Throughout the second half of the semester, we have learned 5 new theories. These theories include; Postcolonial Computing, Decolonization/Decolonial computing, Indigenous Knowledge, the Asset-based design/approach, and Aspirations. Each of these theories have different strengths, weaknesses, and even opposing viewpoints on the direction ICTD should take. However, I believe that overall, the theory of Aspirations is the most effective for ICTD generally, because it forces developers to either create more useful yet less intrusive technology or to limit the role of technology in certain parts of the world altogether. Also, because aspirations go against a needs-based approach which encourages a more positive approach to development.

The first ICTD theory we learned in the second half of the semester was Postcolonial computing. Postcolonial computing is a sub-field of human-computer interaction (HCI) which focuses on the user-centered design of technologies. Postcolonial computing aims to better understand how research, design, and practice are culturally located and power laden. It is a shift in perspective that is brought on by the difficulties of transferring technological knowledge in ICT4D and HCI. According to a 2010 seminal article by Irani et al*.* titled, *Postcolonial Computing: A Lens on Design and Development,* Postcolonial computing is not about making better design for “other” cultures or places. Postcolonial computing is more so about understanding how all design research and practice is culturally located and influenced by the power and influence of bigger cultures. Furthermore, Irani et al. states that Postcolonial computing is not a problem to be solved, but a reality that that should be core to the design practice- seeing the ways that design is culturally specific will broaden the conversation for what counts as good design.

The second ICTD theory we learned in the second half of the semester was Decolonization, or more specifically decolonial computing. Decolonial computing is about interrogating who is doing computing, where they are doing it, and, thereby, what computing means in relation to knowing and being. Decolonial computing also embraces computing informed by non-U.S. and non-European world systems. A big difference between Decolonial computing and Postcolonial computing is that Decolonial computing explicitly deals with race. Also, according to the 2016 text, by Syed Mustafa Ali, titled, *A Brief Introduction to Decolonial Computing*, post-colonial computing is silent on questions of respirations. In the text they mention that post-colonial computing asks the question “what can we build tomorrow” which blinds us to our ongoing responsibilities for what we built yesterday. In essence, Decolonial computing challenges us to be more open-minded and incorporate and encourage information that was researched by other less developed countries, as well as, be more considerate about our own involvement in data collection during design efforts.

The third ICTD theory we learned in the second half of the semester was Indigenous knowledge. Indigenous knowledge can be defined as the knowledge that a local community accumulates over generations of living in a particular environment. Indigenous knowledge is the homegrown knowledge that is unique to a given culture or society. A product of the knowledge of an indigenous community, e.g., indigenous languages, artefacts and practices. An approach to understanding how knowledge is created, shared, stored and developed among indigenous communities. According to the 2015 paper by Awori et al titled, *Transnationalism, Indigenous Knowledge and Technology: Insights from the Kenyan Diaspora*, there are three “P”’s of knowledge. Knowledge of people refers to knowledge that is related to the community. Knowledge of place refers to knowledge that is tied to ancestral lands. Lastly, knowledge of practice refers to lived experiences and face-to-face interactions.

The fourth ICTD theory we learned in the second half of the semester was the asset-based design/approach. This approach is the first theory that moves away from the ‘needs-based’ developmental approaches. According to the 2019 paper by Pei and Nardi titled, *We Did It Right, But It Was Still Wrong: Toward Assets-Based Design*, Asset-based design focuses on what individuals and a community have that can help them deal with their challenges. Furthermore, assets in this concept refers to any skills, knowledge, or relationship. The term asset differs from assets in other concepts we’ve discussed earlier in the year. I remember discussing assets in relation to the sustainable livelihood framework. In that framework assets were human capital, financial capital, physical capital, natural capital, and social capital. These 5 livelihood assets are similar to the asset-based design, but they are different in that they are a lot broader (i.e., things like skills, knowledge, capacity, resources, experience or enthusiasm) that individuals and communities have which can help to strengthen and improve things locally. Also, while not explicitly addressed in the reading, Indigenous Knowledge is also an asset.

The last ICTD theory we learned in the second half of the semester was Aspirations. Aspirations is the second theory that rejects the ‘needs-based’ developmental approaches. According to a 2018 paper by Toyama titled, *From needs to aspirations in information technology for development*, the aspirations approach emphasizes technology and design that helps people achieve their aspirations. The overall goal of this approach is to lessen dependency on aid by helping people achieve longer-term goals & sustainability, and to embrace a more positive approach on development. The ICTD theory of aspirations is also very interesting in that it makes clear the limitations of technology; making tech designers aware of the narrow range of effect ICTs can generate. This means that this theory can actually go against the role of technology if it is not beneficial to meeting the aspirations of others.

Now that I’ve summarized each of the approaches, I will now go more in-depth with each approach, and list their strength and weaknesses in regards to which is the most effective for ICTD generally. The first theory I will analyze is Postcolonial computing. According to the week 9 PowerPoint, the strength of Postcolonial computing is that it moves us from a “development” discourse to a postcolonial discourse. Which focuses on the questions of power, authority, and legitimacy in the context of cultural encounter, particularly in the context of contemporary globalization. In my own words, this means that Postcolonial computing shifts the mindset of trying to help develop less fortunate countries through better designs, but instead focuses on how design research depends on culture and location, as well as, how more developed countries tend to have too much influence and power through means of computing when compared to other less developed countries.

The weakness of Post-colonial computing, as mentioned earlier, is that tends to not focus on the issue of race and instead speak in terms of “colonial,” “cultural,”, and “power” formations. I believe the lack of focus on the issue of race likely coincides with another weakness of Postcolonial computing, which is that Postcolonial computing is a Eurocentric critique of Eurocentrism. Overall, I like that Postcolonial computing shifts the mindset of designers, and also encourages designers to consider other cultures in the design process. However, as a tool for ICTD I don’t think it is particularly effective. Postcolonial computing doesn’t try to solve any problems it more so asks designers to be more conscious of different cultures and to not be power laden. I believe that an effective ICTD would act as a solution to a variety of different people, cultures, and ethnicities by improving the lives of both the individuals and their community. I do not think Postcolonial computing would act as that solution.

The second theory I will analyze in terms of strength and weakness in relation to the effectiveness for ICTD is Decolonization. The strength of Decolonial computing is that unlike Postcolonial computing it deals with race. Also, Decolonial computing encourages less developed countries share their “unfiltered” knowledge and information, free of influence from countries like the US. Another strength of Decolonial computing is that it is an action rather than a state. For example, in the Wikimedia article we read in class, Wiki foundation wanted to decolonize the internet by encouraging more African contributors to the site, in order to obtain more legitimate information. Lastly, through Decolonial computing, we have an understanding of who is doing the computing, where they are doing it, and what computing means. This correlate to how information from other countries can be tracked. The main weakness of Decolonial computing is that it doesn’t necessarily solve any major problems that might be inhibiting an individual or a community. it just encourages involvement of other countries to be willing to disclose information.

Overall, I like the theory of Decolonial computing and think it is a very useful tool for ICTD, and prefer it over Postcolonial computing. There are many strengths and I like that it encourages other countries to share their knowledge instead of just accepting the information that more developed countries spread. However, I think that there are many problems that individuals and communities face in less developed countries that Decolonial computing wouldn’t be able to solve. Therefore, I don’t think that Decolonial computing would be the most effective for ICTD out of the five theories we’ve learned over the second half of the semester.

The third theory I will analyze in terms of strengths and weaknesses in relation to the effectiveness for ICTD is Indigenous knowledge. The strength of Indigenous knowledge is that it is a use as a means of decolonization. As mentioned earlier there are three Ps of indigenous knowledge. These three knowledges are important because they are the varying information that indigenous people have managed to accumulate. The important part is that this knowledge can be shared as a means of decolonizing the current structure of information sharing in which larger more developed countries tend to influence other less developed countries with their own knowledge. For example, In the Ted Talk with Chika Esiobu she explained that she bought an alphabet sheet, but noticed that a letter like “A” was associated with apple. But in her location apples weren’t readily available and a rare commodity. So, learning the alphabet would be harder for children in South Africa because they would have to associate the letters with items that are not common which would make it harder for kids to learn. I use this example to illustrate how larger countries can negatively affect less developed countries by having too much influence in information sharing. So, sharing Indigenous knowledge as a means of decolonization can help limit scenarios like the one listed above because more local knowledge would be readily available to learned.

Similar to Decolonial computing the weakness with Indigenous knowledge is that it requires countries to actually be willing to share the knowledge they have stored. Lack of technology could be a reason why less developed countries might not be able to share information to the rest of the world. However, in the video Chika also mentioned that during business negotiations with a less developed country and more developed country she noticed that the less developed country would be quicker to sign and less likely to negotiate. So, I think part of the reason less developed countries might be less willing to share information is because they automatically think more developed countries are always right or know the right information which is definitely not the case.

In terms of usefulness and effectiveness as an ICTD I think Indigenous knowledge is definitely useful and the sharing of information is beneficial to the entire world, because more accurate information can be spread. However, like I mentioned earlier while sharing information helps many individuals and communities, it still requires that less developed countries actually share that information. Also, the sharing of information might not be able to solve a lot of other problems that individuals or communities might have.

The fourth theory I will analyze in terms of strength and weakness in relation to the effectiveness of ICTD is Asset-based design. The strength of Asset-based design is that it doesn’t focus on solely the needs of an individual or community, but instead what the individual or community has that can help them meet their own challenges. After focusing on needs, people feel needy and look to others for solutions. But after focusing on assets, people begin to think of all the things they could do with what they have at hand to improve their lives and their community. The challenge is how to build on the positive, 'can do' feelings that the assets mapping exercise arouses. It is so easy to feel like a victim and to experience the ‘poor me’ feelings that stifle innovation and creativity. Furthermore, within the Asset-based design there is a community-building approach that seeks to create networks to support people to improve their lives (ABCD). ABCD starts by identifying the strengths in a community (such as skills, capability, passions and knowledge) and then unlocks the power of individuals and associations to improve the lives of the people around them.

The weakness of the Asset-based design is that it can be challenging to actually implement. People are used to thinking about what's missing and what's needed first, without considering what is already available in the community to do community work. An Asset-based approach, for many people, is unfamiliar and new. In an asset-based approach, which relies on local knowledge and resources, it may be uncomfortable for the experts to cede some of their power to the community. It may also be uncomfortable for some community members to take ownership and responsibility for identifying and mobilizing the resources they have to contribute. The localness of asset-based community development is also another problem. Some The overreliance on local resources and a lack of awareness of global resources available for the community work can be a weakness. Lastly, asset-based community engagement fails to address significant power differences in the community, since power, privilege, and influence do make a difference in community work.

Even with all the weaknesses I still believe that Asset-based design is the second most useful for ICTD of the five theories mentioned in this essay. I love the idea of communities working towards meeting their challenges instead of waiting on others for the solution. I also like the idea that a community focuses on meeting it’s challenges rather than only focusing on the needs. Needs tends to be very short term, while I think long term goals and challenges are much more important in the long run.

The fifth and final theory I will analyze in terms of strength and weakness in relation to the effectiveness of ICTD is Aspirations. The strength of Aspiration is that it is very easy to understand and also implement. Also, Aspirations tend to be more personal. I think that if people within a community each work towards their aspirations, then the community as a whole will benefit. In addition, aspirations are similar to the Asset-based approach in terms of not focusing on needs, embracing a more positive approach to development, and lessening the dependency on aid from others. Aspirations inspire broader change by serving as a motive force, and aspirations can also be operationalized which means they are not likely derived from socially desirable responses.

The main weakness of aspirations as a tool for ICTD is that it diminishes the role of technology. I know that this sounds like a contradiction. How can Aspirations be an effective tool for ICTD if is diminishing the very role of technology? The reason I still think that it is a useful tool for ICTD is because it challenges its very nature. Often times what a community, culture, country, etc. to improve is not more technology but less technology, then I think that this would still be useful for ICT developers, because it forces people to adapt and either create less intrusive but still useful technology or limit the technology in that area all together. Either way this would still benefit the world even if it means less technology being readily available in all parts of the world. I really love the theory of aspirations because less can sometimes be more, and to overcome hardships individuals and communities need to rely on themselves and work towards their goals.

I’ve learned so much while writing this paper. Summarizing and researching each of the different theories brought me more insight into each of the theories. The first time I learned about Postcolonial computing I had no idea what I was reading and found the idea difficult to understand. However, after writing this paper I have a better grasp on how research, design, and practice can depend on the culture and location, and can also be power laden. Also, I’m more confident that I can relate different theories and find connections between them. For example, Indigenous knowledge can be shared as a means of decolonization. Also, how both the asset-based approach and aspirations are not needs-based and both encourage individuals and communities to not rely on outside aid to meet their challenges. Throughout the entire semester this class has opened my eyes to how advantageous and disadvantageous technology can be. Technology can be a means to help people, but it can also be a powerful tool that can actually hurt people and groups more. Technology can help or inhibit the development meant of groups, and I think understanding this is crucial for the future since I plan on making different software’s to a variety of different people. In the future I will be more conscious of how any technology I create can benefit some and be a negative to others. I think understanding this idea and many others that I have learned this semester was a big aha moment that I think has made me a smarter, empathetic, and more aware person. Thank you!