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**Consequences of information exchanges on Facebook: An “information grounds”
study with vulnerable, pregnant women in rural America**

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Abstract

Information and communication technology for development (ICT4D) research sporadically leverages information science scholarship. Our qualitative study employs the “information grounds” (IG) lens to investigate the consequences of information exchanges by pregnant women on Facebook, who are vulnerable in the doctor-centric birth culture in rural America. The thematic analysis of in-depth interviews with members and administrators of the Vaginal Birth After Cesarean (VBAC) group shows that positive consequences outweigh negative consequences of information exchanges and lead to the following progression of outcomes: (1) VBAC group as an information ground, (2) social capital (e.g., cognitive, structural, and relational capital) built on the information ground, (3) seven emergent properties of the information ground, and (4) value co-created (e.g., local, affordable, timely, enduring, and reliable support) by VBAC group members. The IG lens reveals the following roles of Facebook, an ICT, in development: (a) a linker that lets people with similar needs and interests convene and shapes their interactions, (b) a pre-requisite to building an online, “third place” for social interactions, and (c) an apparatus for ubiquitously seeking, searching, sharing, and storing information in multiple formats and controlling its flow on the VBAC group. This paper fills in six gaps in the ICT4D research.

Keywords: Pregnant women, Facebook, Information exchange, Information grounds, Value creation, Rural America

Introduction

Problem statement

Vulnerability refers to a state in which individuals or communities can be placed at a disadvantage or hurt (Aday, 1994; Potnis & Gala, 2020). Pregnant women in rural parts of developed countries can experience informational, psychological, and health vulnerabilities. They struggle for timely and affordable access to trustworthy, local information and ubiquitous emotional support (Wathen & Harris, 2006). Higher rates of poverty and unemployment, lower education, lack of healthcare facilities and related infrastructure, lack of timely access to healthcare providers, expensive medical services, religious beliefs, local cultural norms, and lack of medical insurance deprive rural communities in the US of access to medical support (Crosby et al., 2012; Wall Street Journal, 2017). Doctors' insensitivity and unsympathetic attitude can discourage pregnant women from seeking help and asking questions (Loudon et al., 2015; Ruthven et al., 2018). The doctor-centric birth culture in rural America makes the problem worse as some doctors patronize or dismiss pregnancy-related concerns of mothers (McKay & Overberg, 2017), which disables women from exercising their choice of natural births. As of 2017, the C-section rate of childbirths in rural America was over 35 percent (Hamilton et al., 2018), whereas a C-section rate of 10 to 15 percent is acceptable to the World Health Organization (2015).

Online peer-to-peer support is becoming increasingly accessible, affordable, and useful in the self-management of health and related vulnerabilities with less or no reliance on formal healthcare providers (De Simoni et al., 2018; Allan et al., 2020). For instance, several Facebook groups serve as a popular source of information for pregnant women to seek information and support in difficult situations (Fisher & Landry 2007; Hall & Irvine, 2009; Papen, 2013) and provide pregnant women an opportunity to share uncomfortable feelings like depression and seeking relevant guidance from peers (Kantrowitz-Gordon, 2013) in one of the most emotionally challenging phases in their life (Meeussen & Van Laar, 2018; Ruthven et al., 2018a). Social connectedness achieved through a personal and professional network in the physical and virtual world plays a key role in influencing the ability of individuals to realize and meet their information needs (Adkins & Sandy, 2020; O'Brien & Greyson, 2018; Mniszak et al., 2020; Meeussen & Van Laar, 2018, Ruthven et al., 2018a) which indicates the significance of Facebook groups for new mothers.

Research question

It is important to note that not all Facebook groups can generate the equal level and type of peer-to-peer support for their members (Mansour, 2020; Meeussen & Van Laar, 2018; Ruthven, Buchanan & Jardine, 2018a). Sustainability is also a serious challenge experienced by online health communities (Zhu et al., 2014), especially since their short lifespan can make their support less reliable, but the Vaginal Birth after Cesarean (VBAC) group on Facebook formed by a nurse, a doula, and healthcare in 2009 is exceptional since it had over 500 members as of 2021. Without effectively engaging with members (Liu et al., 2020), seeking their active participation (Park, 2015), and generating recurring benefits for them, it is challenging for any community to sustain (Chengalur-Smith et al., 2020; Zhu et al., 2014), especially for over 12 years.

The mission of the VBAC group is to “provide evidence-based information and education and provide support for women to heal from past birth experiences and to plan for future ones.” Thus, information exchange is central to the mission of this group and is essential for providing peer-to-peer support for managing health and related vulnerabilities. Hence, our study investigates the following research question.

- What are the consequences of the information exchange on the VBAC group on Facebook for pregnant women in rural Appalachia?

Literature review

Information grounds (IG): A theoretical lens

Context is an equal and motivating factor for information exchange (Courtright, 2008). To study the nature and impact of social settings on information exchange, Pettigrew (1999) coined the term “information grounds” that represent the synergistic environments where people come together for a dedicated cause and their behavior or practices lead to a social atmosphere that facilitates information seeking and sharing.

The IG lens represents the social constructivist approach (Tuominen & Savolainen, 1997) where parties collectively construct meanings and reality. Information grounds are a social construct rooted in an individual's combined perceptions of place, people, and information (Fisher et al., 2007; Khoir et al., 2015). These three constructs of the IG lens guided our study.

The *people* construct consists of the number of people on the information ground, the type of their association with the ground, the degree of their familiarity with the ground, a combination of roles every person plays on the ground, and the motivation for going to the ground (Bronstein, 2017; Khoir et al., 2015). People-related factors are central social qualifiers of information seeking and sharing; they are based upon trustworthiness, diversity, similar beliefs and opinions, common interests, and the helpfulness of the people (Savolainen, 2009). Social interactions among people lead to building social capital that consists of structural capital (i.e., advantages created by the location of the person in a social network (Granovetter, 1992)), cognitive capital (e.g., norms, values, attitudes, and beliefs affecting interdependence (Landry et al., 2002)), and relational capital (e.g., benefits such as trust rooted in the relationships (Uzzi, 1996) (Tsai & Ghoshal, 1998). Mobile phones and the Internet make people less dependent on places characteristic of conventional information grounds (Savolainen, 2009) because connections are to people and not to places (Wellman, 2006; Narayan, 2013).

The *place* construct represents the location, the activities, conviviality, convenience of access, permanence, privacy, and distractions in the ground (Counts & Fisher, 2010; Fisher et al., 2007). Past studies primarily discuss spatial factors in terms of physical places (Savolainen, 2009), which represent a “third place” (Oldenburg, 1999) other than home or work. Social media has changed how the boundaries of space and time influence people’s interactions, exchanges, and responses to information (Fransen-Taylor & Narayan, 2016), and previous studies have explored online settings as information grounds (Counts & Fisher, 2008), which have emerged as a popular information ground for health and human services in the last decade (Fisher et al., 2005). Rohman (2020) also traces the emergence, peak, and abeyance of a Facebook group as an information ground, but these studies did not investigate the process of value co-creation there.

The *information* construct is the type of information exchanged and its significance for making decisions, the frequency of discussion, the expression and realization of information needs, and the role of technology in information exchanges (Fisher, 2018; Khoir et al., 2015; Rubenstein, 2015). Women often seek advice and health services on online IG (Fisher & Nauman, 2005). Past studies found information flow is a by-product of social interactions among people on different IG. Serendipitous information discovery is also common on social networking sites (Narayan et al., 2013).

Consequences of exchanging information on information grounds

Negative consequences

Information exchanges among members of Facebook groups can lead to excessive sharing of irrelevant, unscientific, and fake content, leading to heated interactions, bitter arguments, personal attacks, and name-calling (Mansour, 2020; McLaughlin & Vitak, 2011; Uski & Lampinen, 2016). As a result, members decrease engagement in discussions, stop sharing information, or leave the group (Mansour, 2020). New mothers can experience an overload of conflicting information and emotions on Facebook (Mansour, 2020; Papen, 2013), making it challenging for them to synthesize, assess, deselect, and use pertinent information for completing tasks or achieving goals (Erfani et al., 2016). Facebook does not automatically delete false information posted on groups (Farkas et al., 2017). As a result, Facebook can serve as a medium to spread misinformation.

Positive consequences

To benefit from information exchanges at offline IG like public libraries (Adkins et al., 2017; Khoir et al., 2015), schools (Bronstein., 2017), and health clinics (Fisher et al., 2006), vulnerable populations need to go through a process that requires them to expend resources (e.g., travel time), meet prerequisites (e.g., membership, information literacy), engage in social interactions, and overcome barriers (e.g., human biases arising from the differences in race, gender, sexual identity, accent) (Fisher et al., 2004). Fisher et al. (2004) label this process as the “progression of outcomes.” Khoir et al. (2015) and Veinot (2010) also identify similar processes for vulnerable populations to leverage and benefit from offline IG. However, due to the lack of transportation and family responsibilities, it can be challenging for a vulnerable population like new mothers in rural America to follow this time-consuming progression of outcomes identified for offline IG where, for instance, they would need to locate public libraries, periodically travel to library branches before, during, and after pregnancy, schedule appointments with librarians or attend events on specific days and times of the year to interact with local experts, explore and get familiarized with library resources, build trustworthy and meaningful relationships with librarians over some time to seek their support and guidance, and work on the personal information literacies needed to evaluate and use the resources.

As a result, new mothers increasingly rely on Facebook during one of the most vulnerable stages of their lives (Fisher & Landry, 2007; Mansour, 2020; Ruthven et al., 2018).

They enjoy informational, emotional, and social benefits on Facebook groups but rarely any study traces the process of value-creation on Facebook. The information ground research also does not present the progression of outcomes for vulnerable populations at online IG. This paper fills in the gap.

Value of IG for vulnerable populations

Value is the ability of goods or services to satisfy a need of or benefit a person, an organization, or a society (Haksever et al., 2004). There are two types of values. Value-in-exchange, where the exchange of goods or services primarily creates economic benefits for the provider and benefits like increased adaptability, survivability, and well-being for recipients. Value-in-use or value-in-context refers to the value that is co-created jointly and reciprocally during interactions among providers and recipients through the integration of resources like information, knowledge, and skills, and the ongoing use of resources influences the degree of value created during interactions (Vargo et al., 2008).

This current study illustrates value-in-use since there are no direct economic benefits for the administrators of the VBAC group and its members for sharing information and offering emotional support to group members instead, as illustrated in the Findings section, members derive benefits from the periodic information exchange on the VBAC group, gradually building a peer-to-peer support system for pregnant women in and out of the group.

Most of the IG research shows how the ongoing use of information shared and emotional support offered in a specific context keeps creating value for the parties involved in information exchange. For instance, IG encourage the development of community among vulnerable populations (Williamson & Roberts, 2010; Bronstein, 2017; Pettigrew, 1999). Members of the same vulnerable population typically feel comfortable sharing their problems and needs with “like-minded people” with shared interests and values (Fisher et al., 2005) at a secure information ground (Fisher et al., 2004a). A study with immigrants in Israel found that an information ground emerged at a night school where immigrants regularly attend classes, which led to the formal and informal information exchanges between the immigrants and volunteers (Bronstein, 2017). This information exchange included (a) immigrants finding information during class and at the coffee break during informal conversations with others and (b) formal information sharing by teachers and administrators of the school.

Information shared at IG can strengthen social ties and offer emotional support (Rubenstein, 2015), which helps members of the information ground deal with stressful circumstances. Companionship, shared experiences, and personal guidance are some of the benefits experienced by vulnerable populations like HIV/AIDS patients (Veinot, 2010), immigrants (Bronstein, 2017; Caidi et al., 2010; Fisher et al., 2004a; Khoir et al., 2015), and breast cancer patients (Rubeinstein, 2015) at information grounds. Khoir et al. (2015) found that information grounds of Asian immigrants in Australia were instrumental in building social relationships and fostering the sharing of information. Rarely any IG study reveals the role of information and communication and technology (ICT) in human development. This paper fills in this gap.

Methodology

Data collection

We followed the best practices prescribed in the literature (e.g., Potnis, 2014; Potnis & Gala, 2020) when engaging with vulnerable women. After receiving Institutional Review Board’s approval from our academic institute, our study was announced to members by administrators with a link to the Qualtrics phone interview scheduling form, which requested members to enter two convenient time-slots of at least 30 minutes on weekdays of their choice and contact information. We explained there are no foreseeable risks in participating in our study. We assured them of the confidentiality of their recorded interviews, their anonymity throughout the study, and that their information will be used only for scholarly purposes. The online form explicitly stated that if they feel uncomfortable with the recorder, they can ask it to be turned off. All participants provided written and verbal consent. All of the participants signed written consent using initials. We also reviewed the consent form with the participants before each interview and all participants provided their verbal assent to participate and be recorded as well.

Within four months, we interviewed 21 out of 515 members of the VBAC group and its two administrators over the phone. Each interview lasted ~35 minutes on average (see Appendix A for the interview guide), with the longest-lasting of ~2 hours. The longest interview lasted for about 120 minutes. We used Olympus WS-852 Digital Voice Recorder for recording interviews.

We verified the information provided by the administrators using the experiences and opinions of the group members, and vice versa.

We used oTranscribe, a free software application, to transcribe interviews. All the 23 transcripts had 171 pages 5,243 lines and 70,944 words. To retain the anonymity of participants, we assigned them pseudonyms and de-identified all transcripts to ensure participant confidentiality. As per our data management plan, we stored all data securely in a password-protected account.

Data analysis

We adopted the thematic analysis approach developed by Ritchie & Lewis (2003) and used by several recent studies (Adkins & Sandy, 2020; Erfani et al., 2016; Vaismoradi et al., 2013) for analyzing interview transcripts which involve identifying, analyzing, and reporting patterns within data (Bronstein, 2017) representative of instances of words with similar meanings or connotations (Erfani et al., 2016). The same stories and experiences shared by interviewees helped us identify and confirm the four stages of progression of outcome for multiple members of the VBAC group, namely, VBAC group as an information ground, social capital, emergent properties, and value co-creation. The four stages are the results of the “saturation of data” shared by the interviewees. Each stage is saturated and is well represented by many instances in the data (Chengalur-Smith et al., 2021). Appendix B presents sample consequences of information exchange on the VBAC group.

Findings

The following subsections represent the progression of outcomes, i.e., consequences of exchanging information on the VBAC group: (1) VBAC group as an information ground → (2) Social capital built on the information ground → (3) Emergent properties of the information ground → (4) Value co-created.

1. VBAC group as an information ground

Fisher et al. (2007) suggest that people often attend information grounds voluntarily. We found that the insensitivity of doctors and lack of emotional support by husbands, among other factors, create emotional, social, and information needs, which forces pregnant women to look

for and join the VBAC group. This sub-section shows how the VBAC group qualifies and serves as an information ground (IG).

People: Joining the IG

There was almost an equal split between the number of interviewees who joined the group on their own and those who were informed or invited by others to join the group. Social ties and capital in the form of local friends and family members, local doulas, and the international cesarean awareness network (ICAN) played a key role in creating awareness, a high perceived value of, and a positive image about the VBAC group among pregnant women. Some interviewees learned about the VBAC group in the national meetings and email listserv of ICAN where the group was praised for catering to the needs of pregnant women in rural communities in Appalachia. Interviewees also found out about the group from other Facebook groups like “seriously crunchy,” “holistic moms’ network,” and “bohemian baby.” Administrators of the VBAC group approached and persuaded some interviewees to join the group.

Past negative experience with C-section, the desire to find VBAC-friendly healthcare providers or hospitals in the nearby towns, the insensitivity and apathy showed by the current doctor, relocation to rural Appalachia during pregnancy, the lack of emotional support from husbands, the need to seek guidance from a group of local mothers who experienced a VBAC, the lack of time and ability to attend face-to-face meetings of local support groups for VBAC mothers, or the desire to advocate for natural births and share professional, scientific knowledge motivated mothers to look for and join the VBAC group.

Place: Rules, information, and social network at IG

Immediately after joining the group, pregnant women encounter the communications rules established by the group administrators, which are pinned to the top of the group’s page. These rules aim to create a harmonious, positive, non-judgmental, and safe place for mothers to share their stories and express emotions, which might not be always the case for other Facebook groups serving pregnant women (Mansour, 2020). The group administrators periodically remind members of the rules through multiple posts. Some interviewees learned communication norms by observing the group dynamics. All interviewees were aware of the communication rules. As a result, they informed us that there are almost no heated personal conflicts in the group.

Information: Practices

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3 Unlike Al-Aufi (2004) suggests, most of the conversations did not start randomly.
4 Distinct threads of conversations created by group administrators spearhead and structured
5 online conversations, including an interactive process of reasoning out together (i.e. a dialog
6 among group members) (Gummesson & Mele, 2010). Specific informational and emotional
7 needs of interviewees prompt them to post specific questions on the group.
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12 Pregnant women share information synchronously and asynchronously on the VBAC
13 group. Any member can asynchronously provide guidance or record their response to the queries
14 posted by others. This asynchronous information in multiple formats like videos or images leads
15 to a permanent information repository on Facebook, which can be accessed and referred to by
16 members even later. R20 complained that navigability issues on this Facebook group constrained
17 her ability to seek and share information.
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22 Counts and Fisher (2010) found that the online information ground was a primer and
23 initiator for social events where in-depth information was shared by members of a social
24 networking site. Although in-depth discussions of the ideas and solutions on the Facebook group
25 take place when pregnant women meet in person, some pregnant women prefer to anonymously
26 share and discuss sensitive information related to health, finance, and family in detail on
27 Facebook, which does not have any negative consequences in the offline world.
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32 Some interviewees sit back and relax to observe the ongoing dialog while others actively
33 seek and share expertise to guide others. R17 said that she was too shy to interact with others.
34 R14 complained that she does not know how to post questions and relies on her daughter to
35 search for information on the group. R5 shared the significance of an active group and indirectly
36 identified the role of algorithms in increasing engagement on the group: "If the group is active, it
37 will appear in that user's newsfeed. It could be found in the posts and newsfeed somehow."
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42 Veinot (2010) considers access to information as a consequence of social capital but our
43 study found that pregnant women did not necessarily need to know or interact with anybody in
44 the group to access the information already shared by them. Social interaction is not a
45 prerequisite to meeting information needs. Newly joined members process past conversations to
46 form personas and images of the members involved in the conversations. Depending on their
47 needs, pregnant women decide to reach out to select members. Thus, unlike offline IG like public
48 libraries and schools, information dictates the degree and type of social interactions at the online
49 information ground.
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2. Social capital (SC)

Pregnant women in our study are mostly secluded and disconnected from modern health infrastructure and services. The VBAC group on Facebook provides them an opportunity to connect with other pregnant women experiencing similar informational, psychological, and health vulnerabilities, which leads to building social capital on the group. This social capital consists of structural, cognitive, and relational capital.

Structural capital

Homogeneity. Mothers in rural Appalachia possess similar amounts of limited health, transportation, and financial resources, which helps them bond and understand each other's circumstances and information needs better, prompting customized solutions for addressing the problems shared in the VBAC group. Pregnant women, the information constituents of the VBAC group, represent a socially, financially, and culturally homogeneous population. Homogeneity is a social qualifier of information seeking and sharing (Savolainen, 2009). Commonalities of interest, background, and circumstances create conducive conditions for information sharing (Fisher et al., 2007). Shared bonds such as stated by R12: "We are the pregnant women in rural Appalachia, who are interested in natural births after the C-section" tend to create a social connection that prompts continued participation in IG.

Social interactions. Most of the past studies on IG (e.g., Khoir et al., 2015; Bronstein, 2017) found that physical congregation precedes information sharing. In contrast, the online information ground facilitated by the VBAC group is accessible anytime, anywhere from mobile phones, leading to a high degree of empathetic, emotional, or memorable interactions, leading to social connectedness. The "overlapping experiences" (Veinot, 2010) shared by pregnant women during their social interactions give the VBAC group its social value.

However, multiple interviewees also reported that several members can be judgmental, aggressive, and less open to others who do not do so when defending their choices like using cloth diapers for babies. R12 complained that members who share past positive experiences about Cesarean are judged and attacked by others. R7 reported that there is a stigma around getting a C-section surgery in this group, which isolates some members. Two administrators of the VBAC group consistently monitor all the posts and periodically delete the posts that do not meet their criteria, which shows that social interactions in the group are under constant

surveillance with positive and negative effects on the members' desire and ability to interact on the group.

Cognitive capital

Shared goal. People gather at IG for a primary, instrumental purpose other than information sharing (Fisher et al., 2004b). Contrary to this proposition of the information ground the VBAC group was formed to provide evidence-based information and education to women. The group's mission also refutes one of the primary bases of the information ground lens that specify there are no specific reasons why IG occur (Fisher et al., 2004b).

Shared language. Most of the communication involves acronyms and codified language understood only by members of the VBAC group, which involves associating those codes with pregnancy-related topics and experiences. R8 said: "I think there is definitely a common language that everyone knows. If my husband gets on the page, he would have a hard time comprehending what the abbreviations are. He has never been through the trial of birth, and he just doesn't know what we are talking about."

Interviewees also associate pregnancy-related topics with the members interested in helping them on those topics. R13 advocates for in-person meetings since she found them helpful in linking names on the Facebook group with faces, which built her trust in those people and their opinions. R5 said: "I just asked questions about the pain [and] people started answering the questions. I just have a general question [and] a lot of people give me feedback[,] maybe places I can check [and] places I can look up on certain websites and stuff to get information." Several interviewees reported reaching out to the members who experienced the challenges they faced for personalized guidance.

Relational capital

Trust. Khoir et al. (2015) found that immigrants have a strong preference for face-to-face interactions in which facial expressions can be easily interpreted to build trust and allow spontaneous information sharing. Administrators of the VBAC group periodically organize face-to-face meetings for members, which serve as an icebreaker and trust-building event for some pregnant women where they can associate a real person with a username on the Facebook group.

Reciprocity. Even after their children's birth, several interviewees stayed with the group to reciprocate. In response to being asked why she has stayed in the group, R9 said: "...so that I can be the support that I received. So, if someone has a situation like mine, I can say 'hey, I have

been there. Feel free to PM me and be another listening ear that I was offered.” This reciprocity norm was further strengthened by friendships among members in the offline world. Social events held for VBAC group members were instrumental in building trust among them.

3. Emergent properties (EP)

As the result of the evolving social capital and ongoing exchanges of information and emotions, new properties of people, place, and information start to emerge in the VBAC group. Emergent properties represent unintended consequences of patterns of behavioral interactions among actors. Any repeated social interaction often leads to the reinforcement of behavior by multiple actors (Cook & Rice, 2006). The presence and absence of mutual reinforcement of behavior lead to new properties of actors (e.g., identity), social processes (e.g., new communication processes), and social structures where actors start anticipating each other’s future actions and develop expectations (Denize, 2007; Homans, 1961). We enrich IG research by reporting emergent properties of the social interactions in the VBAC group.

Identity

Tagging of members by group administrators or someone’s consistent quality responses eventually make them dependable, respected members of the group. Interviewees reported trusting and following such members’ guidance and recommendations. Long-term friendships with trustworthy members are formed in the group, which are solidified by the periodic exchange of emotional and informational support. In contrast, interviewees are less likely to trust and follow the members who share irrelevant or bad information. This institutionalization of social relationships influences and ensures the information flow on the group. This self-connection with the VBAC brand helps interviewees and the group, creating a long-lasting, symbiotic information relationship. For instance, R3 is a homemaker without a full-time job, but her VBAC membership serves as her social identity in the offline world. She brags about or introduces herself using her association and value in the VBAC group. The VBAC group supports Oldenburg’s (1999) notion of the “great good place” that is perceived as an emotionally inviting and accessible arena of conversations.

Several sub-groups have emerged since the inception of the VBAC group. Interviewees with traumatic childbirth feel more empathetic about each other, and hence, coalesce and promptly answer each other’s questions. Other sub-groups are formed around topics such as cloth diapering, babywearing, green diets, do-it-yourself, and holistic living. Members with

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3 expertise and experience related to these subtopics take the lead in answering related questions
4 posted by new members.
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6 ***Brand connection***

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8 Kelder and Leug (2009) found that the pink color dynamically creates offline IG for
9 people interested in the cause of breast cancer. Similarly, “VBAC” serves as a brand name that
10 virtually brings together women interested in natural births after C-sections.
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13 ***Sub-contexts***

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15 Each new mother brings in her sub-context and shares it in the form of stories, questions,
16 or responses, which contributes to creating a bigger information context. Threads of
17 conversations on the group represent sub-contexts within the online information ground. Local
18 spaces where members of the VBAC group meet and an online group on Facebook represent the
19 online and offline manifestations of the same information ground. The VBAC group participants
20 are immersed in their physical space sub-context, amplifying the range and diversity of
21 information ground sub-contexts and in turn creating many more ways in which these sub-
22 contexts can interact to form the “grand context”.
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29 ***Echo chambers***

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31 Members tend to communicate with only those members who have similar ideologies,
32 opinions, and experiences, which leads to forming and strengthening subgroups in the VBAC
33 group. One of the group administrators confirmed: “Members do align themselves with you
34 know people they have stuff in common with. Whether that’s a good experience or a bad
35 experience like um I can think of, it’s funny, because people can get quite protective and vocal
36 about their providers.” Some interviewees reported seeing comments like “C-sections are
37 terrible,” “Pitocin is terrible,” “Ob’s are terrible,” and “Everyone should have home births in the
38 country” on the VBAC group, which suggests that the VBAC group is an echo chamber of
39 judgment and hatred against C-section surgeries and the doctors who perform those surgeries.
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46 ***Linking information***

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48 As the result of social interactions in the group, pregnant women link their queries or
49 ideas with actively collected or passively received information. R2 said: “I don’t think I have
50 ever asked a question in that group that [went] unanswered.” R15 could find a healthcare
51 provider: “I was looking for an OB. When we moved down here, I was 35 weeks pregnant [....]
52 So, I joined slightly before I got here [...] trying to find the most VBAC supportive provider I
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could in the area." So, she used the group to find information on a new OBGYN. "That's exactly how I found *Dr. Witt (name changed), through them. The OB who delivered my baby, I found through that group. So, mission accomplished!"

Materializing information

This stage primarily involved processing information received from multiple sources in the group, offering or being receptive to diverse perspectives, and taking different positions on topics. R9 said: "If anyone says anything related to my experience, I can just say, 'Hey! This is what I went through,' and ask them about this and tell them about that, 'try this', 'have you tried this?', 'I tried acupuncture.' You know, these different things, and I can bring them another perspective they may not have really thought of, and that's what I do in that group [sic]." R3 changed her opinions about pregnancy-related topics multiple times after coming across information shared by other members of the group. "I am someone [who] when presented with new information, I can go, 'oh wow, I didn't know that. That makes sense. I will now form a new opinion', and I am happy about that quality. It's about connecting with people who have the information they could share with you."

Sharing personal stories with evidence such as photographs and scientific facts is a characteristic feature of the information-sharing culture of the group, which many mothers find useful in understanding and processing new information and others' emotions. R11 reported that group administrators started sharing personal stories and encouraged others to do the same. The discussion threads initiated by the group administrators create opportunities for all to share birth pictures and videos. Thread-led dialogs help interviewees understand, compare, or relate with each other's ideas, knowledge, and experiences, overcoming personal positions and developing a shared meaning for the VBAC group (Gummesson & Mele, 2010). However, some members complained that threads also limit their ability to compare local healthcare providers and facilities in a meaningful manner.

Institutionalizing information

Social interactions are learned and are reproduced (Edvardsson et al., 2011) by members of a social networking site like Facebook. Based on their observations and experiences in the group, interviewees create norms and rules for themselves when communicating with others and using the information on the ground. They form and follow thumb rules for using information when making decisions and mitigating their challenges. R4 learned about what is acceptable and

unacceptable behavior and content in the group by observing others' interactions and information. Pinned posts by gatekeepers were the most common source of realizing and following communication rules in the group. After observing the group for over a year, R1 devised her policy: "If I am not going to say it to somebody's face, I'm not going to say it to the group."

4. Value co-created (VC)

Value co-creation refers to the process of creating value by providers and receivers for each other by equitably exchanging resources (Ballantyne & Varey, 2006). The value in the form of support experienced by pregnant women in the VBAC group is a joint function of the social interactions of the providers and consumers of operant resources like information, social connections, and emotions shared on the group. Emergent properties of people, place, and information on the VBAC group create value in terms of the local, affordable, timely, enduring, and reliable (LATER) support for individual members, the VBAC group, and rural America. For instance, members who build and/or use their competencies (Vargo et al., 2008) to help others in the group gain identity as experts on certain topics, which, in turn, helps the entire group navigate conversations on those topics. See Appendix B for more details.

Individual members who experience benefits of the VBAC group spread the word and encourage other pregnant women to join the group. Newly joined members effortlessly get access to a variety of relevant information already shared and organized using distinct threads of conversations on the group. Pre-existing information on the group helps newly joined members determine with whom they wish to engage depending on whom they perceive as experts, experienced, local, compassionate, or members with common interests or experiences. Self-tagging of members (e.g., first trimester, last trimester, traumatic childbirth) and already posted questions help newly joined members identify and connect with other mothers in a similar stage of pregnancy or with similar life experiences. Some interviewees discovered that certain members in past threads of conversations were from a specific midwife's office, and hence, the interviewees reached out to those members to learn about their experiences with that office.

Family and friends typically serve as a source of health information for women in rural parts of the developed world, but they might not serve as a source of good information (Wathen & Harris, 2006). It becomes hard for women with low health literacy to evaluate information. Experienced and expert members of the VBAC group continuously monitor and correct false

information posted by others. This wisdom of crowds makes this online information ground a trustworthy source of scientific and evidence-based information for all members. Also, online health communities, including the VBAC group, provide insights often unavailable from medical providers who are unable to spend significant amounts of time with patients or their families (Moumjid et al., 2009). Participants in these forums offer each other emotional support and information in ways that are different from family members or friends who may be unable to provide appropriate comfort (Rubenstein, 2015).

The involvement of pregnant women in creating value for other members on various topics related to pre, during, and post-pregnancy indicates engagement (van Doorn et al., 2010) that leads to empowerment (Fuller et al., 2009) and experience and information sharing (Prahalad & Ramaswamy, 2004), eventually building and strengthening the support system for pregnant women in rural America (Kozinets et al., 2008). For over 11 years, the VBAC group has been providing timely and affordable access to local and reliable information, social connections, and emotional support to pregnant women in rural Appalachia. Thus, the VBAC group serves as an information ecosystem of instant messaging, face-to-face meetings, and threaded discussions on Facebook for information exchange. Fisher et al. (2004) hypothesized that IG likely have a “regional and global impact in that they occur across all levels of all societies, especially as people create and utilize IG as they perform tasks in the course of daily life (p.757)” and later confirmed this in a study of Slam (Counts & Fisher, 2008), a mobile social networking site, as a creator of an ecosystem of information exchange tools and opportunities for its members. The VBAC group creates individual-level benefits, a group-level benefit of building a culture of sharing scientific and evidence-based information, and a societal-level benefit of equipping pregnant women to better present their case for exercising the desired birth choice in a doctor-centric birth culture in rural America. Thus, members experience interactive, relativistic, and meaning-laden value (i.e., value-in-context) (Vargo, 2008).

At an information ground like a VBAC group on Facebook, pregnant women do not experience the institutional, psychological, and transportation barriers that they would otherwise have at offline IG. Being able to anonymously seek and share sensitive information at any time anywhere using mobile phones, avoiding in-person conversations that can trigger implicit biases and affect information exchanges with expert members filtering in and sharing scientific and evidence-based information, relying on the wisdom of the crowd for evaluation information and

making decisions, and a Facebook group as an information repository do not require VBAC mothers to expend their resources for travel, seek and maintain institutional memberships, rely solely on the individual-level of information literacy, or overcome biases caused by physical characteristics.

Discussion

Theoretical contributions to the value co-creation and IG research

Figure 1 responds to the call for service research (Saarijärvi et al., 2013) on the mechanisms (i.e., ways) through which actors create value for each other and fills in a gap in the research on the steps for creating value at online IG. Most of the past studies focus on the factors influencing the co-creation of value (e.g., Alves et al., 2016) whereas our paper presents the process of creating value.

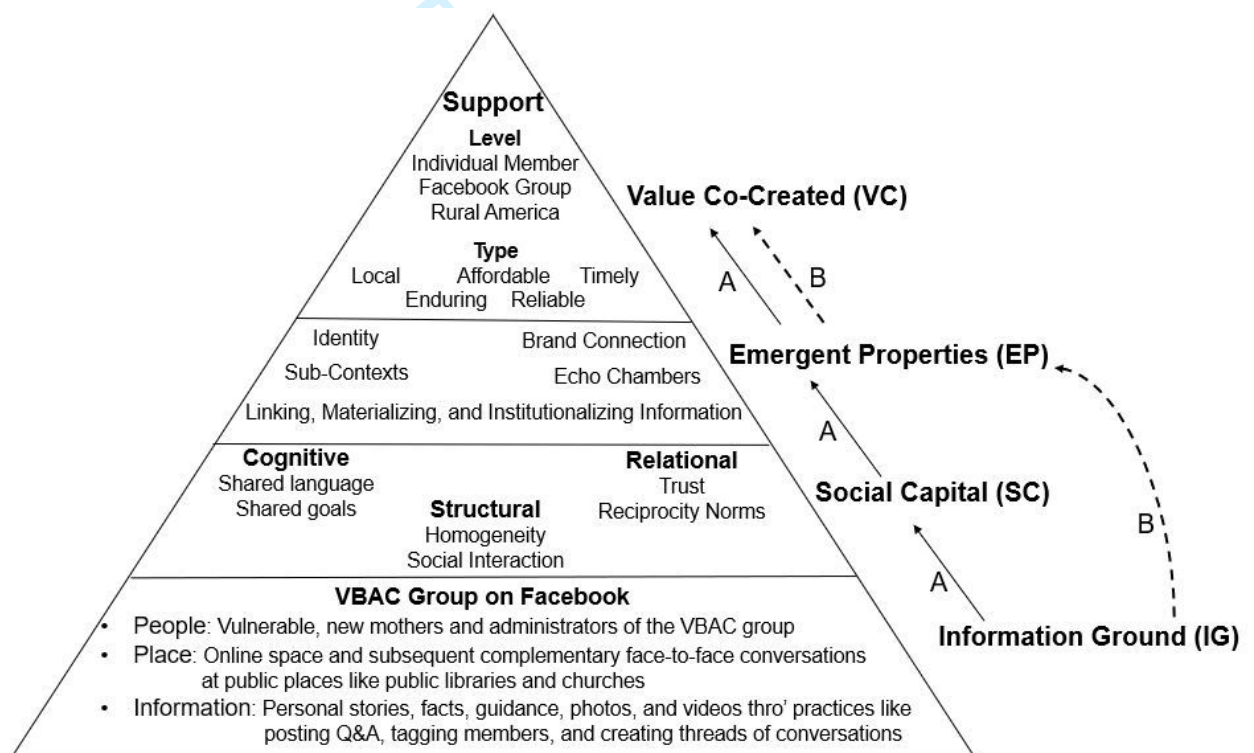


Figure 1. Two Ways or Paths of Value Co-Creation

Path A. IG → SC → EP → VC

For several study participants, it is the most common and obvious path of benefiting from the VBAC group. Rarely any IG study reveals the three stages (i.e., IG → SC → EP) that enable

members of vulnerable populations to create value for each other (see Figure 1). The combination and role of seven types of emergent properties of people, place, and information in creating benefits for members of an information ground was rarely revealed in the past.

Path B. IG → EP → VC

Interaction is central to actors creating value for each other (Vargo & Lusch, 2008). Interaction mainly involves the ability of service providers and receivers to integrate resources (Vargo, 2008). Value co-creation depends upon the interaction among actors and subsequently generated social capital (Gummesson & Mele, 2010); however, our study found that due to the information storage capabilities of Facebook, some pregnant women benefit from the past information exchanges on the VBAC group, which does not require them to interact with others or build social capital, which is another theoretical contribution to the IG research since most of the research on IG (e.g., Bronstein, 2017; Counts & Fisher, 2010; Fisher et al., 2007) finds social capital as a prerequisite to benefitting from the information flow on IG.

Some new members start processing information already shared in the group by making sense of it without interacting with anybody in the group or thereby building social capital. Photographs, personal stories, and scientific facts related to VBAC surgeries represent some of the available information on the group, which some new members find useful in meeting their information and emotional needs. Several queries of most of the interviewees were answered without posting any questions on the group. Newsfeeds by group administrators, enabled by Facebook algorithms, help the VBAC group serve as a source of passively received information. Young parents are more likely to get their information from mobile technology and avoid certain kinds of face-to-face information gathering (Greyson, 2017). Some interviewees in our study also prefer to be passive recipients of information rather than attending social events held for VBAC group members. Such mothers do not post any questions since they are too shy or afraid of seeking information.

Unlike past studies (e.g., Rohman, 2020) where a Facebook group acted as an information repository but experienced abeyance after meeting the needs of group members, our study found that due to the continuing need of pregnant women in the doctor-centric birth culture in rural America, VBAC group has been increasingly serving as an information repository for many years.

Social embeddedness of value co-creation

Our study informs the Service-Dominant Logic theory (Vargo & Lusch, 2008) from the social constructivist perspective. For instance, we found that the material and symbolic creation of, perception of, and experiencing the value of the service in the form of LATER support in the VBAC group is socially constructed. This value-in-social context or value-in-use is relational, collaborative, and concurrent. For instance, as a pregnant woman delivers the baby, the information related to pre and during pregnancy on the group can become less relevant to her. Pregnant women in the VBAC group easily relate to, value, and trust the guidance provided by other pregnant women who experience similar challenges in doctor-centric birth culture in rural Appalachia. The value of LATER support is influenced by the degree of social consensus about such value (Deighton & Grayson, 1995). When someone in the VBAC group appreciates the information shared by other members the perceived value of that information and the social status of the information provider goes up. As a result, eventually, such information providers are tagged by VBAC group administrators as experts and are invited to chime in on relevant topics. At the same time, the support, including local information, on the VBAC group might not be useful to women in different socioeconomic, cultural, and health contexts. Pregnant women in the VBAC group might not find the LATER support equally valuable if they move out of rural Appalachia to a different socioeconomic, cultural, and health context.

Our study also shows that ways of co-creating the value-in-social context (Edvardsson, 2011) for pregnant women (i.e., Paths A and B in Figure 1 above) are influenced by the social and operational roles of service providers (e.g., administrators of the VBAC group on Facebook, several members who are prosumers of the LATER support in the group) (Xie et al., 2008), their positions in the society (e.g., healthcare professionals, vulnerable women in rural Appalachia), adaptive and dynamic nature of the service structure (i.e., Facebook allows group administrators to create threads of conversations, tag members, etc.), and social interactions among members in and outside of the VBAC group. As a result, the social structure of the VBAC group is continuously reproduced.

The roles and positions of VBAC group administrators and members are influenced by the following dimensions of a social system in the VBAC group: meaning (significance), control (administration), and morality (transparent rules) (Giddens, 1984). The significance of the mission of the VBAC group for its members, the authority and power provided by Facebook to group administrators (e.g., ability to create threads, tag members, etc. to control information flow

on groups), communication rules established by the VBAC group administrators, communication norms observed and experienced by members, insistence on and culture of sharing scientific and evidence-based information on the group guide what is acceptable and unacceptable during interactions between group members, which influences the process of value co-creation (Edvardsson et al., 2011). The exchange of LATER support on the VBAC group creates long-term emotional bonds with members (Bitner et al., 2008) and helps the VBAC group emerge as a dynamic, online service structure for a vulnerable population in a developed country.

Theoretical contributions of the IG lens to ICT4D research

Our study fills in the following six gaps in the information and communication technology for development (ICT4D) research. (1) Most of the ICT4D studies focus on populations in developing countries, which is one of the biggest limitations of the ICT4D research, especially since all societies irrespective of their economic development experience issues of exclusions, inequalities, inequalities, and divides (Zheng et al., 2018). (2) Solutions to healthcare-related issues of populations in developed countries are rarely conceptualized as “human development” in the ICT4D field (Brown & Grant, 2010). (3) The primary interest of ICT4D research is in the ICT artifacts rather than their transformative potential to make this world a better place (Walsham, 2012). (4) Most of the ICT4D research assumes that value creation is a monodirectional process (Ramadani et al., 2017), and hence, an external agency is needed for providing the resources needed to sustainably solve the problems of vulnerable populations (Chipidza & Leidner, 2019; Walsham, 2017). (5) Most of the ICT4D studies conducted in developing countries draw from theories developed and applied in developed countries (Davison & Martinsons, 2016), despite having differences in context, culture, and values. (6) ICT4D research borrows heavily from computer science and information systems (Zheng et al., 2018), but sporadically relies on the information science discipline (Zhao et al., 2021). The IG lens (a) helps us redefine development, (b) reveals the three indirect roles of Facebook (i.e., linker, pre-requisite, and apparatus) in development, and (c) clarifies the role of information in value co-creation and development, and (d) acts as a bridge between the value co-creation and ICT4D literature.

Redefining “development”

Our study illustrates how the combination of online and offline IG of the VBAC group enhances the (a) ability of pregnant women to deal with informational, psychological, and health

vulnerabilities and (b) probability for exercising their birth choices in the doctor-centric birth culture in rural Appalachia. Thus, our study broadens the conventional and dominant perspective on development from “socio-economic advancement” to “improved well-being” and “increased freedom” of vulnerable, pregnant women through access to LATER support in rural parts of a developed country. This redefinition of development is an extension of Sen’s (1999) definition of development as the freedom to make choices. The degree of improved well-being or the degree of freedom experienced by vulnerable, pregnant women in our study is likely to depend on every woman’s ability to leverage the type of support created by the VBAC group.

Indirect roles of ICT in development

Past ICT4D research suggests a combination of nominal, computational, tool, proxy, and ensembled roles of technology in human development (Orlikowski & Iacono, 2001; Zheng et al., 2018). Heeks (2010) calls for novel theoretical integrations to understand and explain the role of ICT in development. Using the IG lens, our study finds that Facebook assumes computational and tool roles in *indirectly* contributing to the development of pregnant women. Facebook as an ICT helps to form an information ground like the VBAC group that then leads to social capital and emergent properties for co-creating LATER support for pregnant women in and out of the group (see Figure 2).

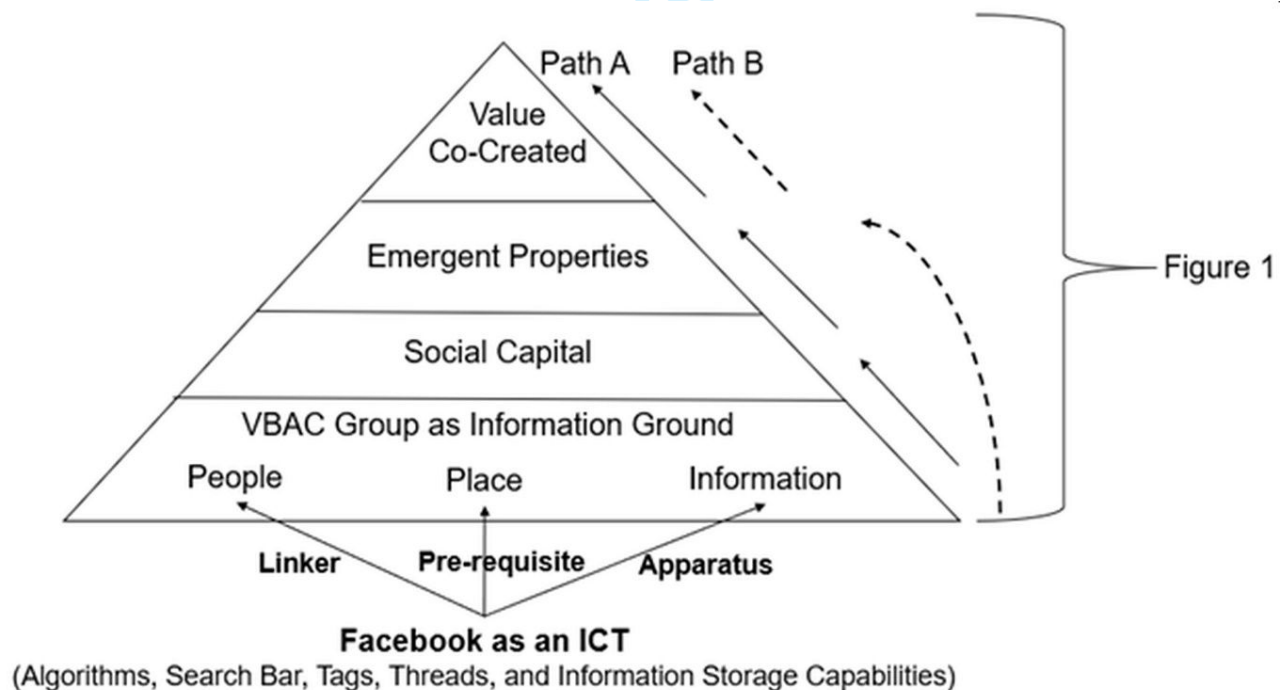


Figure 2. Indirect Roles of Facebook in Development

Facebook’s algorithms (i.e., computational role) contribute to the Information dimension of the information ground, whereas Facebook’s other technical features (i.e., tool role) are critical for the People, Place, and Information aspects of the VBAC group as an information ground.

- **Linker:** Facebook links members with different power and status in and out of the VBAC group. Facebook’s technical features such as tagging allow administrators to involve expert members in the conversation on the group for enhancing the quality of conversations on the group and introducing pregnant women to experts in the group. Various sub-groups in the VBAC group and the members associated with threads of conversations in the group represent and build a “counter-network” of pregnant women in the oppressive, doctor-centric birth culture. A counter-network refers to the social network that helps its members avoid or transcend existing inhibiting conditions (Castells, 2010).
- **Pre-Requisite:** Facebook as a social networking site is a prerequisite to building an online space for social interactions, which is accessible ubiquitously over different types of devices (e.g., smartphones, computers). Facebook allows pregnant women to find others with similar interests and needs and convene online without traveling to any physical place.
- **Apparatus:** Facebook’s features such as the search bar function as an apparatus for extending the ability of members and administrators of the VBAC group to seek and search for information and people. Threading allows administrators to organize information on the group. Facebook’s algorithms control who will see what information at what time on the VBAC group. Storage capabilities of Facebook allow members to share, store and retrieve experiences, personal stories, pictures, etc. in multiple formats.

Role of information in the development

Information plays multiple roles before and during value co-creation that leads to the development of pregnant women in the VBAC group.

- **Motivator:** The lack of timely access to relevant information and the need to remain anonymous (i.e., hide information about identity and health issues) motivate pregnant women to seek and build a support system on Facebook (Kitzie, 2017).

- Pillar: The entry of information from outside of the VBAC group represents the outside-in process of value co-creation (Pee et al., 2020). The information serves as one of the three pillars of the information ground of the VBAC group on Facebook.
- Binder: The exchange of information from outside and generated within the group binds members with similar needs.
- Resource: Information is a resource useful in creating and sustaining LATER support for members of the VBAC group through social capital and emergent properties.
- Threat: Misinformation and hate speech can diminish the social capital of the VBAC group (Mansour, 2020). For instance, information can also be a source of arguments and dissatisfaction in the group, potentially forcing members to leave or not actively contribute to the group.
- Tool: Information shared on the group can serve as a tool for VBAC group members to fight for their birth rights in the doctor-centric birth culture in rural America. The transfer of information from the group to the outside pregnant women in rural America, who cannot or do not wish to access or use Facebook, can enhance the status and utility of the VBAC group and Facebook, and hence, represents the inside-out process of value co-creation for non-members of the groups and their development (Pee et al., 2020).

Value co-creation and ICT4D

The IG lens acts as a toolkit for this ICT4D study to reveal how vulnerable people can effectively become part of a solution. This information science lens helped us highlight the significance and manifestation of value co-creation by members of a vulnerable population for their development via social media. Rarely any study is situated at the intersection of information grounds, value co-creation, and ICT4D, which helped us develop unique insights depicted in Figures 1 and 2 above. Our study enhances the utility of information science theories in explaining how vulnerable populations, ICT, and information can act as resources and interact and evolve to make vulnerable people more self-reliant and capable of helping peers, thereby enriching ICT4D literature.

Practical implications

Study findings guide not-profits and activists for leveraging social media to achieve the third sustainable development goal (SDG) of the United Nations (2015), “Ensuring healthy lives and promote well-being for all at all ages,” and the seventh target in particular, “By 2030, ensure

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universal access to sexual and reproductive health-care services, including [...] information and education.” Findings also illustrate how Facebook can be leveraged to achieve the fifth SDG, “Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.”

Findings demonstrate how value co-creation goes beyond the dyadic interrelationship between resource provider and consumer (Payne et al., 2008) and involves multiple actors. Four actors who create value for each other include (A) Facebook as a provider of technology-based social networking service; (B) administrators who created the VBAC group to provide information and support for pregnant women; (C) members who offer their expertise and/or experiential guidance when answering questions of other members and occasionally direct them to resources in and out of the VBAC group; and (D) Members of the VBAC group who seek information and support from others in the group represent the primary patron of the service. For instance, the growing number of vulnerable populations as Facebook users, their interactions, and information exchanges on Facebook can (i) profit the company and increase its stature and utility in addressing vulnerabilities in society; (ii) help its groups better serve as advocates of social causes by building and strengthening a coalition of vulnerable populations; (iii) benefit vulnerable members of these Facebook groups through the exchange of resources like information and emotional support. The value created by other actors for each other is already discussed in the paper.

Conclusion

Most ICT4D research does not assess how ICTs are implicated in the developmental process (Zheng et al., 2018). Factors needed to realize the transformative potential of ICTs can address this gap. Our study shows that an information ground enabled by Facebook, social capital generated by pregnant women, emergent properties of the VBAC group, and value co-created by group members help them leverage Facebook for development. Social (e.g., ties, capital, identity, homogeneity, negative interactions, echo chambers, insensitive doctors), technological (e.g., Facebook algorithms, tagging, navigational difficulties, repository), psychological (e.g., perceived value, trust, reciprocity norms, brand connection), and informational factors (e.g., information needs, information capital, information literacy, local and customized guidance in easy-to-understand language, deletion of member posts by administrators) affect the four-stage process of co-creating value, which also represents the

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3 progression of outcome for vulnerable populations at online IG. Positive consequences outweigh
4 negative consequences of information exchanges on the VBAC group, which demonstrates how
5 members of vulnerable populations can build a resource constellation on social media to benefit
6 each other and not always rely on ICTs or external human agents with competing interests for
7 solutions.
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13 **Acknowledgment**

14
15 We are grateful to the administrators and members of the VBAC group on Facebook.
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Appendix A. Abridged Interview Guide

1. How did you learn about the VBAC group on Facebook?
2. Why did you decide to be part of this group?
3. How long are you part of this group?
4. How was your experience at the beginning?
5. How did you learn about the norms or rules to communicate in the group?
6. Do you meet any of the group members in person? Did you talk to any member over the phone? If yes, why? How frequently?
7. Do you see any sub-groups in this group? How so?
8. How did you help others? What is your expertise?
9. What types of information do you come across in this group?
10. How do you typically search for information on the group?
11. What factors influence your decision to use information shared in the group?
12. Why do you think members share their experiences/opinions with others?
13. Who would you consider an expert on this Facebook group?
14. What are the top-3 primary benefits of being part of this group?
15. Why did you decide to continue using this group?

Appendix B. Sample Data Analysis

Social Capital

Structural capital

Homogeneity

- I think it's because this one is already small and it's already paired down. It's like okay we are VBAC oriented, now we are [name of the place]-oriented, and it's like you already narrowed down your population – R15
- Most people in those spaces are coming from a place of pain to try and heal – R11

Social interactions

- They had the Facebook group and they also did monthly in-person meetings. which were nice, they were really interesting and fun and they would have speakers. – R13

Cognitive capital

Shared goal

- I think it's because there is a clear intention and purpose. And there is not a lot that strays from that. It doesn't become vaccine debates, or spanking debates, or anything like that, it's there for a reason. And the specific birth experience and support. – R6

Shared language

- I think there is a common language that everyone knows like if my husband got on the page, he would have a hard time comprehending [...] he just doesn't... know what those things are and what those abbreviations mean [...] most any woman who had thoughtfully experienced birth would know what those things are. – R8

Relational capital

Trust

- **Building trust.** I do think it's different. I wouldn't know Erin and Kimberly if I didn't go to the group because at some level they are just names on a FB wall. So, I do think it's harder to connect when it's just on FB. Versus [...] in-person meetings. You see people, so I do think that it takes, away some of that not having the in-person piece too. But I still think it's important because I think it's good to have people validate what you are feeling in there so... – R13
- **Leveraging trust.** I trust my discernment...no you cannot trust everything on Facebook but yeah you discern it [...] Especially with trusted groups and people but after being on there a while you understand who has the expertise and who has certain philosophical ideas who may feel similar or dissimilar from you so you can understand what some people say is—'cause you know—[they] don't like science. [...] so you just contextualize it and take it but research it but apply it as it fits your life not necessarily as a whole. – R6

Reciprocity

- I am not having any more kids. I am long past that point but I would to offer my support for other moms that are you know have to have a C-section and you know looking at their options down the road. – R1

Emergent properties

Identity and brand connection

- Well I think it supports my belief that I am helper right? And I think that it um It would support everyone who is in the group, as pro-birth people. – R7
- So, I do think there is something like a birth community [...] and like you do like get pigeonholed into these like you are a homebirth mom, you are spa hospital mom, that's park west right? That's like the spa hospital, or you are this, or you are this so I do think there is something to, be like for "oh you are like a VBAC mom [...]" So, you do get this little self-identity, but I think it's all within the birth community. – R13

Sub-contexts

Story

- I did not have a cesarean. But had a very traumatic vaginal birth...and um was a birth advocate, so that's why I became a member. And so at the beginning, I was pretty active in you know supporting um other women who would post...- R7

Responses

- There is power in numbers so when someone posts a photo and they need some encouragement by getting 50 likes on it, and me being one of those like is probably a little bit of a boost so I do that. Stand up for them...My VBAC was really powerful and important so for other women who are going that, I think it's important for them to get information from people who have done it before."-R6

Echo chambers

- Like, it becomes this weird... it's so supportive but I mean you know there is this echo chamber. Even if you think that the intervention is good, like VBACs are healthy they are better for the mom, they are better for the baby like you know, you can fall into that trap of totally judging people, who like, choose to have optional C-sections, which I absolutely do. (Laughter). – R13
- There are definitely sub-groups. One big one is that there is a lot of people that are still on the crunchy, green kind of um DIY spectrum. Members of the group who are a part of the cloth diapering and babywearing community which our family has outgrown but I miss it. (Laughter)...And holistic living. Our budget, I just can't do that kind of living as much as I would like to...Goodness, gracious, Norwex is expensive. – R10

Linking information

- Well I wasn't sure what it was going to be like at first so I just went on and I just asked um questions about the pain and stuff and like people started answering the uh question and so everything helped out so. And I just have a general question and like a lot of people give me feedback and stuff and maybe places I can check and like places I can look up on certain websites and stuff to get information – R5

Materializing information

- You know what's interesting is that you get a lot of people from various backgrounds, who come together around a specific issue. So to an extent, you have to keep in mind everyone brings their own baggage to the part when they make a comment or share information.... I think that there also has to be a bit of um, kind of a bit of acceptance that its also coming from a place of diversity. That there can't be as much, judgement and criticism. – R11

Institutionalizing information

- Gatekeepers institutionalized the norms of communication on the VBAC group: "Probably in a welcome to new members' post or a pinned post or maybe in the group information section. That is generally the three places I would look for that. – R11

Value co-created

Type of Support (LATER)

Local

- I guess after my son was born via an unplanned quasi-emergency C-section, I kind of immediately started looking at VBACs and searching a little bit about them. Watched a couple of documentaries and um so I was looking to see if there was anything local...And then I found ican and ICAN led me to the local Facebook group that you are in, that *Edith and Antonia were doing... let's see [CHILD] was born in February 2011. And I can remember still being in recovery when I started the research that stuff. So it would have been about 6 and a half years ago. – R11

Affordable

- Equivalent of the professional guidance offered by doulas - This group serves as a replacement for doula since it offers to coach to mothers interested in VBAC - My husband at the time did not want me to spend the money on that. – R6

Timely

- Yeah definitely, you literally have access to them at 24 hours and you never know who's online or who's not online and you know that's the great thing about these groups, you

literally can get, like an instant, I have seen people who are in the hospital like you know what do I do and people are like commenting right then and there, so if I would have had that when I was in labor, you things probably would have been completely different. Because I would have ten different moms telling me what to do, you know what's not true and... – R12

Enduring

- I am not having any more kids. I am long past that point but I would to offer my support for other moms that are you know have to have a C-section and you know looking at their options on down the road... Yeah it was more just to help people... – R1 (Has three kids and is 9 years in the group)

Reliable

- When asked if she would recommend others to join the group: "it stays on topic, there is lots of good women in there to provide information and support. I think it does a good job at doing what it's intended to do [...] it's a great way to share information – R7
- I think now as an admin, I like that I get to, I like that... I am a scientist... I like that in this group we do stay up to date on information on um evidence and researcher. And I like that even though I am a scientist... – VBAC group administrator E

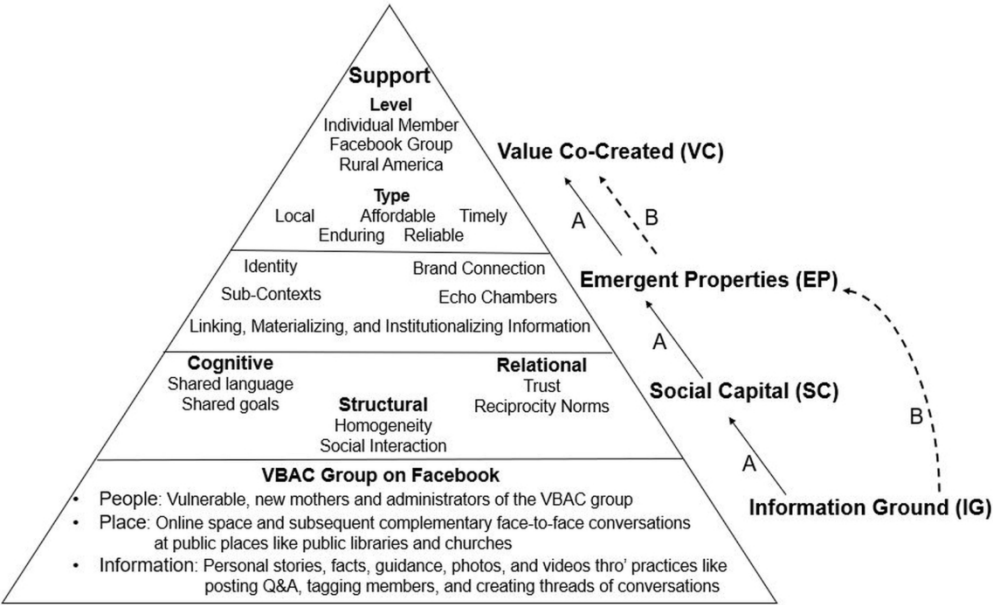


Figure 1. Two Ways or Paths of Value Co-Creation

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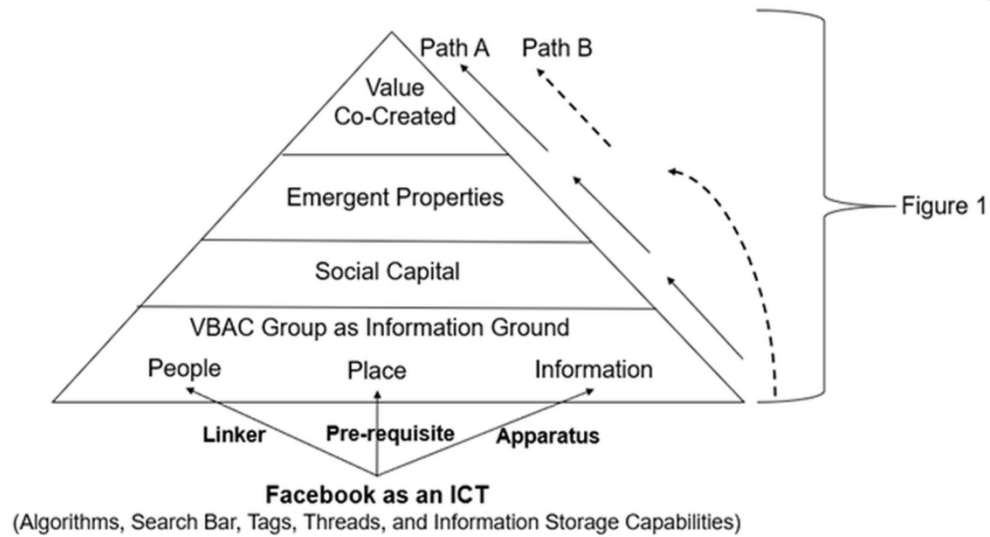


Figure 2. Indirect Roles of Facebook in Development

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