



Examining the role of learning support in blended learning for adults' social inclusion and social capital



Céline Cocquyt*, Chang Zhu, Anh Nguyet Diep, Maurice De Greef, Tom Vanwing

Vrije Universiteit Brussel, Department of Educational Sciences, Pleinlaan 2, 1050 Brussels, Belgium

ARTICLE INFO

Keywords:

Adult learning
Interactive learning environments
Blended learning
Learning support
Social capital

ABSTRACT

In a digitalized society blended learning has become a favorable approach in adult education. Blended learning is showing promise as a teaching approach because of the variety of learning opportunities that can be created. Furthermore, participation in adult education can contribute to social benefits for adults, of whom a certain amount is at risk of social exclusion. However, scholars have not yet fully uncovered the educational factors in a blended learning environment that contribute to these social benefits. The present study, therefore, examines whether and how various types of learning support in blended courses are related to adults' social inclusion and social capital. A questionnaire (N = 139) measured adults' perceptions of diverse types of learning support, social inclusion and social capital. The results revealed that instructional support consists of two factors, namely informational support and process guidance. Informational support is negatively related to social participation, whereas process guidance positively determines social participation. In addition, transfer and peer support are positively associated with social connectedness and social capital. The results advance empirical knowledge by establishing that instructors should offer several types of support and facilitate peer support throughout blended learning in order to achieve positive changes in adults' social inclusion and social capital.

1. Introduction

Due to the digitalization of society, teaching approaches such as blended learning, described as the combination of online and face-to-face instruction (Graham, 2004), have become more prevalent as instructional strategies. Adult education has followed suit as the implementation of blended learning is becoming increasingly common in the practices. Consequently, the rising number of adults following blended courses is becoming 'the new normal' (Norberg, Dziuban, & Moskal, 2011). Blended learning appears to be a promising teaching approach. In the first place, previous research showed that blended learning facilitates more effective and successful learning compared to fully online or face-to-face courses (Means, Toyama, Murphy, & Baki, 2013; Vella, Turesky, & Hebert, 2016). Furthermore, participation in blended learning is positively related to social outcomes, such as adults' social inclusion and social capital (Cocquyt et al., 2017). In this paper, we adopt the definitions of social participation and social capital that have been elaborated in Cocquyt et al. (2017). Accordingly, social inclusion is defined as the combination of social participation and social connectedness, whereas social capital refers to the resources that arise from people's social networks. However, few studies have tried to scrutinize which instructional elements in blended learning environments are beneficial for adults' social outcomes in terms of

* Corresponding author.

E-mail addresses: Celine.Cocquyt@vub.be (C. Cocquyt), chang.zhu@vub.be (C. Zhu), diep.anh.nguyet@vub.be (A.N. Diep), info@arteduc.nl (M. De Greef), tvwing@vub.be (T. Vanwing).

<https://doi.org/10.1016/j.compedu.2019.103610>

Received 22 March 2018; Received in revised form 15 June 2019; Accepted 17 June 2019

Available online 27 June 2019

0360-1315/ © 2019 Elsevier Ltd. All rights reserved.

social inclusion and social capital.

To date less is known about which supportive elements in blended environments could contribute to *social outcomes of adult learners*. A recent review by [Ruber, Rees, and Schmidt-Hertha \(2018\)](#) on 13 empirical studies acknowledges that the mechanism through which civic engagement is fostered, viewed as part of social participation, is not strongly confirmed. In other words, the theoretical foundation to ensure confidence in establishing the relationships between adult education participation and social participation has not been fully realized. Another recent study did scrutinize that active learner engagement in MOOCs leads to social capital development ([Joksimović et al., 2018](#)). However, privileged people (i.e. high-educated and employed learners) participate in MOOCs predominantly, and underprivileged people (i.e. adults with limited financial resources or connections with the cultural and social dominant milieus) perceive more barriers towards MOOCs ([van de Oudeweetering & Agirdag, 2018](#)). In this respect, blended learning courses, which imply less barriers compared to MOOCs, could be a strong vehicle for adults' self-development and empowerment due to the combination of online and face-to-face support.

Interaction is the building stone of all learning ([Vygotsky, 1979](#)), and is also crucial in advancing online learning experiences of the highest quality ([Anderson, 2008](#)). In blended learning, interaction can take place face-to-face or online, which is considered as a strength of this educational approach ([Fryer & Bovee, 2018; Johnson, 2017](#)). While engaged in blended learning, adults interact with their instructor, fellow learners and the learning content ([Moore, 1989](#)), either face-to-face or online. During those interactions, adults receive different types of learning support from various sources. Support arises from learner-instructor interaction and learner-learner interaction and support might be necessary to achieve meaningful (online) learner-content interaction among others. In blended learning, interaction at a higher cognitive level is more likely to be achieved with interactive technologies and well thought-out instructional strategies, e.g. scaffolding or instructor's facilitation ([Laurillard, 2012; Mebane, Porcelli, Iannone, Attanasio, & Francescato, 2008](#)).

When interactions reach high levels of cognition and affect, a strong network and community of learners is established, which is the proxy through which social capital ([Bourdieu, 1986; Coleman, 1988](#)) and social inclusion ([Ruber et al., 2018](#)) can be enhanced. The further elaboration of how interactions in a blended learning course can be related to changes in social inclusion and social capital, therefore, contributes to the growing body of literature in this field and implications for adult education practices. For this aim, a comprehensive theoretical framework of learning support was developed based on the three most important types of interaction ([Moore, 1989](#)). The framework consists of support from the instructor (instructional support and transfer support), peer support and technical support (see [Fig. 1](#)). Before the learning support framework is introduced (cf. section 2.3), the concepts of social inclusion and social capital are discussed in relation to theories on adult education (cf. section 2.1). After the theoretical constructs have been defined and operationalized, the relationships between the four dimensions of learning support and social inclusion and social capital are scrutinized.

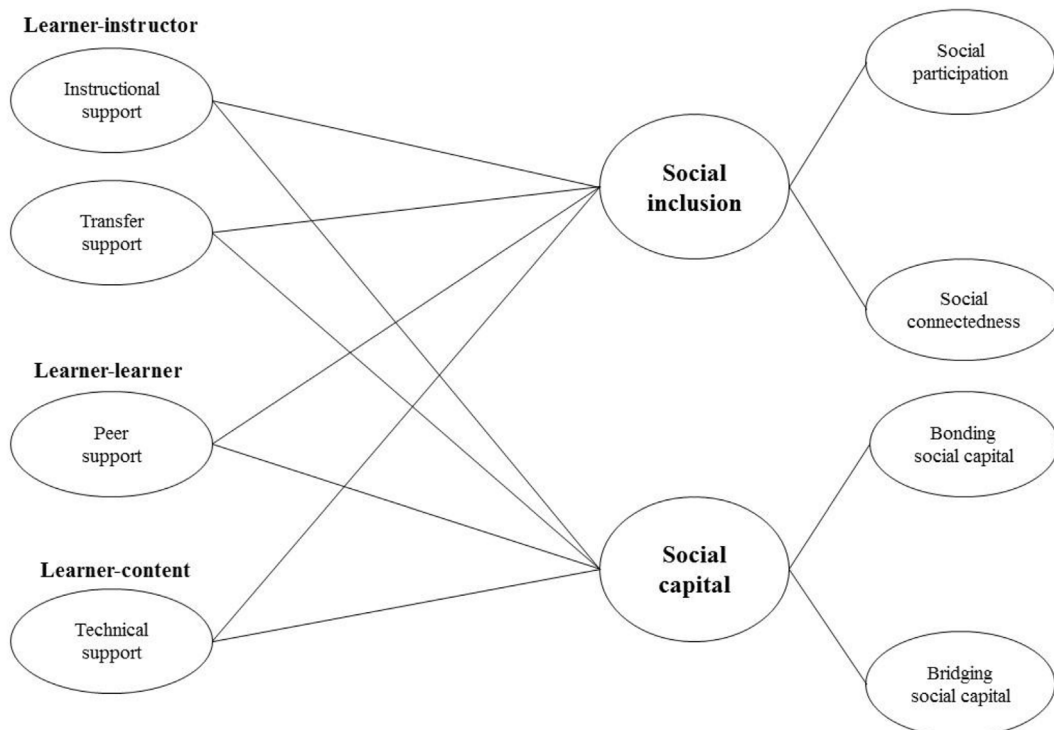


Fig. 1. The conceptual framework of learning support for social inclusion and social capital.

2. Theoretical background

2.1. The contribution of adult learning and education for social inclusion and social capital

Adult learning and education (ALE) is part of the lifelong learning continuum, ranging from pre-nursery to post-retirement learning (Brine, 2006). Broadly speaking, ALE may refer to “all learning activities started after the end of compulsory education” (Boeren, 2009, p. 155), or “an entire range of formal, non-formal and informal learning activities - both general and vocational - undertaken by adults after leaving initial education and training” (European Commission, 2011, p. 1). ALE has three functions: (1) economic progress and development, (2) personal development and fulfilment, and (3) social inclusiveness and democratic activity (Aspin & Chapman, 2000). These three functions are in line with the benefits of learning, which are (1) human capital, (2) identity capital, and (3) social capital (Schuller, 2004). Derived from these categorizations, the main functions and outcomes of ALE can be classified in the economic, personal and social-democratic domain. However, according to Biesta (2006), the main driver of ALE became economic and personal advancement at the expense of the social-democratic function. Hence, it is important to bring the social justice agenda of ALE, which aims at democracy, empowerment and emancipation, back to the foreground.

Freire is a seminal scholar who described adult education as such a process of emancipation. Through action and reflection, adults should become active participants in the world to free themselves from the dominant culture (Freire, 2005). It is the role of the teacher to help people understand the relationship between them and their socio-cultural environment. Because of this focus, Jarvis (2004) argued that Freire's work is an implicit example of a social theory of adult learning. Beside Freire, Knowles also instigated a model on adult learning, commonly referred to as andragogy (Knowles, Holton, & Swanson, 2005). According to Knowles et al. (2005), core principles of adult learning processes should be: (1) adults' need to know, (2) adults as self-directed and responsible learners, (3) adults' rich life experiences, (4) adults' readiness to learn, (5) adults' life-centered orientation to learning, and (6) adults' motivation to learn. While the andragogical model was mainly aimed at the self-actualization of individual adult learners, it also acknowledged that it could bring about social change (Knowles et al., 2005). To sum up, leading authors such as Freire and Knowles postulated that ALE has an important role to play when striving towards emancipation and social change. It is in the interaction between an individual and the environment that learning can take place and social change can be achieved. Hence, the relationship between ALE and social-democratic outcomes – whether under the form of social change, empowerment, social inclusion or social capital – has always been at stake and deserves continuous research attention, especially in times of rapid societal evolutions that may result in alienation. In this study, the social benefits of ALE are mapped through the lenses of social inclusion (cf. 2.1.1) and social capital (cf. 2.1.2).

Adult learners are defined in the context of this study as mature-aged learners (+18) who are engaged in formal continuing education provided by specific centers for adult education. This group includes adults who take up second-chance education to achieve their secondary degree, as well as adults who want to broaden their (professional) competences or aim to learn a new vocation. Students attending traditional tertiary education such as university students, are therefore not within the scope of this study.

2.1.1. ALE and social inclusion, operationalized by social participation and social connectedness

In the context of adult education, social inclusion is conceptualized as consisting of social participation and social connectedness (Cocquyt et al., 2017). Social participation refers to the behavioral dimension of social inclusion, whereas social connectedness expresses the affective dimension (Cocquyt et al., 2017). Social participation is defined as “the extent to which a subject takes part in different social networks and other activities in society” (Ekström, Ivanoff, & Elmstahl, 2013, p. 459). Next to this, social connectedness reflects the “subjective awareness” (Lee & Robbins, 2000, p. 484) or “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).

Empirical studies showed that participation in adult education courses is related to increased social inclusion (De Greef et al., 2014; Manninen et al., 2014). With regard to social participation, adults perceived that their social activity improved after joining courses of adult education (Tett & Maclachlan, 2007). Panitsides (2013) further reported that adults feel that they are a member of a community after their educational participation. Moreover, engaging in family literacy programs fulfills the need for affiliation and connectedness of disadvantaged women (Prins, Toso, & Schafft, 2009). These findings refer to an enhanced feeling of social connectedness. Hence, participation in ALE has the potential to increase both dimensions of social inclusion: social participation and social connectedness.

2.1.2. ALE and social capital

In the present study, an individual-structural approach to social capital is employed. According to Bourdieu and Wacquant (1992), social capital is “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). However, the nature of those relationships might differ. That is why the distinction between bonding and bridging social capital has been made (Putnam, 2000). On the one hand, bonding social capital refers to strong relationships within a homogeneous group, such as with family or close friends. On the other hand, bridging social capital specifies relationships among individuals with heterogeneous backgrounds. In other words, bonding social capital is described as strong ties and bridging social capital as weak ties (Granovetter, 1983). Those weak ties are of special interest because it makes possible to broaden one's horizon, to retrieve information which is not available in people's close network, or to get access to new resources.

Social capital and ALE have a reciprocal relationship. Field (2005, p. 110) postulates that “Social capital is important for learning,

and learning is important for social capital". With regard to bonding social capital, Tett and Maclachlan (2007) found that adults get help from their friends more readily. Furthermore, bridging social capital develops during the participation in adult education: adults build new friendships (Panitsides, 2013), meet more people and are involved in more social networks (Manninen et al., 2014). Next to developing more social capital, ALE is supportive of the recovery of diminished social capital (McIntyre, 2012). As a consequence, it seems that ALE is beneficial for the development or recovery of bonding and bridging social capital.

In addition to the social benefits of ALE, researchers equally remark the downsides of participating in an adult educational program. This means that next to developing the wider social networks, i.e. bridging social capital, adult learners' bonding ties like kinship and close acquaintances may be disrupted (Field, 2012). For instance, Schuller, Brassett-Grundy, Green, Hammond, and Preston (2002) found that higher self-esteem and professional status obtained, thanks to adult education, can help or motivate one to reconstruct their current relationships. However, participating in adult education program also entails less time and energy for families (Schuller et al., 2002). This can result in stress and vulnerability to mental health because it is usually these bonding ties that provide support or share an intimate issue in difficult times (Field, 2012). Previous research by Feinstein, Hammond, Woods, Preston and Bynner (2003) also found that taking a high number of adult education courses can have even a negative return on social and political attitudes. Thus, "in order to maximize the benefits and minimize the risks, adequate support must be available" (Feinstein et al., 2003, p.77). It is noticed by Ruber et al. (2018) that most studies on the relationship between ALE and civic return or social participation do not point to the specific elements of learners' characteristics and the program or learning communities that may be related to these claimed social benefits. In response to Feinstein et al. (2003) and Ruber et al. (2018), this study investigates how different types of support generated through the different types of interactions in a blended learning environment are related to adult learners' social inclusion and social capital.

2.2. ALE and blended learning

2.2.1. Blended learning

Blended learning combines face-to-face and online instruction (Graham, 2004). It builds on the conveniences of online learning, without losing face-to-face contact. According to Norberg et al. (2011), blended learning refers to blending spaces as well as time, enabled by technology. This means that classroom and distance learning are integrated (space), and synchronous meetings are alternated with asynchronous learning activities (time) by means of technology. Technology can be employed in diverse ways throughout blended learning (Bates, 2015). In a 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). Several studies showed the added value of blended learning (Means et al., 2013; Vella et al., 2016), for example in providing a strong sense of community (Rovai & Jordan, 2004). For adults, participation in blended learning seems positively related to their social connectedness and social capital (Cocquyt et al., 2017).

2.2.2. Blended learning and adult learning theories

Blended learning, which reduces the number of face-to-face lectures and makes learning more accessible, appears to fit into the needs of adult learners in terms of flexibility and time constraints. Moreover, blended learning pedagogy proves to suit adult learning principles and social constructivism (Anders, 2015). As to the former, blended learning offers "a middle path with respect to levels of course structure and autonomy" (Anders, 2015, p. 46). Regarding the latter, blended learning constructs "learning communities that offer highly social and dialogical learning experiences" (Anders, 2015, p. 46).

The contribution of andragogy to instructional design in adult education is evident, but is not without critique. For example, the postulation that adult learners are self-regulated has been largely debated. Some researchers like Grow (1994) maintain that self-regulation is a skill that should be built up and is contingent on the support of instructors during the course. Nevertheless, Knowles' principles of adult learning, mentioned in section 2.1, are more feasibly achieved in a technology-supported learning environment (Tenenbaum, Naidu, Jegede, & Austin, 2001). In this respect, blended learning, which combines the best of both worlds (Horton & Horton, 2003), i.e. face-to-face and online learning, offers the means to realize both andragogical and socio-constructivist principles. The latter complements andragogy in terms of the perspective through which knowledge construction at high cognitive level can be achieved. More specifically, with the support of interactive technologies, blended instructional design enhances the possibilities of individualized learning, collaborative learning, self-directed learning facilitation, authentic learning, learner-centered learning (i.e. adult learners have greater autonomy and full ownership of their study), and diverse learning and assessment activities (Ausburn, 2004; Tenenbaum et al., 2001). The most prominent feature of blended learning is to offer an individualized path to learning by which learners can control the pace at which they proceed with their learning, and through simulations learners can have more real-life cases relevant to their individual experiences. In this regard, the andragogical principles of self-directed learning, life-centered orientation, and intrinsic motivation to learn something personally relevant are strongly facilitated via the blended instructional design.

Next to andragogical principles that attempt to distinguish the learning of adults from traditional and younger students, researchers support the notion that the learning of adults should be transformative in nature (Jarvis, 2009; Mezirow, 2000; Ross-Gordon, 2003). Thanks to their prior accumulated knowledge and established perspectives, adult learners should engage in learning activities that offer opportunities to activate their reflection or "i.e. "activity in which people recapture their experience, think about it, mull it over and evaluate it" (Boud, Keogh, & Walker, 1985, p. 33). In this regard, the blended learning environment is deemed more effective than the traditional classrooms in facilitating transformative learning. This is realized by the employment of online

learning platforms that provide the archives of past discussions, asynchronous interactions, hence the importance of sufficient time devoted to thinking and responding to others' arguments, and the presence of instructors as discussion facilitators (Mebane et al., 2008). In addition, with the availability of log-files retrieved from the learning platform and the notifications of announcements, new posts, and deadlines, the learning process of adult learners is made more visible to themselves and to the instructors. Therefore, adult learners can effectively monitor their self-regulated learning and the instructors can provide prompt feedback or support when it is necessary.

It has been argued that blended learning, while becoming a “new normal” teaching approach in higher education (Norberg et al., 2011), is also an approach that efficiently responds to the complicated adults' life-circumstances and has the capacity to best embody adult learning theories. For this reason, blended learning has been promoted and increasingly implemented in a large number of adult education centers (AECs) by the Flemish government through financial incentives (Vlaams Ministerie van Onderwijs en Vorming & Onderwijsinspectie, 2012), which is the context of the present study. In the following paragraphs, we further elaborate upon the instructional design aspects of blended learning hypothesized to be related to adults' social inclusion and social capital.

2.3. Conceptualizing learning support in blended learning: employing an interaction-typology

The current study will scrutinize which design features in blended learning foster social benefits for adult learners. It is assumed that supportive interactions in blended learning are beneficial for those social outcomes. In order to examine the influence of learning support in blended learning on adults' social inclusion and social capital, a theoretical framework of learning support is developed. First, Moore's (1989) interaction-typology is briefly presented. Building on Moore's typology, the theoretical framework of learning support in blended learning is introduced, referring to instructional, transfer, peer and technical support.

2.3.1. Moore's typology on interaction

It is the strength of blended learning that online and offline possibilities for interaction are intertwined (Fryer & Bovee, 2018; Johnson, 2017). Interaction can take place between several actors. For that reason, Moore (1989) distinguished the three most common types of interaction in distance education: learner-content interaction, learner-instructor interaction and learner-learner interaction. First, learner-content interaction is the process in which learners interact and engage with the content, study subject or learning resources (Kuo & Belland, 2016; Moore, 1989). This kind of interaction is often a passive one-way communication (Moore, 1989), but the content has become more interactive throughout the development of online learning (Anderson & Dron, 2011). Next to this, learner-instructor interaction entails the communication between learners and instructor, through which the instructor aims to achieve the foreseen objectives and to motivate the learner (Moore, 1989). It consists of “guidance, encouragement, motivational and emotional support” (Kuo & Belland, 2016, p. 663). Furthermore, Moore (1989) explains the promising value of learner-learner interaction, which is described as the reciprocal and collaborative interchange among learners (Kuo & Belland, 2016). As for learner-instructor and learner-learner interaction, online learning makes it possible that these kinds of interactions take place easily by using a combination of asynchronous and synchronous communication tools (Anderson, 2008). The three aforementioned interaction modalities (learner-instructor, learner-learner and learner-content) are determining factors of a learner's performance and satisfaction in OBL (Kang & Im, 2013; Kuo & Belland, 2016; Kurucay & Inan, 2017; Wei, Peng, & Chou, 2015). Yet, the meta-analysis of Bernard et al. (2009) showed that learner-instructor interaction is less important compared with learner-content and learner-learner interaction regarding achievement. With respect to social outcomes, the quality of online learner-learner interaction was found to be positively related to social capital of adults in blended learning (Diep et al., 2017).

2.3.2. Developing the theoretical framework of learning support

Building on the three types of interaction (Moore, 1989) and their importance in OBL, learning support is operationalized by several dimensions. Learner-instructor interaction takes the form of instructional support and transfer support. Accordingly, peer support originates from learner-learner interaction. Finally, in a blended learning environment, students engage with the content partly through technology. In order to facilitate successful learner-content interaction, technical support is necessary.

2.3.2.1. Instructional support. Instructional support is a factor which is prominently studied in technology-supported learning environments (Chang et al., 2015). Instructional support refers to:

Instructional guidance to learning, which involves answering students' questions, correcting their misunderstandings, providing clear instruction, relevant resources, and constructive feedback on their assignments and performance. Moreover, instructional support includes dialogs and course structures to motivate and encourage students to learn and master course materials and achieve learning objectives. (Lee et al., 2011, p.159).

Mullen and Tallent-Runnels (2006) summarized instructional support as consisting of academic and affective support. Instructional support positively influences satisfaction with learning and online learning achievement (Kang & Im, 2013; Lee et al., 2011; Mullen & Tallent-Runnels, 2006). Furthermore, instructional support is beneficial for competencies in self-directed learning (Kim et al., 2014) and for developing higher-order thinking skills (Johnson, 2017). Support from the instructor is also a crucial factor in encouraging learners to persist during e-learning courses (Fryer & Bovee, 2018). In addition, instructional support enhances learning in game-based environments (Wouters & Van Oostendorp, 2013), and the ability to solve information-based problems (Brand-Gruwel & Gerjets, 2008). In other words, empirical research corroborates that instructional support is essential for cognitive and affective outcomes. This, in turn, can enhance adult learners' human capital (Schuller, Preston, Hammond, Brassett-Grundy, & Bynner, 2004) or competences and personal traits, e.g. self-concept, essential for increased social participation (Ruber et al., 2018).

2.3.2.2. Transfer support. Next to instructional support, the instructor can give transfer support. Nijman (2004) emphasized the crucial role of the supervisor in enabling transfer of training to the workplace. When translating this to an educational context, transfer support is regarded as the support an instructor gives to facilitate transfer from the classroom to a learner's daily life. Transfer support brings together the notions of instrumental transfer support, "helping in the planning of using the learned in daily life" (De Greef et al., 2012, p. 7) and informational transfer support, "advising how to use what has been learned in daily life" (De Greef et al., 2012, p. 7). De Greef et al. (2012) found that transfer possibilities bring about an increase in adults' social inclusion. However, this study was conducted in traditional courses, not making use of technology-supported learning environments. Regarding online learning, Choi and Park (2018) described that the instructor should involve family members of adult learners and their supervisors at work in order to overcome possible barriers. Hence, supporting the transfer from the classroom to adults' daily life seems important when adopting online learning environments for adults.

2.3.2.3. Peer support. Learner-learner interactions include peer support, collaboration, student cohesiveness, affiliation and relationships with fellow students (Chang et al., 2015). Hence, peer support originates from learner-learner interaction. Peer support refers to "peer-to-peer learning which involves students supporting each other on academic and non-academic issues" (Lee et al., 2011, p.159). This definition outlines peer support as consisting of academic and non-academic assistance. According to most studies, peer support is positively associated with learning outcomes such as satisfaction, performance and persistence (Ashwin, 2003; Chu & Chu, 2010; Du, Zhou, Xu, & Lei, 2016; Lee et al., 2011). For example, Aghaee and Keller (2016) found that online peer support is beneficial for the quality of university students' theses. Therefore, it is suggested that peer support is indispensable to ensure high-quality online learning. Next to academic gain, peer support among learners will enhance a sense of belonging, which is crucial to the establishment and expansion of social ties (Rovai, 2002). Through interaction with peers, adults' attitudes and values may be transformed that may enhance greater interest on social participation (Desjardins, 2017; Paterson, 2009).

2.3.2.4. Technical support. In order to get access to online learning materials, adult learners should be comfortable with the online technologies and be able to cope with technical problems (Song, Singleton, Hill, & Koh, 2004). Therefore, technical support is necessary to facilitate learner-content interaction in technology-supported learning environments (Johnson, 2017). Technical support is described as "assistance for any technical issue that students may face in the online and blended courses" (Lee et al., 2011, p.159). Derived from this definition, it is possible that technical support sprouts from various sources, for example from instructors, peers and the technical support staff or from the help function in the learning management system. Researchers claimed that technical support is essential to guarantee success in online or blended learning (Graham, 2004; Johnson, 2017). To show, technical support is positively correlated with learners' course satisfaction (Lee et al., 2011). In a more recent study, Joo, So, and Kim (2018) reported that the ease of use of MOOCs is important for learners' satisfaction and intention to continue the course. Therefore, technical support is relevant in order to reduce computer anxiety and to help close the digital divide among the learners. It is plausible to hypothesize that once the computer skills of adult learners are strengthened, they will be more motivated to use technologies to maintain established contacts or expanding new relationships with those sharing similar concerns on societal issues. For example, Min (2010) found that those who have high Internet skills participate more in political discussions.

3. Problem statement: examining the role of learning support in blended learning for adults' social inclusion and social capital

In online or blended courses, most studies examined how diverse types of learning support have an effect on cognitive or affective outcomes, such as performance and satisfaction (Aghaee & Keller, 2016; Johnson, 2017; Joo et al., 2018). This is closely linked to the increasing emphasis on economic and personal advancement ascribed to ALE (Aspin & Chapman, 2000; Biesta, 2006). Since this study aims to put the social-democratic function of ALE back on the foreground (e.g. Freire, 2005), the relationship between learning support and social outcomes (i.e. social inclusion and social capital) is closely examined. There are indications that support in non-educational contexts enhances social outcomes like social inclusion and social capital. Ekström et al. (2013) found that informal support from family and friends facilitates social participation of fractured elderly people. Furthermore, the use of social network sites such as Facebook brings about access to social, tangible, and emotional support (Li, Chen, & Popiel, 2015; Nolan, Hendricks, & Towell, 2015). Nolan et al. (2015) declared that access to support is a source of social capital. In other words, receiving support from various sources enriches social relationships, which gives access to more resources, which in turn facilitates the development of social capital. In formal educational contexts, few studies have touched upon the notion of support to examine social outcomes of learning processes. Joksimovic et al. (2018) did examine the influence of learner-related factors (i.e. language, discourse and activity) and pedagogical factors (i.e. adopted media and invested time) on social capital development in MOOCs. They reported that being actively engaged as a learner in MOOCs is beneficial for building relationships, and thus social capital (Joksimović et al., 2018).

The current study will advance the empirical knowledge on the pedagogical factors in blended courses that are related to social outcomes of adult learners through the lenses of interaction and learning support. Learning support is operationalized by instructional support, transfer support, peer support and technical support. Conducting this study in the context of blended learning takes into account that blended learning is 'the new normal' mode of delivery in education (Norberg et al., 2011) and provides a counterbalance against MOOCs, which mainly reach privileged learners (van de Oudeweetering & Agirdag, 2018). In other words, this study will complement the existing knowledge on benefits of adult learning by focusing on social outcomes instead of cognitive or psychological gains and by scrutinizing the role of learning support for these social outcomes in formal blended learning contexts. Consequently, this study will answer the following research questions:

How are support from the instructor (instructional support and transfer support), peer support, and technical support in blended courses related to adults' social inclusion, as measured by social participation?

How are support from the instructor (instructional support and transfer support), peer support, and technical support in blended courses related to adults' social inclusion, as measured by social connectedness?

How are support from the instructor (instructional support and transfer support), peer support, and technical support in blended courses related to adults' bonding and bridging social capital?

4. Methodology

4.1. Research context and procedure

The current study was conducted among six adult education centers (AECs) in the Dutch-speaking region of Belgium. The AECs organize formal adult education for diverse groups of adult learners. The courses vary from secondary adult education (ISCED level 2–4) to specific teacher training (ISCED level 6), which allows teaching in secondary education. As a prerequisite to participate in the study, learners needed to be enrolled in a program which involves blended learning courses. However, blended learning could be organized differently in the six AECs. Apart from the various blended learning arrangements (i.e. ranging from 25% to 75% of online learning), all blended learning activities were similar in the six AECs. Adult learners executed online learning activities through their center's learning management system. The online learning activities combined online collaborative work through wikis or discussion fora and individual assignments for example by following online learning paths.

The target participants of this study were adult learners involved in a formal blended learning course. Hence, AECs that offered blended courses were consulted to get acquainted with their pedagogical approach and to check their willingness to participate in this study. After having obtained a positive confirmation of the directors or program coordinators of the AECs ($n = 6$) the responsible instructors of the blended courses were contacted to distribute the questionnaire among the adult learners in their classes. The data collection process, hence, is based upon convenience sampling and the study followed a cross-sectional design.

If the instructors were willing, the questionnaire was filled in during their face-to-face lessons – whether on paper or electronically – under the supervision of the researchers. This allowed the researchers to explain the scope of the study in person and to notify the participants about the voluntary nature of their participation, the guaranteed anonymity and the fact that there were no right or wrong answers. Besides, the adult learners completed the questionnaire around the end of the school year, which allowed them to reflect upon their trajectory in the blended course.

4.2. Sample

A total of 139 adult learners completed the questionnaire for this study as part of our four-year research project, of which the main data collection took place in 2015. In the project, we collected data from both blended and online learners. Our initial descriptive analysis aimed to discern the differences in the perceived increase of social inclusion and social capital of adults in those two learning modes (Cocquyt et al., 2017). In this paper, the focus is on blended learners as there was a lack of profound interactions in the online mode. In the research context, the types of support obtained thorough interactions are only manifested in blended learning courses. In this regard, the paper has intensively based its theoretical foundation on adult education literature, blended learning, and online interaction to capture the relationships of different types of support and adults' social inclusion and social capital.

As for educational program, the majority (66.2%) was engaged in secondary adult education, among who 52.2% were enrolled in second chance education. The remaining participants were attending a specific teacher training program (33.8%). Next to this, Table 1 shows that the current sample mainly consists of women (60.4%), adults younger than 35 years old (61.2%), unmarried (71.9%) and employed adults (71.2%). The educational background of the sample is mixed, bringing together adults with a lower secondary degree (35.3%), higher secondary degree (21.6%) and higher education degree (41.7%). Almost 20% of the participants indicated that Dutch (i.e. the official regional language) is not their native language. Yet their level of Dutch was sufficient in order to be eligible to follow the courses.

4.3. Instruments

The administered questionnaire was built from previously validated instruments (Table 2). First of all, the participants filled in their background characteristics which contain gender, age, native language, as well as marital status, employment status, and the highest obtained educational degree complemented by the blended course which they followed. Secondly, adult learners indicated their perceptions of learning support throughout those blended courses. Two instruments have been utilized to operationalize the four types of learning support. The instrument developed by Lee et al. (2011) measured instructional, peer and technical support. Next to this, a part of the SIT-instrument (Social Inclusion after Transfer) of De Greef et al. (2010)/ce:cross-ref > is useful to assess the extent of transfer support. Finally, the perceived change in social inclusion and social capital emanating from engagement in blended courses was mapped. The subscale 'participation and connection' of the SIT-instrument (De Greef et al., 2010) is valuable to investigate social participation. In addition, the positive social connectedness instrument (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013; Lee, Draper, & Lee, 2001; Sinclair & Grieve, 2017) was used to measure change in social connectedness. Furthermore, Williams' scale (2006) for measuring social capital was utilized. In order to ensure content validity, theoretical experts and practitioners were consulted to evaluate the items and scales. If desirable, the instructions and/or wording of the items were adjusted

Table 1
Summary of the sociodemographic variables of the participants (N = 139).

Categories	%	N
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
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

to suit the specific context of adult learners in blended courses as good as possible. Based upon the panel of experts and practitioners, two items of the social connectedness scale were not included because they caused interpretation difficulties for the participants, as well as one item of the bonding social capital scale and three items belonging to the bridging social capital scale. By means of back-translation, all instruments were translated into Dutch. [Appendix A and B](#) provide a detailed list of all items.

4.4. Data analysis

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 begin, Confirmatory Factor Analysis (CFA) was performed in two phases.

First, as part of a bigger research project in which this study is embedded, the dependent variables (i.e. social participation, social connectedness and social capital) have been validated in Cocquyt et al. (2017). The factors demonstrated adequate fit indices and high reliability with social participation ($\alpha = 0.935$), social connectedness ($\alpha = 0.953$) and bonding ($\alpha = 0.929$) and bridging ($\alpha = 0.912$) social capital (Cocquyt et al., 2017). In the current sample, those dependent variables also show high internal consistency: social participation ($\alpha = 0.94$), social connectedness ($\alpha = 0.94$), bonding social capital ($\alpha = 0.89$) and bridging social capital ($\alpha = 0.87$). An additional correlation analysis on the current sample shows that social participation and social connectedness are not significantly correlated with each other at all ($r = 0.10$, $p > .05$). Hence, it is difficult to continue considering them as two factors pertaining to the same theoretical construct of social inclusion. As a result, social participation and social connectedness will be treated like separate variables in consecutive analyses. Bonding and bridging social capital are positively correlated with each other on a significant level, $r = 0.76$, $p < .001$. Consequently, those two variables remain regarded as two dimensions of social capital.

Subsequently, for the purpose of the current study, additional CFA was conducted in order to validate the independent variables of learning support, followed by reliability analyses to check the internal consistency of items of the same construct. Furthermore, correlation analyses followed by univariate and multivariate analyses of covariance (ANCOVA and MANCOVA) were performed using SPSS 25.0. The assumptions for conducting ANCOVA were followed (Field, 2009). The independence of the covariate and the group effect was confirmed and all regression slopes were homogenous. When a significant effect on the multivariate level was found, results of the univariate analyses were reported (Field, 2009). In addition, background variables might influence the dependent variables. Therefore, relevant categorical variables were included in the analyses of covariance to control for their effect.

Table 2
Instruments for measuring learning support, social participation, social connectedness and social capital.

Variable	Source	Number of items	Scale	Exemplary items
Learning support				
Instructional support	Lee, Srinivasan, Trail, Lewis, & Lopez (2011)	10	1: completely disagree 5: completely agree	The instructor responds to my questions in a timely manner.
Peer support		5		Students in this course are willing to provide help to other students.
Technical support		4		I felt that I could get technical support when I needed
Transfer support	De Greef et al. (2010)	4	1: completely disagree 5: completely agree	I discussed with the teacher how to use my skills and knowledge in my day to day living.
Social inclusion				
Social participation	De Greef et al. (2010)	8	1: this activity has significantly decreased 5: this activity has significantly increased	Taking part in sportive activities with others
Social connectedness	Lee et al. (2001); Grieteve et al. (2013)	8	1: completely disagree 5: completely agree	Due to following this course, I am able to relate to my peers.
Social capital				
Bonding social capital	Williams (2006)	9	1: completely disagree 5: completely agree	Due to following this course, there is someone I can turn to for advice about making very important decisions.
Bridging social capital	Williams (2006)	7	1: completely disagree 5: completely agree	Due to following this course, I have new people to talk to.

Table 3
Results of Confirmatory Factor Analysis for learning support (N = 135).

Variable	CFI	RMSEA	SRMR
Learning support (original model ^a)	0.778	0.108 (0.097–0.119)	0.094
Learning support (adjusted model ^b)	0.897	0.082 (0.069–0.095)	0.073

^a The original model consisting of four factors: instructional, transfer, peer and technical support.

^b The adjusted model consisting of five factors: informational, process guidance, transfer, peer, and technical support.

5. Results

5.1. Measurement validation of the learning support scales

According to the results of the CFA, the original model, including instructional, transfer, peer and technical support, does not show good fit (Table 3). The reversed items of the peer and technical support scale are removed due to poor factor loadings (Maruyama, 1998). Besides, three items (INS1, INS2, and INS4) load rather low, below 0.50, on the instructional support scale. After careful examination, it seems that the scale of instructional support could reveal a two-factor solution. Items one to five form a separate factor. Content-wise this factor refers to getting clear information about and during the course, which we define as informational support. In addition, items six to ten give shape to the second factor. It reflects the guidance and encouragement which the instructor offers. Therefore, we attribute the following name to the second factor: process guidance. Once the reversed items are removed and instructional support is presented as two separate factors, the model shows an acceptable fit (Table 3). The Comparative Fit Index (CFI) is close to 0.9, which is acceptable (Iacobucci, 2010). For the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) values lower than 0.08 are preferred (MacCallum, Browne, & Sugawara, 1996). Based on the CFA results, learning support consists of five factors: 1) informational support, 2) process guidance, 3) transfer support, 4) peer support and 5) technical support. The factor loadings of all items are presented in Appendix A. After establishing discriminant validity of the factors through CFA, reliability analysis is conducted on the five factors of learning support. The results show that all of them demonstrate adequate internal consistency with Cronbach's alpha ranging from .77 to .89 (Appendix A).

5.2. The correlations between learning support, social participation, social connectedness and social capital

As the results of the CFA revealed that learning support consists of five factors, all successive analyses will include 1) informational support, 2) process guidance, 3) transfer support, 4) peer support and 5) technical support as dimensions of learning support. Table 4 shows that transfer and peer support are positively correlated with social connectedness, respectively $r = .36$, $r = .28$. In addition, transfer and peer support are positively correlated to bonding ($r = .42$, $r = .34$) as well as bridging social capital ($r = .35$, $r = .32$), illustrating medium effects sizes (Field, 2009). Technical support also has a positive correlation with social connectedness ($r = .18$) and both dimensions of social capital ($r = .17$, $r = .20$). Furthermore, the results reveal that informational support is negatively associated with social participation ($r = -.22$). All the latter correlations show small effects (Field, 2009). Process guidance is not significantly correlated with any dependent variable.

5.3. The role of learning support for social participation and social connectedness

First, the analysis of covariance between learning support and social participation, controlling for relevant socio-demographic variables, is reported upon. Table 5 shows that informational support is negatively related to social participation ($F(1, 128) = 13.66$, $p < .001$), but process guidance is positively related ($F(1, 128) = 7.35$, $p < .01$) to social participation. Table 5 also demonstrates that gender is a predictor of social participation ($F(1, 128) = 5.55$, $p < .05$). Male participants perceived higher social participation compared to females. However, the total explained variance of social participation is low.

If we now turn to social connectedness, the second analysis of covariance reveals that transfer support ($F(1, 128) = 13.29$, $p < .001$), and peer support ($F(1, 128) = 8.17$, $p < .01$) are positively related to social connectedness (Table 5). In addition, native language is a significant predictor of social connectedness ($F(1, 128) = 12.32$, $p < .01$). Adults who do not speak the regional language as mother tongue experienced higher social connectedness compared to native speakers. These variables explain 25% of the variance in social connectedness in our sample.

5.4. The relationships between learning support and social capital

On the multivariate level, using Wilks' Lambda, transfer support ($\lambda = 0.86$, $F(2, 127) = 9.84$, $p < .001$) and peer support ($\lambda = 0.90$, $F(2, 127) = 7.02$, $p < .001$) are significantly related to social capital. Furthermore, native language is a significant multivariate predictor of social capital, Wilks' Lambda ($\lambda = 0.93$, $F(2, 127) = 4.46$, $p < .05$), other socio-demographic variables are not. Table 6 provides detailed univariate results about these multivariate effects. Transfer and peer support are positively and significantly related to both dimensions of social capital (Table 6). Table 6 also illustrates that native language is a significant predictor of bonding and bridging social capital. Non-native speakers perceived significantly more social capital compared to native

Table 4
Correlation analysis between learning support, social participation, social connectedness and social capital.

	Social participation (M = 2.61, SD = .706)	Social connectedness (M = 3.23, SD = .667)	Bonding social capital (M = 3.06, SD = .627)	Bridging social capital (M = 3.35, SD = .611)
Informational support (M = 4.17, SD = .562)	-.22 ^a	-.06	-.01	-.06
Process guidance (M = 4.22, SD = .643)	.03	.04	.09	.06
Transfer support (M = 3.45, SD = .682)	-.02	.36 ^c	.42 ^c	.35 ^c
Peer support (M = 3.86, SD = .591)	-.11	.28 ^b	.34 ^c	.32 ^c
Technical support (M = 3.57, SD = .756)	-.02	.18 ^a	.17 ^a	.20 ^b

^a Correlation is significant at .05 level.

^b Correlation is significant at .01 level.

^c Correlation is significant at .001 level (two-tailed).

Table 5
Results of univariate analyses on social participation and social connectedness.

	<i>B</i>	<i>Df</i> model	<i>Df</i> error	<i>F</i>	η^2_{partial}
Dependent variable: social participation ($R^2 = .143$, Adjusted $R^2 = .103$)					
Informational support	- 0.508	1	128	13.66 ***	.096
Process guidance	0.342	1	128	7.35 **	.054
Transfer support	- 0.012	1	128	0.02	.000
Peer support	- 0.134	1	128	1.31	.010
Technical support	0.047	1	128	0.30	.002
Gender ^a	0.279	1	128	5.55 *	.042
Dependent variable: social connectedness ($R^2 = .287$, Adjusted $R^2 = .253$)					
Informational support	- 0.102	1	128	0.66	.005
Process guidance	- 0.158	1	128	2.11	.016
Transfer support	0.322	1	128	13.29 ***	.094
Peer support	0.288	1	128	8.17 **	.060
Technical support	0.006	1	128	0.01	.000
Native language ^b	- 0.483	1	128	12.32 **	.088

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

^a Female as reference category.

^b Dutch not as a native language as reference category.

Table 6
Results of univariate analyses on bonding and bridging social capital.

	<i>B</i>	<i>Df</i> model	<i>Df</i> error	<i>F</i>	η^2_{partial}
Dependent variable: bonding social capital ($R^2 = .303$, Adjusted $R^2 = .270$)					
Informational support	- 0.096	1	128	0.68	.005
Process guidance	- 0.137	1	128	1.83	.014
Transfer support	0.364	1	128	19.67 ***	.133
Peer support	0.323	1	128	11.88 ***	.085
Technical support	- 0.045	1	128	0.41	.003
Native language ^a	- 0.328	1	128	6.54 *	.049
Dependent variable: bridging social capital ($R^2 = .281$, Adjusted $R^2 = .247$)					
Informational support	- 0.162	1	128	1.97	.015
Process guidance	- 0.101	1	128	1.01	.008
Transfer support	0.268	1	128	10.87 ***	.078
Peer support	0.319	1	128	11.84 ***	.085
Technical support	0.011	1	128	0.03	.000
Native language ^a	- 0.365	1	128	8.31 **	.061

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

^a Dutch not as a native language as reference category.

Table 7
Summary of the influence of learning support on social participation, social connectedness and social capital.

	Social capital			
	Social participation	Social connectedness	Bonding social capital	Bridging social capital
Learner-instructor				
Informational support	-	n.s.	n.s.	n.s.
Process guidance	+	n.s.	n.s.	n.s.
Transfer support	n.s.	+	+	+
Learner-learner				
Peer support	n.s.	+	+	+
Learner-content				
Technical support	n.s.	n.s.	n.s.	n.s.

n.s. = not significant.

speaking adults. This model explains 27% of the variance in bonding social capital, and 24.7% in bridging social capital. A summary of the relationships between learning support and the dependent variables is presented in Table 7.

6. Discussion

6.1. New factorial structure of instructional support: informational support and process guidance

The measurement validation of the learning support scales confirmed that transfer, peer and technical support are separate factors. However, the factor analysis revealed that instructional support contains a two-factor solution, consisting of informational support and process guidance. When retrospectively the original instructional support scale proposed by Lee et al., 2011, their study was conducted in another context, being a fully online undergraduate course, compared to the current one, namely blended courses for adult learners. The contexts therefore differ in two ways: the design of the e-learning environment (fully online versus blended) and the target group (undergraduate students aged 16 to 22 versus adult learners). Based on these differences, both target groups might perceive instructional support differently. Moreover, Lee et al. (2011) did not report factor analyses on their data, solely reliability measures. In their study, Cronbach's alpha for instructional support was high, $\alpha = 0.957$. That might be caused by the large number of items in the original scale ($n = 10$) and does not guarantee unidimensionality of the scale (Field, 2009). In fact, the definitions presented in the current literature review highlighted that instructor and peer support consist of academic and non-academic support (Lee et al., 2011; Mullen & Tallent-Runnels, 2006). Nijman (2004) also distinguished various forms of supervisor support, namely instrumental, informational, appraisal and emotional support. Therefore, it seems that the instructor is expected to deliver several types of support. This is corroborated by the ever changing and demanding role of the teacher in the 21st century (Wheeler, 2001), ranging from instructional designer to facilitator of (online) learning processes.

6.2. The influence of learning support on social participation, social connectedness and social capital

The summary of the results (Table 7) visualized that social participation is influenced by informational support and process guidance. In addition, transfer and peer support have a significant relationship with social connectedness and both types of social capital. Because of the fact that social connectedness and social capital are influenced by the same predictors, those results will be discussed together (6.2.2). First, the findings concerning social participation are reviewed.

6.2.1. Informational support and process guidance influence social participation (RQ1)

First of all, the correlation analyses illustrated that process guidance has no significant correlation with any dependent variable. However, the results of univariate analysis of covariance revealed that process guidance is positively related to social participation. In other words, process guidance does not have a significant zero-order correlation with social participation, but does significantly influence social participation positively while controlling for other variables. According to Kline (2011) this might be caused by a suppression effect. In our case, classical suppression is observed: "Where one predictor is uncorrelated with the criterion but receives a nonzero beta weight controlling for another predictor. This ... demonstrates that bivariate correlations of zero can mask true predictive relations once other variables are controlled." (Kline, 2011, p. 27).

Building on studies which revealed that support from the instructor is important for the development of higher order thinking and persistence in online courses (Fryer & Bovee, 2018; Johnson, 2017), the current results showed that the two factors of instructional support have an ambiguous relationship with social participation. To show, informational support negatively influences social participation, whereas process guidance has a positive relationship with social participation. Taking a closer look at informational support, those items reflect a teacher-driven approach. The instructor initiates and controls transferring the information to learners in a well-structured learning environment. On the contrary, the items measuring process guidance demonstrate a more open, self-directed learning environment, in which the student starts the communication with the instructor. Porcaro (2011) connected the first to the instructivist learning theory and the latter to constructivism. Instructivist e-learning environments enable knowledge construction because of pre-determined and well-structured materials (Ke & Xie, 2009). Besides, adult learners experienced high satisfaction with constructivist e-learning environments. Ke and Xie (2009) attributed this to a strong sense of community, ample opportunities for interaction and collaborative learning. Due to a constructivist, supportive, interactive, and self-directive learning environment, social outcomes such as a sense of community (Ke & Xie, 2009) and enhanced social participation (as shown in the present study) can be achieved. In contrast, an over-emphasis of instructor-led interaction and communication (i.e., informational support) might diminish other opportunities to socially connect and participate, for example with peers. This leads us to suggest that informational support is negatively related to social participation due to teacher's directive presence, but process guidance is positively related to social participation as a consequence of the instructor who facilitates open, supportive and interactive learning processes. In addition, gender is the only significant socio-demographic predictor of social participation. Female adult learners perceived more diminished social participation compared to male students. This contradicts the finding of Manninen et al. (2014), who found that women experienced more social engagement than men.

6.2.2. The positive role of transfer support and peer support for social connectedness and social capital (RQ2 and RQ3)

The results of the analyses indicated that transfer and peer support influence social connectedness and social capital positively. As Nolan et al. (2015) suggested: support from various sources increases social capital. To this, our study adds that support from peers and transfer support from the instructor enhance an adult learner's social connectedness. Peer support was already found to improve

learning outcomes of e-learning, such as satisfaction, performance and persistence (Aghaei & Keller, 2016; Chu & Chu, 2010; Du et al., 2016; Lee et al., 2011). In addition, the current results pointed out that peer support is essential in fostering social connectedness and social capital in blended adult learning. Concerning online learning, Choi and Park (2018) suggested that family members and supervisors of adult learners should be involved in and informed about the learning process to reduce dropout. A previous study by De Greef et al. (2012) acknowledged the importance of transfer possibilities to increase social inclusion, but not in technology-supported learning environments. So, our study contributed that transfer support in blended learning is a significant factor in improving social connectedness and social capital of adults. Hence, transfer and peer support are both positively related to social connectedness and social capital. This finding can be explored through the lens of (socio-)constructivism. In accordance with instructor's process guidance, transfer and peer support point to a socio-constructivist learning environment in which learning through interaction and authenticity are key (Porcaro, 2011). The more teachers facilitate transfer between the classroom and an adult learner's daily life, for example through authentic and relevant tasks, the more adults will feel encouraged socially, and thus perceive more social benefits. In addition, with increasing (online) interaction and support among peers, their social network can expand and feelings of connectedness will build up (Joksimović et al., 2018). Contrary to findings regarding the positive relationship between technical support and learning outcomes (Lee et al., 2011), the current results showed no influence of technical support on social inclusion or social capital. This leads us to believe that technical support is of importance to bring about successful learning outcomes in blended learning (Johnson, 2017; Joo et al., 2018), but does not contribute directly to generating social benefits.

Furthermore, native language is significantly related to social connectedness and social capital. Other socio-demographic factors were not found to be influencing these dependent variables. According to the current results, non-natives (i.e. adult learners who do not speak the regional language, Dutch, as their native language) perceived more social benefits compared to native speakers with regard to social connectedness, bonding and bridging social capital. This is inconsistent with the finding from Ke and Kwak (2013), who concluded that minority learners have more negative experiences with technology-enhanced learning. Though, the current finding endorses the premise that vulnerable learners, such as non-natives, feel a greater urge towards personal and social development (Panitsides, 2013).

6.3. Limitations and future directions

The theoretical framework of learning support was developed based on the three foremost types of interactions (Moore, 1989). The framework focused on the origin of support, i.e. from the instructor and fellow learners, and on accomplishing successful interaction with the (online) learning content. Although instructional support was complemented with transfer support from the instructor, the theoretical framework did not completely take into account the various ways in which instructors or peers can give support. Since the results of the CFA revealed that instructional support is not a unidimensional concept, support can have many different faces (e.g. Nijman, 2004). Therefore, it is suggested that future studies look into the different types of support an instructor and peers give to adults in blended learning environments. In this sense, future studies could examine which forms of support coming from various sources are beneficial for learning and social outcomes. In addition, the current study did not distinguish between online and offline support from the instructor or peers because blended learning was considered as a holistic experience. Hence, future studies could discern the role of online and offline support separately. Subsequently, the utilized instruments to measure learning support, social participation, social connectedness, and social capital rely on perceptions of adult learners. Future research could employ other data collection techniques to map these concepts. We suggest adopting learning analytics or social network analysis to grasp (online) interactions and support systems. In addition, observations in the online or offline classroom might give scholars more in-depth information about authentic interactions and the support which arises from it. These approaches could increase ecological validity of studies as well. Furthermore, the total explained variance for the outcome of social participation was rather low. Therefore, future studies could explore other (pedagogical) factors which might influence participation in social activities. In addition, social participation and social connectedness did not seem to refer coherently to the theoretical construct of social inclusion. Hence, in the future, academics could reflect upon the operationalization of social inclusion and comprehensive ways of measuring it, be it quantitatively or qualitatively. Last but not least, the fact that the study employs a cross-sectional design and convenience sampling means that generalization of the findings across the adult population is not recommended. We hope that future research can make use of the present findings presented to fine-tune their theoretical framework and conduct the study on a larger scale, with adequate sampling technique, e.g. random or stratified sampling depending on the research context, to validate the results and further advance knowledge in the intersectional field of blended learning, adult education, social inclusion, and social capital.

6.4. Implications

First of all, this study indicates that there is a need to further develop a comprehensive theoretical framework of learning support for adults in blended learning environments. This framework should take into account the specific context of blended learning environments, in which online and offline support provided by several actors (i.e. instructor and peers) are intertwined and reflect different functions (e.g., academic, emotional, instrumental, informational or transfer support). Theoretically, the results of the current study imply that constructivist and instructivist learning philosophies are ought to be brought together (Porcaro, 2011). For the adult education practice this means that the role of the instructor is vital in facilitating learning support. Instructors are expected to give various kinds of support, depending on the needs of the adult learners, and also to enable possibilities for peer support, formally or informally. In the specific case of blended learning, instructors would have to make this happen online as well as in the physical classroom. This changing role of the teacher creates additional demands, especially in blended learning: instructors should

be able to promote (online) support among peers, be available (online) when necessary, guide personalized learning processes, and bring about transfer to adults' life-world. So, a suggestion to accomplish social benefits is to foresee opportunities for peer interaction and peer support on academic and non-academic issues. This could take place in formal online learning environments, but also informally, making use of social network sites such as Facebook. Furthermore, derived from the added value of transfer support for social outcomes, it seems that authenticity and relevance in blended learning are key elements. Specifically, it is suggested to develop learning environments that include authentic contexts, authentic assignments that are embedded in real-life situations, followed by authentic assessments. In other words, building bridges between the (online) classroom and adults' lifeworld by means of authentic elements is believed to be a step towards enhanced social outcomes. In striving towards social inclusion and developing social capital, individual characteristics, such as native language, still need to be acknowledged next to the learning environment. This implies that adult educators should get to know their learners properly, and adjust the support they give to an adult learner's needs and background.

7. Conclusion

In response to the perpetual societal issue of social exclusion, the current study examined educational factors in blended learning that are related to social benefits for adults like social participation, social connectedness and social capital. Active engagement in online courses leads to the development of social capital (Joksimović et al., 2018). Moreover, numerous studies found that support from the instructor (e.g., Fryer & Bovee, 2018), peer support (e.g., Aghaee & Keller, 2016) and technical support (e.g., Joo et al., 2018) are important for academic gains in online or blended learning. Building on these findings, the present study advances the scientific literature by scrutinizing the role of learning support in blended courses for social benefits. A theoretical framework of learning support was developed based on the three most important types of interaction: learner-content, learner-instructor and learner-learner (Moore, 1989). As a result, instructional support, transfer support from the instructor, peer support and technical support were included as variables to predict adults' social participation, social connectedness and social capital. A first contribution of this study is that instructional support consists of two factors, namely informational support and process guidance. This implies that support should not be regarded as a unidimensional construct, but as referring to multiple and various types of support. Furthermore, the results revealed that support from the instructor influences the perceived social outcomes of adult learners in different ways. On the one hand, *informational* support diminishes the extent to which adults participate in social activities. On the other hand, *process guidance* affects social participation positively and *transfer* support coming from the instructor enhances social connectedness and social capital. This study also showed that *peer* support is beneficial for social connectedness and social capital development. In contrast, technical support does not have a significant relationship with the social outcomes. These findings are not completely in line with the meta-analysis of Bernard et al. (2009), who stated that learner-instructor interaction is less important for academic achievement in comparison with learner-learner and learner-content interaction. Based on the results of the current study, it seems that both learner-instructor interaction (i.e. process guidance and transfer support) and learner-learner interaction (peer support) contribute positively to adults' social participation, social connectedness and social capital. These types of support reflect a constructivist approach to learning and education. Therefore, it is recommended to facilitate support in blended courses from a constructivist perspective in order to foster social benefits for adult learners.

Conflicts of interest

None.

Acknowledgements

We would like to thank all instructors and learners from the six adult education centers. We are grateful for their participation and engagement in this study. This research is funded by the Vrije Universiteit Brussel (SRP28) within the Strategic Research Program (SRP) framework.

Appendix A. Items and factor loadings (CFA) of learning support variables

Items	Informational support ($\alpha = .84$)	Process guidance ($\alpha = .89$)	Transfer support ($\alpha = .79$)	Peer support ($\alpha = .77$)	Technical support ($\alpha = .85$)
The course goals or objectives were clearly outlined	.709				
I knew what I was expected to accomplish each week	.731				
The instructor provided clear instructions for assignments and quizzes	.798				
The course provided resources relevant to this course	.697				
The feedback on the assignments was helpful	.671				
I felt that I could ask any questions regarding the course materials to the instructor		.831			
There were appropriate ways of communicating with the instructor		.846			

I felt that the instructor was easily accessible	.867	
The instructor encouraged me to be successful in this course	.670	
The instructor responded to my questions in a timely manner	.805	
I enjoyed the group discussions		.685
There were many opportunities to interact with peers		.824
I felt that I was respected by other students		.523
Students in this course were willing to provide help to other students		.586
I knew where to ask for help when I had any technical issues		.644
Technical support responded to my issues in a timely manner		.943
I felt that I could get technical support when I needed		.875
During the course, my teacher assisted me with study planning to fit in with my day to day living	.667	
During the course, my teacher gave me the practical assistance I needed to successfully complete the course	.712	
I discussed with the teacher how to use my skills and knowledge in my day to day living	.561	
I discussed with the teacher the opportunities and difficulties of using my new skills and knowledge	.573	

Appendix B. Items of the dependent variables social inclusion and social capital

1. Social participation (De Greef et al., 2010).

Since I have started to follow this course, I feel like the following social activities have ...

1: decreased significantly, 2: decreased, 3: neither decreased, nor increased, 4: increased, 5: increased significantly.

- Visiting family and relatives
- Visiting friends and acquaintances
- Taking part in local activities and events in my neighborhood
- Taking part in artistic activities with others (making music, performing, dancing, ...)
- Taking part in cultural activities (going to the theatre, movies, museums, ...)
- Taking part in sportive activities with others
- Organizing activities in my neighborhood or for an association I am involved in
- Spending time with others, for example in a pub or restaurant

2. Social connectedness (Grieve et al., 2013; Lee et al., 2001).

By following this course, ...(1: completely disagree – 5: completely agree).

- I feel comfortable in the presence of strangers
- I am in tune with the world
- I fit in well in new situations
- I feel close to people
- I see people as friendly and approachable
- I feel understood by the people I know
- I am able to relate to my peers
- I am able to connect with other people

3. Bonding social capital (Williams, 2006).

By following this course, ...(1: completely disagree – 5: completely agree).

- There are several people I trust to help solve my problems.
- There is someone I can turn to for advice about making very important decisions.
- There is someone that I feel comfortable talking to about intimate personal problems.
- There are several people I can talk to, when I feel lonely.
- I know someone I can turn to, if I needed financial support.
- There are several people who would put their reputation on the line for me.
- There are several people who would be good job references for me.
- I know people well enough to get them to do anything important.
- There are several people who would help me fight an injustice.

4. Bridging social capital (Williams, 2006).

By following this course, ...(1: completely disagree – 5: completely agree).

- I am interested in things that happen outside of my town.
- I want to try new things.
- I am interested in what people unlike me are thinking.
- I am curious about other places in the world.
- I feel like part of a larger community.
- I am willing to spend time to support general community activities.
- I have new people to talk to.

References

- Aghae, N., & Keller, C. (2016). ICT-supported peer interaction among learners in Bachelor's and Master's thesis courses. *Computers & Education*, 94, 276–297. <http://doi.org/10.1016/j.compedu.2015.11.006>.
- Anders, A. (2015). Theories and applications of massive online open courses (MOOCs): The case for hybrid design. *The International Review of Research in Open and Distributed Learning*, 16(6).
- Anderson, T. (2008). Towards a theory of online learning. In T. Anderson (Ed.), *Theory and practice of online learning* (pp. 45–74). Athabasca University: AU Press.
- Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *International Review of Research in Open and Distributed Learning*, 12(3), 80–97. <http://doi.org/10.19173/IRRODL.V12I3.890>.
- Ashwin, P. (2003). Peer support: relations between the context, process and outcomes for the students who are supported. *Instructional Science*, 31(3), 159–173. <http://doi.org/10.1023/A:1023227532029>.
- Aspin, D. N., & Chapman, J. D. (2000). Lifelong learning: Concepts and conceptions. *International Journal of Lifelong Education*, 19(1), 2–19. <http://doi.org/10.1080/026013700293421>.
- Ausburn, L. J. (2004). Course design elements most valued by adult learners in blended online education environments: An American perspective. *Educational Media International*, 41(4), 327–337.
- Bates, A. (2015). *Teaching in the digital age: Guidelines for designing teaching and learning*. <http://doi.org/10.4018/978-1-930708-28-0.ch004>.
- Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, C. A., Tamim, R. M., Surkes, M. A., et al. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research*, 79(3), 1243–1289. <http://doi.org/10.3102/0034654309333844>.
- Biesta, G. (2006). What's the point of lifelong learning if lifelong learning has no point? On the democratic deficit of policies for lifelong learning. *European Educational Research Journal*, 5(3–4), 169–180. <http://doi.org/10.2304/eej.2006.5.3.169>.
- Boeren, E. (2009). Adult education participation: The Matthew principle. *Filosofija Sociologija*, 20(2), 154–161.
- Boud, D., Keogh, R., & Walker, D. (1985). *Reflection: Turning learning into experience*. London: Kogan Page.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York: Greenwood.
- Bourdieu, P., & Wacquant, L. (1992). *An invitation to reflexive sociology*. Chicago: University of Chicago Press.
- Brand-Gruwel, S., & Gerjets, P. (2008). Instructional support for enhancing students' information problem solving ability. *Computers in Human Behavior*, 24(3), 615–622. <http://doi.org/10.1016/j.chb.2007.01.020>.
- Brine, J. (2006). Lifelong learning and the knowledge economy: Those that know and those that do not - the discourse of the European Union. *British Educational Research Journal*, 32(5), 649–665. <http://doi.org/10.1080/01411920600895676>.
- Chang, H. Y., Wang, C. Y., Lee, M. H., Wu, H. K., Liang, J. C., Lee, S. W. Y., et al. (2015). A review of features of technology-supported learning environments based on participants' perceptions. *Computers in Human Behavior*, 53, 223–237. <http://doi.org/10.1016/j.chb.2015.06.042>.
- Choi, H. J., & Park, J. H. (2018). Testing a path-analytic model of adult dropout in online degree programs. *Computers & Education*, 116, 130–138. <http://doi.org/10.1016/j.compedu.2017.09.005>.
- Chu, R. J., & Chu, A. Z. (2010). Multi-level analysis of peer support, Internet self-efficacy and e-learning outcomes – the contextual effects of collectivism and group potency. *Computers & Education*, 55(1), 145–154. <http://doi.org/10.1016/j.compedu.2009.12.011>.
- Cocquyt, C., Diep, N. A., Zhu, C., De Greef, M., & Vanwing, T. (2017). Examining social inclusion and social capital among adult learners in blended and online learning environments. *European Journal for Research on the Education and Learning of Adults*, 8(1), 77–101. <http://doi.org/10.3384/rela.2000-7426.rela9111>.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120.
- De Greef, M., Segers, M., & Verté, D. (2010). Development of the SIT, an instrument to evaluate the transfer effects of adult education programs for social inclusion. *Studies in Educational Evaluation*, 36(1–2), 42–61. <http://doi.org/10.1016/j.stueduc.2010.06.001>.
- De Greef, M., Segers, M., & Verté, D. (2012). Understanding the effects of training programs for vulnerable adults on social inclusion as part of continuing education. *Studies in Continuing Education*, 1–24. iFirst article <http://doi.org/10.1080/0158037X.2012.664126>.
- De Greef, M., Verté, D., & Segers, M. (2014). Differential outcomes of adult education on adult learners' increase in social inclusion. *Studies in Continuing Education*, 1–17. iFirst article <http://doi.org/10.1080/0158037X.2014.967346>.
- Desjardins, R. (2017). *Political economy of adult learning systems: Comparative study of strategies, policies and constraints*. Bloomsbury Publishing.
- Diep, N. A., Cocquyt, C., Zhu, C., Vanwing, T., & De Greef, M. (2017). Effects of core self-evaluation and online interaction quality on adults' learning performance and bonding and bridging social capital. *The Internet and Higher Education*, 34, 41–55. <http://doi.org/10.1016/j.iheduc.2017.05.002>.
- Du, J., Zhou, M., Xu, J., & Lei, S. S. (2016). African American female students in online collaborative learning activities: The role of identity, emotion, and peer support. *Computers in Human Behavior*, 63, 948–958. <http://doi.org/10.1016/j.chb.2016.06.021>.
- Ekström, H., Ivanoff, S. D., & Elmstahl, S. (2013). Does informal support influence social participation of fractured elderly people? *Archives of Gerontology and Geriatrics*, 56, 457–465. <http://doi.org/10.1016/j.archger.2012.11.010>.
- European Commission. (2011). *Council resolution on a renewed agenda for adult learning*. Official journal of the European Union. Retrieved on March 1, 2019 from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011G1220\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011G1220(01)&from=EN).
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.
- Feinstein, L., Hammond, C., Woods, L., Preston, J., & Bynner, J. (2003). *The contribution of adult learning to health and social capital [wider benefits of learning research report No. 8]*.
- Field, J. (2005). *Social capital and lifelong learning*. Bristol: The Policy Press, University of Bristol.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: SAGE.
- Field, J. (2012). Is lifelong learning making a difference? Research-based evidence on the impact of adult learning. In Aspin, D., Chapman, & Bagnall (Eds.). *Second international handbook of lifelong learning* (pp. 887–897). Dordrecht: Springer.
- Freire, P. (2005). *Pedagogy of the oppressed*. New York/London: Continuum. <http://doi.org/10.1016/B978-1-4160-4389-8.50161-8>.
- Fryer, L. K., & Bovee, H. N. (2018). Staying motivated to e-learn: Person- and variable-centred perspectives on the longitudinal risks and support. *Computers & Education*. <http://doi.org/10.1016/j.compedu.2018.01.006>.
- Graham, C. R. (2004). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk, & C. R. Graham (Eds.). *Handbook of blended learning: Global perspectives, local designs*. San Francisco, CA: Pfeiffer Publishing.
- Granovetter, M. (1983). The strength of weak ties, a network theory revisited. *Sociological Theory*, 1, 201–233.

- Grieve, R., Indian, M., Witteveen, K., Tolan, A., & Marrington, J. (2013). Face-to-face or Facebook: Can social connectedness be derived online? *Computers in Human Behavior*, 29(3), 604–609. <http://doi.org/10.1016/j.chb.2012.11.017>.
- Grow, G. (1994). In defense of the staged self-directed learning model. *Adult Education Quarterly*, 44(2), 109–114.
- Horton, W., & Horton, K. (2003). *E-Learning tools and technologies: A consumer's guide for trainers, teachers, educators, and instructional designers*. John Wiley & Sons.
- Iacobucci, D. (2010). Structural equations modeling: Fit indices, sample size, and advance topics. *Journal of Consumer Psychology*, 20, 90–98.
- Jarvis, P. (2004). *Adult education and lifelong learning: Theory and practice* (3rd ed.). London & New York: Routledge.
- Jarvis, P. (Ed.). (2009). *The Routledge international handbook of lifelong learning*. Routledge.
- Johnson, C. S. (2017). Collaborative technologies, higher order thinking and self-sufficient learning: A case study of adult learners. *Research in Learning Technology*, 25, 1–17.
- Joksimović, S., Dowell, N., Poquet, O., Kovanović, V., Gašević, D., Dawson, S., et al. (2018). Exploring development of social capital in a CMOOC through language and discourse. *Internet and Higher Education*, 36, 54–64. <http://doi.org/10.1016/j.iheduc.2017.09.004>.
- Joo, Y. J., So, H. J., & Kim, N. H. (2018). Examination of relationships among students' self-determination, technology acceptance, satisfaction, and continuance intention to use K-MOOCs. *Computers & Education* <http://doi.org/10.1016/j.compedu.2018.01.003>.
- Kang, M., & Im, T. (2013). Factors of learner – instructor interaction which predict perceived learning outcomes in online learning environment. *Journal of Computer Assisted Learning*, 29, 292–301. <http://doi.org/10.1111/jcal.12005>.
- Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Computers & Education*, 61, 43–51. <http://doi.org/10.1016/j.compedu.2012.09.003>.
- Ke, F., & Xie, K. (2009). Toward deep learning for adult students in online courses. *Internet and Higher Education*, 12, 136–145. <http://doi.org/10.1016/j.iheduc.2009.08.001>.
- Kim, R., Olman, L., Ryan, T., & Eryilmaz, E. (2014). Leveraging a personalized system to improve self-directed learning in online educational environments. *Computers & Education*, 70, 150–160. <http://doi.org/10.1016/j.compedu.2013.08.006>.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling*. Guilford publications.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). Elsevier.
- Kuo, Y.-C., & Belland, B. R. (2016). An exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Educational Technology Research & Development*, 64(4), 661–680. <http://doi.org/10.1007/s11423-016-9442-9>.
- Kurucay, M., & Inan, F. A. (2017). Examining the effects of learner-learner interactions on satisfaction and learning in an online undergraduate course. *Computers & Education*, 115, 20–37. <http://doi.org/10.1016/j.compedu.2017.06.010>.
- Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology*. Routledge.
- Lee, R. M., Dean, B. L., & Jung, K.-R. (2008). Social connectedness, extraversion, and subjective well-being: Testing a mediation model. *Personality and Individual Differences*, 45(5), 414–419. <http://doi.org/10.1016/j.paid.2008.05.017>.
- Lee, R. M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology*, 48(3), 310–318. <http://doi.org/10.1037/0022-0167.48.3.310>.
- Lee, R. M., & Robbins, S. B. (2000). Understanding social connectedness in college women and men. *Journal of Counseling and Development*, 78, 484–491.
- Lee, S. J., Srinivasan, S., Trail, T., Lewis, D., & Lopez, S. (2011). Examining the relationship among student perception of support, course satisfaction, and learning outcomes in online learning. *Internet and Higher Education*, 14(3), 158–163. <http://doi.org/10.1016/j.iheduc.2011.04.001>.
- Li, X., Chen, W., & Popiel, P. (2015). What happens on Facebook stays on Facebook? The implications of Facebook interaction for perceived, receiving, and giving social support. *Computers in Human Behavior*, 51, 106–113. <http://doi.org/10.1016/j.chb.2015.04.066>.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130–149.
- Manninen, J., Sgier, I., Fleige, M., Thöne-geyer, B., Kil, M., Možina, E., et al. (2014). *Benefits of lifelong learning in Europe: Main results of the BeLL- project - research report* (Bonn).
- Maruyama, G. (1998). *Basics of structural equation modeling*. Thousand Oaks, CA: Sage.
- McIntyre, J. (2012). The development and recovery of social capital through community-based adult learning. *International Journal of Lifelong Education*, 31(5), 607–621. <http://doi.org/10.1080/02601370.2012.693955>.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, 115(30303), 1–47.
- Mebane, M., Porcelli, R., Iannone, A., Attanasio, C., & Francescato, D. (2008). Evaluation of the efficacy of affective education online training in promoting academic and professional learning and social capital. *Intl. Journal of Human-Computer Interaction*, 24(1), 68–86.
- Mezirow, J. (2000). Learning as transformation: Critical perspectives on a theory in progress. *The Jossey-Bass higher and adult education series*. San Francisco: Jossey-Bass.
- Min, S. J. (2010). From the digital divide to the democratic divide: Internet skills, political interest, and the second-level digital divide in political internet use. *Journal of Information Technology & Politics*, 7(1), 22–35.
- Moore, M. G. (1989). Editorial: Three types of interaction. *American Journal of Distance Education*, 3(2), 1–7. <http://doi.org/10.1080/0892364890526659>.
- Mullen, G. E., & Tallent-Runnels, M. K. (2006). Student outcomes and perceptions of instructors' demands and support in online and traditional classrooms. *Internet and Higher Education*, 9(4), 257–266. <http://doi.org/10.1016/j.iheduc.2006.08.005>.
- Nijman, D.-J. J. M. (2004). *Supporting transfer of training: Effects of the supervisor*. Enschede: University of Twente.
- Nolan, S., Hendricks, J., & Towell, A. (2015). Social networking sites (SNS); exploring their uses and associated value for adolescent mothers in Western Australia in terms of social support provision and building social capital. *Midwifery*, 31(9), 912–919. <http://doi.org/10.1016/j.midw.2015.05.002>.
- Norberg, A., Dziuban, C. D., & Moskal, P. D. (2011). A time-based blended learning model. *On the Horizon*, 19(3), 207–216. <http://doi.org/10.1108/10748121111163913>.
- Vlaams Ministerie van Onderwijs en Vorming/Onderwijsinspectie. (2012). *Onderwijsspiegel 2012: Jaarlijks rapport van de Onderwijsinspectie*. (No. D/2012/3241/040). Brussel: Vlaamse onderwijsinspectie. Retrieved on February 1, 2019 from <http://ebl.vlaanderen.be/publications/documents/33565>.
- van de Oudeweetering, K., & Agirdag, O. (2018). MOOCs as accelerators of social mobility? A systematic review. *Educational Technology & Society*, 21(1), 1–11. <http://doi.org/10.2307/26273863>.
- Panitsides, E. (2013). Researching returns emanating from participation in adult education courses: A quantitative approach. *International Journal of Lifelong Education*, 32(5), 600–619. <http://doi.org/10.1080/02601370.2012.753123>.
- Paterson, L. (2009). Civic values and the subject matter of educational courses. *Oxford Review of Education*, 35(1), 81–98.
- Porcaro, D. (2011). Applying constructivism in instructivist learning cultures. *Multicultural Education & Technology Journal*, 5(1), 39–54. <http://doi.org/10.1108/17504971111121919>.
- Prins, E., Toso, B. W., & Schafft, K. A. (2009). It feels like a little family to me: Social interaction and support among women in adult education and family literacy. *Adult Education Quarterly*, 59(4), 335–352. <http://doi.org/10.1177/0741713609331705>.
- Putnam, R. D. (2000). *Bowling alone. The collapse and revival of American community*. New York: Simon & Shuster.
- Ross-Gordon, J. M. (2003). Adult learners in the classroom. *New Directions for Student Services*, 2003(102), 43–52.
- Rovai, A. P. (2002). Building sense of community at a distance. *The International Review of Research in Open and Distributed Learning*, 3(1).
- Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distance Learning*, 5(2) <http://doi.org/10.19173/irrodl.v5i2.192>.
- Rüber, I. E., Rees, S. L., & Schmidt-Hertha, B. (2018). Lifelong learning–lifelong returns? A new theoretical framework for the analysis of civic returns on adult learning. *International Review of Education*, 64(5), 543–562.
- Schuller, T. (2004). Three capitals: A framework. In T. Schuller, J. Preston, C. Hammond, A. Brassett-Grundy, & J. Bynner (Eds.). *The impact of education on health*,

- family life and social capital* (pp12-33). London, UK: RoutledgeFalmer.
- Schuller, T., Brassett-Grundy, A., Green, A., Hammond, C., & Preston, J. (2002). *Learning, continuity and change in adult life. Wider benefits of learning research report, Vol. 20*The Centre for Research on the Wider Benefits of Learning, Institute of Education Bedford Way, London WC1H 0AL (7 British pounds). For full text: <ftp://cls.ioe.ac.uk/pub/Wbl/Acrobat/ResRep3.pdf>.
- Schuller, T., Preston, J., Hammond, C., Brassett-Grundy, A., & Bynner, J. (2004). *The benefits of learning: The impact of education on health, family life and social capital*. Routledge.
- Sinclair, T. J., & Grieve, R. (2017). Facebook as a source of social connectedness in older adults. *Computers in Human Behavior*, 66, 363–369. <http://doi.org/10.1016/j.chb.2016.10.003>.
- Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *Internet and Higher Education*, 7(1), 59–70. <http://doi.org/10.1016/j.iheduc.2003.11.003>.
- Tenenbaum, G., Naidu, S., Jegede, O., & Austin, J. (2001). Constructivist pedagogy in conventional on-campus and distance learning practice: An exploratory investigation. *Learning and Instruction*, 11(2), 87–111.
- Tett, L., & MacLachlan, K. (2007). Adult literacy and numeracy, social capital, learner identities and self-confidence. *Studies in the Education of Adults*, 0266-083039(2), 150–167.
- Vella, E. J., Turesky, E. F., & Hebert, J. (2016). Predictors of academic success in web-based courses: Age, GPA, and instruction mode. *Quality Assurance in Education*, 24(4), 586–600. <http://doi.org/10.1108/QAE-08-2015-0035>.
- Vygotsky, L. S. (1979). In M. Cole, V. John-Steiner, S. Scribner, & E. Soubberman (Eds.). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Wei, H. C., Peng, H., & Chou, C. (2015). Can more interactivity improve learning achievement in an online course? Effects of college students' perception and actual use of a course-management system on their learning achievement. *Computers & Education*, 83, 10–21. <http://doi.org/10.1016/j.compedu.2014.12.013>.
- Wheeler, S. (2001). Information and communication technologies and the changing role of the teacher. *Journal of Educational Media*, 26(1), 7–17. <http://doi.org/10.1080/1358165010260102>.
- Williams, D. (2006). On and off the 'net: Scales for social capital in an online era. *Journal of Computer-Mediated Communication*, 11(2), 593–628. <http://doi.org/10.1111/j.1083-6101.2006.00029.x>.
- Wouters, P., & Van Oostendorp, H. (2013). A meta-analytic review of the role of instructional support in game-based learning. *Computers & Education*, 60(1), 412–425. <http://doi.org/10.1016/j.compedu.2012.07.018>.