Summary

Context  More than 20 million children under the age of 18 are married each year, despite a global effort to end this practice over many decades. Current trends calculate that even if the percentage of marriages involving children is going down, the total amount of such marriages is likely to increase because of population growth. Child marriage has a negative impact on education levels, health, work opportunities and economic development both for the individual(s) involved and the community around them. While mobile applications have been used for many programs in low-development areas, a very small amount of these have focused on child marriage.

Objective  The objective of this project is to design, prototype, and develop mobile applications that can be used to combat child marriage. It will test different designs and design methods in the field, and analyze the findings of these case studies to learn how users in low-development areas react to mobile applications and the different implementations tested. It will also provide an overview of the current state of the art around child marriage and the methods used to prevent it, Human Computer Interaction for Development, and designing mobile applications for low-literate users. The following research questions will be answered:

1. RQ1: What is the current state of the art of using apps to combat child marriage?
2. RQ2: How do different design choices effect the effectiveness of conveying information about child marriage?

Method  The project consists of two phases: a preliminary phase which uses structured interviews to gather information from experts on child marriage, and a testing/prototyping phase that will conduct case studies in areas where child marriage is prevalent. The latter will be conducted in cooperation with organizations that are already working in and have knowledge of the areas where the testing is conducted. A semi-structured interview process will be used in the case studies to gather insight and ideas from the participants. Prototypes for several design methods will be tested, allowing for insight into their relative effectiveness.

Conclusions and further work  Through research on the current state of the art on the use of mobile applications in low-development areas and the interviews conducted, it seems clear that there is a need for and use case for mobile applications to prevent child marriage. The next part of this project will be to design testable prototypes and deploy these in a field testing environment. This testing will provide valuable insight into the effectiveness of apps for this problem and how users in low-development areas react to various design methods.
Preface

This thesis is submitted to the Norwegian University of Science and Technology (NTNU) as part of the course TDT4501 Computer Science, Specialisation Project. The work has been performed at the Department of Computer Science, NTNU, Trondheim, under the supervision of Professor Letizia Jaccheri.
# Table of Contents

Summary i
Preface ii
Table of Contents iv
List of Figures v
Abbreviations vi

## 1 Introduction
1.1 Motivation .................................................. 1
1.2 Research Question ........................................... 2
1.3 Objectives .................................................... 3

## 2 State of the Art
2.1 Search method ............................................... 5
2.2 Reasons for Child Marriage .................................. 6
2.3 Prevention Methods ........................................... 7
  2.3.1 Empowering girls with information, skills, and support networks . 7
  2.3.2 Educating and mobilizing parents and community members ..... 8
  2.3.3 Enhancing the accessibility and quality of formal schooling for girls 8
  2.3.4 Effectiveness of Conditional Cash Transfer Programs ............... 8
  2.3.5 Fostering an enabling legal and policy framework ................. 9
2.4 Apps and Child Marriage .................................... 9
2.5 Human Computer Interaction for Development ................. 10
2.6 Designing for a low-literate audience ........................ 10
2.7 Local differences ............................................ 11
2.8 Conclusion ................................................... 11
List of Figures

5.1 Design 1, which provides information and statistics. Prototype design on the left and Bandhan Tod on the right. . . . . . . . . . . . . . . . . . . . 22
5.2 Design 2, based on arguments and talking points . . . . . . . . . . . . . 23
5.3 Design 3, a story-based approach . . . . . . . . . . . . . . . . . . . . . . . . . . . . 24
5.4 Design 4, using videos and text-to-speech . . . . . . . . . . . . . . . . . . . . . . . . 25
5.5 Design 5, displaying contact information of different local entities . . . . 26
5.6 Design 6, with links to different publications about child marriage . . . 27
5.7 Design 7, a social network . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 28
Abbreviations

UNFPA = United Nations Population Fund
ICRW = International Center for Research on Women
ICT4D = Information and Communication Technologies for Development
HCI4D = Human Computer Interaction for Development
NGO = Non-governmental Organization
NTNU = Norges Tekniske og Naturvitenskapelige Universitet
NSD = Norges Senter for Forskningsdata
Chapter 1

Introduction

Child marriage is any marriage where one or both of the participants is under the age of 18. Today, more than 12 million such marriages happen every year (44). The eradication of child marriage is subgoal 5.3 of the UN’s Sustainable Development Goals, but at the current rate this goal is far from reaching its 2030 deadline (45). Combating child marriage is a complex project which requires changing cultural, religious and ethical norms and traditions (45).

This paper explores the design and use of digital tools for spreading information about the dangers of child marriage in places where this is happening. Through cooperation with international NGOs and other organizations which operate in such areas, it will identify design challenges and opportunities that arise when developing and designing for people who are often on the fringes of internet and mobile device availability. In addition, it will prototype and produce several designs and approaches to spread information about child marriage, and test these in the field.

This chapter starts by introducing the motivation behind the project, then the research questions are presented in section 1.2. Finally, the objectives of the project are discussed in 1.3.

1.1 Motivation

Today, 21% of women between 20 and 24 were married before they turned 18 (44). Child marriage leads to lower education, physical and psychological problems, and depression, and The World Health Organizations has found that complications from pregnancy and childbirth, of which 9 out of 10 happens within the bonds of marriage, is the leading cause of death among adolescents (34) (15) (50). Being subjected to early marriage has significant impact on the future of a child, as they are far more likely to stay illiterate, drop out of school, and experience poorer health (37). While there has been significant work done to stop child marriages worldwide, population increase means that certain parts of the world will see an increase in the absolute number of people subject to child marriage (45). In addition, whereas some countries have had great success with their programs,
Chapter 1. Introduction

others have seen little or no decline in the rate of marriage. There are still eight countries in
the world where more than half of all children are married off before the age of 18 (45).

While we often think of child marriage as something that only happens in less developed
countries, this is not always the case. Even in countries with strong laws and safety
checks against underage marriages, kids sometimes find themselves married away while
visiting their familys home countries. The Norwegian Red Cross has had a child marriage
helpline since 2008, which received more than 250 calls in its first four years of service
(41). In 27 states in the USA, there is no lower limit to the age at which a person can
get married as long as there is judicial and/or parental approval. Close to 60,000 children
between 15-17 years old were married in all of the U.S., around 0.5% of all children in
this age group (39).

In 2017, the UN Population Fund (UNFPA) and Gender Alliance Bihar launched a
project in the state of Bihar in India called Bandhan Tod (18). It is a mobile application
with educational videos, an SOS button which contacts the Gender Alliance, and monetary
incentives for installation and use. In its first three months on the market, the app had 3000
downloads and more than 240 distress calls, proving that using mobile applications against
child marriage is working and is worth studying closer. Bandhan Tod is further discussed
in chapter 2.4.

This project looks at the opportunities of taking the approach used by Bandhan Tod
and bringing it to other parts of the world. Bandhan Tod was created in close cooperation
with local organizations and with local conditions in mind. Its effectiveness outside of its
home state is thus limited. Instead of focusing on one specific area, this project instead
looks at building a system from the bottom up with scalability and modularity in mind, while
still facilitating for localization in each implementation.

1.2 Research Question

This thesis looks to answer questions related to the development and design of mobile
applications in areas that often suffer from low literacy rates, reduced access to electricity,
poverty and which lie on the periphery of internet access. While the focus of the project
lies on the prevention of child marriage, these questions would be relevant for any project
operating in these areas, especially when it comes to spreading information. By creating
prototypes using different design methods and testing these, this project will gather user
feedback that is valuable for a variety of use cases. In addition, it will determine which of
these methods, or combinations of them, that are the most efficient to convey information
about child marriage specifically. The following research questions will be answered:

1. RQ1: What is the current state of the art of using apps to combat child marriage?

2. RQ2: How do different design choices effect the effectiveness of conveying infor-
   mation about child marriage?

The first research question will be answered by a preliminary study of today’s state of
the art, as well as interviews with expert in the field of child marriage. The second question
will be answered with in-field testing Spring 2019.
1.3 Objectives

The literature review in this thesis is meant to provide an overview of all the different aspects of developing an app targeting child marriage. Since mobile development for this purpose is scarce, this requires combining information from many different disciplines and retargeting them towards mobile development. In addition, the literature review will cover research on the effectiveness of mobile applications in low-development areas, and the additional issues faced under these conditions.

In addition to answering the research questions laid out above, this thesis aims to design, test, and develop a prototype for a digital intensive experience. The first step in this is to do prototype testing in the field, which will be done in person and/or with the help from cooperating organizations. A new version will then be designed based on the feedback and results of this testing. The final goal of the project is to develop a system for creating localized apps worldwide, however this may be outside the scope of a master’s thesis.
State of the Art

While there has been significant research done on the subject of child marriage, none so far has been done with a focus on designing a mobile application. A small number of applications that aim to combat child marriage do exist, and these are discussed in section 2.4. Since there is no previous research which directly covers the subject, it was decided that a systematic review was not applicable in this instance. Systematic reviews work better when comparing papers around the same subject. As this project instead tries to combine multiple, diverse subjects, this literature review will instead look at the state of the art within each of these subjects.

The first section in this chapter explains how the research was conducted. The following three sections in this literature review will provide an overview as to why child marriage happens, what methods can be used to prevent it, and cover some mobile applications that have been designed for this problem. The next three sections discuss different parts of Human Computer Interaction for Development (HCI4D), a part of HCI which focuses on development for people in low-development areas, with 2.5 giving a general introduction to HCI4D. Section 2.6 talks about the extra difficulties one faces when developing for low-literate audiences, and 2.7 covers how local differences have to be taken into consideration.

2.1 Search method

As much of the data gathering and work done on child marriage is by global NGOs, most of the information found here is from publications and policy briefs made available by organizations such as the UNFPA, the International Center for Research on Women, and Plan International. In addition, it will provide some select examples of projects that have tried different methods of preventing child marriage. The latter sections do not look at child marriage specifically, but rather the development and design of mobile solutions used in low-development areas and for people with low literacy skills. Here, aggregate sites for scholarly literature, in particular Google Scholar, IEEE, and ACM, were the primary sources for initial research. These were initially searched using broad search strings such
Chapter 2. State of the Art

as "child marriage", "ICT4D", and "low-literate AND (software OR mobile)". The initial set of relevant articles was then explored for any relevant references, as well as forward snowballing by using Google Scholar’s “cited by” feature. In addition, the initial set of papers were used to compile a set of relevant conferences. The most relevant of these conferences were then searched manually for relevant articles in order to get a complete overview of the current state of the art. These conferences were as follows: IST-Africa 2017, IST-Africa 2018, ACM Compass 2018, ICTD X, IDC 2017, and IDC 2018

2.2 Reasons for Child Marriage

Reducing the rate of child marriage has been an important focal point of multiple projects and research efforts, with many different methods being tried (34) (4). Roudi-Fahimi and Ibrahim (42), looking at the Arab region, identify the following underlying reasons for child marriage:

1. Poverty
   There is a clear correlation between poverty rates and child marriage. Poverty is also linked to lower education, less access to police assistance, fewer opportunities at getting work. Family honor Being married early reduces the chance of a girl being sexually assaulted, kidnapped or suffer from other humiliating acts. Because of this, many parents will marry off their daughter to someone they believe can protect them.

2. Financial incentives
   In some areas young girls are seen as having no value, which means they provide nothing but extra expenses for the family. In cultures that practice dowries, a younger bride is often worth more because there is a higher chance that she is "pure" (34).

3. Low education
   Schools do not only provide education which again means higher earning potential later in life, but are also a safe space where social bonds can be formed. Children who live isolated from others are more likely to be married away early.

4. Patriarchal laws
   Many Arab countries follow sharia laws which grant men increased control over the lives of women, ranging from men being the only ones allowed to initiate a divorce to women being banned from interacting with the state unless a male family member does it for her.

5. Non-enforcement of laws
   Even though many of the countries studied have laws which ban all marriage before the age of 18, these are sometimes not strong or enforced enough.

6. Public awareness
   When people are not educated on the dangers and other negative aspects of child marriage, it is difficult to end it. Other studies have shown that just informing girls of
their opportunities outside of marriage has an impact on the rates of early marriage (16).

2.3 Prevention Methods

In 2011, the International Center for Research on Women published “Solutions to End Child Marriage - What the Evidence Shows” (9). This review looked at 23 programs which utilized five main strategies for delaying or preventing child marriage

1. Empowering girls with information, skills, and support networks
2. Educating and mobilizing parents and community members
3. Enhancing the accessibility and quality of formal schooling for girls
4. Offering economic support and incentives for girls and their families
5. Fostering an enabling legal and policy framework

These methods are covered in the following subsections.

Most of the programs focused on the first two strategies, often in combination. Their results found that programs working on the macro level of society, strategy 5, saw the weakest results. The strongest performers were those focusing on long-term changes in social and cultural practices. The problem with these kinds of programs is that they require a great amount of work on a personal level with the participants, meaning they have issues scaling up. These issues are further exacerbated by local differences in how and why child marriage happens, a problem discussed more closely in section 2.7.

2.3.1 Empowering girls with information, skills, and support networks

The first of these methods, and the most relevant for this project, is that of giving the girls who are at risk of child marriage introductory courses in information about child marriage, education and employment opportunities. An issue with these programs is that they have high cost in money and man hours, and as such few of them have seen large scale deployment.

One example of such a program worked with adolescent girls in Bangladesh, as noted by Amin et. al. (2018) (4). It used three different approaches to educate more than 9000 participants on the dangers of child marriage: education in mathematics, finance, and English to make learning more attractive; gender-rights awareness training focusing on critical thinking around gender roles; and livelihoods-skills training where the girls were shown opportunities in locally available occupations (4). All three intervention arms saw a later decrease in child marriage of 25%-30%. The project was reliant on volunteering participants, meaning that those already at a lower risk of marriage might have been more likely to participate. The authors also note the possibility that the act of showing up and showing that the government is serious about ending child marriage is sufficient to put a dent in the underage marriage statistics. Other studies show that informing children that there are other options than early marriage available alone can have an impact on their approach to marriage and employment (16).
Chapter 2. State of the Art

2.3.2 Educating and mobilizing parents and community members

This method is often deployed in combination with the previous method, and aims to provide the same information to the society as a whole. A focus point in many of these is to influence key societal members such as religious leaders, tribal elders and “Wedding buster” type groups. Since the parents are usually the ones who decide if a marriage is going to happen, convincing them that marrying off their child is a bad idea is most often enough to avoid any marriage proposition. Implementations of this approach range from one-on-one conversations with parents to large-scale public announcements across different media. Often, but not always, this approach is combined with the “Empowering girls” method in 2.3.1.

2.3.3 Enhancing the accessibility and quality of formal schooling for girls

There is a clear correlation between early marriage and early dropout of formal schooling (14). The connection works both ways; better access to education results in lower rates of child marriage in the region (5). At the same time, lower rates of child marriage lead to higher levels of education, as the girls are no longer required to drop out of school to work as housewives. Education on its own is still not enough to completely end early marriage practices, as shown by Amin et. al. (2017) (5). They note that

[...] investments in schooling, an important entry point, need also to be tied to income-generating skills and to the provision of improved security and safety in public spaces and workplaces. Safeguarding girls by empowering them with knowledge of their rights and access to remedies, [...], is also instrumental since concerns about safety can prevent girls from accessing opportunities and limits the potential returns on their education.

Higher education is a goal for many developmental programs, and these end up having an impact on child marriage tangentially to their own objectives. This is especially prevalent amongst programs providing education about sexual health and diseases (8).

2.3.4 Effectiveness of Conditional Cash Transfer Programs

The use of conditional cash transfer (CCT) programs, in which participants are given a monetary reward if they or their family reach a specific goal, have proven successful in many areas such as child health and growth, education, and child labor (12). An example is parents being promised financial aid should their kids finish middle school, which means there is no longer a need for them to pull their child out of school to help at the farm. This approach has also been attempted in the fight against child marriage, however Amin et. al. (2016) found that CCT programs are largely ineffective when applied to this problem (3). In their paper, they conclude that CCTs are not able to overcome the deep social and cultural norms that form the foundation of child marriage. In one case, the Apni Beti Apni Dhan (“Our Daughters, Our Wealth”) program in India, the CCT program ended up having a negligible impact on the amount of children married before 18, as well as an increase in the rate of marriage as soon as the girls turned 18 (33). It turned out that more than half
2.4 Apps and Child Marriage

of the participants saw the money as a means to help them pay for their child’s wedding, a traditionally expensive procedure. Only a third were planning to spend the money on further education for their daughter, which was the intended use case.

A systematic review by Lee-Rife et. al. in 2012 found evidence to the contrary that multiple CCT programs had an impact on marriage rates in Malawi and Kenya, but these programs did not focus on child marriage directly (27). Instead, they were linked to continued education and free school uniforms. This would suggest that CCTs which focus primarily on child marriage prevention perform worse than those linked to other aspects of life which in turn have a secondary impact on child marriage. This effect has also been found in educational programs linked to HIV awareness (8).

2.3.5 Fostering an enabling legal and policy framework

Most countries in the world have set the legal age of marriage to 18, although exceptions to these laws are not uncommon (39). Despite this, 68% of all child marriages happen illegally. Local traditions and self-rule, lack of sanctions, and religious laws overriding national laws are some of the reasons (49). Another issue is that of informal unions, in which a child placed in a relationship that is all but legally a marriage. These informal unions then turn into official marriages as soon as the child reaches the required age.

In addition to outlawing child marriage itself, legislation can be used to ensure that other aspects of society are in place to foster an environment which discourages early marriage. Ensuring education, and especially proper education for young girls, is noted by Wodon et al. (2017) as one of the key focus areas where legislation can make a difference (49). As labor force participation and vocational opportunities also has a significant impact on child marriage rates, laws which enable easier entry into the labor force for young women are also important (48).

2.4 Apps and Child Marriage

The authors of this project have found three projects that use mobile applications to prevent and delay child marriage which are presented in this section.

In 2015, Accenture in cooperation with CINI (Child in Need Institute) produced GPower, which tackled multiple issues such as school drop-put, human trafficking and child marriage (9). It tracks data on position, education, and health, giving the projects a large amount of data points which could be used to spot abnormal behavior. It was deployed to over 6000 families in West Bengal, India, and claims to have succeeded in all aspects. It was awarded Vodafone Foundation’s Mobile for Good 2015 award.

Another project in the Indian state of Bihar called Bandhan Tod (“Break your Shackles”) gave young girls access to reach out to member organizations of the Gender Alliance in Bihar, if they or someone they knew were in danger of being married away (18). It got over 3000 downloads and received over 300 distress calls in its first three months after launch. After receiving an SOS, a member of one of the partner organizations would seek out the parents of the bride-to-be and try to convince them to cancel the plans. Should this fail, they would then contact the local police for assistance. In addition to calling for help, the app would also provide educational videos and other information necessary to prevent
child marriage. To encourage use, several incentives were used to get people to download the app, including cheaper electricity.

Recently in early 2018, Plan International and the government of Bangladesh launched an app which helps marriage registrars verify the age of potential brides and grooms (38). Widespread document forgery has made it possible for parents to circumvent the legal age of marriage in the country, which has a child marriage rate of over 50%. The app has both an online and an offline version, as only 20% of Bangladesh’s population has access to internet. It helped prevent over 3,700 marriages involving underage participants within 6 months of its release.

2.5 Human Computer Interaction for Development

A part of the broader field of Information and Communication Technologies for Development (ICTD), Human Computer Interaction for Development (HCI4D) is an relatively new field within software development (36); the HCI4D featured community at the leading CHI conference was first introduced in 2013 (2). HCI4D focuses on the use of information technology to further socio-economic development on many topics such as developing countries, conflict zones, and ignored or disenfranchised groups (43). Despite being an increasingly more important field of research as mobile phones and internet access spreads to a larger and larger audience, it has received little scientific attention. As of December 2018, IEEE lists a single paper in its database with the keyword "HCI4D" (23). Google Scholar likewise finds 567 papers, a very modest amount for that site (24). The two main conferences around HCI4D are ICTD and ACM Compass (formerly known as ACM DEV) (1) (22).

2.6 Designing for a low-literate audience

Since the areas where child marriage is prevalent often overlap with areas of low education and income, the issue of low- and semi-literacy is one that must be considered (47). This has been one of the main issues for developers looking to produce applications for people who have recently gotten access to the internet and mobile technology. Applications stretching from banking to health and farming have all seen the need to make sure their software is usable even if the user has difficulties with reading (31) (25) (29).

A systematic review from Karageorgos et. al. (2018) on the use of mobile technologies in health care (m-health) found that receiving calls instead of text messages is a more accepted method in poorer countries of reminding patients of medical appointments (25). In contrast, mobile users in the western world find communication by SMS to be a less stressfull and invasive means of communication (28). One especially relevant part of their review looks at education of health care workers through mobile applications. This is similar to educating key personnel such as doctors, judges, police, and local leaders on the effects of child marriage, as mentioned in section 2.3.2. They found that SMS communication is not sufficient in these cases, as it did not carry enough information. Rather, they recommend sending links to sites with more information.
Another aspect that must be considered is that many people who are not used to interacting with technology might fear having to use it. One solution that has been attempted successfully is to first introduce the application to the users using Wizard-of-Oz prototyping on paper (10). Explaining how the app works using a familiar medium lets the users get to know it in a safer environment, making the subsequent introduction of the actual phone-based app simple.

2.7 Local differences

An important aspect of development for people in low-income, low-literacy situations is to look at the differences between people groups and how they adopt mobile services. A early study on this with respect to mobile banking (m-banking) was done by Medhi, Ratan and Toyama (2009) (32). Their study looked at m-banking efforts in India, Kenya, the Philippines, and South Africa. Local conditions proved to have huge impacts on adoption rate and number of users, but many similarities were also found. For example, price of using the service was an important factor. M-banking was quickly adopted in countries where m-banking turned out to be cheaper than traditional banking methods, while those places with cheaper banking services saw less inclination to use m-banking. This shows the importance of assessing the pre-existing solutions in place in each area before re-using solutions that have worked in other places already.

Another relevant paper is Atre, Kudale and Howard’s ”Addressing family planning needs among low-literate population in peri-urban areas of Delhi, India: a qualitative inquiry” (2017) (7). Family planning has much in common with child marriage, as both relate to family, sexuality, and old norms and misinformation. They found significant differences in how information about menstruation was gathered by inhabitants of individual suburbs of New Delhi. In Dankaur, the women in the study reported talking to their husbands first, then doctors. In Loni, 50 kilometers away, they preferred talking to other female members of the family. Males in both areas reported learning from their friends, looking to those who had been married before. While the sample size for this paper is small, it still illustrates local differences that one should keep in mind.

2.8 Conclusion

As can be seen from the previous sections, child marriage is a challenging and complex issue to target. One of the main difficulties is the limited access to and knowledge of internet and digital devices. In this regard, child marriage shares many of the same problems as other work within the Human Computer Interaction for Development research area. Even with the interest in HCI4D increasing, the problem is far larger than the research that has been done on it. In addition, child marriage is a subject with very ingrained cultural and social norms attached. Certain methods that have proven successful within other HCI4D programs, such as conditional cash-transfer programs, are thus less successful when applied here. Still, section 2.4 shows that the use of mobile applications can be successful, and that there are many ways in which apps can be used. It is therefore important to keep an open mind around which solutions one wants to implement and to be on constant
lookout for new inspiration while doing research on this subject.
Chapter 3

Research Method

For the initial research part of this project, structured interviews were conducted with representatives of some of the collaborating partners. These were meant to get feedback from experts on child marriage, to get their view on the research that had been done and to understand aspects that had been missed. A transcription of these interviews can be found in chapter 4.2. The question list can be found in Appendix B.

The implementation of the next phase of the project will take the form of one or more case studies which aim to gather data on the impact of different design choices in a specific area of the world. In each of these case studies, semi-structured interviews will be used to gather feedback and ideas from the participants. The prototypes will be presented both on paper using a Wizard-of-Oz methodology, and as design with limited functionality on mobile phones that are brought to the research area. The paper prototypes are used to create familiarity with the concept, as described in 2.6. If it is possible to gather data from multiple areas, a comparative study will be conducted. As differences even within a single country could be significant, multiple case studies could be performed without the need to travel across borders. The amount and location of these studies will be decided in cooperation with the partner organizations, as access to their facilities and help is a necessity.

The first section covers other methods that have not been used during this project, as well as a description as to why they were not chosen and how they could have been used. Section 3.2 explains the data mapping procedure, section 3.3 talks about the difficulties of finding participants for a project like this, and section 3.4 discusses the scientific paradigm that this project falls under.

3.1 Other methods

Several other research methods were also considered for this project. These methods, as well as why they were not used, are described in the following section.
1. **Questionnaires**

   Questionnaires have been used to measure the effectiveness of child marriage prevention programs, for example by Freij (2010) (16). One of their issues is the low participation rate, which means that they often require incentives for people to complete them (51). As the overlap between areas with child marriage and poor internet access is quite broad, the use of online questionnaires would be very difficult (? ).

2. **Design and Creation**

   The aim of a design and creation process is to provide a working artifact at prototype or higher level (35). While too big of an undertaking for this thesis, this method is likely to be used in a later project using the information unearthed by this paper.

3. **Experiments**

   As this thesis aims to remedy the fact that there is currently not enough research on using mobile applications for child marriage, there is currently not enough information to back any hypotheses on the topic.

4. **Action Research**

   A relatively new field of research, action research aims to solve a real problem in the field (35). Since the aim of this project is to produce general results that can be used in multiple places, the narrow field of action research is not applicable. It is however very relevant to the development of any product which uses the data generated by this project, as such a product must be made to fit local laws, organizations, language and customs. Bandhan Tod, as described in 1.1, is an example of such a localized product (18).

5. **Ethnography**

   An ethnographic study would without doubt be helpful for the project, as it would help uncover many of the underlying reasons for why child marriage takes place. Several ethnographic studies on the causes and effects of child marriage have been done (6) (17). There are two reasons why it has not been chosen for this project. First off, an ethnographic study is a costly endeavour, both in time and resources (35). Secondly, while it is great for gathering deep knowledge in a single field, it is confined to that one area. Still, anyone looking to develop actual software for low-development areas should check if there are any ethnographic studies done in the area they are operating, as these may uncover unforeseen circumstances that must be accounted for.

### 3.2 Data mapping

Preventing child marriage involves overcoming social and cultural norms, which requires a hands-on approach. It is also a problem where the effectiveness of a given project can be measured in two ways: number of marriages stopped directly (e.g. the number of times an SOS call was responded to and followed up on) and marriage rates in the participatory group as opposed to a control group. The first of these measurements does not count any secondary effects such as girls being able to convince their own parents not to marry them.
away, only those instances where actual intervention is needed. The latter necessitates extensive follow-up and results are not clear until nearly a decade later.

As neither of these methods are a good fit for this project, it seems clear that up-front and user centric testing is needed. The testing will take the form of one or more case studies in areas where child marriage is a problem. Each case study aims to figure out how different design choices impact the effectiveness by which the application can convey information about child marriage in that area. This multiple case study will consist of several interactions and interviews. The interviews will focus on prototypes of possible design choices, which are further explained in 5. Some of these choices are:

1. Pure information and statistics from reputable sources
2. Stories about child marriage
3. Social media platforms
4. Information about who to contact for help

Presenting these in turn and asking the participants for their thoughts and ideas around the concept will allow for valuable insight into how they feel about the different solutions. As their answers are unknown and likely to be surprising, these interviews will follow a semi-structured style. The reasoning behind going a for a semi-structured approach instead of unstructured is that having certain questions being answered in every location allows for easier comparison between the case studies.

3.3 Finding participants

As previously mentioned, the experiments will be done in as many areas as possible around the world. This presents its own set of problems. Getting access to children in high-risk areas for child marriage is difficult, not only because it in most cases requires travelling far away, but also because convincing them to join the experiment is likely to be problematic. Language barriers, unfamiliarity with research projects, and distrust of strangers are all possible issues. A good relationship with people already on the ground who already perform similar tasks is therefore a necessity. A cooperative effort has been planned by the authors of these project both with a company working on education in low-development areas and an international NGO which has people in place in several countries. These organizations already have systems in place for recruiting volunteers for their projects, and so most of the planning will be done in cooperation with them.

3.4 Paradigm

As this project focuses on (semi-structured) interviews and aims to uncover unforeseen problems, it follows closely to the interpretivism paradigm. A stricter survey-type research from the positivist paradigm might be able to more accurately pinpoint differences in how the different designs were perceived by the participants. For example, it might find that on a scale from 1-10, people in Angola rated the Story design choice 8.5, while those tested
in Indonesia gave it a 6.4 on average. This information is no doubt useful, but it would not be able to discern why did difference exists. A more informal survey might find that people in Indonesia are unfamiliar with stories told in text, and would prefer the story to be told audibly. As this information is more relevant, the interpretivist paradigm is a better fit for the project.
Cooperative efforts

As part of the research process, multiple organizations with experience around child marriage were contacted. Both Norwegian and international organizations were included. The goal here was two-fold. Firstly, they were asked if they were willing to participate in an interview about child marriage and mobile development in the developing world. Secondly, they were given a cooperation proposal which included a description of the project as well as an offer to join in as a partner. Being a partner involves further assistance to the project by helping to plan and implement the testing and prototyping sessions, but also a larger role in the development of the project. The Cooperation Proposal can be found in Appendix A.

The following section provides an overview of organizations which have expressed an interest in the project. Section 4.2 is a transcription of two interview conducted with experts in the field of child marriage prevention. Finally, section 4.3 covers the project’s use of students taking the Experts in Teamwork course at NTNU.

4.1 Stakeholders

The following organizations have expressed interest in the project and wish to be kept updated on its progress: The Norwegian Agency for Development Cooperation (NORAD), Red Cross Norway and Save the Children Norway.

Three agencies have offered to help the project with testing and other assistance: Plan Norway/Plan International, Leap Learning, and the International Center for Research on Women (ICRW). Closer planning around field testing involving these agencies will be done in early 2019. A likely solution is that the researchers will try to find a country where they can visit the local offices of at least two of these organizations, and conduct testing at both of these locations.
4.2 Interviews

Two interviews were conducted with representatives of Plan Norway and ICRW. These interviews followed a structured interview format and lasted between 30 and 60 minutes. Before the interviews, both participants were informed of the purpose of the interview and their rights to their personal data, in compliance with guidelines set forth by the Norwegian Center for Research Data (NSD). Each interview was conducted over Skype. The summary below has been edited for clarity and brevity.

1. **What does your organization do?**
   - Plan: Plan mostly works with children’s rights and gender equality. This includes education, health, food and water, and relief programs.
   - ICRW: ICRW focuses on women’s wellbeing, which stretches from preventing domestic abuse to cardiovascular diseases. To do this they use a tripronged approach: they conduct research; do policy engagement and communication; and help governments, businesses, industries, and other NGOs with implementation of gender sensitive policies and programs.

2. **In what areas does your organization operate?**
   - Plan: Over 70 countries in Africa, the Americas and Asia.
   - ICRW: 70 countries, with offices in Kenya, Uganda, India, and USA in addition to a research office in Amsterdam.

3. **Have you (personally) been involved in similar projects before?**
   - Plan: No, but I have heard of other projects which uses apps in a similar environment.
   - ICRW: Not around child marriage, but I have used mobile devices to create support hotlines for self abortion. Another project I was part of used apps to support hand washing.

4. **How has your organization used mobile applications in areas like this?**
   - Plan: For child marriage, Plan International has in cooperation with the Bangladeshi government developed an app which lets wedding registrars check if the birth certificates for possible newlyweds are legit. They also use apps for several other projects around the world.
   - ICRW: ICRW has not done mobile development themselves, but have delivered research to projects that use mobile phones. One example is a project that promoted access to reproductive health services.

5. **Are there any methods of fighting child marriage that we might not have thought of?**
   - Plan: Much like the wedding registrar app mentioned earlier, an option that digitalization brings is making reporting easier. This is a huge help for creating emergency phone lines.
   - ICRW: An important thing is to engage with community/religious leaders. If they can be convinces to preach a cause, they will often be able to convince their communities to follow them
6. **Do you know of any regional differences with regards to child marriage which would be of interest to the project?**

   Plan: No specifics, but localization is definitely important to do. What works one place might not work in others

   ICRW: In India the pressure for marriage is usually from the girls family, while Ethiopia sees the same for the groom. Additionally, local conditions could also change. One example is that the rate of child marriage often rises when natural disasters like drought happens, as parents want to hand the safety of their children over to others.

7. **Is there a gap in digital competency between young and old in areas where child marriage happens?**

   Plan: Unsure

   ICRW: Yes, as young people are usually more inquisitive and interested in gathering information.

8. **Do you have any tips for implementing the project?**

   Plan: There is definitely a need for a project like this, but the big thing is actually implementing it in a way that works on a local level.

   ICRW: As child marriage is contracted between families and not individuals, informing only the girls may not be enough. Often they dont have the power to cancel a marriage even if they want to. It is important to think about parents and community leaders, and involve them.

9. **Other comments**

   Plan: None

   ICRW: The biggest issues are access to internet and electricity, and literacy levels. Videos can be used to help in areas with low literacy, but as people have limited credits to spend on downloading a whole video this might not work if people have to get the video on their own.

### 4.3 Experts in Teamwork

Experts in Teamwork is a course taught at NTNU for graduate students. The students work in cross-disciplinary teams to complete a project as part of a "village" with a specific theme. This project has been allowed to join the village for ICT-Enabled Social Innovation for Social Good. A bootcamp will take place in January 2019 where the project will be presented for the students of the village, and a team of students created to help study the opportunities and problems facing the project in further detail. Final decisions about what the students will do will be taken after a brainstorming session where they can share their ideas.
Chapter 5

Design Alternatives

The following design choices are the ones that are planned to be used in the project. An explanation for each design’s strengths and weaknesses is given, as well as a simple mock-up design for how the design might look during the prototyping process. Each subsection covers a single design idea, in the following order: 5.1 uses information and facts, 5.2 uses arguments, 5.3 uses storytelling, 5.4 uses videos, 5.5 uses contact information for organizations which might be able to help, 5.6 uses links to other sources of information, 5.7 uses a social network, and finally 5.8 explores the possibilities of other designs which have not been thought of.

5.1 Informational

This design attempts to display and explain statistics, information and facts about child marriage. Showing information on how and why child marriage has declined around the world will show that the world does not demand nor approve of this practice, and that a life without it is better. The webpages of the United Nations Populations Fund and Girls Not Brides work in a similar fashion (20) (47). Testing this design would find how easily the information is understood, the believability of it, the differences between how young people and older people handle the information, and how the statistics should be illustrated.

The design shown in figure 5.1 is based on Bandhan Tod’s (see chapter 2.4), with a similar tile setup for buttons which when clicked lead to more information. The SOS button has also been brought over, but is enlarged and more center stage. Changing the size of the SOS button is meant to make it more likely that the user will use it, however the effectiveness of such a design needs to be tested.
5.2 Argumentative

This design, while similar to the Informational approach as seen above, instead orders its information in the form of arguments against common misconceptions about child marriage. Some categories of arguments are shown in section 2.2. Groups of volunteers that try to convince people in their communities to avoid child marriages already exist in many places (38). An app with this design could help teach them the facts they need to convince other people, and let them prepare for any arguments they might meet. Testing the design means figuring out how to structure the arguments in a good way, if these volunteer groups feel like they need it and would use it, and the impact it would have on people outside of these groups.

The design as shown in 5.2 is meant to easily provide access to the argument the user is looking for. It is organized on themes, as the conversation in question is likely to focus on one theme at a time. A search bar is prominently displayed, as searching provides an easier way to find exactly what the user is looking for.
5.3 Story based

This design is based on emotions and feelings, telling the story of how a child’s life would differ if they are subject to early marriage or not. It has been shown by Freij (2010) that telling young girls stories about other women who have had successful lives by avoiding early marriage is an effective way of conveying information (16). From the same paper, we learn that while female educators in Yemen use stories, male educators prefer poetry. Cultural differences are an interesting point of notice for further development.

One thing to consider is whether or not to use images of real people or not. A real person may illicit a more empathetic response, but as shown by Chiao and Mathur (2010) the amount of empathy we subconsciously feel for others is often linked to the degree to which we feel a connection to them (13). For optimal results, one should then create separate stories for each area, illustrated by people who share the same characteristics as the end users. Instead of relying on facts and figures, this design tells a story about how a child’s life can differ if they are subject to premature marriage or not.

The prototype design in figure 5.3 is meant to convey how the app functions, since it would work a bit differently than the other designs. Instead of menus where you select categories and receive information, here the focus is on creating a compelling story. In this iteration the story is told through text, but using voice acting is also something that should be considered.

Figure 5.2: Design 2, based on arguments and talking points
5.4 Videos

This design is not a separate method in and of itself, but rather an option that can be implemented into other designs. The use of videos lets people who are unable to read still make use of the application, increasing its usability. It is also an effective and often more interesting way of learning than text, as shown in Maredia et. al. (2017). In their paper “Can mobile phone-based animated videos induce learning and technology adoption among low-literate farmers? A field experiment in Burkina Faso” they found that using animated videos is as effective as live demonstrations for learning and adoption among low-literate farmers (30). Other studies have shown similar results earlier, in several countries. (11) (19). Informational videos are also used in the Bandhan Tod application, as covered in section 2.4 (18).

Another aspect of videos is that they can prove memorable to those that watch them. A study in 2013 by Bentley et al. found that farmers in Benin who had been shown an informational video about rice farming four years earlier still remembered it (11). The video screenings had been very popular at the time, and sparked an increased interest in seeking out further information. For projects which aim to have personnel teach people about child marriage or other subject through short, informative sessions, it seems likely that videos are a good way to do this. This is especially true if the access to mobile equipment is poor in the areas, as the projects can bring their own equipment with the capabilities to play videos even if the locals lack it.
Based on this, it is clear that the inclusion of video lectures is desired. It should be considered as an alternative if the mobile devices and internet available to the local population is of high enough quality to support the disk space and/or bandwidth that video requires. Additionally, any projects where groups of educators spend only a small amount of time at each place should consider using videos for increased impact.

**Figure 5.4:** Design 4, using videos and text-to-speech

The design as shown in 5.4 is quite simple, with a video player, a header and a summary of the video in text format. Having text in addition to the video requires only a small amount of extra work, and lets users without the option of downloading entire videos still use the application. The text is also available in an audible version, to improve usability for non- or low-literate users. Videos across a wide range of subject matters will be made available.

### 5.5 Contact

This design is simply an overview of local and national agencies that can be contacted for information, legal assistance, police help or emergencies. It should, in addition to provide direct cellular and/or internet links give information on where the user can go to find the agency in person. The SOS functionality was one of the main foci of Bandhan Tod, which operated in cooperation with several local organizations (18). In order to be effective this approach must be highly localized to each area, and requires that the agencies displayed
in the app are aware of the project and capable of handling any inquires they receive.

**Figure 5.5:** Design 5, displaying contact information of different local entities

Since this approach needs to be highly localized, a country/city selector is used to show the most relevant information. The selection process will differ depending on whether the application is launched on a global, countrywide or local scale, and only the relevant information will be displayed. The "Contact" tab provides a list of local organizations. Logos for these entities are shown in the menu, as some people might only recognize logos and not the names. When clicked, a drop-down menu with more information shows how to contact the organization. Maps will be used when available, both to show the location of singular organizations and to provide an overview of all local opportunities in the "Map" tab.

### 5.6 Links

This design aims to simplify the development process by not displaying any information or assistance in itself, instead linking to other web sites that already have this available. The use of external sources makes it easy to localize information and update it, as everything is based on adding and removing links. As mentioned in section 2.6, a systematic review by Karageorgos et. al. (2018) recommends using links instead of SMS communication if the subject material is too complicated to cover in small bytes (25). With this in mind, a design which uses links seems to be more useful for educating those that are already
5.7 Social

convinced of the dangers of child marriage, and looks to get more information. One of the main target groups for this approach should then be active community members such as Wedding Busters or local leaders.

One glaring problem with this design is that it requires a constant internet connection, as the user will have to load each link they want to visit. Since internet access is often sparse in areas where child marriage is prevalent, this could prove a serious obstacle in many places (46).

![Figure 5.6](image)

**Figure 5.6:** Design 6, with links to different publications about child marriage

In figure 5.6 we see one view of this design, displaying publications on different aspects of child marriage. Other possible views include brochures, informative videos, speeches, and instructional manuals for things like health complications. Organizations like the UN, Girls Not Brides, and ICRW have many publications available to the public, so this design aims to give an organized and clear overview over what is available. As mentioned above, this design is more high-level than many of the others, and can accordingly use a slightly more advanced design.

5.7 Social

This design is meant to act as a social platform in which people can get in contact with others in similar situations, either for advice, emotional support or if they are in need of urgent help. Renken and Heeks (2018) provide an overview of the use of social networks
for ICT4D development, finding it highly relevant to the field. (40). Social networks are one of the main avenues of sharing information in disaster areas with internet access, used by both individuals and relief organizations (26). Having an easy and discrete way contact others helps alleviate any stigma and/or pressure from family and community members which might be present. Of course, a social network with no users is not very useful, so it might be necessary to "populate" the application with volunteers or people working in relevant organizations.

![Figure 5.7: Design 7, a social network](image)

The prototype here is quite simple, consisting of a timeline showing the latest updates from other people, a tab for messages, and a tab where the user can join and check out different groups.

### 5.8 Unknown

It is likely that some kind of design approach which the authors of this paper have not thought of will be found during the research. The designs presented in this chapter are mostly based around conveying information and explaining the issues around child marriage. This is quite different from Plan International’s project in Bangladesh, as described in section 2.4, which uses mobile applications to check the credibility of birth certificates. As more information about the causes of child marriage is found, we expect there to be one or more possible designs discovered that are more in the vein of the Plan International
project.
Chapter 6

Conclusion

In this paper we have presented a project aiming to combat child marriage on a global scale using mobile applications. Child marriage is a problem that, while slowly declining, is still prevalent and far from being eradicated (45). Population growth means that even with the current decline, the total number of child marriages might rise in the future. Regional differences also mean that this increase will be felt harder in areas like West Africa than in others like South-East Asia.

There is a large amount of research done on the causes and effects of child marriage, as well as case studies on the different methods to prevent it (16)(34)(3). A key finding here is that the reasons as for why child marriage happens are wide and varied, and often differ greatly based on the country and region. It has been found that one of the most efficient methods is to convey information to children who are in danger of being married off early, as well as their parents and communities (21). As spreading information is the key objective of this research, these findings are positive and show the relevancy of the project. We have also presented an overview of the field of Human Computer Interaction for Development (HCI4D), and two common problems within the field: designing for a low-literate audience, and local differences in how applications are perceived.

Based on the knowledge gained from the initial research, it was decided that the project will use case studies with semi-structured interviews to conduct its testing. An overview of other methods, why they were not chosen and how they could be used for similar projects is given in section 3.1. The problem of finding participants, which is often difficult in areas where the researchers have little to no experience or contacts, was solved by collaborating with organizations that are already established in areas relevant to the project.

We interviewed two experts in the field of child marriage as part of the data gathering, which is transcribed in section 4.2. Both found the idea of the project useful and relevant, and wish to cooperate further to see it implemented. One of the key takeaways from the interview with ICRW is that a focus on getting community and religious leaders on your side is important, something that will be taken into consideration as the project progresses.
6.1 RQ1: What is the current status of using apps to combat child marriage?

During this research phase, we were able to find three programs that have used mobile applications to fight child marriage. These are covered more in depth in 2.4.

1. **Bandhan Tod**  
   Bandhan Tod was the main inspiration for this project, and focuses on spreading knowledge about child marriage in rural populations. It also allows the user to contact organizations that can help them during crises (18).

2. **GPower**  
   GPower uses positional and other personal data to discover abnormalities which might mean that the user is in some sort of trouble. Although not fully concentrated on child marriage, it had great results on both this and other fronts. (9)

3. **Plan International**  
   This application lets marriage registrars check the credibility of birth certificates, which makes it easier to spot and deny marriage proposals that lie about the age of the participants to get around local laws (38).

While none of these have had any official research published in relation with them, they show that applications can be an effective way to prevent child marriage. One aspect that remains to be seen is the scalability of such projects. Bandhan Tod and GPower focus only on a limited area, while Plan International’s application is only usable by wedding registrars. Further work by the project described in this paper is likely to uncover several problems and opportunities around scaling that have not been explored by any of these previous programs.

Applications have been used in several other projects that take place in low-development areas, as shown in chapter 2.5 about HCI4D. While their findings are relevant, there are certain aspects of child marriage, especially socio-cultural norms (see section 2.7), which sets it apart from many other problems out there. It is therefore likely that this project will face difficulties that have not been tackled by earlier research projects during its testing phase.

6.2 RQ2: How do different design choices effect the effectiveness of conveying information about child marriage?

Through research and interviews, seven possible designs have been identified and have had simple prototype mockups made of them. Each design is explained in detail in subsections 5.1 through 5.8. A short description is given here:

1. **Informative**  
   Provides information and statistics about child marriage and its causes and effects.
2. **Argumentative**  
Gives answers to arguments used by those who are in favor of child marriage.

3. **Story Based**  
Tells a story which illustrates how early marriage removes opportunities from children’s lives.

4. **Videos**  
Videos are a highly effective way of teaching, especially when the audience has poor literacy skills. However, they do require good internet connectivity and can be burdensome to download.

5. **Contact**  
Lets the user get an overview of local organizations which can help them, and how to get in contact with them.

6. **Links**  
Provides links to publications, web sites, and other already existing sources of information about child marriage.

7. **Social Network**  
Builds up a social network that provides a space for people to ask questions or ask for help with regards to child marriage.

### 6.3 Further work

This project will progress into the design and prototype phase, with case studies of field testing as the next goal. Planning and implementation will be done in close cooperation with the partnerships that have already been established. The research provided in this paper will be expanded with the knowledge gained by these testing sessions, and presented in the form of a master’s thesis and one or more papers. Not only will this further expand the body of research within HCI4D, it will also be a first look at the use of mobile applications to fight child marriage.
Chapter 6. Conclusion
Bibliography

URL https://acmcompass.org/

URL http://chi2013.acm.org/communities/hci4d/


Freij, L., 2010. ”safe age of marriage” in yemen: Fostering change in social norms”. Brochure for USAID.


URL https://sigchi.org/communities/


URL https://www.unfpa.org/child-marriage


Appendix

1. Appendix A: Cooperation Proposal
2. Appendix B: Interview Questions
Cooperation proposal

{ORGANIZATION} – Jostein Brevik

In short
I am writing my master’s thesis on the development of software in poorer, more rural areas globally. The goal is to produce extended knowledge on how to design, as well as the development of, an app/website that helps prevent child marriage by informing the girls and society around them about the dangers of this practice. I’m sending this in hopes that you and/or {ORGANIZATION} would be interested in cooperating with me or know someone who would.

Who am I?
My name is Jostein Brevik (22), a Computer Science student specializing in Interaction Design at NTNU in Trondheim, Norway. My supervisor is Letizia Jaccheri, professor at NTNU.

What is the project?
The thesis is based around the idea of creating a digital intensive experience that helps combat child marriage. It is inspired by a 2017 UNFPA project in the state of Bihar in India called Bandhan Tod. Forwarding more than 200 distress calls in the app’s first few months on the market, this project has shown that mobile apps are an effective way of preventing child marriage.

My idea is to take the concept from only covering a single Indian state, to a worldwide arena. Going global means dealing with challenges such as different languages, local customs and laws, reasons for why child marriage is happening and the most efficient ways of conveying information. While many current attempts at combating child marriage focus on a single area or country, the goal of this project is to create a product that is adaptable and modular enough to be implemented in new areas easily. The research will therefore be focused on different ways of spreading information and how the results differs from country to country. Not only will this be valuable knowledge for the anti-child marriage project, but it will also be available for use by other developers looking to create software on a truly global scale.

I will spend the fall conducting a literature review of scientific papers in the relevant areas to the project, gathering information from stakeholders such as you, and writing a report on this. After Christmas I’ll start developing a prototype of the application and run tests and surveys on this to gather data. This data will then be the basis for my master’s thesis and any related papers.

Why am I contacting you?
1) My hope is that we can get a close cooperation going, to the point where this project becomes something you would want to have your name on.
2) In the hope that you can put me in contact with other projects who have done similar work previously
3) Global research is impossible without people on the ground who know the area, people and customs there. Since you are already established in many areas of the world, going through channels that have already been established with the local communities is far easier than building them up from the ground.
What do I want?
I hope that you see the value in not just my project, but also how the research I plan to conduct will be useful for later projects. In short, I’m looking for answers to the following questions:

1) Would it be possible for me to share my prototypes with your teams on the ground around the world, and have them gather data on the success of these prototypes?
2) Do you have experience with similar projects looking at not just the development of digital experiences in these areas, but in the different design approaches available?

What do you get?

1) Any and all research I do and publish will be freely available, meaning that any other projects looking to develop similar software can do so more easily. I do not mean to overstate my own importance here, but I think that putting a *scientific spotlight* on the development of “making the world a better place” apps can be of great benefit to solving many of humanity’s current problems. Of course, this research will hopefully be of use to you as well.

2) For the app itself, I am not averse to either letting you publish it in your name or using what I have accomplished as the basis for your own project. However, as I’m contacting multiple organizations with the same offer, I can not say how this will play out at the moment.

3) A master’s student willing to spend a year trying to find part of a solution to a problem that affects millions of people worldwide, **for free**

How to contact me

jostein.brevik@gmail.com  +47 988 60 574
LinkedIn  Facebook

Articles and inspiration

International Center for Research on Women’s report which finds that spreading information is the best way to reduce rates of child marriage:

United Nations Population Fund article on Bandhan Tod:

GPower, another app developed by Accenture and Child in Need Institute:
https://www.linkedin.com/pulse/gapp-more-than-200-saved-from-human-trafficking-julia-branch/
Interview questions

What does your organization do?

In what areas does your organization operate?

Have you (personally) been involved in similar projects before?

How has your organization used mobile applications in areas like this?

Are there any methods of fighting child marriage that we might not have thought of?

Do you know of any regional differences with regards to child marriage which would be of interest to the project?

Is there a gap in digital competency between young and old in areas where child marriage happens?

Do you have any tips for implementing the project?

Other comments