors associated with the offer of adult education (Cross 1981; Rubenson 2010; Hovdhaugen and Opheim 2018), e.g. due to a lack of educational opportunities within or outside the work environment. This factor also includes the awareness of opportunities for NFE and the perceptions regarding the quality of the courses or training.

Perceptions of low-educated workers regarding institutional barriers are strongly influenced by two complementary mechanisms, with the first represented by the individual's perception of educational opportunities. In this case, views with regard to educational opportunities are 'filtered' through a specific rationality behind the non-participation in NFE as discussed above. Due to the low degree of subjective rationality of involvement in organised education, low-educated workers may be less sensitive or responsive to information about potential offers. At the same time, because they have not had such extensive (positive) experience with education, their perception of the quality of programmes is not high, and therefore this lack of reinforcing experiences may act as another barrier to participation in NFE.

A second mechanism bolstering negative perceptions may be the current educational opportunities within the work environment in terms of the life-world of the actors. These factors are conditioned mainly by offers of on-the-job training from employers (Busemeyer and Trampusch 2012), which come much less often for low-educated workers than for other groups of workers (Desjardins 2017; Desjardins, Rubenson, and Milana 2006). One reason for the lower rate of offers is that low-educated workers usually perform routine work that does not require the acquisition and completion of a large number of skills (OECD 2019a, 2019b). At the same time, it is easier to replace these workers in the labour market than is the case with high-educated workers, making employers much less willing to invest in the skills of low-educated workers and offer them more or different types of training opportunities. Thus, whether these circumstances exist in reality or not, low-educated workers may perceive these types of institutional barriers as reducing their possibilities for involvement in continuing training and education.

Situational barriers

According to the results of international comparative surveys (Desjardins 2017; Desjardins, Rubenson, and Milana 2006; Rubenson 2018), situational barriers are the most common type of obstacles to adult participation in NFE. The strength of influence of these obstacles results from the immediacy of their effect on individuals. These barriers are related to the health status of the individual, the current usability of NFE in their workplace, and the amount of time the workers have for education (Cross 1981). In other words, situational barriers indicate the extent to which the work environment, leisure activities, and (non)work responsibilities prevent low-educated workers

from participating in NFE. The dominant role is played by the lack of time, which has been identified as a major reason for non-participation since the 1980s (Darkenwald and Valentine 1985), continuing to the present (Van Nieuwenhove and De Wever 2021).

In low-educated workers, situational barriers have shown a much lower incidence than is the case for other categories of workers (Saar and Räis 2017). One possible explanation for this is that low-educated workers consider dispositional and institutional barriers more significant than situational constraints. Some aspects of the family environment and working conditions of individuals in this population may also play a role. Fixed work schedules and time-limited working hours, for example, may create obstacles for organised learning opportunities.

Based on discussion above, we have formulated the last hypothesis:

H4: Perceived dispositional barriers pose the biggest barrier to participation in NFE for low-educated workers as compared to institutional and situational barriers.

Structure of the empirical study

Our research included a broad exploration of the barriers to participation of low-educated workers in NFE by describing structure and strength of the most important factors (i.e. situational, institutional, or dispositional) of non-participation as measured by the NP-NFE-Q. In order to accomplish this purpose, our research team conducted two-step empirical investigation: *Study 1* explored the presence of subgroups of the low-educated workers based on the observed structure and strength of perceived barriers. *Study 2* described process of verification of hypothesis (H1 to H4) stated above.

Methodology

Participants

The participants were 457 low-educated workers with primary or secondary school education without a secondary school leaving exam (up to ISCED 3c) who have not participated in NFE. The respondents included 236 (52%) males and 221 (48%) females with an age range from 18 to 69 years (M = 43.47 years, SD = 12.06 years). Sociodemographic as well as work-related characteristic of the sample are reflected in Table 2 (in column Combined).

Data selection included quota sampling of the non-participants by means of the Computer Assisted Personal Interviewing (CAPI) method during June 2020, with this data set used in both Study 1 and Study 2. The first strength of this research was based on a sample consisting of learners not enrolled in NFE, i.e. we did not focus on those participants who have already overcome learning constraints. Instead, our prime interest was based on an exploration of obstacles perceived by those who continue to struggle with enrolment in NFE, and hence we attempt to describe the actual barriers to their participation (Rubenson 2010, 2018).

Measurement

The instrument Non-Participation in Non-formal Education Questionnaire (NP-NFE-Q; anonymised, 2021) was used to collect data. NP-NFE-Q includes 15 items measuring dispositional (Needs and Worries), institutional (Offer) and situational (Work and Time) factors. The tool was initially validated on a sample of low-educated workers (n = 227) and was found to meet the basic parameters of measurement quality based on confirmatory factor analysis (x^2 = 149.943; df = 80; p < .0005; CFI = 0.952; TLI = 0.936; RMSEA = 0.062). Basic information about the items and factors of applied tool can be found in the Supplementary Table S1.

Participants were asked to rate each deterrent item on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The factor structure of the NP-NFE-Q and generalisability of the model was cross-validated using EFA on separate samples, including low-educated followed by series of CFAs and reported measurement invariance (see Supplementary Figure S1). Therefore, the second strength of this research was based on a typology solely based on perceived factors of non-participation in NFE measured by an initially valid and also reliable instrument (see Supplementary Table S2). Sociodemographic variables were considered in the analysis only after the subgroups were identified, therefore these variables did not influence the creation of presented clusters.

Study 1 – A typology of low-educated workers based on barriers to participation in NFE

Analysis of study 1

An analysis of Study 1 was undertaken to create an empirical framework for the verification of stated hypotheses, i.e. the identification and description of types of low-educated workers based on their perception of barriers to participation in NFE. Cluster analysis with the use of SPSS 27 was employed to divide the sample into subgroups based on observed patterns with respect to the factor scores of non-participation in NFE. The K-means algorithm was applied. It identifies the k number of centroids and is then used to allocate every data point to the nearest cluster while keeping the centroids as small as possible. The analytical procedure was solely based on our interests, i.e. the observed factor scores of non-participation in NFE. A combination of expert assessment as well as statistical criteria was applied. Based on expert assessment, we were looking for the best interpretable solution, preferring a smaller number of clearly distinguishable clusters, and we wanted to avoid a solution in which one of the clusters made up less than 10% of the sample. Statistically, we chose the final solution based on Valentine and Darkenwald (1990) recommendations, which are specifically described and applied in chapter *Results of Study 1*. The final clusters were further described in terms of their sociodemographic characteristics using descriptive statistics (means, *SD*, frequencies).

Results of study 1

A series of cluster analysis were performed, with two, three, and four clusters carefully evaluated. The final three cluster solution represented the best identified structure within the data including similar observations within the same group based on the means on the five factors of non-participation in NFE as measured by NP-NFE-Q and dissimilar observations in different groups as well as the best proportionality of participants within the cluster (see Table 1). Following Valentine and Darkenwald (1990), the definition of profiles of potential learners and overall importance of any given factor of non-participation in NFE means was based on an inter-individual comparison of the means of the sample ($n = 457$) and of each cluster without reference to any external standards. For example, the

Table 1. Three cluster solution and their scores on the five factors of non-participation in NFE.

		Factors				
		1	2	3	4	5
Cluster	n (%)	Needs	Offer	Work	Time	Worries
I	214 (47%)	High	–	High	–	–
II	90 (20%)	Very low	Low	Low	Low	Very low
III	153 (33%)	–	–	Low	–	–

Cluster means were considered to be: very low if they were a *SD* or more below the mean; low if they were at least one-half but less than one full *SD* below the mean; average if they fell within a half of *SD* of the group mean (for visual clarity it is expressed in the table by a hyphen); high if they were at least one-half but less than one full *SD* above the mean; very high if they were a *SD* or more above the mean.

definition 'high' in the Table 1 for the first cluster with respect to Factor One (Needs) indicates that this cluster reached a higher level of deterrence in the form of personal needs when compared with the sample as a whole. Specific values of means and standard deviations can be found in Table 3.

According to the results, Factor Three, as measured by NP-NFE-Q and represented by the work-related deterrents, differentiated scores among all clusters and thus highlighted the importance. On the other hand, none of the factors was considered to be so universal that would fail to be distinguished among clusters. Furthermore, Table 2 provides a comparison of the three cluster groupings with respect to related sociodemographic variables. Such comparison allows for a better understanding of the background of the derived subgroups and the exact situation which forced low-educated workers towards non-participation in available NFE in more natural context.

Table 2. Sociodemographic and work-related characteristics of the three cluster solution in the context of the sample as a whole.

	Cluster			
	I	II	III	
Variable	'Not interested'	'Potential learners'	'Job-oriented'	Combined
Age M (SD)	45.87 (11.77)	43.74 (12.17)	39.95 (11.60)	43.47 (12.06)
Gender n (%)	108 (50)	47 (52)	66 (43)	221 (48)
Status (%)	29/47/22	29/41/29	42/37/21	33/42/23
Obstacles (%)	11/20/17/9	12/16/28/14	16/20/20/14	13/19/20/12
Work (%)	36/8/4/17/35	35/8/8/20/29	42/9/7/9/32	35/8/5/14/31
Labour sector (%)	51/49	31/69	47/53	46/54
Contract (%)	77/16	69/20	69/21	72/18
Workplace (%)	35/19/21/14/11	33/16/19/17/16	31/23/22/13/11	33/19/21/14/12
Qualification (%)	26/74	31/69	19/81	25/75

M (SD) = Mean (Standard deviation); Gender: n (%) of female; status (single/married/divorced); obstacles (execution/long-term unemployment/family breakdown/housing); work (production/driver/gastro/saleswoman and cleaner/other); Labour sector (industry/other); contract (indefinite period/definite); workplace (1–9 people/10-19/20-49/50-249/250+); higher qualification than necessary (yes/no).

The following empirically grounded typology of low-educated workers based on barriers to participation in NFE describes variables that distinguished clusters from each other or from the group as whole (i.e. combined cluster).

Type One: *Low-educated workers not interested in NFE*. Cluster One was the largest subgroup (45% of the sample) and was defined by high scores on Factor 1 (Needs) and Factor 3 (Work). The mean age of this cluster was higher than any other cluster, and greater than the sample as a whole. Also, the percentage of married members was higher than within other clusters. This cluster had the highest rate of employment contracts for indefinite period of all clusters as well as the highest rate of workers within the smallest (1–9 employees, i.e. micro-enterprise) workplace. The dominant profile of this cluster is a mature married person who is categorically the most likely to be internally as well as externally deterred against participation in NFE than any other cluster.

Type Two: *Potential learners among low-educated workers*. Cluster Two was the smallest cluster (20% of the sample) and was characterised by very low scores on Factor 1 (Needs) and Factor 5 (Worries) as well as low scores on the rest of the factors. Factors 1 and 5 mainly indicate the recognition of the personal value of NFE along with confidence to participate. The dominant profile of this cluster is adults with a higher tendency to face family breakdown and to evaluate their qualifications as higher than necessary for their current job position than any other cluster, and greater than the sample as a whole. This subgroup had the highest proportion of saleswomen and cleaning personnel when compared to other clusters in this job category and was somewhat disproportionately female. Although members of this cluster commonly represent the highest proportion of workers within micro-enterprises (1–9 employees), the proportion of people in large companies (i.e. 50–249, and 250+ people) is higher than in any other cluster. A typical member of this cluster can be characterised as an overqualified

individual (more likely female than male) undergoing family breakdown, working in micro, small, medium as well as large companies, but who is otherwise in a position to attend NFE – particularly in terms of personal resources and confidence.

Type Three: *Low-educated workers recognising a work-related contribution of NFE*. This cluster was middle-large subgroup (33% of the sample) defined by a low score on Factor 3 (Work) with average values of the rest of factors. The mean age of this cluster was the lowest and this cluster represented mostly single individuals, somewhat disproportionately male. The highest proportion of employees in production were represented in this subgroup and the individuals held qualifications corresponding to their current job position. Although this cluster was characterised by those with job contracts for an indefinite period, the proportion with contracts for a definite period was roughly on par with the cluster Two, but higher than cluster One, and of the sample as a whole. The proportion of adults within the category of small companies (i.e. 10–19 people) was higher as compared to the other clusters and to the sample as a whole. The main representative of this cluster can be classified as: a single individual (more likely male than female) who works in production with appropriate qualifications and who places considerable value on NFE in relation to his or her job position.

Study 2 – Strength of barriers towards participation in the context of clusters and chosen sociodemographic as well as work related determinants

Analysis of study 2

The analysis of Study 2 focuses on the verification of the stated hypotheses. For these purposes, descriptive statistics were used, followed by the chi-squared goodness of fit test suitable for verification of hypothesis H1. Hypotheses H2 and H3 are related to cluster of non-participants with the highest incidence of situational (H2) and institutional (H3) barriers. Belonging to a given cluster as a dependent variable can be analytically processed as a binomial variable, where 1 = belonging to a given cluster and 0 = belonging to another cluster. Therefore, binary logistic regression was applied. To verify hypothesis H4, Student´s t-test was appropriate. All analytical procedures were realised with the use of IBM SPSS 27. The results are presented within an identified cluster solution delivered from Study 1 and interpreted at a level of statistical significance of .05.

Results of study 2

Descriptive results of barriers to participation in NFE for three clusters of low-educated workers (H1) as well as the sample as a whole are presented in Table 3.

Table 3. Average incidence rate of barriers in all clusters.

		Cluster			
		I	II	III	
		'Not interested'	'Potential learners'	'Job-oriented'	Combined
Factor	Label	M (SD)	M (SD)	M (SD)	M (SD)
Dispositional	Needs	4.48 (.89)	2.01 (.81)	3.50 (.85)	3.66 (1.26)
	Worries	3.73 (1.23)	1.84 (.71)	3.54 (.79)	3.29 (1.24)
	Together	4.11 (1.06)	1.93 (.76)	3.52 (.82)	3.48 (1.08)
Institutional	Offer	3.90 (1.03)	2.47 (1.19)	3.25 (.83)	3.40 (1.14)
Situational	Work	5.37 (.64)	3.65 (1.37)	3.42 (.84)	4.38 (1.29)
	Time	3.91 (1.14)	2.74 (1.11)	3.34 (.94)	3.49 (1.16)
	Together	4.64 (.89)	3.20 (1.24)	3.38 (.89)	3.93 (.97)

M (SD) = Mean (Standard deviation).

Following the cluster solution and descriptive statistics of individual factors, the largest Cluster I (x^2 = 50.473, df = 2, p < .0005) showed the highest incidence of situational barriers (M = 4.64, SD = .89) as compared to the other clusters, especially the factor Work (M = 5.37, SD = .64). At the same time, Cluster I reaches the highest average values of dispositional barriers (M = 4.11, SD = 1.06) in comparison with the other clusters. Therefore, hypothesis H1 declaring that dispositional barriers will form the most numerous cluster in low-educated workers was accepted.

To verify hypothesis H2 and H3, binary logistic regression was applied (see Table 4). The model contained the dependent variable of membership to Cluster I with the highest incidence of situational (H2) as well as institutional barriers (H3). As independent variables, age over 50 years, gender, work in the field of industry and time-limited employment (all binary variables) were used. Four hundred and fifty-two cases (99%) were included into the analysis, with 5 cases (1%) removed due to missing values. The full model containing all predictors was significant (x^2 = 28.215, df = 4, p < .0005) and explained between 6% (Cox and Snell R^2) and 8% (Nagelkerke R^2) variability, and correctly classified 60% of the cases. As shown in Table 4, three (i.e. age, labour sector, and employment contract) of the independent variables made a statistically significant contribution to the model.

Table 4. Results of binary logistic regression.

Variable	B	S.E.	Wald	df	p	Exp(B)
Age (50+ vs. younger)	0.804	0.204	15.523	1	.000	2.234
Gender (female vs. male)	0.402	0.210	3.682	1	.055	1.495
Labour sector (industry vs. other)	0.576	0.210	7.510	1	.006	1.779
Employment contract (time-limited vs. temporary employment)	−0.465	0.221	4.428	1	.035	0.628
Constant	−0.758	0.213	12.601	1	.000	0.469

B = statistical estimate of regression coefficient Beta; S.E. = Standard error. Wald = test statistics for Wald test; df = degrees of freedom; p = value of statistical significance; Exp(B) = statistical estimate of the exponentiated value of the Beta coefficient, in the text referred as the odds ratio.

The strongest predictor of reporting for those belonging in Cluster I with the highest incidence of situational as well as institutional barriers was age, reporting an odds ratio of 2.234. After controlling for all the other factors in the model, this predictor indicated that 50 + years old low-educated workers had about a 2.2 times higher chance to fall into Cluster I than did younger workers (H2a). This result is also statistically significant. The chance that women would fall into Cluster I was about 1.5 times higher than that of men; however, this result was not statistically significant (H2b). Persons working in the industrial sector had about a 1.8 times higher chance to fall in Cluster I in comparison to workers in other sectors (H3a), and workers with a time-limited employment contract had about a 1.6 times smaller chance (inverse value 0.628; 1/0.628 = 1.6) to fall into Cluster I in comparison to those with full-time employment (H3b). In summary, hypotheses H2a and H3a related to age and the industrial sector were accepted, while, on the other hand, hypothesis H2b and H3b reflecting gender and time-limited employment contract were rejected.

To verify hypothesis H4, we have to go back to Table 3, where descriptive statistics are presented. Based on our results, dispositional barriers (Needs and Worries, M = 3.48, SD = 1.08) were not shown as the most substantial constraints (H4) as compared to institutional and situational barriers. On the contrary, situational barriers (Work and Time, M = 3.93, SD = .97) are the strongest deterrents, especially the sub-scale Work (M = 4.38, SD = 1.29). Hypothesis H4 was rejected. Based on descriptive results, its testing proved to be pointless.

Discussion

The first aim of this research was to identify the structure and strength of barriers to the participation of low-educated workers in NFE. Based on our empirical findings, it is typical for this type of employee that they do not do face only one type of obstacle, but several of them together. In this regard, the situational constraints connected with working conditions are perceived as the strongest. This kind of deterrent is based on the perception of the utility of newly required skills in work settings. Therefore, low-educated workers do not enter into organisational learning activities mainly because they perceive that they would not improve their current job position, that no one expects such activity from them, or that the learning would not improve the skills they need for their current working tasks.

This finding is not directly in line with contemporary adult education theory that have highlighted the strength of dispositional (Boeren 2016; Kondrup 2015; Rubenson 2010, 2018; Paldanius 2007), and institutional (Desjardins, Rubenson, and Milana 2006) barriers for this group of adults, although forming the largest cluster in our data. This does not mean that these constraints are not relevant factors of involvement in the organisational learning of adults, just that their role is less important than is the support of employers and requirements for skills in the workplace. This support is usually weaker for low-educated adults than for other groups of workers (Busemeyer and Trampusch 2012; Desjardins 2017).

In regard to employees with time-limited contracts, a low supply of suitable courses, courses of relatively low quality and not enough information about the offers, did not represent the cluster of non-participants in NFE with the highest incidence of these barriers. The incidence of the barrier of a sufficient supply of suitable training provided by the employer might be explained by the fact that time-limited work is still relatively rare in the Czech labour market and have a higher level of legislative protection (Kalenda and Kočvarová 2020) in comparison to other European countries that serve as a case for the impact of time-limited contracts (OECD 2019a, 2019b). Therefore, employers are more motivated to offer educational opportunities for employees with time-limited contracts.

The second aim of our empirical research was to determine a typology of non-participants among low-educated workers according to the predominant type or a combination of types of barriers to NFE. Our empirically driven typology presented here shows that low-educated workers are not an entirely homogeneous group with respect to various life circumstances and obstacles that prevent this segment of the population from participating in NFE. Uncovering individual differences serves to deepen our knowledge regarding the broad dimensions of barriers, which are usually investigated among a population or subpopulation as a whole (Valentine and Darkenwald 1990). The value of this approach can be recognised in considering the fact that almost half of the sample (214, 45%) belongs to Type One (*Low-educated workers not interested in NFE*). Therefore, adult educators should consider that those potential learners are mainly deterred by a perceived lack of learning needs. Rethinking further education should be aimed at evoking more pleasant feelings in learners, raising the level of personal satisfaction, and redesigning content in a way that would reflect the applicability of the acquired skills within the current labour market.

On the other hand, the Type Two (*Potential learners among low-educated workers*) and Type Three (*Low-educated workers recognising work-related contribution of NFE*) clusters, which form the rest of the sample, represent subgroups of potential learners who perceived barriers to be average, low or even very low deterrents to participation in NFE. They recognise the value of NFE, are confident in their learning ability, and would potentially benefit from NFE in the work environment. On this basis, focusing on appropriate education offers, creating positive experiences, enhancing the usability of knowledge as well as overcoming organisational forces that work against their participation, such as arranging lower fees, childcare, and suitable time scheduling, might be a positive change in their learning involvement.

Implications and directions for future research

One of the general implications that arises from the presented typology is the realisation that to make education more accessible and increase the enrolment of low-educated adult learners, education programme planners must more clearly understand the diversity of factors that make participation difficult. It is essential to devote more careful attention to educational offers, including suitable forms of NFE related to the workplace. Information about offers must be clear, comprehensive and readily available. The high quality of programmes must be developed and assured, with workers informed about exactly how they will benefit from the courses and training. In addition, time constraints, which represent a general deterrent to involvement in adult education, might be addressed by the more flexible scheduling of learning programmes, making distance and online learning tools available as well as providing childcare services. All of these improvements can come with increased support from the employer, a factor which plays an irreplaceable role in the adult educational process.

As for future research, the presented findings across population, time and/or nationality should be replicated. Moreover, the factor structure of the NP-NFE-Q, which serves as a research tool aimed to confirm a general theory, must be grounded more thoroughly within the extended empirical research. Further investigations may involve other variables or combinations of variables related to various sociodemographic characteristics of the population to uncover the nature of the many deterrents that actively work against participation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Acemoglu, D., and P. Restrepo 2017. "*Robots and Jobs: Evidence from US Labour Markets.*" Working paper No 23285, Cambridge, MA: National Bureau of Economics Research (NBER).

Arntz, M., T. Gregory, and U. Zierahn. 2016. "*The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis.*" OECD Social, Employment and Migration Working Papers 189. Paris: OECD Publishing.

Berger, T., and C. Frey. 2016. "Structural Transformation in the OECD: Digitalisation, Deindustrialisation and the Future of Work." *OECD social, employment and migration working papers*, No 193, Paris: OECD Publishing.

Blossfeld, H.-P., E. Kilpi-Jakonen, D. Vono de Vilhena, and S. Buchholz. 2020. "Is There a Matthew Effect in Adult Learning? Results from a cross-national Comparison". In *Monetäre und nicht monetäre Erträge von Weiterbildung – Monetary and non-monetary effects of adult education and training*, J. Schrader, A. Ioannidou, and H.-P. Blossfeld edited by. Vol. 7 1–26.Edition ZfE Wiesbaden: VS.

Boeren, E. 2016. *Lifelong Learning Participation in a Changing Policy Context. An Interdisciplinary Theory*. London: Palgrave Macmillan.

Boeren, E., E. A. Roumell, and K. M. Roessger. 2020. "COVID-19 and the Future of Adult Education: An Editorial." *Adult Education Quarterly* 70 (3): 201–204.

Brunello, G., P. Garibaldi, and E. Wasmer. 2007. *Education and Training in Europe*. Oxford: Oxford University Press.

Brynjolfsson, E., and A. McAfee. 2014. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York: Norton.

Busemeyer, M., and Ch. Trampusch, edited by. 2012. *The Political Economy of Collective Skill Formation*. Oxford: Oxford University Press.

CEDEFOP. 2018. *Insights into Skill Shortages and Skill Mismatch. Learning from Cedefop's European Skills and Job Survey*, Cedefop reference series; No 106. Luxembourg: Publications Office.

Cross, P. K. 1981. *Adults as Learners. Increasing Participation and Facilitating Learning*. San Francisco: Jossey-Bass.

Dæhlen, M., and O. B. Ure. 2009. "Low-Skilled Adults in Formal Continuing Education: Does Their Motivation Differ from Other Learners?" *International Journal of Lifelong Education* 28 (5): 661–674. doi:10.1080/02601370903189948.

Dämmrich, J., Y. Kosyakova, and H-P. Blossfeld. 2015. "Gender and job-related non-formal Training: A Comparison of 20 Countries." *International Journal of Comparative Sociology* 56 (6): 433–459. doi:10.1177/0020715215626769.

Darkenwald, G. G., and S. B. Merriam. 1982. *Adult Education Foundation of Practice*. New York: Harper & Row Publishers.

Darkenwald, G. G., and T. Valentine. 1985. "Factor of Deterrents to Public Participation in Adult Education." *Adult Education Quarterly* 35 (4): 177–193. doi:10.1177/0001848185035004001.

Desjardins, R., K. Rubenson, and M. Milana. 2006. *Unequal Chances to Participate in Adult Learning: International Perspectives*. Paris: UNES.

Desjardins, R. 2020. "Acquiring Higher Levels of Education as an Adult Learner: Implications for Active Ageing." In *Inequality, Innovation and Reform in Higher Education*, edited by M. Slowey, H. Schuetze, and T. Zubrzycki, 177–190. Lifelong Learning Book Series Vol. 25 Springer: Cham. doi:10.1007/978-3-030-28227-1_12.

Desjardins, R., and A. Ioannidou. 2020. "The Political Economy of Adult Learning Systems - Some Institutional Features that Promote Adult Learning Participation." *ZfW* 43 (1): 143–168. doi:10.1007/s40955-020-00159-y.

Eurofound and Cedefop. 2020. *European Company Survey 2019: Workplace Practices Unlocking Employee Potential, European Company Survey 2019 Series*. Luxembourg: Publications Office of the European Union.

Gatta, M. 2008. "Low-Skill Workers, Technology, and Education: A New Vision for Workforce Development Policy." *The Economic and Labour Relations Review* 19 (1): 109–128. doi:10.1177/103530460801900108.

Gatta, M., and L. Deprez. 2008. "Women's Lives and Poverty: Developing a Framework of Real Reform for Welfare." *Journal of Sociology and Social Welfare* 35 (1): 21–48.

Gorard, S., and N. Selwyn. 2005. "What Makes a Lifelong Learner?" *Teacher College Record* 107 (6): 1193–1216. doi:10.1111/j.1467-9620.2005.00510.x.

Hovdhaugen, E., and V. Opheim. 2018. "Participation in Adult Education and Training in Countries with High and Low Participation Rates: Demand and Barriers." *International Journal of Lifelong Education* 37 (5): 560–577. doi:10.1080/02601370.2018.1554717.

Illeris, K. 2003. "Adult Education as Experienced by the Learners." *Journal of Lifelong Education* 22 (1): 13–23. doi:10.1080/02601370304827.

Illeris, K. 2006. "Lifelong Learning and Low-Skilled." *International Journal of Lifelong Education* 25 (1): 15–28. doi:10.1080/02601370500309451.

ILO. 2019. "*Global Commission on the Future of Work. Work for a Bright Future. International* Labour Office." Geneva: ILO, accessed May 20, 2021 https://www.ilo.org/global/topics/future-of-work/publications/WCMS_662410/lang–en/index.htm

Iversen, T., and D. Soskice. 2019. *Democracy and Prosperity. Reinventing Capitalism through Turbulent Century*. Princeton: Princeton University Press.

Kalenda, J., and I. Kočvarová. 2020. "Participation in non-formal Education in Risk Society." *International Journal of Lifelong Education*. doi:10.1080/02601370.2020.1808102.

Kočvarová, I., Vaculíková, J, and Kalenda, J. 2022. Development and Initial Validation of the Nonparticipation in Nonformal Education Questionnaire. *Journal of Psychoeducational Assessment*, 40 (3): 400–415. doi:10.1177/07342829211060571.

Kondrup, S. 2015. "Understanding Unskilled Work as a Condition for Participation in Adult Education Training." *European Journal for Research on the Education and Learning of Adults* 6 (2): 159–173. doi:10.3384/rela.2000-7426.rela9064.

Kyndt, E., N. Govaerts, F. Dochy, and H. Baert. 2011. "The Learning Intention of low-skilled Employees: A Key for Participation in Lifelong Learning and Continuous Training." *Vocations and Learning* 4 (3): 211–229. doi:10.1007/s12186-011-9058-5.

Kyndt, E., E. Raes, F. Dochy, and E. Janssens. 2013a. "Approaches to Learning at Work: Investigating Work Motivation, Workload and Choice Independence." *Journal of Career Development* 40 (4): 271–291. doi:10.1177/0894845312450776.

Kyndt, E., N. Govaerts, L. Keunen, and F. Dochy. 2013b. "Examining the Learning Intentions of low-qualified Employees: A Mixed Method Study." *Journal of Workplace Learning* 25 (3): 178–197. doi:10.1108/13665621311306556.

Larson, A., and M. Milana. 2006. "Barriers Towards Participation in Adult Education and Training." Paper presented at the European Conference on Educational Research, University of Geneva, Geneva, 13-15 September 2006.

MacKeracher, D., T Suart, and J Potter. 2006. "State of the Field Report." Barriers to participation in adult learning, accessed May 20, 2021 http://www.nald.ca/library/research/sotfr/barriers/barriers.pdf

MWSA. 2021. "Analýza vývoje zaměstnanosti a nezaměstnanosti v roce 2020." *Praha: Ministerstvo práce a sociálních věcí (Analysis of employment and unemployment in 2020)* 1.

OECD. 2019a. *Getting Skills Right: Engaging low-skilled Adults in Learning*. Paris: OECD Publishing.

OECD. 2019b. *Getting Skills Right: Future-ready Adult Learning Systems*. Paris: OECD Publishing.

Paldanius, S. 2007. "The Rationality of Reluctance and Indifference toward Adult Education." *Proceedings of the 48th Annual American Adult Education Research Conference*, edited by L. Servage and T. Fenwick, 471–476. Minneapolis: University of Minnesota.

Pouliakas, K., and G. Russo. 2015. "Heterogeneity of Skill Needs in Relation to Job Tasks: Evidence from the OECD PIAAC survey." Bonn: Institute of labour economics (IZA). Discussion paper; No 9.

Roosmaa, E-L., and E. Saar. 2017. "Adults Who Do Not Want to Participate in Learning: A cross-national European Analysis of Their Barriers." *International Journal of Lifelong Education* 36 (3): 254–277. doi:10.1080/02601370.2016.1246485.

Rubenson, K., and H. Salling Olesen. 2007. "*Theorising Participation in Adult Education and Training*." Paper presented at The Second Nordic Conference on Adult Learning, Linköping, University, SE.

Rubenson, K., and R. Desjardins. 2009. "The Impact of Welfare State Requirements on Barriers to Participation in Adult Education: A Bounded Agency Model." *Adult Education Quarterly* 59 (3): 187–207. doi:10.1177/0741713609331548.

Rubenson, K. 2010. "Barriers to Participation in Adult Education." In *Adult Learning and Education*, edited by K. Rubenson, 216–224. London: Elsevier.

Rubenson, K. 2018. "Conceptualizing Participation in Adult Learning and Education. Equity Issues." In *The Palgrave International Handbook on Adult and Lifelong Education and Learning*, edited by M. Milana, S. Webb, J. Holford, R. Waller, and P. Jarvis, 337–357. London: Palgrave Macmillan.

Saar, E, and Räis M. Liis. 2017. Participation in job-related training in European countries: the impact of skill supply and demand characteristics. *Journal of Education and Work* 30 (5): 531–551. doi:10.1080/13639080.2016.1243229.

Smit, S., T. Tacke, S. Lund, J. Manyika, and L. Thiel. 2020. *The Future of Work in Europe. Automation, Workforce Transitions, and Shifting Geography of Employment*. Mckinsey Global Institute.

Vaculíková, J., J. Kalenda, and I. Kočvarová. 2020. "Hidden Gender Differences in Formal and non-formal Adult Education." *Studies in Continuing Education*. https://doi.org.10.1080/0158037X.2020.1732334

Valentine, T., and G. G. Darkenwald. 1990. "Deterrents to Participation in Adult Education: Profiles of Potential Learners." *Adult Education Quarterly* 41 (1): 29–42. doi:10.1177/000184819004100100.

Van Nieuwenhove, L., and B. De Wever. 2021. "Why are low-educated Adults Underrepresented in Adult Education? Studying the Role of Educational Background in Expressing Learning Needs and Barriers." *Studies in Continuing Education*. doi:10.1080/0158037X.2020.1865299.

Vermeersch, L., and A. Vandenbrouck. 2010. "Low-literates Perceptions of Lifelong Learning." Paper presented at LESSLA IV conference, Cologne, Germany.

Waller, R., S. Hodge, J. Holford, M. Milana, and S. Webb. 2020. "Lifelong Education, Social Inequality and the COVID-19 Health Pandemic." *International Journal of Lifelong Education* 39 (3): 243–246. doi:10.1080/02601370.2020.1790267.

Widany, S., J. Christ, B. Gauly, N. Massing, and M. Hoffmann. 2019. "The Quality of Data on Participation in Adult Education and Training. An Analysis of Varying Participation Rates and Patterns under Consideration of Survey Design and Measurement Effects." *Fronties in Sociology* 4. 4), article 71. doi:10.3389/fsoc.2019.00071.