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# Contribution of Social-Constructivist and Andragogical Principles in Blended Learning to Adult's Social Inclusion and Social Capital

**Abstract:** The paradigm shift from instructivism to constructivism, and the evolution from pedagogy to andragogy have led to self-directed, technology-enhanced learning environments for adults. Previous studies identified the importance of (online) constructivist and andragogical strategies to achieve deep knowledge construction. However, less is known about the social contribution of social-constructivist and andragogical principles (SCAP) in terms of social inclusion and social capital. To fill this gap, a questionnaire study was conducted among adults following courses by means of blended learning (N=139). One major finding showed that meeting learner's personal needs is positively related to adults' social capital. In addition, significant differences in terms of social inclusion and social capital were found based on adult learners' native language. Hence, these results suggest a learner-centred and individualized approach to promote social inclusion and social capital.

**Key words:** constructivism, andragogy, social inclusion, social capital, blended learning.

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## Introduction

Nowadays, 23.7% of adults in Europe are at risk of poverty or social exclusion (Eurostat, 2017). This means that a substantial group of adults is excluded or is not able to fully participate in society. To counter these societal challenges, adult learning and education (ALE) has been put to the fore (Preston & Hammond, 2002). Participation in ALE was found to contribute to adults' personal and social development (Manninen et al., 2014). In developing such benefits, the teacher, instructional methods and fellow learners play a crucial role (Manninen et al., 2014).

Regarding the instructional approaches and roles of teachers and learners, education underwent an important paradigm shift from objectivism to constructivism (Jonassen, 1991). A 'new' epistemology directed teaching and learning theories to be interactive and learner-centred (Hirumi, 2002). Following this paradigm shift and the increasing digitalization of society, interactive communication technologies have been implemented in adult education. These new technologies are valuable for distance learning (Tenenbaum, Naidu, Jegede, & Austin, 2001). Originally, distance learning has been developed as one-way communication between an expert-teacher and passive-receptive learner, following a cognitive-behaviourist pedagogy (Anderson & Dron, 2011). However, nowadays, distance learning can be designed to promote interactive and constructivist learning due to the advantages of online communication technologies. As a consequence, we witness a positive trend for (partially) learning at a distance. In the USA, 31.6% of students registered for at least one distance course (Seaman, Allen, & Seaman, 2018).

Tenenbaum and colleagues (2001) were among the first to scrutinize constructivist principles for open and distance learning. Moving further, constructivist ideas were also applied to online learning for adults (Huang, 2002). A clear parallel between constructivist theories and andragogical principles was described in order to achieve meaningful and authentic knowledge construction (Huang, 2002). A more recent study showed that the implementation of constructivism in a virtual learning environment leads to successful collaborative knowledge construction (Girvan & Savage, 2010). Next to cognitive gains, social-constructivist learning approaches, such as peer-assisted learning, are deemed useful "especially if the development of social outcomes is also an objective" (Schunk, 2012, p. 269). Furthermore, the application of andragogy in adult education is believed to enhance adults' abilities and competences (Pavlova & Sanger, 2016). However, a lot remains unknown about the relationship between constructivist and andragogical learning principles and social benefits, particularly in technology-enhanced learning environments for adults.

What has been lacking to date, is research on the *social contribution of Social-Constructivist and Andragogical Principles (SCAP)* for adults engaged in blended learning. Therefore, this study explores the influence of SCAP in blended courses on the social outcomes of adult learners, in terms of social inclusion and social capital. This study is carried out among adults who study through blended learning, i.e. a combination of online learning activities at a distance and face-to-face lessons. Conducting research in these blended learning settings meets the premise that blended learning is ‘the new normal’ in education (Norberg, Dziuban, & Moskal, 2011). Hence, this study will advance the empirical knowledge by integrating insights from constructivism, andragogy, blended learning, and the social benefits of adult learning.

### Literature review

Theoretically, this study is underpinned by the inherently similar principles of andragogy, constructivism, and blended learning to shed light on the social outcomes of ALE. Before the elaboration on andragogy, constructivism and blended learning, the social outcomes of ALE are explored. The concepts of social inclusion and social capital are valuable because they provide understanding of people’s participation in society and their social networks. Both, social inclusion and social capital, are found to be a benefit of participation in ALE (De Greef, Verté, & Segers, 2014; Field, 2005).

#### *Describing the social outcomes of adult learning and education: social inclusion and social capital*

Social inclusion defined as social participation and social connectedness

Social inclusion has been equated with a broad variety of dimensions, such as health, well-being, civic and social engagement, citizenship, and political participation (Desjardins & Schuller, 2006; Field, 2012). Taking into account the relationship between an adult and their social environment, social inclusion is, among others, outlined as processes of participation and connection (De Greef et al., 2014). Therefore, we describe social inclusion through social participation and social connectedness. The former, namely *social participation*, bears a functional-behavioural role and refers to “the extent to which a subject takes part in different social networks and other activities in society” (Ekström, Ivanoff, &

Elmstahl, 2013, p. 459). The latter dimension, namely *social connectedness*, illustrates its affective meaning and is defined as the “self-evaluation of the degree of closeness between the self and other people, the community, and society at large” (Lee, Dean, & Jung, 2008, p. 415). Hence, the current interpretation of social inclusion acknowledges the complexity of the concept by including a behavioural and affective component.

### Social capital consists of bonding and bridging social capital

Leading authors such as Bourdieu (1980), Coleman (1988), and Putnam (2000) utilized the concept of social capital to describe societal dynamics. In the present study, Bourdieu and Wacquant’s (1992) definition of social capital is followed, namely: “the sum of resources, actual or virtual, that accrue to an individual by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (p. 119). This individual-structural perspective implies that social capital is regarded as the resources which are created from a person’s social networks. Based on the nature of those social networks, Putnam (2000) made a distinction between bonding and bridging social capital. *Bonding social capital*, or strong ties, refers to the relationships with close friends or family, whereas *bridging social capital*, or weak ties, describes the relationships with acquaintances (Granovetter, 1983). According to Granovetter (1983), those weak ties are of importance to build bridges between people from distinct social networks, and to get access to new resources.

### *An educational perspective on ALE: insights from andragogy and constructivism*

#### An andragogical perspective

In contrast with pedagogy, Knowles postulated andragogy: a comprehensive and widely applicable individual-transactional model for adult learning. Six core principles of adult learning can be used in practice, depending on the negotiated purposes for learning and regulated by individual and situational differences (Knowles, Holton, & Swanson, 2005). The first principle stresses that adults *need to know* why they should learn something. A second assumption postulates that adults’ *self-concept* is one of responsibility. This means that they are responsible for their own decisions. In addition, Knowles et al. (2005) emphasized the importance and rich diversity of adult *learners’ experiences*. Fourth, adults are *ready*

*to learn* something that they perceive as necessary in order to fill the gap between their current and desired competencies. The fifth principle states that adults' *orientation to learning* is life-centred, requiring authentic and contextualized learning. Finally, adults predominantly experience internal *motivation to learn*, but are also partially sensitive to external motivators (Knowles et al., 2005). These six andragogical principles put learner-centeredness at its core. The andragogical model claims that adults will learn successfully, if these six core principles are taken into account depending on the context of the adult learner.

In essence, Knowles et al. (2005) constructed the andragogical model to enable self-actualization of adults. A recent study showed that applying andragogy in adult education is beneficial for adults' learning, cognitive ability, and professional competence (Pavlova & Sanger, 2016). Next to self-actualization, Knowles et al. (2005) acknowledged that "societal change may be a by-product of individual change" (p. 142) due to the fact that "individual learning may occur for the purpose of advancing individual, institutional or societal growth" (p. 152). Hence, adult learning can lead to individual development as well as to societal change because of andragogical approaches. For example, engagement in community-based adult learning was found to bring about social capital development and recovery of lost social capital (McIntyre, 2012). This is attributed to the negotiation with the learners, which creates relevant learning experiences in connection with their life-world (McIntyre, 2012).

### A constructivist perspective

Next to the andragogical model, the constructivist perspective on learning seems to be of importance for the social outcomes of ALE. The constructivist epistemology claims that "each of us constructs our own reality through interpreting perceptual experiences of the external world" (Jonassen, 1991, p. 10), depending on individual's personal background, needs and interests (Jonassen, 1991). Following the dialectical perspective on constructivism, knowledge is constructed internally based on interactions between an individual and the environment (Schunk, 2012). This is in accordance with Vygotsky's social-constructivist theory (1978), which emphasizes that knowledge is built from the interaction of interpersonal, cultural-historical and individual factors. Vygotsky (1978) highlighted that "the social environment is critical for learning" (Schunk, 2012, p. 242) and knowledge is socially constructed (Airasian & Walsh, 1997).

Knowledge will be constructed solidly when key constructivist features such as learner-centeredness or learner control, goal negotiation, authentic and

relevant learning, and active learning are implemented (Jonassen, 1991; Porcaro, 2011; Schunk, 2012). Moreover, social-constructivist approaches might also produce social benefits because of the interactive nature of the learning process, i.e. through collaboration. For example, peer-assisted learning is valuable when social outcomes are striven for (Schunk, 2012). In other words, social-constructivism symbolizes empowerment and emancipation of learners by means of dialogue and interaction (Airasian & Walsh, 1997; Porcaro, 2011). Hence, next to an andragogical approach, social-constructivism seems to be worthwhile, because it provides learners with the necessary competences to successfully engage in the current knowledge societies (Porcaro, 2011).

### *Technology-enhanced learning: focus on blended learning*

Blended learning has been adopted increasingly in (adult) education (Garrison & Kanuka, 2004). Clear-cut, blended learning combines face-to-face classroom learning with online learning experiences (Graham, 2004). However, integrating face-to-face and online learning is a complex process, which requires the blending of spaces and time (Norberg et al., 2011). The way online technologies are employed throughout blended learning varies. In a more traditional sense, technology serves as a classroom aid to replicate the physical classroom online. In more advanced settings, blended learning makes optimal use of the unique features of online and face-to-face learning by flipping the classroom, and hybrid or flexible learning (Bates, 2015).

Despite the complexity of the concept, blended learning has been associated with benefits such as flexibility, accessibility, and affordability (Selwyn, Gorard, & Williams, 2001), improved pedagogy (Graham, 2004), a strong sense of community (Rovai & Jordan, 2004) and more positive and effective learning outcomes compared to fully online or face-to-face courses (Means, Toyama, Murphy, & Baki, 2013; Vella, Turesky, & Hebert, 2016). Besides, digital media use evokes social participation in society (van Dijk & van Deursen, 2014). In addition, participation in blended learning is positively associated with adults' social connectedness and bridging social capital (Cocquyt, Diep, Zhu, De Greef, & Vanwing, 2017). In specific, the quality of online interaction was found to be positively related to social capital of adults in blended learning (Diep, Cocquyt, Zhu, Vanwing & De Greef, 2017).

*Integrating insights from andragogy and constructivism  
into blended learning to examine adults' social inclusion  
and social capital*

Throughout the previously discussed literature, there are separate indications that andragogy (Knowles et al., 2005), constructivism (Schunk, 2012), and elements of blended learning (Diep et al., 2017) are positively related to social outcomes of (adult) learning processes. However, few authors have integrated insights from these three distinct perspectives. Anders (2015) did advocate for blended or hybrid ways of learning, because they bring together principles of social-constructivism and andragogy, embodying a feasible middle way between cognitivist and connectivist extremes.

Following social-constructivism, hybrid designs may support learning communities that offer highly social and dialogical learning experiences. Following andragogy, hybrid designs chart a middle path with respect to levels of course structure and learner autonomy. The goal of hybrid design is to balance the strengths and weaknesses of both the xMOOC and cMOOC models for specific audiences and applications. (Anders, 2015, p. 46)

Such a well-balanced blended learning environment has the power to support a diversity of adult learners, who are in essence particularly heterogeneous (Rogers-Shaw, Carr-Chellman, & Choi, 2018). Moreover, emergent connectivist approaches could be perceived as too demanding due to the lack of structure, the overwhelming extent of autonomy, and the poor alignment with formal or traditional education (Anderson & Dron, 2011). Hence, the integration of viewpoints from social-constructivism and andragogy in the context of adults engaged in blended learning is justifiable and relevant.

Tenenbaum et al. (2001) and Huang (2002) established that insights from andragogy and social-constructivism embody similar approaches to learning and teaching with technology. To illustrate this, six instructional principles that facilitate adults' construction of meaningful knowledge throughout online learning were introduced (Huang, 2002). The principles clearly combine insights from andragogy and social-constructivism and are reflected by: (1) interactive learning, (2) collaborative learning, (3) facilitating learning (i.e. creating a safe and motivating environment), (4) authentic learning, (5) learner-centred learning (i.e. full ownership and responsibility belongs to the adult learner), and (6) high quality learning (i.e. higher-order thinking). The aforementioned principles are operationalized by five components of constructivist teaching and learning, as identified by Tenenbaum and colleagues (2001). The five dimensions include (1) arguments, discussions and

debates, (2) sharing ideas with others, (3) reflections, (4) meeting student needs, and (5) making meaning (Table 1). It is possible to distinguish between the principles in Table 1 based on the aforementioned quote from Anders (2015). On the one hand, the first two dimensions, argumentation and sharing, are strongly linked to ideas of social-constructivism because they reflect interaction and collaboration. They represent principles of social or collaborative learning activities. On the other hand, the remaining dimensions cover more individual activities, i.e. reflection, negotiating about individual needs, and relevant learning. They portray learner-centeredness, which is at the core of andragogy. Hence, principles from social-constructivism (social and collaborative learning) and andragogy (learner-centeredness) are intertwined in Table 1.

**Table 1:** The analogy between the frameworks of Huang (2002) and Tenenbaum et al. (2001), including respective adopted scales

Constructivist-andragogical instructional principles (Huang, 2002)	Constructivist learning activities (Tenenbaum et al., 2001)	Adopted scales in this study
Interactive learning	Arguments, discussions, debates	Argumentation
Collaborative learning	Sharing ideas with others	Sharing
High quality learning	Reflections	Reflection
Facilitating learning		
Learner-centered learning	Meeting student needs	Learner's needs
Authentic learning	Making meaning, real-life examples	Meaning-making

Nowadays, blended learning environments provide ample opportunities for social learning experiences by means of (online) interaction and collaboration, and also for learner-centeredness through self-direction, personal agency, as well as authentic and critical learning (Garrison & Kanuka, 2004; Graham, 2004; Huang, 2002; Jarvis, 2010; Rovai, 2004). In 2004, Rovai called for more research on “the types of online constructivist activities that have the greatest impact on learning” (p. 91). In the meanwhile, the importance of online constructivist learning for knowledge construction has been widely examined. As an example, a constructivist-andragogical principle such as shared regulation (Raes, Schellens, De Wever, & Benoit, 2016) was found to have a positive impact on online social knowledge construction. Moreover, the implementation of a social or collaborative dimension like online argumentation seems to be beneficial for students’ scientific competencies and their attitudes towards sustainability (Tsai, 2018).

Thus, the majority of studies have put emphasis on the cognitive contribution of social-constructivist and andragogical principles in online or blended learning environments. So, to date, the *social contribution of Social-Constructivist and Andragogical Principles* (SCAP) for adults engaged in blended learning is un-

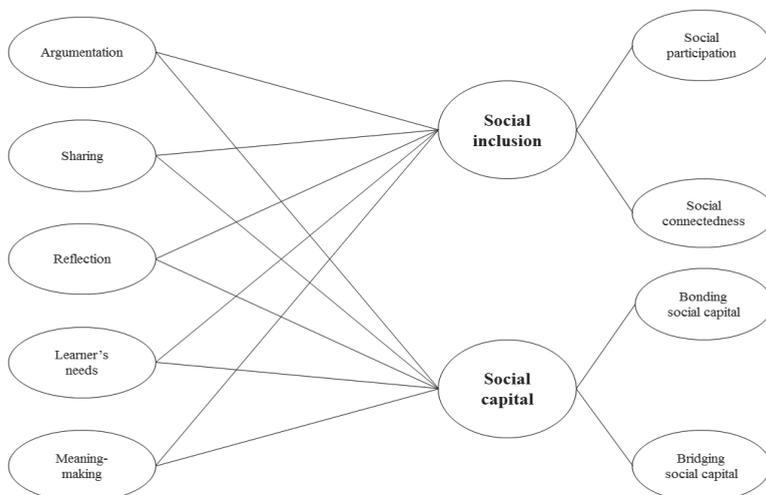
clear, particularly in terms of social inclusion and social capital. The SCAP are operationalized by the five dimensions displayed in Table 1 and visualized in Figure 1. Building on our literature review, it is hypothesized that those SCAP in blended learning are beneficial for adults' social inclusion and social capital. First of all, the interactive dimensions of *argumentation* and *sharing* are assumed to be positively related to social inclusion and social capital. This is attributed to the social learning experiences (Anders, 2015), by means of intensive (online) interaction and collaboration. Furthermore, the learner-centred dimensions, which are *reflection*, *learner's needs*, and *meaning-making*, could also influence social inclusion and social capital. This is due to the fact that learner-centeredness results in substantial learner control and creates possibilities for one's empowerment (Anders, 2015).

In other words, the present study will seek an answer to the following research questions:

How are Social-Constructivist and Andragogical Principles (SCAP) in blended learning related to adult's social inclusion, as measured by social participation?

How are Social-Constructivist and Andragogical Principles (SCAP) in blended learning related to adult's social inclusion, as measured by social connectedness?

How are Social-Constructivist and Andragogical Principles (SCAP) in blended learning related to adults' bonding and bridging social capital?



**Figure 1:** Research model on the social contribution of social-constructivist and andragogical principles (SCAP)

## Methodology

### *Research context and design*

The current study was conducted at six adult education centres (AEC) in Flanders, the Dutch-speaking region of Belgium. The AEC offer courses for adults who would like to obtain a degree or to achieve new competencies. The educational programs in which the learners were involved vary from secondary adult education (ISCED level 2–4) to specific teacher training (ISCED level 6). Through secondary adult education, low-educated adults get the chance to complete their secondary degree, i.e. in reference to second-chance education. Besides this, higher-educated adults who want to obtain a new profession or competencies can also register for courses offered by secondary adult education. Higher-educated adults are also eligible to follow a specific teacher training program. This program prepares them to teach in secondary education.

As a prerequisite to participate in the study, adults needed to be enrolled in a program which applies blended learning. Each AEC has the autonomy to implement blended learning into their programs, provided that they comply with the Flemish regulations. In particular, the centres and instructors have the responsibility to decide upon the extent of blended learning. Apart from the various blended learning arrangements (i.e. ranging from 25% to 75% of online learning), all online learning activities were similar in the six AEC. Adult learners executed online learning activities through their centre's learning management system. The online learning activities included learning paths, individual assignments, and online collaborative work through wikis or discussion fora.

For this study, a questionnaire was administered to adults in blended learning programs. The study followed a cross-sectional design, because data was collected at one point in time, namely at the end of the school year. This enabled the learners to reflect upon their learning trajectory. To reach as many blended adult learners as possible, participants were selected among the AEC that offered blended learning programs. Hence, convenience sampling was employed. Before answering the questionnaire, participants gave informed consent, which stressed that there were no right or wrong answers, underlined the voluntary nature of their participation, and guaranteed their anonymity. Where possible, the questionnaire was administered electronically in a computer room of the AEC under supervision of the researchers. Otherwise, the participants filled in a paper version of the questionnaire.

### *Sample*

The sample of participants (N=139) predominantly consists of women (60.4%), adults younger than 35 (61.2%), unmarried (71.9%) and actively employed (71.2%) adults. Table 2 shows that the educational background of the participants is mixed, including adults with a lower secondary degree (35.3%), secondary degree (21.6%), and higher education degree (41.7%). This diversity is also reflected in the educational programs which the adults were attending. The majority was following courses in secondary adult education (66.2%), of which more than half were enrolled in second chance education (52.2%). About one third of participants was registered for a specific teacher training program (33.8%). Finally, almost 20% of the sample does not speak Dutch (i.e. the official regional language) as a native language, yet their level of Dutch was sufficient in order to be eligible to follow the courses.

**Table 2:** Participants' background information based on socio-demographic and background variables

Categories	%	N (139)
Educational program		
Secondary adult education	66.2%	92
Second chance education	52.2%	47
Other secondary adult education	47.8%	45
Specific teacher training	33.8%	47
Gender		
Male	39.6%	55
Female	60.4%	84
Age group		
<25	21.6%	30
25–34	39.6%	55
35–44	23.0%	32
45–55	15.8%	22
Native language		
Dutch	81.3%	113
Not Dutch	18.7%	26
Marital status		
Married	28.1%	39
Not married	71.9%	100

Categories	%	N (139)
Employment status		
Employed	71.2%	99
Unemployed	11.5%	16
Outside the labour market	17.3%	24
Educational attainment		
Lower secondary degree	35.3%	49
Secondary degree	21.6%	30
Higher education degree	41.7%	58
Missing	1.4%	2

### *Instruments*

The questionnaire was built based on previously validated instruments (Table 3). It consisted of three main parts: socio-demographic and background variables, SCAP, and the social outcomes of social inclusion and social capital. First of all, control variables including gender, native language, marital status, employment status, educational background and age group were examined. Secondly, the SCAP were operationalized using five dimensions from Tenenbaum and colleagues' scale (2001), namely argumentation, sharing, reflection, learner's needs and meaning-making. Thirdly, adults' social outcomes were measured using the concepts of social participation, social connectedness, bonding and bridging social capital. Adult learners were asked to indicate the change in social inclusion and social capital they perceived since they have started the course. For social participation, the items have been adjusted from the SIT-instrument's dimension 'participation and connection' (De Greef, Segers, & Verté, 2010). The change in social connectedness has been measured by using the positive social connectedness scale (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013; Lee, Draper, & Lee, 2001; Sinclair & Grieve, 2017). After careful screening of the positive social connectedness scale, two items have been removed due to interpretation difficulties for the participants. Furthermore, adult learners' social capital has been measured by the scale of Williams(2006). Based on the content validity, one item has been removed from the bonding social capital scale and three from the bridging social capital scale. The instruments were translated into Dutch, using back-translation.

*Data analysis*

At first, reliability analyses on the aforementioned scales were conducted. The Cronbach's alphas displayed in Table 3 indicate good internal consistency. According to analysis in G\*Power (Faul, Erdfelder, Buchner, & Lang, 2007) our sample size (N=139) allows to detect medium effects ( $f^2=0.25$ ,  $\alpha=0.05$ , power=0.80). To examine the correlations between all variables, Pearson's correlation coefficients were calculated. The correlations between the dimensions of SCAP were screened separately. Similarly, the correlation coefficients between the dependent variables were evaluated. At last, the correlations between the predictors (i.e. five dimensions of SCAP) and the social outcomes (i.e. social participation, social connectedness and social capital) were checked upon. Subsequently, group differences were tested to be able to control for the possible influence of socio-demographic variables. Depending on the number of categories within a categorical predictor, independent samples t-tests or ANOVAs were performed. Significant categorical predictors were included in the subsequent univariate and multivariate analyses of covariance (GLM) to control for their effect. Field's (2009) recommendations for meeting assumptions regarding ANCOVA were followed. This implies that the independence of the covariate and group effect was tested first, followed by examining the homogeneity of regression slopes in order to reveal possible interaction effects. When multivariate general linear models were tested, Wilks' lambda was taken into account. Once a significant effect on the multivariate level was found, results of the univariate analyses were reported (Field, 2009). All analyses were run in SPSS 25.0.

**Table 3:** Overview of instruments for measuring social-constructivist and andragogical principles, social inclusion and social capital

Variable	# items	Scale	Original Cronbach's $\alpha$	Current Cronbach's $\alpha$	Exemplary items
Social-constructivist and andragogical principles (Tenenbaum, Naidu, Jegede, & Austin, 2001)					
Argumentation	5		0.82	0.84	The course allowed for arguments, discussions and debates
Sharing	4		0.79	0.80	I was given sufficient opportunities to share my own experiences with others
Reflection	6	1: completely disagree 5: completely agree	0.87	0.87	The course motivated me to think reflectively
Learner's needs	5		0.77	0.83	The course took into consideration my needs and concerns
Meaning-making	4		0.77	0.77	The course addressed real-life events
Social inclusion: social participation (De Greef, Segers, & Verré, 2010) social connectedness (Lee, Draper, & Lee, 2001; Grievé et al., 2013; Sinclair & Grievé, 2017)					
Social participation	8		0.61	0.94	Taking part in activities and events in your neighbourhood
Social connectedness	8	1: this activity has significantly decreased 5: this activity has significantly increased 1: completely disagree 5: completely agree	0.92 0.93 0.86	0.94	Due to following this course, I am able to connect with other people.
Social capital (Williams, 2006)					
Bonding social capital	9		0.86	0.89	Due to following this course, there are several people I can talk to when I feel lonely.
Bridging social capital	7	1: completely disagree 5: completely agree	0.85	0.87	Due to following this course, I am interested in things that happen outside of my town.

## Results

### *Correlation analyses*

First of all, Table 4 shows that the five subscales of SCAP are positively and significantly correlated with each other, correlation coefficients ranging from  $r=.364$  to  $r=.722$  ( $p<.001$ ). Secondly, the correlations between the dependent variables are examined. The results show that both dimensions of social inclusion, i.e. social participation and social connectedness, are not significantly correlated ( $r=.101$ ,  $p>.05$ ). Additionally, social participation is neither significantly correlated with bonding or bridging social capital, respectively  $r=-.002$  and  $r=.059$ ,  $p>.05$ . In contrast, social connectedness and both subscales of social capital are positively correlated ( $r=.639$ ,  $r=.712$ ,  $r=.765$ ,  $p<.001$ ). Therefore, we conclude that social participation and social connectedness will be regarded as separate constructs during consecutive analyses. Social capital remains considered as the combination of bonding and bridging social capital. Thirdly, Table 4 presents the correlations between SCAP and the social outcomes. There were no significant correlations found between social participation and the five dimensions of SCAP. In contrast, social connectedness is positively and significantly correlated with four dimensions of SCAP, namely sharing, reflection, learner's needs and meaning-making, but not significantly correlated with argumentation. The same applies to bonding social capital. Moreover, the correlations between bridging social capital and all five dimensions of SCAP are significant and positive. Hence, Table 4 supports the assumption that SCAP are positively associated with social connectedness and social capital. For now, no significant correlations between the independent variables and social participation were found.

**Table 4:** Correlations between SCAP, social inclusion and social capital

	A	S	R	LN	MM	SI:SP	SI:SCO	SC:BO	SC:BR
Argumentation	1.								
Sharing	.633***	1							
Reflection	.581***	.516***	1						
Learner's needs	.364***	.372***	.629***	1					
Meaning-making	.538***	.485***	.722***	.510***	1				
Social participation	-.132	-.031	.046	.095	.032	1			
Social connectedness	.132	.227**	.276**	.329***	.189*	.101	1		
Bonding social capital	.154	.222**	.278**	.437***	.208*	-.002	.639***	1	
Bridging social capital	.177*	.239**	.310***	.432***	.220*	.059	.712***	.765***	1

A = argumentation, S = sharing, R = reflection, LN = learner's needs, MM = meaning-making, SI = social inclusion, SP = social participation, SCO = social connectedness, SC = social capital, BO = bonding social capital, BR = bridging social capital

\* Correlation is significant at .05 level \*\* Correlation is significant at .01 level \*\*\* Correlation is significant at .001 level (two-tailed)

*Group differences*

With regard to social participation, gender ( $t(133)=2.02, p<.05$ ) and native language ( $t(133)=-2.79, p<.01$ ) constitute significant differences between subgroups of participants (Table 5). In addition, participants differ significantly on their perceptions of social connectedness, based on their native language ( $t(133)=-4.13, p<.001$ ). Finally, Table 5 shows that native language and age group indicate significant differences for bonding (respectively,  $t(133)=-3.10, p<.01$ ;  $F(3,131)=3.02, p<.05$ ) as well as bridging social capital (respectively,  $t(133)=-3.60, p<.001$ ;  $F(3,131)=3.40, p<.05$ ). Other socio-demographic variables do not induce significant differences between subgroups. Therefore, native language, gender and age group will be included in consecutive analyses to control for their effect on the respective dependent variables.

**Table 5:** Group differences for the dependent variables based on socio-demographic variables as reported by M(SE)

Socio-demographics	Categories	Social participation	Social connectedness	Bonding social capital	Bridging social capital
Gender	Male	2.76 (.078) *	3.27 (.095)	3.09 (.087)	3.37 (.078)
	Female	2.51 (.085) *	3.21 (.072)	3.04 (.068)	3.34 (.070)
Native language	Dutch	2.53 (.063) **	3.13 (.063) ***	2.98 (.060) **	3.27 (.058) ***
	Not Dutch	2.95 (.159) **	3.70 (.089) ***	3.40 (.088) **	3.73 (.086) ***
Marital status	Married	2.62 (.127)	3.39 (.130)	3.16 (.080)	3.49 (.084)
	Not married	2.60 (.069)	3.17 (.061)	3.02 (.067)	3.30 (.064)
Employment status	Employed	2.58 (.070)	3.26 (.066)	3.05 (.059)	3.35 (.062)
	Unemployed	2.52 (.193)	3.22 (.207)	3.17 (.200)	3.37 (.195)
	Outside the labour market	2.79 (.150)	3.14 (.134)	3.03 (.145)	3.34 (.103)
Educational attainment	Lower secondary degree	2.63 (.106)	3.38 (.088)	3.22 (.099)	3.48 (.093)
	Secondary degree	2.60 (.114)	3.03 (.155)	2.98 (.099)	3.24 (.103)
	Higher education degree	2.57 (.096)	3.18 (.081)	2.94 (.078)	3.26 (.075)
Age group	<25	2.71 (.127)	3.48 (.105)	3.32 (.128) *	3.66 (.117) *
	25–34	2.69 (.085)	3.16 (.077)	3.00 (.080)	3.27 (.072) *
	35–44	2.61 (.128)	3.11 (.153)	3.08 (.113)	3.27 (.129)
	45–55	2.30 (.185)	3.26 (.146)	2.82 (.112) *	3.24 (.104)

Values significantly differ on \*  $p<.05$ , \*\*  $p<.01$ , \*\*\*  $p<.001$  level

*Analyses of covariance: revealing the social contribution  
of social-constructivist and andragogical principles*

Before running the main analyses of covariance, the independence of the covariate and the group effect is tested, complemented by examining the homogeneity of regression slopes. The assumption of independence is met for all variables, and the regression slopes for social connectedness and social capital are confirmed to be homogeneous. However, the regression slopes for social participation are not homogeneous. In fact, three significant interaction effects for social participation are found. Hence, these significant interaction terms are reported upon, next to the main effects

### Social participation

For social participation, a univariate general linear model (GLM) was built. It consists of the five subscales of SCAP supplemented by gender and native language, and their interaction terms. Table 6 shows that none of the SCAP are significantly related to social participation. Solely gender is a significant predictor of social participation,  $F(1,122)=4.45$ ,  $p<.05$ . Planned contrasts show that men ( $M=3.00$ ,  $SE=.115$ ) report a higher average social participation compared to women ( $M=2.76$ ,  $SE=.106$ ). Besides this, three interaction terms were found to be significant,  $p<.05$  (Table 6). In the case of adult learners who do not speak the regional language as native language (i.e. non-native speakers), there is a positive relationship between the extent of sharing ideas and their social participation (Figure 2). Whereas Figure 2 shows that there is a weak negative relationship between sharing ideas and social participation for adults who speak the regional language as mother tongue (i.e. native speakers). Furthermore, Figures 3 and 4 reveal that among native speakers the extent to which their needs are met, and the amount of meaning-making activities, are positively related to their participation in social activities. In contrast, an opposite trend is found for non-native speakers. However, their average social participation remains higher than native-speakers' (Figures 3 and 4). The specified model explains a small amount of variance in social participation, namely 15.4%.

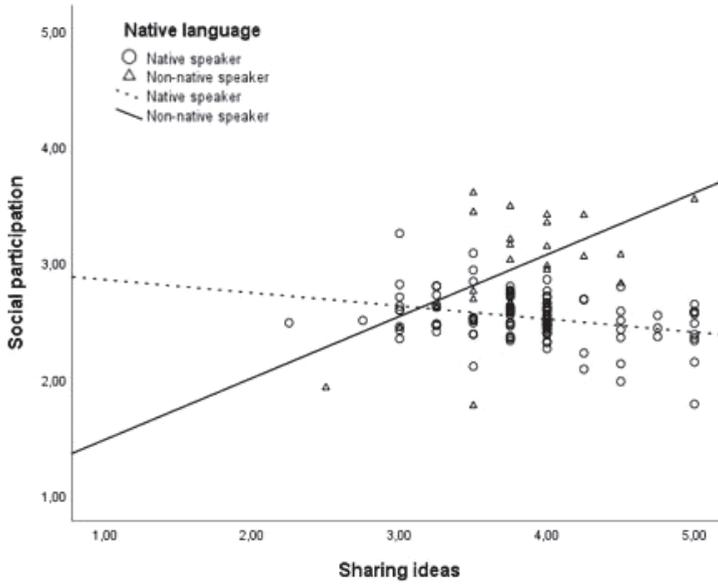


Figure 2: The significant interaction effect of sharing and native language for social participation

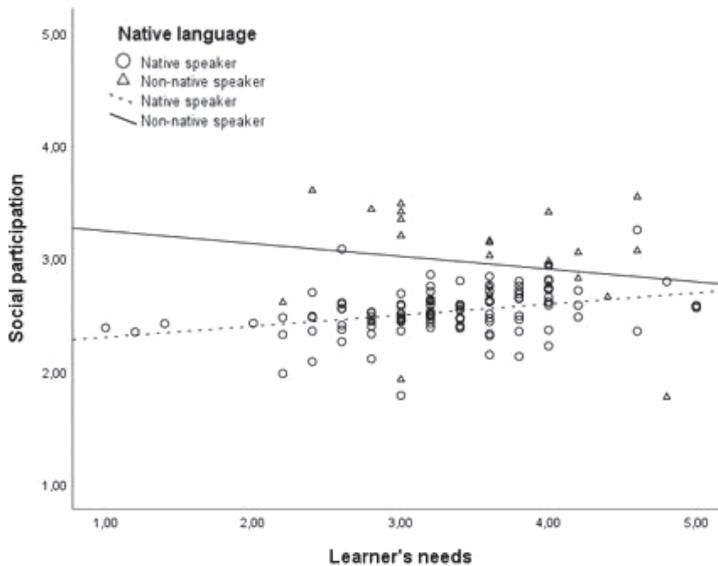
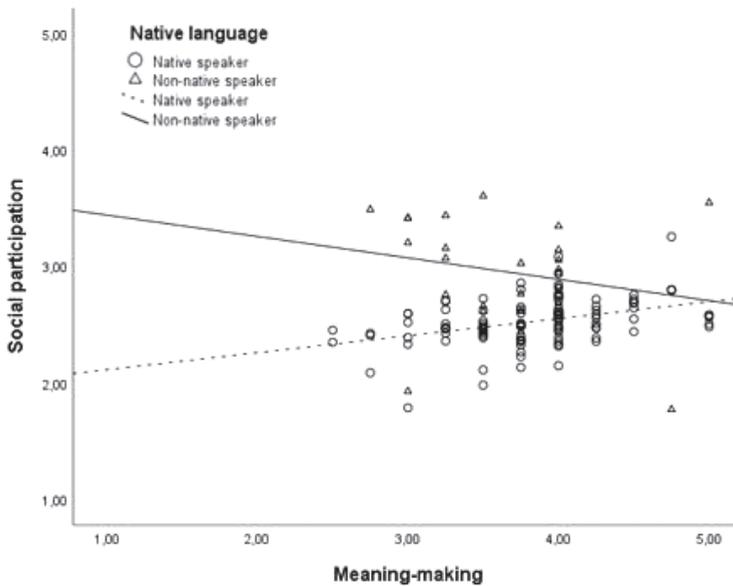


Figure 3: The significant interaction effect of learner's needs and native language for social participation



**Figure 4:** The significant interaction effect of meaning-making and native language for social participation

### Social connectedness

In addition, a univariate GLM for social connectedness was created. Next to the five subscales of SCAP, native language was entered as a covariate. The results reveal that the SCAP have no significant contribution for social connectedness. However, Table 6 displays that native language is a significant predictor of social connectedness,  $F(1,126)=17.30$ ,  $p<.001$ . In other words, the groups of native and non-native speakers significantly differ from each other in their perception of social connectedness. In fact, non-native speakers ( $M=3.71$ ,  $SE=.125$ ) experience a higher amount of social connectedness compared to native speakers ( $M=3.13$ ,  $SE=.058$ ). In total, this model explains 20% of variance in social connectedness.

**Table 6:** Results of univariate analyses of covariance for social participation and social connectedness

Dependent variable: social participation ( $R^2 = .230$ , Adjusted $R^2 = .154$ )					
	B	$Df_{model}$	$Df_{error}$	$F$	$\eta^2_{partial}$
Argumentation	0.085	1	122	0.23	.002
Sharing	0.847	1	122	3.71	.029
Reflection	0.594	1	122	1.18	.010
Learner's needs	-0.662	1	122	3.75	.030
Meaning-making	-0.574	1	122	0.63	.005
Native language <sup>a</sup>	0.901	1	122	0.48	.004
Gender <sup>b</sup>	0.248	1	122	4.45 *	.035
Native language * sharing	-0.966	1	122	6.53 *	.051
Native language * learner's needs	0.733	1	122	5.78 *	.045
Native language * meaning-making	0.827	1	122	4.27 *	.034
Dependent variable: social connectedness ( $R^2 = .236$ , Adjusted $R^2 = .200$ )					
Argumentation	-0.055	1	128	0.21	.002
Sharing	0.165	1	128	1.83	.014
Reflection	0.227	1	128	2.15	.017
Learner's needs	0.121	1	128	1.64	.013
Meaning-making	-0.010	1	128	0.01	.000
Native language <sup>a</sup>	-0.584	1	128	17.30 ***	.119

<sup>a</sup> Dutch not as a native language as reference category <sup>b</sup> Female as reference category

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  level

### Social capital

Concerning bonding and bridging social capital, a multivariate general linear model (MANCOVA) was built. The model includes the five subscales of SCAP and controls for the effect of native language and age group. The results of the multivariate analyses reveal that learner's needs is a significant predictor of social capital on the multivariate level, using Wilks' Lambda,  $\lambda = 0.92$ ,  $F(2,121) = 5.18$ ,  $p < .01$ . Besides, native language has a significant multivariate effect on social capital, Wilks' Lambda,  $\lambda = 0.91$ ,  $F(2,121) = 5.79$ ,  $p < .01$ . Both multivariate effects are confirmed by the subsequent univariate analyses, displayed in Table 7. As a dimension of SCAP, learner's needs positively influences bonding social capital ( $F(1,122) = 10.33$ ,  $p < .01$ ) and bridging social capital ( $F(1,122) = 5.60$ ,  $p < .05$ ). Additionally, groups based on native language differ

significantly on bonding social capital ( $F(1,122)=6.75$ ,  $p<.01$ ) and bridging social capital ( $F(1,122)=11.41$ ,  $p<.001$ ). Non-native speakers perceive higher bonding ( $M=3.36$ ,  $SE=.123$ ) and bridging social capital ( $M=3.71$ ,  $SE=.118$ ) compared to native speakers ( $M=2.98$ ,  $SE=.053$  and  $M=3.27$ ,  $SE=.051$  respectively). In other words, these results indicate a positive relationship between meeting learner's needs and their social capital, for both groups of native and non-native speakers (Figure 5 and 6).

**Table 7:** Results of univariate analyses of covariance for bonding and bridging social capital

Dependent variable: bonding social capital ( $R^2 = .343$ , Adjusted $R^2 = .278$ )					
	B	$Df_{model}$	$Df_{error}$	$F$	$\eta^2_{partial}$
Argumentation	- 0.021	1	122	0.04	.000
Sharing	0.097	1	122	0.72	.006
Reflection	0.144	1	122	1.00	.008
Learner's needs	0.287	1	122	10.33 **	.078
Meaning-making	- 0.077	1	122	0.36	.003
Native language <sup>a</sup>	- 0.355	1	122	6.75 **	.052
Age group <sup>c</sup>	0,162	1	122	2.40	.056
Dependent variable: bridging social capital ( $R^2 = .361$ , Adjusted $R^2 = .299$ )					
Argumentation	0.013	1	122	0.01	.000
Sharing	0.078	1	122	0.51	.004
Reflection	0.212	1	122	2.37	.019
Learner's needs	0.203	1	122	5.60 *	.044
Meaning-making	- 0.075	1	122	0.36	.003
Native language <sup>a</sup>	- 0.401	1	122	11.41 ***	.086
Age group <sup>c</sup>	0.142	1	122	1.42	.034

<sup>a</sup> Dutch not as a native language as reference category <sup>c</sup> 45 to 55-year-old adults as reference category

\*  $p<.05$ , \*\*  $p<.01$ , \*\*\*  $p<.001$  level

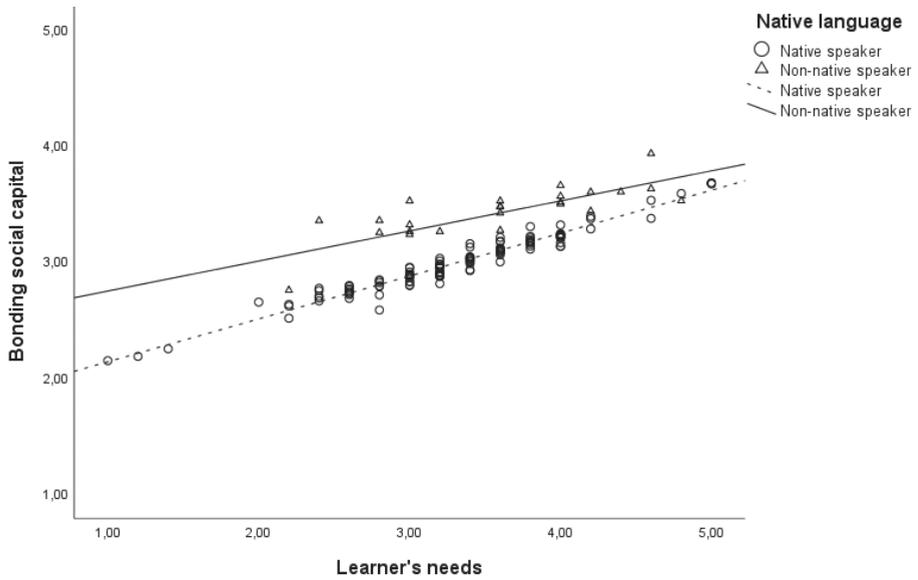


Figure 5: The significant main effects of learner's needs and native language for bonding social capital

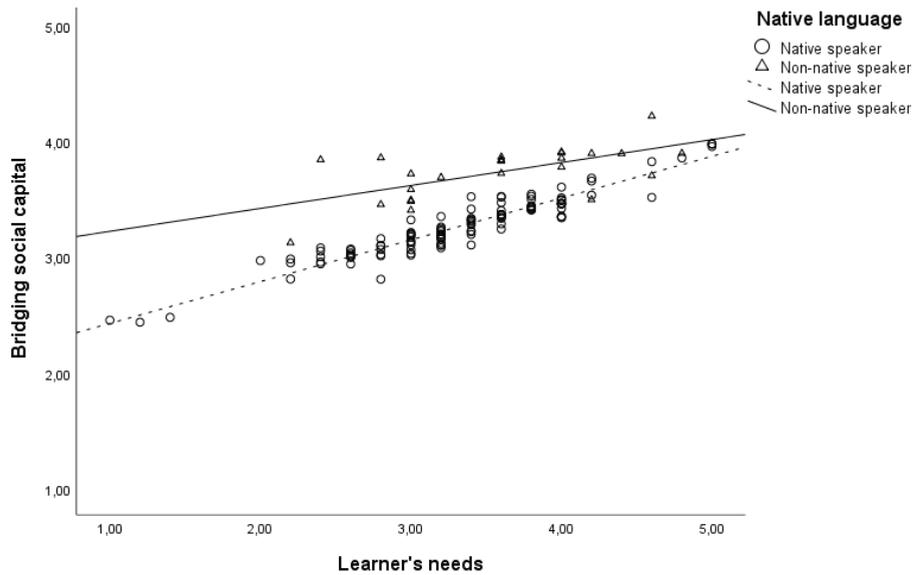


Figure 6: The significant main effects of learner's needs and native language for bridging social capital

## Discussion

The current study examined the social contribution of SCAP in blended learning for adults. The SCAP were hypothesized to have a positive relationship with social participation, social connectedness and social capital. This was assumed due to the possibilities for social and collaborative learning experiences on the one hand, and because of the potential for learner-centeredness on the other hand. However, the findings pointed out that the SCAP are not significantly related to social participation and social connectedness while controlling for socio-demographic variables. In fact, striking differences between native and non-native speakers were found for social participation and social connectedness. The results did show a positive relationship between meeting learner's personal needs and adults' social capital.

### *The ambiguous relationship between SCAP and social participation depending on adults' native language (RQ1)*

Unexpectedly, the results showed that the SCAP are not significantly related with social participation, while controlling for the effect of socio-demographic variables. However, the relationship between three types of SCAP (namely sharing, learner's needs, and meaning-making) and social participation is different for native speakers in comparison to non-native speakers. First of all, sharing information is positively related to non-native speakers' social participation, but negatively related to the social participation of native-speaking adults. In other words, non-native speakers participate more in social activities when they get more opportunities to share with others in the (online) classroom. One might infer that not only cognitive knowledge is shared among fellow learners, but also information regarding worthwhile activities and non-course-related or personal matters (Lohr & Haley, 2018; Prins, Toso, & Schafft, 2009). Adults who do not speak the regional language as mother tongue could benefit from such information, because it might be lacking in their close network (Granovetter, 1983). Nevertheless, sharing information does not seem to be as crucial for native speakers. The latter group could already possess an expanded network from which they receive similar, non-course-related, information. Secondly, the more the learner's needs of native speakers are met and the more meaning-making activities they report, the higher their perceptions of social participation are. Hence, these findings in the subgroup of native speakers indicate that learner's needs and meaning-making could be positively related to adults' social participation. In contrast, for

non-native speakers, the results revealed that meeting learner's needs and meaning-making activities are negatively related to adults' social participation. To summarize, depending on learner's native language, the role of SCAP with respect to adults' social participation is ambiguous.

Furthermore, a significant difference in social participation was found between male and female participants: men perceived a higher amount of social participation compared to women. Our finding is in line with Huang and Yang's study (2013), who reported that men participate more in social activities in comparison with women. This can be caused by the 'supporting role consciousness' of women, which means that women tend to care for and support others in the home environment (Matsui, 2010).

*Social connectedness is not influenced by SCAP, while  
controlling for native language (RQ2)*

While controlling for native language, none of the SCAP contributed significantly to social connectedness. In fact, native language revealed substantial differences in social connectedness between native and non-native speakers. These findings suggest that an individual characteristic, namely native language, outweighs the contribution of the learning environment, in this case SCAP, for social connectedness. This is in congruence with the finding that individual variables, such as personality traits and attitudes, have an impact on adults' social connectedness (Grieve & Kemp, 2015). In the current sample, native language seems to be the strongest predictor of social connectedness. Non-native speakers perceived higher social connectedness than native speakers. This can be explained by the idea that people in a vulnerable position, such as adults who do not speak the regional language as mother tongue, perceive a greater urge to feel more connected to society (Manninen et al., 2014).

*The importance of meeting learner's needs for adults'  
social capital (RQ3)*

The current findings identified that only one type of SCAP, namely meeting learner's needs, is positively related to adults' social capital. In addition, a significant difference between native and non-native speakers was also found for social capital. Non-native speakers perceive higher amounts of social capital in comparison with native participants. However, a similar positive relationship between

meeting learner's needs and social capital has been found for both groups. This means that the more learner's needs are met, the more social capital is perceived by all respondents.

A learning environment which takes into account personal needs points to an individualized and andragogical approach (Klašnja-Milićević, Vesin, Ivanović, & Budimac, 2011). The results suggest that such learner-centeredness is closely related to individual's empowerment by expanding their bonding and bridging social capital. This positive relationship may be explained by the affordances of blended learning. The online component provides opportunities for individualized learning at adults' own space, time and pace (Jarvis, 2010) and according to their diverse needs and backgrounds (Rogers-Shaw et al., 2018). When adults' needs are discussed explicitly and addressed through an online personalized approach, adult learners gain ownership of their learning process and become more confident self-directed learners (Chen, 2011; Kim, Olfman, Ryan, & Eryilmaz, 2014). Besides online individualized learning, face-to-face sessions ensure that the adult learners do not feel isolated and are able to connect with their peers. Hence, online as well as face-to-face components might be beneficial for adults' social capital development. It is our assumption that the attained ownership, confidence and self-direction by acknowledging learners' needs might be transferred to adults' personal life. As a consequence, they can take control over their own life and feel more confident to enlarge their social capital. This could definitely be the case for adults who do not speak the regional language as mother tongue.

Contrary to expectations, this study did not find an unambiguous significant contribution of other types of SCAP for social inclusion or social capital. In particular, dimensions such as 'sharing' and 'argumentation' were believed to strengthen social outcomes of all learners because of the possibilities for high-quality interaction and collaboration (Diep et al., 2017). According to Anders (2015), constructivist social learning experiences in an online environment would stimulate the development of relationships and networks. Despite positive correlations, the results of this study cannot confirm this assumption. In addition, 'reflection' and 'meaning-making' could be more associated with individual cognitive activities. This might explain why these two dimensions are not directly linked to social outcomes. Similarly, Diep et al. (2017) found no significant relationship between a cognitive variable (i.e. learning performance) and social variables (i.e. bonding and bridging social capital). In other words, based on the findings of this study, meeting learner's needs seems to be the strongest factor in explaining social capital.

### *Implications*

A practical implication of the current findings is the importance of recognizing the individual and cultural background of the adult learners. In order to promote social outcomes, native language seems to play an important role. Hence, instructors should become and stay aware of their learners' native language. Depending on adult learners' native language, instructional approaches might have a differential effect with respect to social participation. The results of this study suggest that it is beneficial for non-native speakers' social participation to provide opportunities for sharing knowledge, as well as personal or social matters. Teachers could stimulate the distribution of information for example by offering possibilities to make connections between the subject matter and relevant out-of-school activities or events. Furthermore, the social participation of native speakers would benefit from a learner-centred and authentic approach.

Regardless of native language, the current results indicate that meeting the personal needs of individual learners is valuable for their social capital development. This implies that instructors should build their lesson plan in social negotiation and based on adults' needs, interests and goals, because the goals of the learner should be central in the learning process (Knowles et al., 2005). During the course, teachers should facilitate ownership over the learning process in a gradual way. Hence, it is advised to scaffold the amount of control step by step, depending on the preferences of the adult learners. In doing so, instructors should make optimal use of the affordances of online learning in order to achieve personalized and individualized learning trajectories.

Theoretically, this implies an area of tension between andragogy and social-constructivism. The results of this study suggest that tailoring to the personal needs of the individual adult learner is beneficial for their social capital. This seems to be partly in contrast with social-constructivism, which *inter alia* stresses the importance of the social environment for interaction and collaboration (Schunk, 2012). In other words, a friction between a focus on the individual and its collaborative learning environment is observed. Hence, researchers and practitioners should strive towards finding a balance between individualized and collaborative learning. In specific, it is a challenge to blend individual and group learning throughout face-to-face and online learning.

Finally, social inclusion was conceptualized as social participation and social connectedness. However, our correlation analysis revealed that the concepts were barely associated. This might indicate that those two concepts do not truly seem to be referring to a similar concept. As a consequence, it is recommended to revive the theoretical discussion on the meaning of social inclusion. In con-

gruence with the broad operationalization of social exclusion (Van Regenmortel, 2017), it is valuable to include different dimensions to describe the process of social inclusion, such as digital participation or housing circumstances.

### *Limitations and recommendations for future research*

Due to the holistic perspective of this study, no distinction between face-to-face and online SCAP was made. The blended learning experience as a whole was believed to contribute to social benefits. However, analytic intervention studies are recommended to distinguish between the role of face-to-face and online learning activities. For example, observations in the physical and online classroom could be conducted, complemented by log-files from the online learning platform. Furthermore, the socio-demographic variable 'native language' could be a proxy for other variables, such as social isolation or cultural values. Hence, future large-scale or in-depth research is recommended, taking into account such individual characteristics of adult learners. In addition, the findings indicate that an individual characteristic (i.e. native language) is at least equally or more important than features of the learning environment in explaining social inclusion and social capital. Future research which includes additional learning environment characteristics is recommended to grasp their possible influence on social outcomes. Therefore, the recommendation of Dörnyei (2009) to conduct more research into the dynamic relationship between the individual, its (online) environment and the role of language in learning processes can be supported. Finally, the administered questionnaire was based on self-reports of the adult learners. To avoid bias, it is recommended to include other ways of measuring the variables under examination. For example, social participation can also be mapped by the participant by means of a diary which keeps close track of their social activities. To provide more insight, future studies could differentiate between domestic, in-house activities on the one hand, and formal, out-of-house social activities on the other hand.

### **Conclusion**

This study examined the social contribution of social-constructivist and andragogical principles for adults in blended learning. Unexpectedly, the results revealed limited relationships between the principles and the social outcomes, while controlling for socio-demographic variables. One significant finding indicated

that the more adult learners perceive that their personal needs are addressed, the more social capital development they report. A second major finding identified differences between native and non-native speakers for social participation, social connectedness and social capital. Taken together, these results give indications to adopt a learner-centred and individualized approach to stimulate social inclusion and social capital. However, it is recommended to conduct more research into the potential contribution of (online) collaborative learning activities to social outcomes of adult learners. This will lead us to combine individualized and collaborative learning effectively, while making optimal use of the conveniences of online learning complemented by the unique features of face-to-face learning.

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## Doprinos socijalno-konstruktivističkih i andragoških principa u kombinovanom učenju socijalnoj inkluziji i društvenom kapitalu odraslih

**Apstrakt:** Promena paradigme od instruktivizma ka konstruktivizmu i evolucija od pedagogije ka andragogiji uobličile su obrazovna okruženja koja karakteriše samousmereno učenje vođeno novim tehnologijama. Ranije studije su uspele da ustanove koliki je značaj (onlajn) konstruktivističkih i andragoških strategija za postizanje suštinskog znanja. Međutim, mnogo manje se zna o društvenom doprinosu socijalno-konstruktivističkih i andragoških principa (SKAP) socijalnoj inkluziji i društvenom kapitalu. Osvrnuvši se na taj propust, sproveli smo anketnu studiju na uzorku odraslih koji pohađaju kurseve na kojima se primenjuje metodologija kombinovanog učenja (N = 139). Jedan od glavnih zaključaka je da je ispunjavanje ličnih potreba učenika u pozitivnoj korelaciji sa njihovim društvenim kapitalom. Uz to, pronašli smo značajne razlike u stepenu socijalne inkluzije i društvenog kapitala zasnovane na maternjem jeziku učenika. Stoga se, na osnovu tih rezultata, predlaže individualizovani pristup prilagođen učeniku, sa ciljem unapređenja socijalne inkluzije i društvenog kapitala.

**Ključne reči:** konstruktivizam, andragogija, socijalna inkluzija, društveni kapital, kombinovano učenje.

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