

Adapting Global Methodologies to Digital Inequalities Research in a Multicultural Arab Environment

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Abstract

As Information and Communication Technologies (ICT), such as the internet and mobile phones, facilitate the spread of knowledge and interactions across borders in previously unimagined ways, questions are being asked about whether the benefits of this digitization process are equally distributed between and within countries. Motivated by the way technology adoption and usage patterns may differ in the Arab Middle East, this paper examines how the Kuwaiti context shapes people's understanding of a survey instrument used for evaluating digital inequalities, as they relate to access, skills and engagement, and outcomes of ICT use. Specifically, it discusses the adaptation and validation of the survey measures of socio-digital inequalities through a process of cognitive interviewing and provides insight into the theoretical and empirical linkages between cultural conceptions of digital and traditional inequalities in ways that explore both their universal and contextual aspects, or denotative and connotative meanings. Evidence suggests that important cross-cultural complications relate to language issues, socioeconomic conditions, citizenship, and differing perceptions of social desirability. These findings offer important considerations for improving the reliability and validity of future survey-scale adaptations in the broader MENA region, especially in countries containing significant multicultural populations. Simultaneously, they call into question the extent to which global conceptualizations of digital inequalities and their measures reflect complex local realities.

Keywords: Digital Inequality, Cross-Cultural Research, Survey Methods, Cognitive Interviewing, Kuwait

Fahed Al-Sumait, (falsumait@auk.edu.kw), American University of Kuwait

Ellen J. Helsper, (e.j.helsper@lse.ac.uk), London School of Economics and Political Science

Miriam Rahali, (m.rahali@lse.ac.uk), London School of Economics and Political Science

The Middle East and North Africa region is a significant though understudied context for examining socio-digital inequalities. The region has been described as the most unequal in the world on the basis of income inequality for some time (Alvaredo, 2019). However large-scale assessments of the relationship between these economic conditions and broader social and digital inequalities have been limited by a number of factors, including widespread restrictions on survey research in many Middle Eastern countries, as well as the scarcity of properly validated Arabic-language scales appropriate to the task. This project sought to address this gap in part through the translation, adaptation, validation, and implementation of a leading global methodology for evaluating digital inequalities to the country of Kuwait. With some of the highest digital indicators in the Arab Middle East, an extreme diversity amongst its resident population, and the freedom to conduct academic fieldwork of this nature, Kuwait serves as a strong entry point to the broader region.

Kuwait has achieved notable advancements in many areas of Information and Communication Technology (ICT), with nearly universal broadband internet access and usage rates at approximately 99% each, active social media users at 98%, and one of the highest mobile phone ownership ratios in the world, with an average of more than 1.5 phones per resident according to Hootsuite (2021). This stands in stark contrast to the broader Middle East and North African (MENA) region, for which average internet access rates are just over 50%, mobile subscriptions are 66%, and mobile social media penetration is just under 50% (Bahia and Delaporte, 2020). In this regard, Kuwait appears to sit along its Gulf Corporation Council¹ neighbors as the region's digital frontrunners. However, such statistics reveal little about the potential for differing levels of ICT uses and outcomes among various groups within each country, nor help explain why relative to the GCC states Kuwait ranks near the bottom in comparative assessments like the CISCO Digital Readiness Index (2019) or the Portulans (formally World Economic Forum) Network Readiness Index (Dutta and Lavin, 2021), despite the country's strong economic and

¹ The six GCC countries are comprised of Kuwait, Saudi Arabia, Qatar, the United Arab Emirates, Bahrain, and Oman.

infrastructural advantages. To understand this situation, more information is needed about the ways in which individuals and groups within the country employ available technologies, and what kind of outcomes they achieve, or fail to achieve from these. Toward this goal, the From Digital Skills to Tangible Outcomes (DiSTO)-Kuwait project is designed as the first independent evaluation of digital inequalities in Kuwait and the first application of the DiSTO methodology in an Arab country. To help situate the findings of the cognitive interviews, used as one important step in the adaptation and validation of the survey instrument, it is useful to briefly expand on some of the notable social and macroeconomic conditions within the country.

Kuwait relies on its significant hydrocarbon resources as a foundation for its economic structure, accounting for more than half of its GDP, 95% of its export revenues, and 90% of the government income (International Trade Administration, 2022). This enables the country to provide significant support for its citizens, such as a tax-free environment, free health care and education, robust government employment (employing approximately 85% of all Kuwaitis), and many other tangible benefits (Saad, 2019). As a result, national indicators such as low unemployment rates (3.7%), high per-capita GDP (\$24,800.00 USD), and its high ICT diffusion figures (World Bank, 2020) can obscure the effective identification and measurement of actual socio-digital inequalities among diverse communities residing within the country.

The country's relatively unique demographic composition is another relevant aspect to its ICT development. Due to the limited number of Kuwaitis working in the private sector, coupled with the financial resources to attract large-scale foreign labor, Kuwait has developed what can be termed an expatriate-majority state (Al-Sumait et al., 2022). Kuwaitis comprise about a third of the population with the remaining 70% made up of expatriates from countries around the world, speaking a multitude of languages and dialects, and working at all skill levels across society (Kuwait Central Statistical Bureau, 2021). This expatriate-majority composition brings the benefits of diverse technological competencies and innovative digital uses among expatriate workers which hold the potential to diffuse additional capabilities throughout society more broadly. However, it also holds significant challenges due to extreme

disparities in social, economic, and educational domains within Kuwait. Furthermore, the diversity of residents also leads to major disparities in linguistic competency for the two primary languages used in most survey research in the country: Arabic and English. Such conditions complicate both the social distribution of digital outcomes, as well the ability to effectively measure these. This type of expatriate-majority condition and its challenges are likewise present in the Gulf states of Qatar, the United Arab Emirates, and Bahrain for which little is also known about the state of existing digital divides between citizens and migrant residents. Therefore, developing effective tools to assess conditions in these settings is important for gaining a better understanding of digital inequalities in countries which otherwise appear to be at the vanguard of efforts to lead digital transformation in the Arab Middle East. Having outlined important contours of the context in which this study is situated, we now turn to the topic of socio-digital inequalities and the theoretical foundations of the cross-cultural evaluation conducted for this phase of the project.

Theorizing Socio-Digital Inequalities

The ICT field has developed from looking at single outcome indicators, such as access, to defining digital inclusion as a multifaceted construct incorporating access, skills and attitudinal or motivational aspects, along with the outcomes of engagement with technologies (Helsper, 2021; Ragnedda and Muschert, 2018; Van Dijk, 2020). Initially, digitization was seen as an opportunity to level existing inequalities by providing access to information, goods and services that were out of reach for the poor and geographically isolated (Rheingold, 1993; Negroponte, 1995). However, quality access to ICTs was unequally distributed following historical patterns of socio-economic inequalities, and the term ‘digital divide’ emerged to describe inequalities in access to the technologies of the information society (DiMaggio and Hargittai, 2001). At this stage, access to the internet and ownership of ICTs was seen by scholars and policymakers as the crucial obstacle to overcome if the hopes of a more equal (digital) society were to be achieved. Nevertheless, it soon became clear that access in and of itself does not determine whether users are able to reap the benefits of what is potentially available through these

connections. Those with more digital skills were the ones to hold an advantage in achieving greater outcomes from access to digital technologies (Katz and Gonzalez, 2016). Subsequently, a second level of digital inequalities emerged even in countries with highly connected populations but with ICT skills unequally distributed along traditional lines of inequalities. The latest development in terms of digital inequalities research and theorization has been to show that inequalities remain even between those with similar levels of engagement. This third level of digital inequalities focuses on the unequal distribution of benefits derived from accessing and using digital technologies (Van Deursen and Helsper, 2015).

In the DiSTO-Kuwait project, the corresponding fields model first proposed by Helsper (2012) is taken as the starting point from which to theorize the domain-specific links between social and digital inequalities and how these feedback loops might amplify or counter historical inequalities (See also Helsper, 2021). The corresponding fields model proposed a broad, fourfold classification of domains which distinguished economic, social, cultural, and personal resource domains. This approach to socio-digital inequalities postulates that each individual has different combinations of resources across these four domains and that the environment a person grows up and lives in shapes whether and how these resources relate to digital inequalities. This ecological view provides a useful push to explore whether and how socio-digital inequalities might express themselves differently in different countries and serves as the basis for the DiSTO projects worldwide.

However, there is a big gap in the available evidence as most research looking at first, second, and third level digital inequalities has been conducted in the West. Data on socio-digital inequalities in the global south rarely incorporates any evidence beyond that related to first level inequalities in access, though there is now growing data on digital skills. Nevertheless, the measures used for the latter in particular often suffer from flaws in the design (Hargittai and Hsieh, 2012; International Telecommunications Union, 2017) and are rarely validated for cross-cultural comparisons (Helsper, Schneider, van Deursen, and Van Laar, 2021; Vuorikari, et al, 2016). The Internet Skills Scales (ISS) in particular have been widely adapted in countries outside of the original context without further validation.

Frequently direct translations were made, or answer scales and item formulations were changed without checking for meaning equivalence. This is problematic because it has emerged from projects like the Global Kids Online and DiSTO research, that survey instruments originating from a Western context are not that simply adapted for use in other regions because interpretations and understanding vary widely. This study responds to the call by Van Deursen, Helsper, and Eynon (2016) for further research into whether survey instruments used to gather data on digital divides maintain reliability and validity when adapted across cultural contexts. The cognitive interviews conducted as part of the DiSTO-Kuwait project discussed herein were employed as an important step toward this goal for assessing people's varied interpretations of the survey instrument's constructs across diverse communities.

Theorizing Cross Cultural (Survey) Research

Comparative research is “valuable, even indispensable, for establishing the generality of findings and the validity of interpretations” derived from single contexts (Kohn, 1989, p. 77). Conducting cross-cultural research, however, is fraught with challenges. Historically, cross-cultural research focuses on studying and comparing cultures from two different geographic regions. Initially, theories of development dominated the field, with a strong emphasis on global comparison and the normative aim of bringing Western-style economic and political development to underdeveloped countries” (Della Porta, 2008, p. 199).

However, for comparative survey research, it is important to be certain that measurements of constructs and relationships are equivalent in nature, otherwise it runs the risk of comparing one person's appreciation for apples with that of another's appreciation for pears (Esser and Hanitzsch, 2012; Landman, 2008). Comparability can be examined through tests of structural equivalence which argue that what is being measured in one society is not fundamentally different from what is being measured in another society (Stankov and Lee, 2009). However, tests of equivalence are post hoc and can only be done after the data is collected.

Helsper and Gerber (2012) showed that while cross-nationally the same broad categories of Internet use (e.g. information, entertainment, and social uses) can be identified, the weight of different items and the way they group together varies between countries. For example, two countries might be very high on information-seeking behaviors, but in one country this predominantly consists of consulting formal news sources and in another it is made up of a variety of information-seeking behaviors. To prevent items having low equivalence in meaning and, thus, a lack of theoretical construct comparability, qualitative research can offer early insight into the interpretation of items by individuals from different countries and “is more appropriate to further understanding about the meanings that people assign to these different uses and how relevant each of these are when it comes to their use of the internet for different functions” (Stankov and Lee, 2012, p. 94).

Despite the development of tools and guidelines for the collection and analysis of large-scale cross-national survey data in, for example, political sciences and the methodological literature (Davidov, Schmidt, and Schwartz, 2008), cross-cultural surveys around digital inequalities often lack contextual information, even when they explicitly aim to compare patterns of inequalities in different countries (Gorzig, Milosevic, and Staksrud, 2017; Zhao, Shen, and Collier, 2014). In the context of Kuwait, we suspect that simple translation to achieve lexical parity is not necessarily sufficient to enable respondents to answer the survey questions accurately, as interpretations will be influenced by not only the setting in which the question is asked, but also the principles that govern the conduct of conversation. For this reason, we conducted cognitive interviews in the hopes of providing greater context, thereby improving the survey instrument’s efficacy; however, this process is not without its own limitations. We now turn to a discussion of denotation and connotation to underscore how construct reliability may be improved, even if achieving cross-cultural validity remains somewhat elusive.

Theorizing Denotation and Connotation

Denotation and connotation are two crucial factors that affect the interpretation of signs and codes (Hall, 1973). With regard to cognitive interviewing, denotation and connotation ascribe meaning to the

signs and codes used in the process of questioning. Conceptually, these factors explain the relationship between the signifier and the signified. More specifically, denotation is the literal (or obvious) translation of the sign, wherein meaning can be thought to apply when criteria for analysis is absolute, or uniquely technical. For example, the definition of a word (as expressed in a dictionary) provides a precise point of reference and can therefore serve as a common signification that is recognized by cross-cultural respondents, allowing them to interpret messages in the same way, irrespective of cultural or social background (Chandler, 2007). We could expect, then, that questionnaire items related to technical aspects of ICT access and uses, for example, could be comprehended in a relatively straightforward manner. When we can ensure that what is being measured in one society is not fundamentally different from what is being measured in another society, we are poised to make more accurate claims regarding the reliability of the survey instrument.

A deeper level of signification is connotation, which is derived from the denotative meaning of a message and extends beyond socio-cultural associations to also include personal (or affective) understanding. Connotative aspects of the cognitive interview process relate to the occasional variations found between respondents and researchers over the social and personal codes of meanings associated with particular terms or concepts. We anticipate that this negotiation of meaning will be most clearly illustrated in questions asking about more complex social, behavioral, or affective conditions, as survey respondents are required to make inferences and fill in gaps based on socially contingent codes of meaning and interpretation. For comparability purposes, connotative discrepancies become problematic when they affect the degree to which shared understanding is achieved. In Kuwait, varied socio-demographic characteristics such as nationality, class, religion, age, and gender may inflect upon connotative meanings (Barthes, 1988), and as a result, different respondents can interpret the same question in a myriad of ways, thereby skewing both the reliability and validity of the results.

Methodology

A rapidly growing interdisciplinary literature argues that mixed-method data collection and analysis design can provide researchers with ways to overcome the problems inherent in using either quantitative or qualitative data alone (Gorman, 2015). For example, the methodological innovation that combines survey methodology with cognitive interviews gives researchers a way to link core moral beliefs, with context, emotions, and practical consciousness. The development of cognitive question testing methods has provided social researchers with numerous theories and tools to test these assumptions, and to develop better survey instruments and questionnaires (Collins 2003; Jobe, 2003; Tourangeau, 1984). The DiSTO projects consider cognitive testing to be a standard part of the adaptation process for its survey instruments. With the aim of elucidating links between social and digital forms of exclusion by combining economic, cultural, social, and personal resources of households and individuals based on the corresponding fields model (Helsper, 2012), DiSTO questionnaires are inherently detailed and susceptible to diverse cultural interpretations. As such, conducting cognitive interviewing among diverse respondents in each novel cultural setting helps to ensure that connotative meanings are considered alongside their denotative counterparts during survey preparations. The use of these techniques, which involve asking respondents to answer a set of survey items out loud in the presence of a researcher who can conduct follow-up probes about their answers, helps researchers better understand the content of digital inequalities and the contexts that help shape them.

Participants in this phase of the DiSTO-Kuwait study were asked to complete an original version of the survey questionnaire in either Arabic or English and were then probed by the interviewer about their understanding, response logic, and views of the questions throughout this process. The results of the interviews help in evaluating whether the items proposed in fact measure the constructs intended. Among the checks conducted in the cognitive interviews where respondents' understanding of the questions, if they found the questions relevant, and were able to provide an accurate answer using the provided scales.

Originally, all response items were formulated in English. Two native Arabic speakers then independently translated the questionnaire for the first wave of the cognitive interviews which were then back translated by a professional translation service. Five researchers were trained on cognitive interviewing and conducted 32 interviews in either Arabic and English across two time periods. Respondents were selected for inclusion to match the basic demographic composition of the country with variations according to gender (female and male), age (18 or older), education (less than high school to PhD holders), and country of origin (representing 13 Arab and non-Arab nationalities). Table 1 includes a breakdown of the respondents' characteristics per category relative to the larger population.

Interviews were collected until significant response saturation was reached among each of the targeted demographic groups, indicating consistent identification of potentially problematic items and interpretations within each population. Given the high degree of diversity among Kuwait's residents, efforts were also made to match as many demographic characteristics as feasible between interviewers and respondents to help achieve a degree of homophily, as the interviewers also differed in terms of age, gender, nationality, and educational level. This approach prioritized interview quality over quantity in order to produce a high degree of confidence in the validity of the findings. Based on the interview outcomes, further translations and modifications were employed before and after the second wave of cognitive interviews and prior to conducting a pilot study testing the efficacy of the questionnaire in the field. In order to better understand the efforts made to improve the reliability and validity of the survey instrument, the following sections elaborate on the findings derived from the cognitive interviews organized according to their denotative and connotative elements.

Table 1 Demographic Composition of Respondents Relative to the National Population

Demographic Characteristics		Number of Respondents		National Population
Gender	Female	16	50%	39%
	Male	16	50%	61%
Age	Under 30 years	18	56%	56%

	Over 30 years	14	44%	44%
Nationality	Kuwaiti	8	25%	31%
	Arab Expatriates	10	31%	27%
	Asian Expatriates	8	25%	40%
	Other Origin	6	19%	2%
Education	Up to High School	16	50%	68%
	More than High School	16	50%	32%

Analysis

Three researchers analyzed materials from the cognitive interview using the NVIVO 12 qualitative analysis software with a focus on both thematic and novel findings derived from the interview recordings, transcripts, and researchers' field notes. The findings were classified as either commonly found in cross-cultural research or as specific to a Kuwaiti or Arab context.

Due to space constraints, we do not fully elaborate on commonly experienced cross-cultural issues and Arabic language translations. Instead, the focus is on selected denotative and connotative elements that confirm the utility of the method to enhance the reliability and validity of the results. The denotative examples include issues related to the use of technical vocabulary and other lexical considerations of relevance within a polyglossic environment. The connotative aspects included factors affecting respondent's self-identification, incongruent expectations between the researchers and respondents, and status dynamics impacting the cognitive interview process. Each are explained in turn, followed by a discussion of the implications for cross-cultural research in general, and for research in Kuwait and the Arab Middle East more specifically.

Denotative Elements

Wording decisions are always an important component of survey research and become further complicated when translating survey instruments into other languages. One of the areas in which formal, direct translation often proved ineffective involved the use of technical vocabulary, especially that surrounding personal technologies. Arabic respondents of differing demographic profiles frequently commented on their confusion with the use of formally translated Arabic technology terms which are not commonly used in colloquial speech. Instead, the original English words for certain types of technologies have been widely adopted among Arabic-speaking communities, even where alternative Arabic equivalents exist. The inclusion of examples using either English or transliterated terms often improved the clarity of questions related to personal technologies, as suggested by Mohammed, an Egyptian male in his late 40s working in education who explained the benefits of using English terms:

That's why if you put 'iPad' they will [understand]. Or even if you're writing it in Arabic [letters], 'I-P-A-D' they would recognize it because now it's not like using classical Arabic language. But usually we use [the English version of a word]. If you don't have the English, it will be kind of confusing for Arabic speakers because "Jawaz Dhaiki" [*the literal translation of 'smartphone'*] they wouldn't understand.

Like many languages, Modern Standard Arabic (MSA) often creates original words for popular terms and concepts from other languages, though these words may find limited use outside of formal communications, such as in academic or journalistic writing which minimize colloquialisms to improve comprehension across the wide variety of Arabic dialects. With the exceptionally rapid rate of growth in personal technologies it is not surprising that the original English terms for these technologies quickly become more common in everyday use than the formal translations which often follow. In this sense, MSA terms can actually reduce comprehension across dialect groups, rather than enhance it. For example, Hisham, a Kuwaiti male in his late 20s working in the field of Information Technology expressed his confusion with the Arabic translation for the term "gaming console".

I'm not sure if this is the right translation. It doesn't make much sense to me if I read this alone. [...] They took the word 'console' and they translated it, which is correct, it says a gaming unit. [...]

Maybe nobody uses that [Arabic word]. But if you were saying ‘PlayStation,’ even if someone didn't have English [skills], they would probably still recognize ‘X-Box’ or ‘PlayStation’.

In such cases, even if the formal translation of a term is understood, it might not be preferable to either the brand name, or the English term, as explained by this art curator, Mariyam, from Syria in her 50s when talking about the importance of naming specific technology platforms like Twitter or Facebook to help people understand the Arabic translation for “social media.” “You can put this, the terms in English, by the way, because this is a, it’s an international thing now. People use the [English] words”.

Another aspect of denotative challenges to interpreting survey terminology came not from translation choices, but from limited comprehension of specific vocabulary among respondents who did not speak either Arabic or English as a first language. The term “confidence” is an illustrative example of lexical confusion in both English and Arabic for some respondents. For example, when Maria, an Indian female in her late 20s who works in the security sector came across that word in English, she re-read the sentence multiple times before asking, “I do not understand this [word].” Confusion with the corresponding word in Arabic also occurred, as described by Anwar, a Kuwaiti female in her early 30s working as an administrator, who paused her reading of the Arabic survey to ask the interviewers in English:

In terms of what do you want to know? How I am confident? I will be confused because I don’t know which aspect of my life do you want me to describe here? [...] If you say in general, yes, I have confidence. In terms of like my social life, yes, I have confidence. But I didn’t know what you mean specifically.

Issues in achieving lexical parity are a common concern in multilingual survey research. These were further accentuated by the extent of polyglossia (the co-existence of multiple languages) in Kuwait which contributed to some respondents’ confusion around the meaning of words associated with evaluating their own language skills. Fatema, a Lebanese respondent in her early 20’s studying in university encountered a problem when trying to decide in which language she was a “native” speaker:

I try to think that I’m Arab, my English is pretty good, but like am I considered a native [Arabic] speaker or not? [...] I mean I grew up, like we, my parents spoke to me in Arabic, but I think because I always watched TV shows [in English] and like I went to private school so we studied in English,

and all my friends would just speak in English all the time. So I feel like I'm more comfortable with English than Arabic. In this case, am I a native speaker?

MSA is seen as a formal skill and one with which many Arab-speaking respondents were not confident enough to select the superlative answer choice on the scale to describe their written Arabic skills, phrased as “native speaker.” This is exemplified by Aseel, a professional Kuwaiti female in her early 20s who, when the interviewer asked why she did not select the “native speaker” option for Arabic (her first language), she replied, “because in writing I'm not that good.” Other Arabic-speaking respondents expressed similar reservations. Hesitancy with Arabic skills (e.g., assessing fluency across reading, writing, and speaking) can also help explain why English was the preferred survey language despite nearly half of the respondents self-identifying as Arab.

Connotative Elements

Connotative elements of the cognitive interview process relate to occasional variations between respondents and researchers over the deeper social codes of meanings associated with particular concepts, thus affecting the degree to which the validity of survey questions is achieved. Where some self-assessments, such as Arabic skills, were sometimes impacted by terminology issues as noted above, a more complex process occurred for other respondents when identifying with their national origins. Among such a deeply diverse expatriate-majority population, there are residents who identify with multiple nationalities (dual- or multi-nationals), those without formal status (Bidoon), and those who may become confused when determining whether to respond to questions on the basis of their place of residence (Kuwait) or their country of origin. For example, Michael, a man from New Zealand in his late 30s working in the sports industry occasionally responded to questions about his satisfaction levels with various online activities by envisioning those he had conducted in, or with, his home country, rather than in Kuwait (the environment to be measured by the survey).

Another telling example of uncertainty around the subject of nationality comes from Rania, a woman in her early 50s who was born Syrian (in Kuwait) but only received Kuwaiti citizenship through

marriage. When asked by the interviewer why she chose to identify as Kuwaiti in the demographic segment of the survey, yet verbally referred to herself as Syrian throughout the interview, she replied:

Usually I say I'm Syrian, but I'm Kuwaiti by nationality. [...] I'm Syrian. But I don't mind saying Kuwaiti. But when they ask me [*'where are you from?' in Arabic*]. Syrian, you know. But I am Kuwaiti. I was born here and everything, but I like to say both, you know, but I don't want to delete my, my nationality that's originally Syrian. But I am Kuwaiti because I lived my life here. It's not just [because of] my passport that I became Kuwaiti. But I feel I'm Kuwaiti. In everything. From the day I was born here and lived my life here. [...] But I'm still Syrian [too] because they just gave [Kuwaiti nationality] to me in 2004 and I'm not used to it.”

Demographic questions in a survey are designed to enable evaluations of the findings according to the groups with which people self-identify. However, accurate responses to these questions can be complicated when incongruent expectations exist between researchers and respondents regarding distinctions in demographic classifications. For example, on the question for occupational status, Noor, a Kuwaiti student in her 20s taking the survey in Arabic was unsure if she should identify as a student or employee, since she was on a scholarship program from her government job—a common practice in a country where government employment is used as a form of wealth distribution.

Actually, I'm on a, what do they call it [*Arabic term for work-leave program*]. [...] OK, I'm a student. Should I write I'm a student on a [work-leave program]? [...] I am already in a job and I'm on leave now while completing my study. Yes, I have a salary, so this is a job. Having a salary is a job. [...] So I am a full time student, I don't work and study, I just study.

She initially only identified as “full-time student” since it seemed incompatible with “full-time employee,” though selecting a combination of both might have been more accurate. One implication of this type of choice is that it affects the display logic of the survey which is based on the choice selected under occupational status. Therefore, differences in understanding how to self-classify can thus hold the potential to impact the survey's ability to measure corresponding ICT uses, outcomes, or satisfaction levels.

One point of note involved the ways in which status dynamics between the interviewer and respondent affected people's interpretation and selection of the “correct” response option. While status dynamics are relevant in all forms of interview research, the ways in which they manifested in this project

are additionally reflective of particularities often found within a Muslim-majority, Arab context. For example, Fajer, an unmarried Jordanian woman in her mid-20s working in education expressed awkwardness in answering an Arabic question concerning seeking online information about relationships to her older, married, male Kuwaiti interviewer. An additional example involved Omar, an Egyptian male respondent working as a security guard who was older than his female, Kuwaiti interviewer. On multiple occasions, he overstated his technological skills for which he actually had no background or experience, such as designing a website or setting up a Virtual Private Network (VPN). In both cases, though the participants and interviewers were all Arab and were paired according to their Arabic language skills, differences between nationalities, genders, educational levels, and ages were additional factors affecting respondents' decisions about how to represent themselves via their answer selections. What is of note here are the dominant Arab and Muslim cultural norms that such status dynamics reflect. As a young Jordanian woman, Fajer was reticent to give an impression of compromised modesty to an older male interviewer by commenting on the topic of relationships, while Omar, the Egyptian respondent, did not want to appear inept toward a younger female interviewer. In such cases, respondents gave preference to answer choices holding connotations with greater social desirability, and thereby possibly functioned more as a face-saving exercise at times than an accurate measurement of the items of interest. Such conditions were relevant for both the cognitive interviews and the face-to-face administration of the survey in the field.

Concerns over how to represent perceived gender social norms, such as a woman's modesty or a man's level of competency, are perhaps not unique to Kuwait, but are accentuated by the gender conventions found in an Arab society firmly rooted in Islamic traditions. Status issues surrounding gender, as well as age, nationality, and educational level, can each complicate researchers' ability to effectively interpret people's thought processes while answering questions. This can thereby affect researchers' judgements when selecting which scale items are best employed to a novel cultural context. These dynamics can sometimes be identified and attenuated through such efforts as ensuring a high degree of homophily between respondents and interviewers or conducting close independent reviews of

the survey recordings and transcripts. For surveys intended to be interview-facilitated and in-person, such cultural power dynamics can pose further difficulties during the data collection phase, where enumerators cannot realistically achieve homophily with the diverse range of respondents needed for a nationally representative sample.

Discussion

Kuwait is used in this paper to illustrate some of the challenges of adapting digital inequalities research methodologies to an Arab-majority context, and specifically one in which population diversity is more extreme than many other countries. Attempts to minimize challenges with translation included using a rigorous process of independent translations, determining reconciliations across versions, using back translations into the original language, and conducting cognitive interviews to test for understanding among different demographic groups of interest. Going forward, increasing the likelihood of respondents being able to complete the survey using languages other than Arabic or English with which they are more comfortable could further improve the reliability and validity of the scales. However, there were still issues surrounding particular words, especially those related to personal Information and Communication Technologies (ICTs). For example, it was apparent that English terminology for communication technologies or media platforms were adopted faster amongst Arabic speakers than their Modern Standard Arabic (MSA) equivalents. Where the original intent of MSA is to minimize colloquial variations and enhance comprehension, we found that inclusion of the English terms and/or examples along with their MSA equivalents helps to cover the widest range of respondents and enhance the validity of the concerned survey items, rather than using only one or the other.

Another important finding derived from the cognitive interviews is the importance of selecting word choices that can be easily comprehended by potential respondents who may not speak any of the offered survey languages as a mother tongue. Words that appeared intimidating due to their length or that may be infrequently used in conversation by people for whom the survey is in a second or third language worked best when simplified or elaborated upon with universally branded examples. Cognitive interviews

with non-native Arabic nor English speakers proved a useful process for identifying such words before the survey was made public. One noticeable effect observed about these language choices was that when used in the consent form or the survey instructions they had the potential to produce the opposite effect to that intended. For example, when encountering potentially intimidating words early in the instructions which are included for each subsection of the survey, some respondents stopped reading later instructions. This can impact the nature of people's responses and lead to different results between those who read the instructions and those who skipped them. Important details, such as the imagined timeframe for recall-oriented behavioral questions, or the differences between uses, outcome, and satisfaction questions might then be misunderstood. Similar steps for lexical simplification have been recommended for consent forms used in clinical trials (Davis et al., 1998; Kadam, 2017).

Another finding of interest involves the social implications of Kuwait's "rentier" economy and the corresponding social benefits that come with it, which can affect responses and data interpretations. The heavy government employment program that is used as a form of wealth distribution, for example, contributes to respondents' item selection confusion if they work in multiple sectors simultaneously or participate in study-leave programs. This can obscure occupational distinctions that would otherwise be used to infer relationships between demographic characteristics and various dependent variables. Suggested adjustments to minimize this include allowing respondents to select multiple categories and giving clear instructions that explain the conditions under which multiple items can be selected.

By way of conclusion, there are some important limitations to consider with this project. To begin with, the findings herein represent items that were discovered through the cognitive interview process with only 32 respondents spread over two different time periods. While efforts were made to match demographic characteristics of the participants with those representing the population in Kuwait at large, given the extreme diversity of the expatriate-majority in Kuwait and the relatively small numbers of participants sampled, there are inevitably groups not represented in the interviews. As such, the generalizability of the findings is somewhat limited. Despite such limitations, the findings outlined in this

paper do represent important considerations for future survey-scale adaptations in the Arab Middle East and elsewhere. Adding a qualitative step such as cognitive interviewing to survey scale adaptation efforts in novel contexts can help researchers identify diverse interpretations of terminology and constructs that may not otherwise be predictable. Addressing these prior to administering surveys in the field helps to improve the validity of individual measures and the reliability of the instruments more broadly. This is an especially important consideration as digital inequalities research continues to develop across the Arab region where it has hitherto been limited and invariably draws upon traditions developed for non-Arab contexts. For countries containing large and highly diverse expatriate populations, such as many found in the Gulf and Arabian Peninsula, such steps may well be considered essential.

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