



# Distributed digital contexts and learning: Personal empowerment and social transformation in marginalized populations

Entornos digitales distribuidos y aprendizaje: Empoderamiento personal y transformación social en colectivos discriminados

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## ABSTRACT

The role of digital media and learning has often been synonymous with the use of open education resources in formal institutional settings. Further, open and distance learning has been criticized for focusing narrowly on educational objectives, ignoring socio-political issues of access and participation by marginalized populations. This study examines the lived experiences of female migrant domestic workers (N=20) in Singapore attending Open University. Mobile and social media supplement open and distance learning resources to allow for open practices of consumption, production and sharing in distributed contexts of digital learning. Marginalized students engaged in participation and collaboration activities, with specific privacy practices due to their social positions. Digital learning led to substantive learning for personal empowerment and social transformation, with aspirational strategies often involving digital skills. The discussion reflects on identity management across formal and informal digital settings as a means of transforming societal discourses of discrimination.

## RESUMEN

El rol de los medios digitales y el aprendizaje a menudo ha sido sinónimo del uso de recursos educativos abiertos en entornos institucionales formales. Además, el aprendizaje abierto y a distancia (ODL) ha sido criticado por centrarse estrictamente en los objetivos educativos, ignorando las cuestiones sociopolíticas de acceso y de participación de las poblaciones marginalizadas. Este estudio examina las experiencias de vida de un grupo de trabajadoras domésticas migrantes (N=20) en Singapur que asisten a Open University. Los medios móviles y las redes sociales complementan los recursos ODL para permitir prácticas abiertas de consumo, producción e intercambio en contextos distribuidos de aprendizaje digital. Los estudiantes marginalizados intervinieron en actividades participativas y colaborativas, con prácticas de privacidad específicas de acuerdo a sus posiciones sociales. El aprendizaje digital condujo a un aprendizaje sustantivo para el empoderamiento personal y la transformación social, con estrategias de aspiración que a menudo involucran habilidades digitales. La discusión reflexiona sobre la gestión de identidades en entornos digitales formales e informales como un medio para transformar los discursos sociales de discriminación.

## KEYWORDS | PALABRAS CLAVE

Digital media, identity, open development, distance education, marginalization, migration.  
Medios digitales, identidad, desarrollo abierto, educación a distancia, marginalización, migración.

## 1. Introduction

The flexibility of open educational resources (OER) partially addresses time-space constraints and allows for collaborative, constructivist learning. However, the employment of digital tools in open and distance learning (ODL) has been criticized for the neglect of both substantive learning and broader societal impact. The impact of digital media and learning (DML), employed in open systems, has been criticized for a device-centric emphasis and focus on narrow educational achievements in formal environments rather than a holistic assessment of life outcomes. We argue that a contextual perspective on open technologies in learning is required in relation to achieving the goals of personal empowerment and societal transformation. Before proceeding, we note our focus on open education in development, where open development denotes “the free, networked, public sharing of digital (information and communication) resources towards a process of positive social transformation” (Bentley, Chib, & Poveda, 2017: 99).

This study is premised on the lived experiences of Indonesian migrant domestic workers (MDWs) attending the Open University (OU) in Singapore. MDWs in Singapore are bound in marginalized identities which deny them educational, professional and economic opportunities, first due to the poverty and patriarchal structures of their homeland, and secondly, caused by the legislative and normative conditions of the host country (Chib, Malik, Aricat, & Kadir, 2014; Huang & Yeoh, 2007). Low-income migrants from the surrounding regions are sometimes perceived as a threat to the economic security of Singaporeans, which has led to growing public resentment and marginalization (Chib & Aricat, 2016).

In a world with increasing levels of income inequality (Galbraith, 2016), these migrant workers recognize the limitations imposed by their social positionality. In response to economic and social disparities, MDWs aim to obtain an education to improve their lives substantively, not merely as a means towards financial gain. In accordance with Srinivasan and Chaudhuri (2016), this paper argues that substantive learning can be viewed as both personal empowerment and as social transformation, particularly for vulnerable sections of society. This combination of constrained conditions of migrant domestic labor and a desire for digital skills leads them to enroll in OU, encountering a range of formal DML tools.

### 1.1. Problem

The reality of DML is quite different from associated aspirations, with Gee (2013: XIII) arguing that digital tools “can make things worse just as easily as they can make things better”, and Hilbert (2014) demonstrating second-order digital divides in terms of differential communication capacities. Consequently, less than half of the students enrolled completed degrees within Indonesian ODL programs (Perraton, 2007). Prior investigations into OER offer technological proposals or evaluation of student perceptions (Harsasi, 2015), yet fail to suggest any improvement in their lives and livelihoods. Guitart and Moll (2014) argue instead for an examination of the micro, lived experience of student’s lives outside of institutional environments.

From the perspective of lived experience, there has been a socio-political neglect of participation in the literature. For example, Forte and Lampe (2013) view participation as entirely reliant on individual will, such that each individual has the freedom and ability to learn such skills, and barriers are quite low. Unfortunately, none of these assumptions can be made where marginalized people are concerned. Participation, especially by the marginalized, is a contentious and political process that extends far beyond a binary state (Cooke & Kothari, 2001; Sachs, 2009). The use of DML has depended heavily on the power of those in control, such as technology developers or program implementers (Nelson & Wright, 1995). It is no surprise that an examination of OER in developing countries found that a majority of the studies claiming improved learning outcomes focused on the perspective of teachers rather than students (Bentley & Chib, 2016). We argue that distributed contexts, beyond the institutional classroom and formal OER, allow marginalized people opportunities to shape their identities as well as engage with powerful socio-structural forces.

Contextual gaps in the existing literature on DML for marginalized populations are present. First, the view of digital learning needs to extend to informal environments outside of educational institutions, as well as incorporate a multi-device perspective. The ubiquitous availability of mobile phones in daily life, labeled the Mobile-Centric Society (MCS) by Patiño and Guitart (2014), has transformed the institutional perspective of OER as reliant solely on classroom delivery (Chib & Wardoyo, 2018). For marginalized migrants, mobile phones have provided access to livelihood information (Cuban, 2014) and reduced social exclusion due to language learning (Webb, 2006).

Second, a broader view of the impact of open systems of learning would include practices of collaboration and

sharing within communities to produce a wider range of non-functional outcomes, including personal wellbeing and social transformation. For marginalized populations, positive impacts can comprise identity management and social support as dual mechanisms, firstly, for coping to deal with social marginalization and secondly, as a means for empowerment and aspiration. From a societal perspective, migrants use mobile phones to receive social support and establish entrepreneurial businesses (Chib, Wilkin, & Mei-Hua, 2013). We propose to examine participation and social transformation within the arena of open practices associated with digital learning.

### 1.2. Open practices in digital media and learning

We take a situated view of a learner's context to understand how openness practices shape identities and social transformation as outcomes of digital learning. In contrast with OER, we understand openness as public and non-discriminatory sociotechnical practices of consuming, producing and sharing digital resources (Smith & Seward, 2017) aimed at reducing socio-structural inequalities. Three key issues need further investigation.

First, it is vitally important for students to feel socially and academically integrated into pursuit of their online studies. However, it is not clear how to support marginalized students who may face severe challenges to participate in online contexts. We investigate open practices of participation and collaboration as a means towards social inclusion for marginalized populations. The contextual barriers to effectiveness in open systems initially focused on accessibility issues, but with the ubiquitous spread of personal mobile devices, attention has shifted to socio-political concerns of power relationships. Open practices thus support structural change by presenting a subversive force to existing power dynamics in social systems. Seen from the perspective of social transformation, Wikipedia, oft-cited as a role model for digital learning, is seen to under-represent marginalized perspectives, such as gender and race (Konig, 2013). Our first research question examines how the lived experience of marginalization determines the adoption, usage, and outcomes of DML.

Secondly, technology can indeed enable people to build sites of participation for themselves, with Cornwall (2002) arguing that the power to do so directly relates to their capacity to participate, distinguishing invited from claimed contexts of participation. An invited context, such as formal OER in the classroom, is a polite and orderly context where stakeholders are invited to come and contribute; whereas, a claimed context refers to when marginalized people take control of political processes without an invitation to do so. Further, collaborative open practices, such as sharing and reusing, can take place in a variety of online contexts, yet contemporary research tends to focus on specific academic contexts even when learners can hone and practice open skills across social and academic contexts. Viewed from these perspectives, OER in an open university would not allow for student participation in the production of learning materials, would not be able to be distributed beyond those enrolled, and students/teachers would be the only ones to consume it. In contrast, mobile and social media allow for wide access to production and broad distribution of learning materials beyond the confines of the educational curriculum, the institution, and OER systems.

Alternatively, open collaboration has focused on the value of social interaction in open contexts. Knowledge-building models (Scardamalia & Bereiter, 2014) take situated views of learning, examining knowledge outcomes that transpire through group interaction in online contexts. This perspective emphasizes the added value of social interaction to collective knowledge generation (Zhao & Chan 2014). However, these theories do not address the unique characteristics afforded by open practices to expand and transcend social and academic contexts. Open collaboration systems enable people to engage in a non-restrictive and distributed manner online, enabling distinct forms of social

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interaction (Forte & Lampe, 2013). Open practices take shape across contexts, yet as van-Alst (2009) argued, collaborative learning and knowledge building require a great deal of interaction, ideally within a close-knit community. Ryberg and Christiansen (2008) found that learners often engaged across several sites of interaction simultaneously, which enabled them to expand their access to knowledge resources. Open contexts thus need not be attached to a single environment but can also refer to distributed contexts spanning institutional and social environments and across digital tools, OER and mobile and social media. Our second research question thus investigates how participation and collaboration are enacted via distributed contexts of digital learning, in conditions of marginalization.

Third, a situated view of learning (Lave & Wenger, 1991) suggests that the cultural-historical settings of communities and broader conceptualizations of learning outcomes need to be considered. The notion of substantive

learning in the context of open information systems considers aspects of user identity that contribute to outcomes across a number of life domains. Examining the lived experience of marginalization, we focus on substantive learning strategies of aspiration and identity management as a means towards social transformation.

Early research considered how people could adopt multiple identities in online contexts in flexible ways, which potentially affords them power over belonging within multiple contexts simultaneously. This premise has been important in framing the debate regarding whether such freedom helps people to overcome social inequalities (Turkle, 1995) or undercuts underlying race, class and gender issues altogether (Nakamura, 2002).

Ge (2000) foregrounds participation and sharing practices in the

formation of affinity-identity groups. Within educational technology research, these groups have been variously referred to as 'liquid communities of interest' (Guitart & Moll, 2014: 70), 'communities of practice' (Lave & Wenger, 1991. p. 98), and learning networks (Sloep & Heerlen, 2011).

Indeed, Kreijns, Kirschner, and Jochems (2003) argue that group cohesion, trust, and belonging are vital ingredients for social interaction while factoring in the social psychological needs of individuals. Cresswell (2009) argues that the material qualities of a place are inseparable from the emotional and social aspects of it. Although Cresswell refers to physical places, one's physical environment is not the only source of experiencing or interacting with a place. For example, Adams and Warf (1997) argued that cyberspace conjures a place in its own right because it offers different modalities and possibilities for interacting and belonging. If we consider open contexts of DML as distributed, emergent places, then we might inquire whether these foster (or alternatively neglect) belonging and how these contexts create different conditions for belonging. We might further inquire whether openness practices allow for resistance to the societal discourses of marginalization by the production of alternate aspirational identities. Therefore, our third integrated research question inquires whether participatory and collaborative practices of open systems, within the lived experiences of marginalization, contribute towards personal empowerment and social transformation.

**Developing digital skills involved discrete periods where the women practiced collaboration and sharing in order to develop confidence and negotiate between personal constraints and community-focused production goals. We argue that participation and collaboration should be conceptualized as a set of relations, as a means to account for the interpersonal and networked properties identified in this research. The women engaged in identifying, researching, sharing, and discussing content that related to their aspirational, and adaptive, identities. Such meaningful learning and identity management was absent in their formal OU institution, due to a lack of understanding of their life experiences by the institution.**

## 2. Method

### 2.1. Participants

The study engaged twenty Indonesian foreign domestic workers enrolled at the Universitas Terbuka (Indonesia OU), primarily studying courses such as accounting, English literature, and management. The university provides limited resources in the form of physical books and online materials accessed through a virtual library. Assignments and activities occurred online in the absence of physical classes; end-semester exams require physical attendance at a partner educational institution in Singapore. All the respondents were female, a requirement for MDWs in Singapore. Their ages ranged from 24-38 years old, with 30 years as the median age.

### 2.2. Measures

The focus group guide was structured around topics such as participants' experience online, their general use and familiarity with information and communications technologies (ICTs), motivations for enrollment, their open practices and activities, and how these open activities impact their learning and perceived employability in the future. We asked our participants about their open practices in order to understand why they may, or may not, choose to participate, in what kinds of environments they participate in, and their perceptions surrounding the meanings of contexts and practices.

### 2.3. Procedure

Data collection was conducted at the OU via focus group discussions conducted in Bahasa Indonesia language. Respondents were selected based on their availability from the students present. Each session ranged between 60 and 75 minutes and was recorded with the participants' consent. We obtained ethical approval from the Institutional Review Board of Nanyang Technological University, and all participants provided informed consent. Participants' names have been changed to maintain confidentiality agreements. Respondents were reimbursed for their participation with a grocery voucher worth SGD 5 (USD 4). As the area of marginalization and this respondent group comprise a long-term research trajectory, the researchers are cognizant of our hierarchical position vis-à-vis our respondents. To allay concerns, the co-author conducting fieldwork was an Indonesian female graduate student who could both relate to respondents as well as interpret the cultural nuances.

### 2.4. Analysis

Interview notes were analyzed based on Owen's (1984) thematic analysis that was used to identify and interpret the shared and prominent meanings of participants. Specifically, we incorporated three criteria of recurrence, repetition, and forcefulness. This process led to the emergence of the three themes outlined in the findings. Different co-authors contributed to identifying specific quotations related to each theme.

## 3. Results

We situate the process of digital learning within the lived experience of marginalized individuals. We find that there is both convergence and tensions of distributed context along three dimensions that reveal outcomes of personal empowerment and social transformation.

The first dimension concerns their marginalized status within the sociocultural hierarchies of both national and transnational contexts which, while constraining them, simultaneously offers motivation for digital learning. The second dimension examines their usage of DML tools in both formal and informal contexts. We note both personal achievement and social collaboration in close-knit communities, along with particular private-public practices ascribed to their marginalization. The third dimension suggests that substantive learning occurs as personal identity growth, which often aspires for social transformation and application of acquired digital skills.

### 3.1. Situated context of marginalization

An intersectionality perspective (Crenshaw, 1989) suggests that there are multiple axes of marginalization, occurring in complex transnational contexts, which might limit respondent's educational aspirations. First, there are socio-cultural constraints, including age, education, gender, that constitute the patriarchal norms that apply in their homeland. Cultural norms influence migrant women to fulfill their traditional caregiving duties, remitting money to support the family in Indonesia instead of advancing their education in Singapore. "Probably because my mom is old-fashioned, she thinks that women will and should end up in the kitchen. She complains because I reduced the amount of money I send home [due to OU expenditure]".

The intersection of age with gender further complicated the situation, with a respondent's mother reportedly scolding her, "You're old already, why do you need to go to school? Just save your money or send it home". Some respondents internalized these biases, lowering their expectations of social advancement, which resulted in sacrificing personal aspirations for family wellbeing. One respondent stated that "If you look at my age, I think there's a really small chance of me getting an office job. If I get an education, I can share that knowledge with my child or others".

Low educational attainment and lack of familiarity with technology inhibit their adoption of digital technologies, suggesting a barrier to participation in DML. However, these issues are ephemeral.

Now that I know how the computer works, it is easy to use. My first time, I was scared. Will it explode? Will I break it and everything goes blank if I press this key? That was fear because I didn't know.

Secondly, their status as low-income domestic workers create both logistical issues as well as avenues for social discrimination by locals. Work-life balance was usually off-kilter, with little time available to dedicate to school work, with a participant stating, "I just go online when I have spare time". Many participants spoke about the rigors of domestic labor for migrants and the resultant physical fatigue hindering their attention span.

– "Sometimes we are so busy that we do not have time to do our assignments. Sometimes we fall asleep. I tend to only do assignments that are based on books. The other assignments that require me to go online (e.g., discussing online, answering tutor's questions online), I just want to skip them".

In Singapore, the respondent's migrant status made them vulnerable to discrimination by locals, with one respondent sharing a story about her friend's employer saying, "What school? Why do you need to go to school?" Their marginalized position in society made them susceptible to social hierarchies, with participants preferring to seek out peer support rather than Open University personnel, with one stating, "I don't directly ask the teachers, I consult with friends first. Then if we still cannot solve the issue, we note the difficult parts and ask our teacher during tutorial".

### 3.2. Distributed contexts of digital learning

Respondents engaged in open practices via digital learning tools in both formal and informal contexts. OER systems developed for classroom situations converged with mobile and social media in informal contexts as sites for learning. Open practices of consumption, sharing, and production occurred in both institutional and personal situations, as a form of social collaboration in close-knit communities.

OU computer centres provided access to OER resources, where participants could enhance their skills and lose their inhibitions, with one declaring, "After learning computer basics, I was more confident, and now it's easy". OER allowed for both distribution of content to distant locations as well as collaboration amongst students across formalized formats.

– "In the Financial Management course, there are 30 students online and commenting in the forum. We do not know if they are our peers here or if they are from different countries. The important thing is the discussion, comments, and answers going on".

However, informal open systems available via mobile phones not only supplemented OU material but supplanted formal OER as the main source of learning. Participants used basic calling features of mobile phones to seek peer support, with a participant stating that, "Discussion with friends through mobile phone helps me a lot in understanding the materials". We note that their constrained material circumstances did not allow all participants to enjoy advanced features of online, mobile and social media, with one participant saying, "Perhaps with one of those advanced mobile phones it will be even easier, so you can go online. I have a normal phone, so I rely on the laptop". Others recognized the monetary tradeoff being made in order to access educational material through informal open systems via mobile devices.

– "I have more friends and more knowledge, but I use more mobile top-ups now. Previously I could save a lot, but I was alone with no friends. My expenses for mobile top-ups have tripled since enrolling".

Participants bridged the formal educational environment, as represented by the OER, and the informal context by using social media to establish personal contact with their colleagues.

– "Before having a laptop and Facebook, even though we're in the same jurusan [stream] we don't know each other. Now with discussion forums and Facebook, I know who my peers are, so I can ask questions and make new friends".

These open digital systems allowed for collaboration and community aspects, such as social media and chat applications, which were exceedingly popular.

– “There was one student who proposed to create a BBM [BlackBerry Messenger] group for government science major. If we have any doubts or questions, we can ask questions or share in this platform”.

We note that the situated marginalized context of these migrant domestic workers emerged as particular open practices of consumption and sharing. Consumption practices sometimes played out privately by individuals, particularly when encountering new material online via websites and applications, in order to reduce the possibility of social shaming.

– “I like watching YouTube to learn English, to know the sound, pronunciation, and grammar. With Google Translate too, it's easy to know how to say a word, and I just click 'sound' then I know, oh, that's how it's pronounced... I like looking up for information I do not know”.

Another interesting practice was the tendency to seek assurance by sharing contexts in private before turning to open contexts. Private contexts are those that participants shared with particular friends or colleagues in smaller WhatsApp groups, private Facebook groups or message threads, such as the participant who “created two groups, one is public, and another is private...”

We don't have to meet in person, but we can interact and communicate in a cyber-context”. The rationale perhaps stemmed from a desire to mask their embarrassment in divulging their unfamiliarity with educational material.

– “I prefer to ask my friend in a private chat. In WhatsApp group, some members would say 'how come you don't know the answer!' or 'you ask questions a lot.' So sometimes we ask friends first, then if the problems are still unresolved, we post our questions to the group”.

**Conceptualizing digital and media learning as a set of relations provides researchers and educators with a means to understand the limiting and enabling conditions that marginalized people face, and allow for the design of meaningful and substantive learning for their lived experience.**

### 3.3. Substantive learning for personal empowerment and social transformation

Digital learning became a source of transformation in individual identities, providing participants with confidence to negotiate their marginalized social contexts. Enrollment at OU was viewed as a means towards not only personal capacity building, but to make a strong social statement in response to their structural conditions. As an example, one participant was motivated “to get a higher degree certificate and to prove to my family that I can work and study at the same time”. We note that instrumental outcomes such as economic advancement persisted, yet manifested in aspirations in both the home and host contexts.

– “Right now I'm a domestic worker. When I go home [Indonesia], I hope to get a better job. If possible, I want to look for a job here [Singapore]. Otherwise, I will look for a job in this field, as an accountant in Indonesia”.

Digital learning became a tool not only for acquiring technological skills but to demonstrate desire and drive. Therefore, participants intended to change social opinions about themselves, while simultaneously aspiring for achievement.

– “I hear about people, even graduates with high qualifications from good schools, unable to get a job and I feel down because if they can't get employment, how can I? I believe it is not just the qualifications; employers are looking for people with drive. I need to look further than that, I can't wait to find myself a job, but I need to use the opportunity to create my own business and be an entrepreneur”.

This quote was from a respondent who used her mobile phone and laptop daily to produce 23 articles for Kompasiana (a citizen journalism forum facilitated by a major media group in Indonesia). It is important to note that these articles shed public light on the life of MDWs, thus combining themes of personal achievement and social transformation.

A common observation is that confidence as a result of leadership roles within the student union was accompanied by a desire to share in open contexts. Thus, participants created academic contexts that fostered social belonging, doing so by engaging in open sharing practices.

– “I’m trying to manage the Facebook group ...to regularly write something in the group and share. I’ll ask whether they have studied. I posted papers so that they are motivated to study”.

For some there remains interplay between the aspirational identity of the student and the marginalized identity of the migrant domestic worker. Digital learning skills get applied as part of their domestic chores, complicating whether this new knowledge challenges or exacerbates existing inequalities in challenging socio-structural conditions.

– “My employer usually asks me in the morning to cook some food which I didn’t know before. That is why I looked up the recipe online”.

On the one hand, we can view personal empowerment in direct relation to the instrumental learning imparted via formal OER at the OU. On the other hand, we can regard aspirational narratives as an endeavour to challenge the social hierarchy, i.e., for these low-income migrants at the bottom of the social order to climb to the very top of the global neoliberal market economy.

– “I want to be a banker or be a manager in a company. I learn from the IT class that I can input data with Microsoft. I can also go online to look up information pertaining to my job in the future”.

– “I intend to work back in a factory where I choose the design of logo and color for Nike shoes...now that I know how to look up information through the internet

Participants betrayed a desire for social transformation, describing strategies through which the Internet could be used to achieve their collective goals in collaborative ways, for instance, through information sharing, crowdfunding, and research.

– “I want to open a business, a playgroup for children in Indonesia... I can create blogs to look for sponsorship, make brochures, ads. So when registration opens, we can disseminate the brochures from schools, from Facebook, from computers”.

A final note about substantive learning concerns the broadening of social and geographical boundaries due to encountering student colleagues on OER forums. The ability to engage in global citizenship has little immediate, particularly monetary, benefit, yet it is an example of identity management that challenges social identities of marginalization.

– “I talked to someone from the Philippines and found out that the Tagalog language shares some words with Bahasa Indonesia... From my friend in Egypt, I also learned that some words are similar but mean different things. My friends here make fun of me and ask me what for, why I’m wasting time with fandoms. But I’ve made new friends, I now know what it’s like in other countries and other cultures”.

#### 4. Discussion and conclusion

Normative claims found in the literature argue for the rights and power of individuals to lead their lives autonomously (Sen, 2001). The situated/sociocultural view of learning emphasizes the relationships between individuals and their environment (Gee, 2008), allowing them affordances, or action possibilities. Examining the lived experience of marginalized migrant domestic workers, we can discern the limited capacities for action that can be afforded to them by the existing socio-structural milieu, both in their home and host countries. For example, women’s ownership or use of technology may be restricted within patriarchal homes (Gurumurthy & Chami, 2014), or in migrant situations (Nguyen, Chib & Mahalingam, 2017). On the other hand, Zelezny-Green (2014) viewed mobiles as a means for girls to mitigate access to school when social and cultural norms dictate that these girls should abstain from attending school during their menses. Both cases demonstrate how access and participation are embedded within highly political and contentious processes that are significantly influenced by power relations in a given context. These examples are important considerations because it is often assumed that digital media and learning contexts are universally appropriate and that users have the power to represent themselves and their interests.

We argue that, despite finding that digital skills do not translate into employability and economic gains, respondents engaged in practices that allowed for the restricted agency (Peter, 2003). When faced with limited action possibilities, these women reframed their aspirations downwards accordingly. For many, personal advancement and social upliftment aspirations were less tangible goals than challenges to prevailing societal discourses of their identity. We find the strategic usage of DML, which unlike traditional views of the literature, included particular private-public consumption and distribution practices, as well as the shrinking of social networks. Production of material was often aimed at an identity management technique, rather than as a form of traditional learning outcomes. We find that substantive learning is taking place, in which the ability to negotiate complex life circumstances is manifested, in this case multiple intersections of marginalization, as opposed to the instrumental learning skills present in the OU curriculum.

The generalizability of the study is limited by the particular characteristics and circumstances of the respondents and their lived experiences. We nonetheless argue that the study reveals particular strategies related to marginalization and gender in the context of digital media and learning. We encourage further research to expand the examination both to other marginalized communities, as well as beyond the confines of the classroom to other life domains.

Developing digital skills involved discrete periods where the women practiced collaboration and sharing in order to develop confidence and negotiate between personal constraints and community-focused production goals. We argue that participation and collaboration should be conceptualized as a set of relations, as a means to account for the interpersonal and networked properties identified in this research. The women engaged in identifying, researching, sharing, and discussing content that related to their aspirational, and adaptive, identities. Such meaningful learning and identity management was absent in their formal OU institution, due to a lack of understanding of their life experiences by the institution (Guitart & Moll, 2014). Likewise, their access to a plethora of resources via the distributed context of their physical, cultural, historical, and digital environments, including social and mobile media, was a parallel universe to the formal OU system. Conceptualizing digital and media learning as a set of relations provides researchers and educators with a means to understand the limiting and enabling conditions that marginalized people face, and allow for the design of meaningful and substantive learning for their lived experience.

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### References

- Adams, P.C., & Warf, B. (1997). Introduction: Cybercontext and geographical context. *Geographical Review*, 87(2), 139-145. <https://doi.org/10.1111/j.1931-0846.1997.tb00067.x>
- Bentley, C., & Chib, A. (2016). The impact of open development initiatives in lower- and middle income countries: A review of the literature. *The Electronic Journal of Information Systems in Developing Countries*, 74(6), 1-20. <https://doi.org/10.1002/j.1681-4835.2016.tb00540.x>
- Bentley, C., Chib, A., & Povedia, S. (2017). Exploring capability and accountability outcomes of open development for the poor and marginalized: An analysis of select literature. *The Journal of Community Informatics*, 13(3), 98-129. <https://bit.ly/2NQnn0W>
- Chib, A., & Aricat, R. (2016). Belonging and communicating in a bounded cosmopolitanism: The role of mobile phones in the integration of transnational migrants in Singapore. *Information, Communication and Society*. <https://doi.org/10.1080/1369118X.2016.1168470>
- Chib, A., Malik, S., Aricat, R.G., & Kadir, S.Z. (2014). Migrant mothering and mobile phones: Negotiations of transnational identity. *Mobile Media & Communication*, 2(1), 73-93. <https://doi.org/10.1177/2050157913506007>
- Chib, A., & Wardoyo, R.J. (2018). Differential OER impacts of formal and informal ICTs: Employability of female migrant workers. *The International Review of Research in Open and Distributed Learning*, 19(3), 94-113. <https://dx.doi.org/10.19173/irrodl.v19i3.3538>
- Chib, A., Wilkin, H., & Mei Hua, S. (2013). Singapore migrants workers' use of mobile phones to seek social support. *Information Technologies & International Development*, 9(4), 19-34. <https://bit.ly/2Om1Yfu>
- Cooke, B., & Kothari, U. (Eds.). (2001). *Participation: The New Tyranny?* London: Zed Books.
- Cornwall, A. (2002). *Making contexts, changing places: Situating participation in development (No. IDS Working Paper 170)*. Sussex: Institute of Development Studies. <https://bit.ly/2P0iOxB>
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. In K. Bartlett, & R. Kennedy (Eds.), *Feminist legal theory: Readings in law and gender* (pp. 57-80). New York, NY: Routledge.
- Cresswell, T. (2009). Place. *International Encyclopedia of Human Geography*, Vol. 8 (pp. 169-177). Oxford: Elsevier. <https://doi.org/10.1016/B978-008044910-4.00310-2>
- Cuban, S. (2014). Transnational families, ICTs and mobile learning. *International Journal of Lifelong Education*, 33(6), 737-754. <https://doi.org/10.1080/02601370.2014.963182>
- Forte, A., & Lampe, C. (2013). Defining, understanding, and supporting open collaboration: lessons from the literature. *American Behavioral Scientist*, 57(5), 535-547. <https://doi.org/10.1177/0002764212469362>
- Galbraith, J.K. (2016). *Inequality: What everyone needs to know*. New York, NY: Oxford University Press.
- Gee, J.P. (2013). *The anti-education era: Creating smarter students through digital learning*. New York, NY: Palgrave Macmillan.
- Gee, J.P. (2008). A sociocultural perspective on opportunity to learn. In P.A. Moss, D.C. Pullin, J.P., Gee, E.H., Haertel, & L.J. Young (Eds.), *Assessment, equity, and opportunity to learn* (pp. 76-108). New York: Cambridge University Press.
- Gee, J.P. (2000). Identity as an analytic lens for research in education. *Review of Research in Education*, 25(1), 99-125. <https://doi.org/10.2307/1167322>
- Guitart, M.E., & Moll, L.C. (2014). Lived experience, funds of identity and education. *Culture & Psychology*, 20(1), 70-81. <https://doi.org/10.1177/1354067X13515940>
- Gurumurthy, A., & Chami, N. (2014). *Gender equality in the information society*. Bangalore: IT for Change. <https://bit.ly/2xMAx3C>
- Harsasi, M. (2015). The use of open educational resources in online learning: A study of students' perception. *Turkish Online Journal of Distance Education*, 16(3), 74-87. <https://doi.org/10.17718/tojde.46469>

- Hilbert, M. (2014). Technological information inequality as an incessantly moving target: The redistribution of information and communication capacities between 1986 and 2010. *Journal of the Association for Information Science and Technology*, 65(4), 821-835. <https://doi.org/10.1002/asi.23020>
- Huang, S., & Yeoh, B.S.A. (2007). Emotional labour and transnational domestic work: The moving geographies of 'maid abuse' in Singapore. *Mobilities*, 2(2), 195-217. <https://doi.org/10.1080/17450100701381557>
- König, R. (2013). Wikipedia: Between lay participation and elite knowledge representation. *Information, Communication and Society*. <https://doi.org/10.1080/1369118X.2012.734319>
- Kreijns, K., Kirschner, P.A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research. *Computers in Human Behavior*, 19(3), 335-353. [https://doi.org/10.1016/S0747-5632\(02\)00057-2](https://doi.org/10.1016/S0747-5632(02)00057-2)
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511815355>
- Nakamura, L. (2002). *Cybertypes: Race, ethnicity, and identity on the Internet*. NY: Routledge.
- Nguyen, H., Chib, A., & Mahalingam, R. (2017). Mobile phones and gender empowerment: Negotiating the essentialist-aspirational dialectic. *Information Technologies & International Development [Special Section]*, 13, 170-184. <https://bit.ly/2OYyYXz>
- Nelson, N., & Wright, S. (1995). *Power and participatory development: Theory and practice*. London: ITDG Publishing. <https://doi.org/10.3362/9781780445649>
- Owen, W.F. (1984). Interpretive themes in relational communication. *Quarterly Journal of Speech*, 70(3), 274-287. <https://doi.org/10.1080/00335638409383697>
- Patiño, J.G., & Guitart, M.E. (2014). Some of the challenges and experiences of formal education in a Mobile-Centric Society (MCS). *Digital Education Review*, 25, 64-86. <https://bit.ly/2R6Obl2>
- Perraton, H. (2007). *Open and distance learning in the developing world*. New York, NY: Routledge.
- Peter, F. (2003). Gender and the foundations of social choice: The role of situated agency. *Feminist Economics*, 9(2-3), 13-32. <https://doi.org/10.1080/1354570022000078006>
- Ryberg, T., & Christiansen, E. (2008). Community and social network sites as technology enhanced learning environments. *Technology, Pedagogy and Education*, 17(3), 207-219. <https://doi.org/10.1080/14759390802383801>
- Sachs, W. (Ed.). (2009). *The development dictionary: A guide to knowledge as power, Second edition*. London: Zed Books.
- Scardamalia, M., & Bereiter, C. (2014). Knowledge building: theory, pedagogy, and technology. In R.K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences*. Cambridge: Cambridge University Press.
- Sen, A. (2001). *Development as freedom*. Oxford; New York: Oxford University Press.
- Sloep, P., & Heerlen, A.B. (2011). Learning networks, networked learning. [Redes de aprendizaje, aprendizaje en red]. *Comunicar*, 37(XIX), 55-63. <https://doi.org/10.3916/C37-2011-02-05>
- Smith, M.L., & Seward, R. (2017). Openness as social praxis. *First Monday*, 22(4). <https://doi.org/10.5210/fm.v22i4.7073>
- Srinivasan, J., & Chaudhuri, B. (2016). *Open and/or apolitical: A critical re-examination of open information systems*. Singapore: Singapore Internet Research Centre (SIRCA White Paper 1). <https://bit.ly/2nRVt4V>
- Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet*. New York: Touchstone.
- Van-Aalst, J. (2009). Distinguishing knowledge-sharing, knowledge-construction, and knowledge-creation discourses. *International Journal of Computer-supported Collaborative Learning*, 4(3), 259-287. <https://doi.org/10.1007/s11412-009-9069-5>
- Webb, S. (2006). Can ICT reduce social exclusion? The case of an adults' English language learning programme. *British Educational Research Journal*, 32(3), 481-507. <https://doi.org/10.1080/01411920600635478>
- Zelezny-Green, R. (2014). She called, she Googled, she knew: girls' secondary education, interrupted school attendance, and educational use of mobile phones in Nairobi. *Gender & Development*, 22(1), 63-74. <https://doi.org/10.1080/13552074.2014.889338>
- Zhao, K., & Chan, C.K.K. (2014). Fostering collective and individual learning through knowledge building. *International Journal of Computer-supported Collaborative Learning*, 9(1), 63-95. <https://doi.org/10.1007/s11412-013-9188-x>