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Can role models influence female's decision to participate in the labor market? Evidence from a field experiment*

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Abstract

In this paper we experimentally test the effect of an intervention aimed at encouraging females to enter the labor market in Madagascar. We randomly assigned students in their last year of secondary education to watch a role model or a placebo video. In the role model videos, a female or a male narrate how they succeeded in achieving a goal they set for themselves. After video exposure, we gave female and male students the opportunity to apply for one of two types of jobs in our research team – assistant or coordinator. We find that the female role model encourages both females and males to apply for the advertised positions, compared to the placebo video. This positive treatment effect can partly be explained by participants' aspirations and current level of achievements. Moreover, we find that female students apply more often to the coordinator position compared to the control in the male role model treatment. Our results suggest that not only individuals from the in-group (females), but also males can serve as role models for females and foster behavioral changes.

Keywords: Aspirations, Role models, Performance, Competition, Gender
JEL Codes: J16, C9, I25, N37
Pre-registration No.: AEARCTR-0003119

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1 Introduction

Worldwide women are underrepresented in labor markets compared to men. According to data modeled by the International Labour Organization (ILO)[1], 45 percent of women are employed in the labor market compared to 70 percent of men (World Bank, 2020).[2] In addition, only 19 percent of corporate top managers in the world are female (International Labour Organization, 2018; World Bank, 2020). Women in developing countries face additional challenges. They often work in precarious and informal employment compared to men (Nordman et al., 2010). The shortage of women participation in the labor market and the lack of women in leading positions – especially from those with higher education and ability –, generates an economic loss as there is a valuable share of the labor force which is not being efficiently used (Cuberes & Teignier, 2016; Ostry et al., 2018; Hsieh et al., 2019). Increasing female participation in the labor market can contribute to economic growth and long-term poverty reduction (Duflo, 2012) and lead to increases in female's bargaining power, helping to reverse gender inequalities in the long run. Moreover, studies female participation in the labor market improves the household's economic situation, reduces the son preference, and increases children's welfare (Duflo, 2003; Qian, 2008; Kolev & Sirven, 2010; Duflo, 2012; Jayachandran, 2015; Ibanez et al., 2017).

Prominent reasons put forward in explaining the gender imbalances in labor market outcomes in developing countries are: fewer opportunities due to lower human capital (Arbache et al., 2010; Jensen, 2012), trade deficits and weak economic conditions (Arbache et al., 2010; AlAzzawi, 2014), lack of decision power within the household (Field et al., 2019; Cheema et al., 2019), concerns about women's safety and "purity" (Jayachandran, 2015), and social norms (Bursztyn et al., 2017; Jayachandran, 2020). Whereas these explanations refer to external constraints, this paper provides a different perspective and focuses on the role of aspirations as an internal constraint of females' participation in labor markets. It is argued that an individual's aspirations are determined by the lives and achievements of other people in the individual's cognitive window (Ray, 2006). However, people often lack successful examples, which prevent them from building aspirations and thus invest in a better future (Appadurai, 2004; Ray, 2006).

Since only a few women are in paid employment, and even fewer hold leadership positions, women in developing countries might lack successful examples from which they can learn from and form aspirations for a different future, In Madagascar, our study region, female adolescents lack role models that continue with their education and work in paid employment. Women in Madagascar are most often unpaid family workers. Moreover, early marriage and childbearing during adolescence are very common (Epstein et al., 2010). In 2018, 41 percent of women aged 20-24 years were married or in union before the age of 18 and 35.6 percent gave birth before that age (UNICEF Madagascar, 2018; UNICEF, 2020). Under these conditions, females can find themselves in a behavioral poverty trap, in which low aspirations produce low economic investments (Ray, 2006; Dalton et al., 2014; Genicot & Ray, 2017).

A possible route out of the behavioral trap is to provide successful examples of what similar individuals have achieved (Ray, 2006). In this paper we experimentally test whether exposure to role model videos, in which individuals narrate how they set and achieved a personal goal, can motivate female high-school students to apply to a job in a developing country context. Our study aims to answer the following research questions: Do female role models increase the propensity of females to apply and choose a high responsibility position? Does the gender of the role model matter in females' decision to apply?

[1] Employment to population ratio of individuals above the age of 15 in low-income countries obtained from World Development Indicators corresponds to 2020 estimates.

[2] In high income countries 51 percent of women and 65 percent of men are employed, while in low income countries 55 percent of women and 73 percent of men reported to be employed in 2020 (World Bank, 2020).

Observing how a similar person succeeds can raise individuals' aspirations by changing their perceptions of their opportunities and thereby inducing future-oriented behavior (Beaman et al., 2012; Bernard et al., 2014). Further, role models can also affect the determinants of aspirations, i.e. locus of control and self-efficacy beliefs. Observing how investments are connected to desired results can also increase individuals' (internal) locus of control beliefs, i.e. the beliefs of how actions and outcomes are connected (Rotter, 1966). Lastly, role models can lead individuals to revise their beliefs in the ability to achieve the same outcome – so-called self-efficacy beliefs (Stout et al., 2011). Based on the above evidence, we suggest that role models, who come from the same background, can lead female students to raise their aspirations, revise their beliefs about themselves, and also on women's performance in leading positions in general.

To shed light on our research questions, we conducted a field experiment with students in their last year of secondary studies in four public schools in Madagascar in 2018. Our study region is a relevant context to study since Madagascar is one of the poorest nations in the world (World Bank, 2019), where paid jobs are scarce (Nordman et al., 2010), and where labor market participation of women, especially young women, is a real challenge (Herrera et al., 2019). We focus our interest on the student population finishing their last year of high school because these young men and women are at the stage to decide what to do next. Moreover, women likely start lagging due to marriage or pregnancy at this stage. In the experiment, we randomly assigned 336 female and male students to watch either a Female Role Model, a Male Role Model, or a Placebo video. The treatment videos depict a female or male character who set a goal (becoming a teacher at a University) and show how they achieved it despite the different challenges they encountered. These characters provide an example of successful individuals and come from a similar background as the students participating in the experiment. The Placebo video includes the same two characters but discusses the differences in lifestyles between rural and urban areas. We measured students' aspirations, self-efficacy, and locus of control beliefs after video exposure. In addition, we conducted a lab-in-the-field experiment to measure participants' performance in a real-effort task and their preference to enter into competition. At the end of the session, we informed the students about the possibility to apply to one of two jobs in the research project of one of the principal investigators: assistant or coordinator. The main difference between the two real jobs is that the coordinator's position involves more responsibilities and has a higher remuneration. A week after the experiment, we gave the students their earnings from the lab-in-the-field experiment and collected their job applications.

Our results show that the Female Role Model video, compared to the Placebo, encourages female participants and male participants to apply to one of the positions. Female students in the Female Role Model video are 24.8 percentage points more likely to apply to any of the advertised positions compared to females in the Placebo group. We do not find similar evidence when comparing the Male Role Model and the Placebo group. When analyzing the type of position they applied to, we find a gender gap in the decision to apply to the more competitive position (coordinator position) present in the Placebo and the Female Role Model video. Yet, this gender gap almost disappears in the Male Role Model group. For the coordinator position, we find that female students in the Male Role Model group are 16 percentage points more likely to apply compared to females in the Placebo group. Our results provide evidence that not only successful people from an in-group can be role models. However, the gender of the role model matters in that they can serve different purposes.

Our role models are effective in increasing performance in the real-effort task, aspirations, and self-efficacy beliefs of female students. We find no evidence for changes in competitive behavior of female students after being exposed to the treatment videos. In addition, we test for a potential mechanism

driving applications to any of the positions. We find that aspirations and the current level of achievements can partially explain the decision to apply. The latter is positively correlated with the decision to apply to one of the positions.

To our knowledge, our study is the first that investigates the effect of role model videos on the willingness to apply for a job. Previous studies have shown that female role models are effective in closing the gender gap and encourage women to select into competitive environments (Stout et al., 2011; Breda et al., 2020; Meier et al., 2020; Schier, 2020; Ginther et al., 2020; Porter & Serra, 2020). The study closest to ours is by Meier et al. (2020), which assesses whether role models in videos affect competitive preferences in an online experiment. Compared to their study, we focus on the decision to apply to a job in a development context. Also, there is empirical evidence that role models shown in media or videos effectively alter the opportunities people perceive, the goals they set for themselves, and the investments they make (Chong & Ferrara, 2009; Jensen & Oster, 2009; La Ferrara et al., 2012; Beaman et al., 2012; Bernard et al., 2014; Riley, 2018). For example, Lubega et al. (2018) conducted a randomized controlled trial (RCT) in which they screened role model videos to women with HIV in Uganda and found that treated females were more likely to start a business, have higher income and savings, and better health. Yet, the above studies have not investigated the effect of exposure to role model videos on female's decision to apply to engage in paid employment. In addition, we are the first to investigate whether aspirations are the mechanism through which role models are effective in promoting behavioral changes. We further explore whether mechanisms such as competition, self-efficacy, and locus of control beliefs also play a role.

We contribute to two other important strands of literature. First, as we show a positive effect of role models on job applications, our paper is related to the literature that explores different strategies to encourage women to participate in the labor market. For example, Jensen (2012) finds that reducing asymmetries of information on labor market opportunities is effective in increasing labor market participation and career aspirations of young women in India. Further, Ibanez & Riener (2018) show how affirmative action in a field experiment attracts women to apply to jobs in Colombia. In similar lines, McKelway (2020) conducts an RCT in India, where she offered women a psycho-social program, followed by a job promotion video from the hiring company that was screened to participants and family members. The intervention increased women's generalized self-efficacy (GSE) and labor market participation.

Second, by showing that information on role models mitigates the gap in the willingness to select into competition by applying to the coordinator position, we extend the experimental knowledge on incentives that close the gender difference in the willingness to compete (Wozniak et al., 2014; Meier et al., 2020). The study of Meier et al. (2020) also provides evidence that the gender gap in selection into competition decreases when females receive information from role models. However, the kind of information and the type of role models are different from our study. Our intervention shows successful individuals from a similar background to those of the participants, who talk about their aspirations and how they achieved them. Meier et al. (2020) chose public figures who highlight the important role of competition in their careers.

The remainder of this paper is structured as follows. Section 2 presents the field setting and Section 3 explains the experimental design and procedures. Section 4 presents the hypotheses and Section 5 describes the empirical strategy. Section 6 describes the data and explains the main results. Section 7 shows an exploratory analysis about the potential mechanisms driving the main results. Section 8 discusses the results and concludes.

2 Field Setting

To study the effects of a role model intervention on the decision to apply to a job, we chose Madagascar as our study region. Madagascar is one of the poorest nations in the world, with around 77.6 percent of its population living under USD 1.90 per day (2011 PPP) (World Bank, 2019). As a large share of the population is involved in agriculture, most of Madagascar's labor force is working in unpaid jobs or in the informal sector (Nordman et al., 2010). Paid jobs are scarce, making the formal labor market very competitive and difficult to access (Stifel & Rakotomanana, 2007). In 2018, 83.3 percent of females were estimated to be in the labor force compared to 89 percent of the males (ILO, 2020). However, the largest share of the female workforce is involved in agricultural activities or is employed in the informal sector and thus receives lower wages compared to men (Nordman et al., 2010). Similar to other countries in the world, women are not only underrepresented in the formal labor market, but also in private and public leadership positions compared to men (Kolev & Sirven, 2010). For instance, according to the data reported by World Economic Forum (2019), 28 percent of top managers in Madagascar are women, and 16 percent of seats in parliament are held by women.

There is also a gender gap in the formal labor market for young cohorts (Stifel & Rakotomanana, 2007) and, although less prominent, in tertiary education enrollment rates (UNESCO Institute of Statistics, 2020). While there is no evidence of cognitive ability differences between female and male students (Herrera Almanza et al., 2017), one reason that explains these gaps is the prevalence of child marriage and early pregnancies (UNFPA, 2015; Glick et al., 2015; Herrera et al., 2019). Postponing marriage and childbearing to pursue higher education or a professional career usually goes against family norms, which expect young women to marry and continue with the hereditary line (Skjortnes & Zachariassen, 2010). In addition, given that a minority of the Malagasy population has access to wage jobs and pursued secondary or tertiary education, there is a lack of financial and social support to encourage young girls to pursue higher education (Skjortnes & Zachariassen, 2010).

Besides the difficult economic conditions present in Madagascar, social norms result in low participation of women in national politics and leadership and community governance. Also, in limited access of women to productive resources (e.g. land, credits) and other economic opportunities to increase their income (Kellum et al., 2020). Consequently, most female students who are currently in secondary school lack successful examples of women who continued with their education, accessed the formal labor market, and achieved top and competitive jobs. Because of these reasons, we suggest that Madagascar is an example of a country where women are likely to experience a behavioral poverty trap where low aspirations produce low investments. An intervention that provides examples of similar successful individuals could help women imagine a different future, form higher aspirations, and make them more willing to enter a competitive formal labor market.

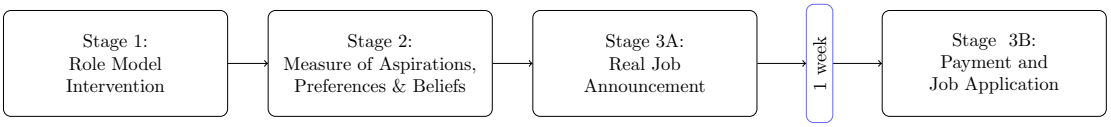
3 Experimental Design

We conducted our study with female and male students from public high schools. We decided to include males in our experiment for different reasons: First, it is not easy to exclude half of the students given our field setting, and it could have been perceived as discriminating and not natural, which could have raised concerns about potential demand effects. Second, it was difficult to separate the group as we invited the students by going from classroom to classroom. Last, and most important, is that observing

how role models affect male students' behavior is also relevant. There is a debate about the effect of affirmative action policies on men (e.g Balafoutas et al., 2016; Ibanez & Riener, 2018); hence, we can contribute to this discussion by studying the behavior of male students after exposure to a female role model.

Our experiment comprised three stages (see Figure 1). In the first stage, we screened one of the treatment videos (Female Role Model, Male Role Model) or a Placebo video, followed by a short survey about participants' perceptions regarding the main character(s) of the videos. In the second stage, we measured student's aspirations using a similar approach as in Bernard et al. (2014) and Bernard & Taffesse (2014). Moreover, we measured inter-and intrapersonal competition preferences by following the experimental design of Niederle & Vesterlund (2007) and Carpenter et al. (2018). We also collected attitudinal and socioeconomic information. Stage 3 assessed the willingness of students to enter the labor market. We first advertised two different job offers, and students could express their interest in the positions (Stage 3A). One week after, we met the students again to distribute the experimental earnings and collect the job applications (Stage 3B). The experimental instructions can be found in Appendix E. In the following sections, we explain each of the stages in detail.

Figure 1: Experimental Sequence



Stage 1: Role model intervention

In the first stage, we introduced our treatments by showing students one of three 10 minute videos in their local language. Students could either watch: a Female Role Model, a Male Role Model, or a Placebo. In the first two videos, the role models introduce themselves and narrate how they succeeded in achieving an important goal they set for themselves (becoming a teacher at a University) despite their hardships (lack of financial resources, lack of confidence, and lack of successful examples). They describe the steps they went through to achieve their goal and how they felt once they achieved it. In addition, the video narrates how some people from their network admire them for imagining and achieving a different future.

To increase the connection with the students' background, each role model shows the place they were raised (rural areas) and the school they attended. In the end, a family member, a friend, and a colleague of each of the role models express how they perceive them and the image they have in the community they live in. The role model videos end with each of the characters achieving their goal, and the videos close with the following sentence from the narrator: *"The story of Marie-Rolande (Fulgence) shows that if one aims at doing something and works towards it, it is possible to achieve it. She (He) imagined a different life than most of her (his) friends and family have, and even though the journey was long and with many obstacles, she (he) was able to make that imagination a reality."* The main factor changing between the two videos is gender.[3] We chose both role models coming from a poor background, similar to our participants, as there is evidence that the role model's background matters to increase the identification with the character. None of the treatment videos provide information to the students on

[3]Even though our role models come from different villages, their backgrounds are still comparable as the villages and the places we showed in the videos (i.e: school and houses) are very similar to each other. The family member, friend and colleague that we show in the videos for each role model are also different, but to keep the videos comparable, only the mother, one female friend, and one male colleague give their testimony in the videos.

how to behave in the subsequent experimental stages. The role models do not refer to competition or the decision to enter the labor market. This allows us to exclude potential demand effects.

In the PLACEBO video, both characters separately appear, present themselves (similar to the other two videos) and talk about the differences between life in rural and urban areas. We consider this topic neutral as we refer to differences in lifestyles, clothing, climate, ethnicity, traditional ceremonies, and schools that exist. We chose this topic because it is easy to understand and students know it. In this video, we do not provide new information to students or a different perspective of their life. Furthermore, we did not present the characters as role models nor mentioned their achievements. The video compares two different lifestyles and thus should not have an effect on our outcome variables. The PLACEBO video closes with the following sentence from the narrator: *"Living in the city has advantages and disadvantages, same as in the rural area. However, this diversity makes the SAVA region a beautiful place to live."*

Following the screening, students had to report their perceptions of the character(s) in the video. In particular, we asked them if they like the character, the degree to which they identify with him or her, and their perceptions of the role models' success and risk-taking. In the survey we also asked participants whether they knew the character.

Stage 2: Measure of aspirations, preferences and beliefs

A. Aspirations:

Our measurement of aspirations is taken from Bernard et al. (2014) and Bernard & Taffesse (2014). Each of our participants had to answer a set of questions on four specific dimensions: education, income, social status, and assets. In each of the dimensions, students had to report the level they currently possess, the level they would like to achieve (aspirations), and the level they think they will be able to reach (expectations). Furthermore, we include questions on the maximum, and the minimum levels students think an average person from the place they come from can achieve in each dimension. This is important as it helps them find answers and make sure they do not report mere wishes (Bernard & Taffesse, 2014). After the students have completed the survey, they had to distribute 20 points according to the importance they attach to each dimension. Based on these indicators, we constructed the aspiration index according to the one in Bernard et al. (2014):

$$A = \sum_{d} w^d \left(\frac{a_i^d - \mu^d}{\sigma^d}\right) \tag{1}$$

where σ^d is the standard deviation of the PLACEBO group, μ^d the mean of the PLACEBO group for each aspiration question from dimension d and w^d is the average weight students in the PLACEBO group attached to each dimension.

To control for differences in students' achievements, we constructed a current index using the above procedure. Instead of aspirations, we use the level of each dimension that the participants have already achieved.

B. Inter- and intrapersonal competitive preferences, performance and beliefs:

To measure interpersonal competitive preferences, we used a laboratory experiment following the design by Niederle & Vesterlund (2007) with slight variations. In addition to the four tasks included in

their study, we introduce a fifth task to measure intrapersonal competition preferences. We included this task following a similar structure as in Carpenter et al. (2018).

In the laboratory, participants were seated in rows of four people and were informed that they were forming a group with the people sitting in the same row. To avoid negative externalities from gender imbalances in each group, we sat two female and two male students in each row when possible. During the experiment we did not make the gender of the group participants salient. Since they could see the other group members, gender characteristics were observed. As students were allocated in each classroom randomly, we expect to reduce noise created by previous beliefs about the group's ability. Yet, we acknowledge that knowing other people in the group could have potential effects on the behavior. To control for this, we asked students how many people of the group they are friends with in the post-experimental survey.

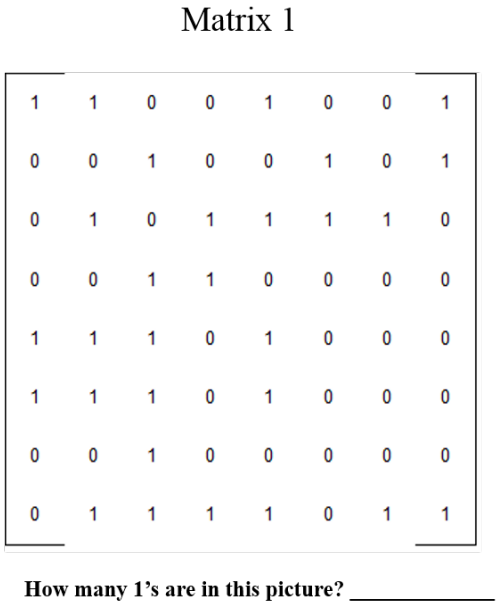
Before starting with the real-effort task, participants received an explanation from the instructor who, by using a poster, showed an example of how the task should be performed, the time for performing the task, and what would be taken as a correct and incorrect answer. The instructor did not continue with the explanation until the task was clear for all students. Instead of using a math task as in Niederle & Vesterlund (2007), our real-effort task consisted of counting and reporting the number of 1's that are in an 8x8 matrix (see example Figure 2). The task is solved correctly when the participant reports the correct number of 1's. This task is similar to the one used by Abeler et al. (2011). We chose this task as it is very simple. As mentioned by the authors, it does not require any prior knowledge, which is appropriate given our context.[4] Participants were told that they would be asked to complete five tasks but that one of them would be relevant for payment if this stage would randomly be chosen for payment at the end of the experiment.

This stage consisted of five tasks in which the compensation varies. In **Task-1** each participant received an individual payment for each correct answer in the real-effort task (piece-rate payment). In **Task-2**, participants entered into a 'winner takes it all' tournament, where they competed against the other group members. In **Task-3**, participants had the opportunity to choose the compensation scheme they would like to have if this task is randomly selected for payment. They could decide between a piece-rate compensation or enter into the 'winner takes it all' tournament against the people in their group. If the participant chose to enter into tournament, she competed with her performance in Task-3 versus the performance of the other group members in Task-2. In **Task-4**, participants did not have to solve matrices. Instead of performing the real-effort task, participants in Task-4 were asked to choose which compensation scheme they would like to apply for their past performance in Task-1: piece-rate vs. 'winner takes it all' tournament pay. Since we do not condition participants' earnings on future performance, Task-4 allows making a comparison with the decision taken in Task-3 on whether to compete or not. In particular, we can observe whether factors such as risk aversion play a role in participants' preferences for interpersonal competition. In **Task-5**, we observed whether participants rather opt for piece-rate or in a 'winner takes it all' tournament with themselves. If they decided to compete, they had to outperform the number of matrices that they solved correctly in Task-2. We use Task-2 as a comparison because students were framed in a competitive environment and thus more likely to exert a higher effort. If participants decided not to compete, they performed this Task-5 and were paid with the piece-rate compensation scheme.

[4]We are not the first ones in using a different effort task than the one described by Niederle & Vesterlund (2007) to measure competition. For example, Andersen et al. (2013) conduct an experiment in India where participants had to throw tennis balls into a bucket.

In each of the tasks where participants had to solve matrices, they had three minutes to solve up to ten matrices. The difficulty of the matrices remained constant for all tasks. In contrast to Niederle & Vesterlund (2007), we did not provide participants with information on their absolute performance after each task to avoid possible differences in feedback aversion across gender. Instead, we use an incentivized question to ask subjects for their belief on their absolute performance after every task. In addition, at the end of Task-5, participants were asked to provide their beliefs regarding their relative rank within their group for Tasks-1 and 2, the average performance of all participants in the session, and the number of people from the group that decided to compete in Task-3. For each correct answer, participants received an additional 1,000 ariary (0.25€).

Figure 2: Example Task



C. Locus of control and self-efficacy beliefs:

In the post-experimental questionnaire, participants were asked about their socioeconomic situation, if they have any role models, time and risk preferences, and their parents' education. Lastly, we included a set of questions to measure our additional outcome variables: locus of control, academic self-efficacy, and generalized self-efficacy. We explain below the measurement of these outcome variables. A complete version of the post-experimental questionnaire can be found in Appendix E.

- **Locus of control:** A subset of six statement pairs was selected from the twenty-nine pairs that comprise the 'Internal versus External Scale' from Rotter (1966) to measure this variable. The selection was made by considering students' context to enhance comprehension and reduce noise in the answers. In this part of the questionnaire, each student is provided with pairs of two statements, A and B. The task of the students is to mark the pair to which statement they agree the most on a 1-4 scale (from "I agree much more with A" to "I agree much more with B"). A and B-statements present situations where people reflect an external or internal control of the corresponding outcomes. The final score is calculated according to the total number of internal control choices the student answered. This means that the higher the score, the higher the locus of control beliefs.
- **Academic self-efficacy:** Students had to rate their degree of confidence in learning different

subjects, for instance, in mathematics, biology, or a foreign language, by writing down a number from 1 to 10, where 1 means "Cannot do at all" and 10 means "Highly certain can do". This question comprised seven different subjects. To obtain the measure, we sum up the answers in each subject. The measurement of this variable is similar to the one described by Bandura (2006), with the difference that we do not take a scale from 1 to 100 but from 1 to 10 to increase comprehension.

- **Generalized self-efficacy (GSE):** It is calculated by taking the sum of 10 statements where students had to decide whether the statement says something that is "Not true of myself", which takes the value of (1), or whether it is "True of myself" which takes the value of (5). Higher values reflect larger GSE. Examples of the statements are the following: *"I can always manage to solve difficult problems if I try hard enough"; "I can solve most problems if I invest the necessary effort'; "If I am in trouble, I can usually think of a solution".* This measure is the Jerusalem & Schwarzer (1995) scale with two slight modifications. First, we rephrased the scale in the first person, meaning that instead of having the option of "Not true at all", the participant read "Not true of myself". Second, instead of having a 1-4 scale, we used a 1-5, to add a category in the middle representing "Half true of myself".

Stage 3A: Real job announcement[5]

After the students finished the questionnaire, the experimenter casually entered the room to tell them about a job opportunity. Students could apply for a job as an assistant or as coordinator in a research project in Madagascar of one of the principal investigators. We gave them the opportunity to apply to only one job to mimic a situation where they have to decide whether to confront a high (coordinator) or a low (assistant) competitive environment.[6] The experimenter told the students that the research project works with vanilla farmers in the SAVA region and that she is looking for assistants and a coordinator to help her with the organization of the workshops with vanilla farmers. Independent of the treatment group, all students who took part in the experiment received the exact same information. After the job was announced, each participant received a paper sheet with more information about the positions. The information provided includes that the assistants' job consists of helping with the organization of the workshops and filling questionnaires with different farmers, while the job of the coordinator is to visit the villages and plan workshops in advance with the village chief. The main difference between the two job offers was that the coordinator position had more responsibilities and hence a higher salary (13 percent higher) compared to the assistant position. We also required that candidates for each position should be motivated to work in rural areas, be good team members, and have good communication skills.

In this stage, students had to decide whether they are interested in applying for one of the positions or if they are not interested at all. After students have made their decisions and gave the corresponding decision sheet to the experimenter, they were told that to be considered a potential candidate for any position, they must bring a recent photograph in one week. We added this requirement to make the application process somewhat demanding for the students.[7] Once students received the information, they

[5]We introduced two further treatments in this stage: Public and private sub-treatments to test whether social norms or social stigma may discourage female students to apply for the jobs. In each session, one group of students had to express their interest in the job privately and in the other publicly. This was known by the students before they made the decisions. Unlike the private treatment, in the public treatment, the room participants knew to which positions other participants have applied. Due to power issues, the paper does not focus on these treatments, and to report the results, we pooled the decisions taken in the two sub-treatments.

[6]The job was to take place from November to December 2018 for the experimental sessions conducted in July, or during July to August 2019 for the experimental sessions conducted in November. The dates were chosen according to the school calendar.

[7]In a standard application process, individuals incur different costs; for example, they may have to print their curriculum and send it to the potential employer or bring it directly to him or her. They also face opportunity costs in preparing an application as they invest time in it. Since we provide a standard form, we reduce such costs, and therefore

were told to leave one by one, and at the door, each of them received a participation fee of 2,000 ariary from the experimenter. This bonus payment was independent of their experimental earnings, given one week after each session.

Stage 3B: Payment and job application

A week after the experiment, we met the students again at each school to distribute their earnings from the experiment and hand the application forms to interested students. This type of form, which provides the same information as a curriculum vitae (CV), is a standard format that companies in Madagascar and other developing countries receive and accept for their hiring process. Hence, we also adopted this standard procedure for our hiring process.

One of our main outcome variables is the number of complete applications received. To be considered as a complete application, each student should have filled the form with their personal information and included a recent photograph. We consider students who have applied as those who handed in a complete application form. Participants were informed about the photo requirement during stage 3A of the experiment, and each of them received one private call during the week in between the experimental session and the earnings distribution to remind them about this condition.[8] The application is valid for the position students expressed interest in stage 3A.[9]

3.1 Experimental Procedures

We conducted our study in the four biggest public high schools of the Sambava-Antalaha-Vohemar-Andapa (SAVA) region in northeastern Madagascar between July and November 2018 (See Figure 3). We selected only public schools because students in those schools are more likely to face income constraints and thus experience an aspiration failure.[10] To conduct our experimental sessions, we invited students who were in their last year of secondary education. We consider this group particularly relevant to study as students are at the point of life to decide what to do after graduation.

To select the participants, we visited the public high schools several days before the experiments were taking place and invited students to take part in a workshop. We registered interested students during the lunch break and gave further information about the venue. With the students' information, we could allocate each of them to one of the treatment groups, ensuring that we have the same number of females and males in each treatment (stratified random sampling). However, due to a school strike that started right before we scheduled our data collection, we could not effectively use this previous allocation in two schools.[11] Thus, there are groups of four where we do not have the same number of male and female

with the photo, we mimic the costs of applying. We do not observe significant differences in the self-reported economic status between those who applied and those who did not (two-sided t-test p-value = 0.453); therefore, we do not believe that this requirement prevented students from applying due to economic concerns. Further, the photo price is not high as a package of 4 photos cost 2,000 ariary (approx. 0.5€). From anecdotal evidence, we know that students usually have some photos at home or need them often because they are required for the matriculation process every year and other administrative processes.

[8] Reminders are a common and cost-effective tool that has been used in different domains such as health (increase show-up rates for appointments, childhood vaccinations, etc.) and finance (encourage individuals to save). When students expressed their interest in the job and filled the form, they had to include a phone number where they could be reached. The procedure was the same for all treatment groups. All students that expressed interest in applying for a job were reached.

[9] We chose this procedure since it reduces potential spillover effects in the decision to apply to a position.

[10] While in private schools fees reach on average 240,000 ariary (approx. 61.5€) for a complete school year, in public schools the fees are on average 50,000 ariary (approx. 12.8€).

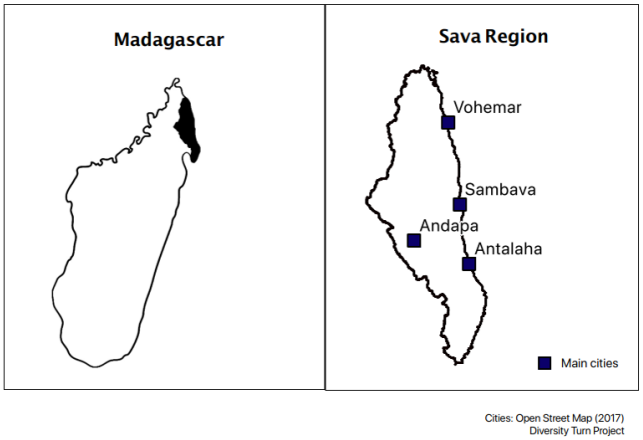
[11] In these schools very few participants and more males than females came to the meeting point. We, therefore, used the following procedure: We divided the students by gender and told them to make a line. One by one, we sent each

participants. To control for this, we included the variable *Gender imbalance group* in our analysis, which takes the value of one if the group of four is not balanced and zero otherwise.

In total, 336 students took part in our three treatment between-subject experiment. During each experimental session, communication between students was not allowed. The sessions lasted on average two and a half hours, including the post-experimental survey and the job announcement. Before starting with the post-experimental questionnaire, one participant per session –randomly chosen – came to the front to select the activity that will be relevant for payment. After the activity was selected, students started to fill the questionnaire. At this point, participants did not know their experimental earnings, and this information was provided only when students came to collect their earnings (a week after the experimental session).

On average students earned 7,700 ariary ($\approx$ 2€) plus a bonus payment for participation of 2,000 ariary (0.51€). The potential earnings are similar to the average wage for a working day on a farm ($\approx$ 3€). Participants could earn money in stage 2 and in two activities that are not included in the present study, yet only one was randomly selected for payment. In cases where stage 2 was randomly selected for payment, the earnings of only one of the five tasks –chosen randomly– were paid out.

Figure 3: Study Region



4 Hypotheses

The link between exposure to the role model videos and the decision to enter the labor market can be through several channels. Although there is no previous literature testing this relation, we argue that a rise in aspirations is the main channel. Aspirations are defined as distant goals that motivate individuals to provide investments in order to attain them (Bernard et al., 2011; Lybbert & Wydick, 2018). When individuals lack examples to look up to and/or their capacity to aspire is constrained by their economic conditions, individuals may experience an aspiration failure (Ray, 2006), in which low aspirations produce low investments. Females in low-income countries are likely to face an aspiration failure. On the one hand, their economic condition constrains them. On the other hand, they lack successful examples from their social networks that can serve as reference points to help them imagine a different future. Hence, role models can increase females' aspirations.

student to one of the three rooms (one room for each treatment and control group), being careful to keep a similar share of female and male participants.

The experiences of successful individuals can help women to imagine a different future and expand the opportunities they perceive for themselves. Further, observing a woman or a man succeeding by setting high goals and following them, females might feel inspired by the outcomes they have achieved and also set high goals for themselves. Aspirations have been found to correlate with educational and employment attainment of female adolescents (Roy et al., 2018) and with outcomes of peers with higher status (Janzen et al., 2017). Several experimental studies have shown that role models can increase aspirations (Beaman et al., 2012; Jensen, 2012; Bernard et al., 2014; Riley, 2018). Having higher aspirations can lead females to apply to one of the advertised positions and even apply to more competitive jobs, as they can imagine a different future for themselves.

Based on the above empirical evidence, we argue that being exposed to the Female Role Model or the Male Role Model video increases applications of female participants. Thus, our first hypothesis is:

Hypothesis 1. *Female participants will be more likely to apply to the job positions in the* Female Role Model *video and* Male Role Model *video treatment compared to females in the* Placebo *group.*

In addition, we believe that showing a successful female character will encourage female students to apply for the more competitive job – the coordinator position. Our second hypothesis is:

Hypothesis 2. *Female students will be more willing to apply to the coordinator position when exposed to the* Female Role Model *video compared to the* Placebo *group.*

While we believe that an increase in aspirations is the main channel that links the exposure to the role model videos and the decision to enter the labor market, we discuss three other potential mechanisms that have been discussed in the related literature below: competitive preferences, self-efficacy and locus of control beliefs.[12] Yet, we do not provide any hypotheses as there are no previous studies in which such mechanisms are compared and tested. We conduct an exploratory analysis in section 5.7 to study which mechanisms could explain females' decision to complete an application.

First, role models can have an effect on labor market outcomes through competitive preferences. The gender difference in competition has been largely studied through laboratory and field experiments (Gneezy et al., 2003; Niederle & Vesterlund, 2007; Carpenter et al., 2018). The common finding is that women are less willing to enter into competition in comparison to men (Niederle & Vesterlund, 2011). By observing a successful and similar example, women can become more ambitious and thus compete more (Schier, 2020). Exposing female students to a successful female of a similar background, who set a goal and achieved it, can make them more competitive and thus willing to apply.

Second, the mechanism could also run through changes in self-efficacy beliefs, which refer to an individual's belief in her capacity to achieve an outcome (Bandura, 1977, 1997). Self-efficacy is a key predictor of female education and employment aspirations (Roy et al., 2018) and, as aspirations, can also be increased through social comparison with role models and peers. Individuals who observe how similar people succeed can come to trust their own abilities more (Bandura, 1977, 2004). Individuals, who believe more in their abilities due to the role model intervention, might be more willing to complete an application.

Lastly, role models can also lead to a change in locus of control beliefs. Locus of control refers to the beliefs an individual has regarding the control she has over her life outcomes. Having an internal

[12] We do not test for other potential mechanisms such as mitigation of stereotype threats and discrimination.

locus of control belief has been associated with several labor market outcomes (Cobb-Clark, 2015). We suggest that seeing similar individuals succeed can also lead to a change in locus of control beliefs. The information provided in the videos could lead students to revise their beliefs on how behavior and outcomes are connected and thus on what is possible to achieve, making them more willing to exert effort and complete an application.

5 Empirical Strategy

To study the effects of our role model intervention on the decision to apply to one of the advertised position, we estimate the following model:

$$L_i = \alpha + \delta T_i + \lambda F_i + \beta(T_i \cdot F_i) + X_i'\gamma + \mu_s + \epsilon_i \tag{2}$$

where L_i represents one of our two main outcome variables: (1) *Complete Application* that takes the values: 0 = Not applied, 1 = Applied to one of the advertised positions, (2) *Coordinator Position* that takes the values: 0 = Applied to Assistant Position, 1 = Applied to Coordinator Position. T_i denotes the treatment variable that takes the values: 0 = Placebo video, 1 = Female Role Model video and 2 = Male Role Model video. F_i is an indicator variable equal to one when the participant is female and zero if male. X_i' is a vector of individual characteristics, such as number of brothers, whether their family cultivates vanilla, the frequency individuals meet outsiders, the frequency they used their smartphone and their mother's highest degree. μ_s are school fixed effects and ϵ_i is the random error. We estimate an ordinary least squares model (OLS) to facilitate the interpretation of the interactions and calculate robust standard errors.

In addition to the OLS estimation, we run a multinomial logistic model where the dependent variable *Complete Application* can take one of three values: 0 = Not Applied, 1 = Applied for Assistant Position, 2 = Applied for Coordinator Position. The treatment variables, the interaction term, as well as the vector of socioeconomic characteristics are included in this model.

6 Results

In this section we outline the results from our field experiment. Section 6.1 includes descriptive statistics and randomization checks. In section 6.2 we present the results of the role model intervention on job applications and in section 6.3 we show participants' rating of the role models.

6.1 Descriptive Statistics and Randomization Checks

From a total sample of 336 students, 43 percent are female and have on average 19 years old. Before starting the last year of high school, students can decide whether to opt for a science or a language focus. This means that the classes they attend are different. In our sample, 54 percent of participants are in the science focus. On average, students reported to have two brothers and rated their economic status with an average of 2.6 out of 5, where 5 indicates being wealthy. About half of the students were raised

in one of the main cities of the region and most of them reported not to have a job at the moment of the experiment.

Table 7 in Appendix A presents the means and p-values of balance tests for individual variables in the two treatments and control groups. There are no significant differences in the proportion of females, the age of the participants, their chosen focus in secondary school, the economic status, their job situation, whether their family is involved in the vanilla business, whether they were raised in the city or in the rural area, and the highest degree achieved by the mother. We find significant differences in the frequency of smartphone usage, the frequency of meeting people who are not from their school or their family, as well as whether there were any friends in their group of four. To account for these differences, we will control for these variables in the analysis.

6.2 Treatment Effects on Applications

Overall, the job positions announced were attractive for students. In total we received complete applications from more than half of the participants (186 out of 336 students). Figure 4 displays the percentage of complete applications by gender in each treatment (left side), as well as the share of applications for the assistant and the coordinator position by gender in each treatment group (right side).[13]

In the Placebo group, 48 percent of students completed an application. This share increases in the Female Role Model group where 63 percent of the students applied. A two-sample Fisher's exact test reveals that the difference is significant at the five percent level (p-value = 0.023). In the Male Role Model group 55 percent of the students applied, which is not significantly different from the Placebo group (A two-sample Fisher's exact test p-value = 0.287). As already suggested by the left side of Figure 4, we find no gender differences in each of the treatments for the outcome *Complete Application* (Two-sided Fisher's exact test, all test p-values $\geq$ 0.917).

Next, we look at the share of applications for each type of position advertised (right side of Figure 4). In the Placebo group 62 percent of female students who applied chose the assistant position. This share increases to 71 percent in the Female Role Model group, but the difference with respect to to the Placebo group is not statistically significant (two-sample t-test p-value = 0.504). Similar results can be found for the male students. In the Placebo group 32 percent of the male students applied to the assistant position, while in the Female Role Model treatment 49 percent of the males applied (two-sample t-test p-value = 0.161).

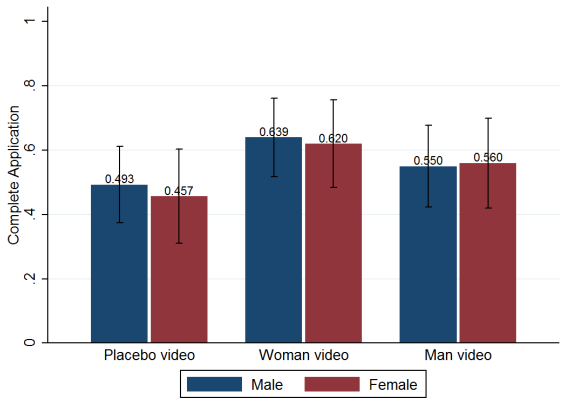
For the coordinator position we find that, conditioning on applying, 38 percent of females applied to this job in the Placebo. Our treatment groups change this share, especially the Male Role Model group in which the share increases to 50 percent. However, the differences are not statistically significant (all two-sample t-tests p-values $\geq$ 0.278). Applications to the coordinator position among males are almost equally high in each of the treatment groups: while 68 percent of the males applied in the Placebo, 51 percent applied in the Female Role Model group, and 45 percent in the Male Role Model group (all Fisher's exact tests p-values $\geq$ 0.845). Although we do not find that female students are significantly more likely to apply to the coordinator position in the Male Role Model group compared to the Placebo group, we find that the gender difference present in the proportion of applicants for the coordinator position in the Placebo and the Female Role Model groups (two-sided Fisher's exact test p-values = 0.050 & 0.087), is not present in the Male Role Model group

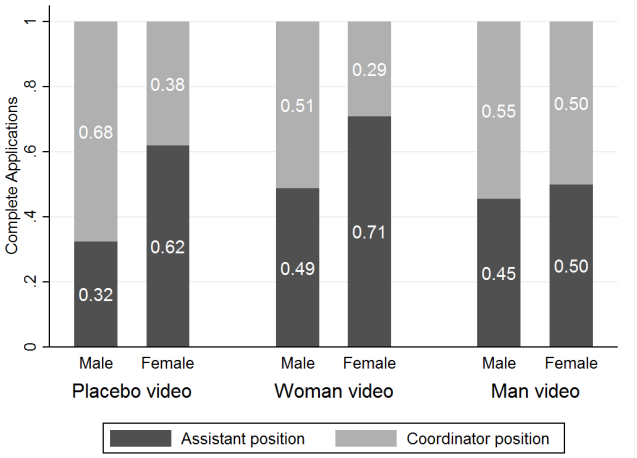
[13] Shares conditional on participants who applied in each treatment.

(two-sided Fisher's exact test p-value = 0.800).

The above results show that, compared to the Placebo group, the Female Role Model video increases the application rate among students, while the Male Role Model video bridges the gender differences in the decision to apply for the high responsibility position.

Figure 4: Complete Applications by Gender and Type of Position in each Treatment





Notes: The graph displays confidence intervals of 95%

In the following, we use regression analysis to control for the effects of subject heterogeneity. In table 1 column 1 we regress *Completed Application* on the treatments and include school fixed effects. The model in column 2 includes further controls. The above results remain: The Female Role Model video treatment has a positive effect on participants' decision to apply to one of the jobs, while the Male Role Model video has no effect. Also, as can be seen from column 3, we find no gender difference in the propensity to apply to the positions. We find a significant difference in the probability of females to apply in the Female Role Model video group compared to females in the Placebo group, while there is no significant difference in the likelihood of females to apply in the Male Role Model video group compared to the Placebo group (see comparisons in table 1). Thus, our results provide evidence in favor of **Hypothesis 1** for the Female Role Model treatment and lack evidence for the Male Role Model treatment.

Columns 4 to 6 in table 1 include the results on the outcome *Coordinator Position*. Controlling for further covariates in column 5, we find that there is no average treatment effect of the Female Role Model or Male Role Model video on the choice of position. However, conditional on applying, we find that female participants are less likely to apply to the coordinator position than males in the Placebo condition. We include an interaction term in column 6 to assess whether the treatment had differential effects on female and male students. We find that the gender difference, which is found in the Placebo group, is prevalent in the Female Role Model but not in the Male Role Model treatment group. Our results suggest that this is driven by an increase in females applying to the competitive position compared to females in the Placebo (although the difference is weakly significant p-value= 0.136). Our results do not provide evidence in favor of **Hypothesis 2** as the Male Role Model, instead of the Female Role Model, encourages female students to apply to the coordinator position.

In sum, we find that the Female Role Model is successful in encouraging female and male students

to apply for one of the advertised positions. In addition, we find that the Male Role Model almost closes the gender gap in applications for the coordinator position present in the Placebo group and the Female Role Model treatment. These results indicate that only a Male Role Model encourages applications among females to more competitive jobs. These results hold if we instead estimate a probit model and after controlling for multiple hypothesis testing (See Tables 8 and **??** in the Appendix).

Table 1: Treatment Effects on Applications

	Complete Application			Coordinator Position		
	(1)	(2)	(3)	(4)	(5)	(6)
Woman video	0.155**	0.205***	0.173**	-0.149*	-0.102	-0.108
	(0.065)	(0.068)	(0.085)	(0.089)	(0.102)	(0.126)
Man video	0.077	0.096	0.086	-0.021	0.047	-0.087
	(0.064)	(0.070)	(0.086)	(0.095)	(0.107)	(0.130)
Female		0.068	0.036		-0.240***	-0.363***
		(0.059)	(0.100)		(0.082)	(0.139)
Woman video × Female			0.075			0.043
			(0.132)			(0.182)
Man video × Female			0.025			0.327*
			(0.134)			(0.198)
Constant	0.630***	-0.380	-0.392	0.490***	1.223**	1.160**
	(0.057)	(0.437)	(0.438)	(0.079)	(0.595)	(0.578)
Woman Video vs. Placebo (only females)			0.248**			-0.065
			(0.106)			(0.147)
Man Video vs. Placebo (only females)			0.111			0.240
			(0.109)			(0.160)
Observations	336	336	336	186	186	186
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	No	Yes	Yes

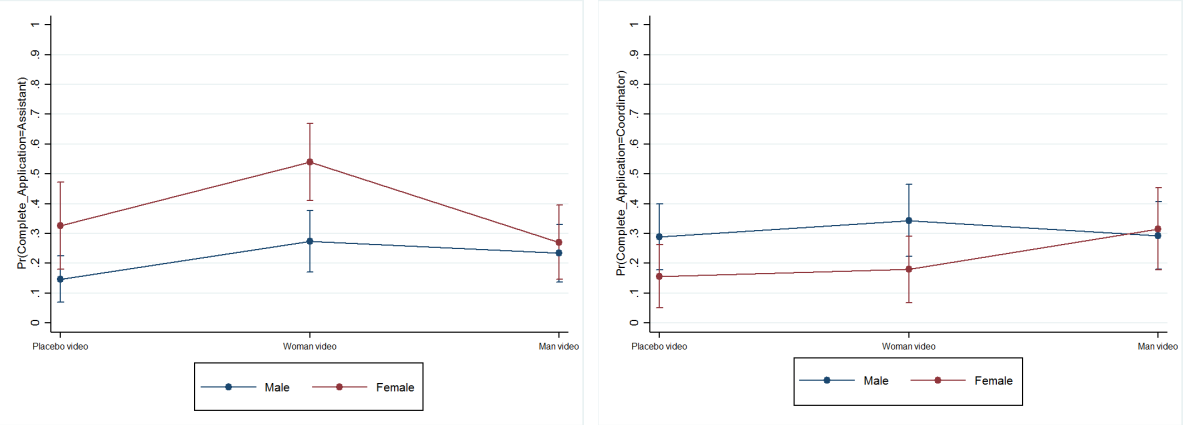
Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two rows located in the middle part of the table indicate the treatment effect sizes and were obtained by using the contrast command in Stata.
Control variables: *Age in years, Science focus, Number of brothers, Economic status, Job at present, Vanilla family, Friends group, Frequency meeting outsiders, Frequency smartphone usage, Gender imbalance group, Highest degree mother.*

To further explore our results, and without conditioning the treatment effects on completing an application, we run a multinomial logit where the dependent variable can take one of three values: 0 = Not Applied, 1 = Applied for Assistant Position, 2 = Applied for Coordinator Position. Table 9 in Appendix B shows the results of the logistic regression, where column 1 indicates the average treatment effects and column 2 includes an interaction term between treatment and gender. Without interpreting the effect sizes, as above, we find that female and male students exposed to the Female Role Model video are more likely to apply to the assistant position, both with respect to the Placebo group and to our base outcome of not applying. In addition, we find an average treatment effect on the likelihood to apply for the coordinator position. We explore heterogeneous treatment effects in column 2 and find that female students are more likely to apply to the assistant position in the Placebo and the Female Role Model video group compared to male students. For the coordinator position we also find that females are less likely to apply than males in the Placebo and the Female Role Model video group. We study the treatment effects for each gender in detail below.

Figure 5 shows the predictive marginal effects of the multinomial logit model for each of the advertised positions by gender. Compared to females in the Placebo, female students exposed to the Female Role Model video are 21 percentage points more likely to apply to the assistant position (p-value = 0.0353). In addition, we find that female students are 27 percentage points more likely to apply to the assistant position compared to male students in the Female Role Model treatment video (p-value = 0.0019). Regarding the coordinator position, we show that there is still a gender gap in the Placebo and Female Role Model groups. Females are 16 percentage points less likely to apply to the coordinator

position in the Female Role Model video compared to men (p-value = 0.0514) and 13 percentage points less likely in the Placebo group (p-value = 0.0911). Thus, compared to the OLS estimation above (see Table 1 column 6), the gap is smaller. In line with the OLS estimation above, we find that there is no gender difference in the Male Role Model treatment (p-value = 0.8027). The reason to explain this is that compared to female students in the Placebo group, females watching the Male Role Model video are 16 percentage points more likely to apply to the coordinator position (p-value = 0.0743).

Figure 5: Predictive Margins Multinomial Logit: Complete Applications for each Position



Notes: The graphs display confidence intervals of 95%

6.3 Role Model Assessment

After the video screening, we asked the students about their perceptions on the video and the main character(s).[14] Table 2 shows the means and the two-sided t-tests p-values from the answers reported by female and male participants to five questions. Each question could be answered with the following scale: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), strongly agree (5).

Both female and male participants agree quite strongly that the main characters in the Female Role Model video and the Male Role Model video are not afraid of taking risks. The ratings are significantly different compared to the ratings of participants who watched the Placebo video. Further, we find that females and males identify with the role models. However, male students report to equally identify with the Female Role Model and the Male Role Model, while female students identify much more with the Female Role Model. Participants also agree quite strongly with the question of whether they like the characters. Females and males significantly like the Female Role Model character more compared to the Placebo. Interestingly, females in the Female Role Model treatment report to be quite certain to be as successful as the main character (4.3 out of 5), whereas in the Male Role Model treatment females report lower scores (3.96 out of 5; p-value = 0.099).

The selection of role models regarding their similarity to female participants has been successful, as females identify with the main character of the Female Role Model video and with the Male Role Model video. However, we find that the character's success is not rated significantly different across

[14] One limitation of our study design is that we have the main characters of the Female Role Model and the Male Role Model video in the Placebo video. The ratings of the Placebo video thus refer to both characters.

females in the treatment groups. A potential explanation is that both role model characters were also the main characters of the PLACEBO video and their profession was mentioned. This implies that the treatment effect could be underestimated. Yet, female students in the two treatment video groups agree more strongly to whether they have been motivated by the video compared to female students in the PLACEBO group. Therefore, the characters may serve as role models in showing how they achieved a goal.

Table 2: Rating of the Role Model

	(1) Placebo video	(2) Woman video	(3) Man video	(4) (1) vs. (2), p-value	(5) (1) vs. (3), p-value	(6) (2) vs. (3), p-value
Panel A - Female participants						
Character is not afraid of risks	3.935	4.740	4.740	0.000	0.000	1.000
	(0.160)	(0.069)	(0.063)			
Character is successful	4.457	4.640	4.620	0.207	0.241	0.886
	(0.102)	(0.102)	(0.094)			
Participant likes character	4.326	4.700	4.520	0.002	0.142	0.101
	(0.099)	(0.065)	(0.087)			
Identifies with character	3.565	4.700	4.280	0.000	0.002	0.005
	(0.186)	(0.077)	(0.125)			
Can be as successful as character	4.283	4.260	3.960	0.893	0.065	0.099
	(0.111)	(0.124)	(0.131)			
Participant is motivated by the video	4.043	4.760	4.500	0.000	0.006	0.016
	(0.139)	(0.061)	(0.087)			
N	46	50	50			
Panel B - Male participants						
Character is not afraid of risks	4.101	4.787	4.700	0.000	0.000	0.277
	(0.124)	(0.053)	(0.060)			
Character is successful	4.377	4.574	4.467	0.141	0.492	0.400
	(0.095)	(0.092)	(0.087)			
Participant likes character	4.333	4.754	4.467	0.000	0.241	0.005
	(0.076)	(0.056)	(0.084)			
Identifies with character	3.913	4.426	4.433	0.001	0.001	0.958
	(0.113)	(0.098)	(0.093)			
Can be as successful as character	4.188	4.377	4.100	0.152	0.539	0.062
	(0.091)	(0.094)	(0.113)			
Participant is motivated by the video	4.261	4.672	4.517	0.000	0.026	0.125
	(0.082)	(0.065)	(0.077)			
N	69	61	60			

Notes: Standard errors in parentheses.

7 Exploratory Analysis

In this section we perform an exploratory analysis to assess whether the treatment effects can be explained by changes in the measures obtained from the lab experiment. As a first step we report descriptive statistics on the variables that we obtained in the lab-in-the-field experiment for the PLACEBO group. We then analyze whether our role model intervention affects behavior in the lab, before we control for the lab measures in our main outcome regression.

7.1 Descriptive Statistics of Mechanism Variables

Table 3 shows the descriptive statistics for our mechanism variables in the PLACEBO group. On average, students solve 4.42 matrices in Task-1 and 5.69 matrices in Task-2. About a third of the students (31 percent) chose tournament pay in Task-3 and 24 percent chose intra-competition in Task-5. Concerning our aspiration measures, we find that our sample includes observations with very high levels of income and asset aspirations, as can be seen from the maximum levels reported and the difference in the mean and median. The median aspired income is 2,000,000 ariary (about 464€), and the median

aspired level of assets is 150,000,000 ariary (about 34,780€). Since the minimum wage per month in Madagascar is about 34 Euro ("Caisse Nationale de Prévoyance Sociale Madagascar", 2015), students' aspire relatively high. Moreover, students' education and social status aspirations are high. On average, they aspire to achieve 19.43 years of schooling and a social status of 9.16. We test for differences in aspirations across gender reported in table 10 in Appendix C, but find that there are no significant differences. Further, students in the PLACEBO group on average report a general self-efficacy score of 36.47 (out of 55) and an academic self-efficacy score of 41.08, which is quite low given that the highest score is 70. Lastly, students in the PLACEBO group on average report to have 3.92 locus of control beliefs (out of 6).[15]

Table 3: Mechanism Variables in the Placebo Group

	Mean	Median	SD	Min	Max	N
Performance task 1	4.42	5.00	1.65	0.00	8.00	115.00
Performance task 2	5.69	6.00	1.68	0.00	9.00	115.00
Compete in task 3	0.31	0.00	0.47	0.00	1.00	115.00
Compete in task 5	0.24	0.00	0.43	0.00	1.00	115.00
Income goal (in 1000 Ariary)	966,752.57	2,000.00	9,353,898.46	10.00	100,000,000.00	115.00
Asset goal (in 1000 Ariary)	3,292,051.96	150,000.00	15,604,268.64	25.00	100,000,000.00	115.00
Education goal	19.43	22.00	2.80	12.50	22.00	115.00
Social status goal	9.16	8.00	11.00	1.00	100.00	115.00
Locus of control	3.92	4.00	0.99	0.00	6.00	115.00
General self-efficacy	36.47	37.00	6.38	21.00	48.00	115.00
Academic self-efficacy	41.08	40.97	9.29	11.00	61.00	115.00

7.2 Treatment Effects on Mechanism Variables

In table 4 we present the results of estimating ordinary least squares (OLS) regressions on performance and competitive preferences.[16] First, we assess whether the treatments have an effect on performance in the real-effort task as it might influence the decision to compete. In Columns 1 and 2 we regress the number of correctly solved matrices in Task-1 and Task-2 on the treatment variable, gender, an interaction of treatment and gender, school fixed effects and further controls specified in the table notes. We find that female students perform better in Task-1 and Task-2 compared to males in all but one case (performance in Task-1 in the MALE ROLE MODEL video treatment). Female students on average solve 4.8 matrices out of 10 in the PLACEBO group, 5.7 matrices in the FEMALE ROLE MODEL group and 6.5 in the MALE ROLE MODEL group. Overall, we find that the FEMALE ROLE MODEL and the MALE ROLE MODEL video have a positive effect on female and male students' Task-1 and Task-2 performance. If we look at the performance increases in the two treatment groups compared to the PLACEBO, we find that especially the MALE ROLE MODEL drove effort provision, not only among male, but also among female students. Females in the MALE ROLE MODEL group solve 1.6 (1.7) matrices more in Task-1 (Task-2) compared to females in the PLACEBO group, whereas males in the MALE ROLE MODEL group solve 1.9 (2.0) more matrices correctly in Task-1 (Task-2) compared to males in the PLACEBO condition.

In a next step we assess the effects of the role model videos on students' decision to enter into competition with other students in their group of four people. We find that only 17 percent of the female

[15] We do not find evidence for significant gender differences in the placebo video in general self-efficacy (t-test, p-value= 0.183, academic self efficacy (t-test, p-value= 0.1075), or in locus of control beliefs (t-test, p-value= 0.302).

[16] Overall, students are able to assess their absolute performance very accurately. The belief of their performance and their actual performance correlate strongly (between 65 and 75 percent). This confirms our assumption that feedback on performance is not needed, as performance could easily be evaluated in this task. However, students are less able to judge their relative performance. Students' belief in their relative rank in Task-2 and Task-3 correlates moderately (35 and 40 percent) with their actual rank in the competition against others.

students in the Placebo group chose tournament pay, 24 percent in the Female Role Model video and 28 percent in the Male Role Model video treatment. We employ OLS regressions to control for differences in performance in the previous tasks and other covariates that could potentially effect the decision to compete. The estimations are shown in table 4 in column 3. The dependent variable takes on the value of 1 if the student chose tournament compensation or 0 if she decided for piece rate. Our results show that female students in the Placebo condition are 26 percentage points less likely to enter into competition compared to male students. However, we find no gender difference in the choice to compete in the two treatment groups. This can be explained by a decrease in the propensity of male students to enter into competition in the two treatment groups compared to the Placebo condition. Only 25 percent of the male students decide for tournament compensation in the Female Role Model video group and 28 percent in the Male Role Model group compared to 41 percent in the Placebo condition. Compared to Meier et al. (2020), we used a placebo video that we also produced in Madagascar and that showed the same characters and surroundings as the treatment videos. In retrospective we assumed that this placebo video was neutral, but our results suggest that it could have encouraged competitive behavior due to the mentioning of decreasing land availability in the rural areas and that many young people search for income in the cities.

Next, we analyze whether the role model intervention has an effect on the propensity of students to enter into intra-competition with their past performance in Task-2. The results can also be found in table 4 in column 4. Compared to inter-competition we find that there is no gender differences in the Placebo group. We find that the treatment videos do not have an effect on the propensity to enter into intra-competition among female and male students. We observe that 22 percent of the females in the Placebo group competed against their past performance, 36 percent in the Female Role Model and 38 percent in the Male Role Model treatment. For the male sample we find that 26 percent chose intra-competition in the Placebo group, 25 percent in the Female Role Model and 52 percent in the Male Role Model treatment.

Table 4: Treatment Effects on Performance and Competitive Preferences

	(1) Perf. 1	(2) Perf. 2	(3) Compete 3	(4) Compete 5
Woman video	0.827***	0.980***	-0.223***	-0.039
	(0.306)	(0.282)	(0.074)	(0.081)
Man video	1.881***	2.014***	-0.234***	0.171
	(0.301)	(0.271)	(0.089)	(0.104)
Female	0.546*	0.471*	-0.260***	-0.044
	(0.305)	(0.272)	(0.074)	(0.078)
Woman video × Female	-0.060	0.177	0.215**	0.154
	(0.407)	(0.345)	(0.102)	(0.112)
Man video × Female	-0.317	-0.320	0.220**	-0.094
	(0.431)	(0.365)	(0.107)	(0.123)
Constant	5.135***	7.519***	0.990**	0.249
	(1.445)	(1.136)	(0.395)	(0.387)
Woman Video vs. Placebo (only females)	0.767***	1.158***	-0.007	0.115
	(0.296)	(0.259)	(0.080)	(0.095)
Man Video vs. Placebo (only females)	1.563***	1.694***	-0.014	0.077
	(0.319)	(0.278)	(0.081)	(0.105)
Observations	336	336	336	336
R^2	0.325	0.524	0.280	0.191
School Fixed Effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two rows located in the middle part of the table indicate the treatment effect sizes and were obtained by using the contrast command in Stata. Control variables: *Age in years, Science focus, Number of brothers, Vanilla family, Friends group, Frequency meeting outsiders, Frequency smartphone usage, Gender imbalance group*: 1 if there is an uneven number of female and males in the group of four, 0 if there is a balance. Column 2 further includes *Performance difference 2-1*: the difference in performance between Task-1 and Task-2. Column 3 additionally controls for *Performance task2*: number of correct matrices solved in Task-2; *Belief rank 2*: Participant's belief in his rank in Task-2 (1=highest, 4=lowest) in the group. In column 4 instead of including *Belief rank 2* as control, we include *Belief performance Task-2*.

The results of the OLS regressions on the aspiration index, locus of control, and self-efficacy beliefs are reported in table 5. In column 1 we regress the aspiration index on the treatment variables, gender, an interaction of treatment and gender, school fixed effects, the current index and further individual level controls.[17] We find that the female students in the Female Role Model video treatment report an aspiration index that 20 percent of a standard deviation higher compared to females in the Placebo group. The Male Role Model also has a positive effect on females' aspiration index. Treated female students have a 23 percent of a standard deviation higher index compared to females in the Placebo group. We find no treatment effects for male students.

In column 2 we regress the outcome variable *Locus of control* on the same controls (except for the current index). We find no treatment effect for each of the role model treatments. Moreover, while our Female Role Model treatment did not increase *General self-efficacy* beliefs of female students compared to females in the Placebo (see column 3), we find that females in the Male Role Model video report a significantly higher score in this type of beliefs respect to females in the Placebo group. Last, we find that the Female Role Model video has a positive effect on females' *Academic self-efficacy* beliefs (see column 4). Treated female students report a 3.85 higher score compared to females in the Placebo.

The above analysis revealed that the treatment videos have an effect on some of our mechanism variables. We find a treatment effect for female students on task performance, aspirations, general self-efficacy, and academic self-efficacy beliefs. In the following section we include these variables into our

[17]For the analysis on aspirations we drop observations that have extreme high aspiration index values by trimming the sample to the 95 percentile, which results in 17 observations less compared to the whole sample. We find that there are no treatment effects without dropping the outliers.

main outcome regression to assess whether any of these variables can explain the treatment effects on our main outcome variable *Completed application*.

Table 5: Treatment Effects on Aspirations and Beliefs

	(1) Asp. index	(2) Locus of C.	(3) General SE	(4) Academic SE
Woman video	0.016	-0.067	0.270	2.528
	(0.081)	(0.192)	(1.120)	(1.722)
Man video	0.073	-0.039	1.197	0.868
	(0.073)	(0.187)	(1.004)	(1.836)
Female	-0.086	-0.218	-1.602	-2.654
	(0.074)	(0.181)	(1.295)	(1.797)
Woman video × Female	0.186*	0.354	1.493	1.319
	(0.110)	(0.264)	(1.747)	(2.603)
Man video × Female	0.155	0.145	1.823	1.402
	(0.121)	(0.243)	(1.635)	(2.844)
Constant	0.113	5.247***	33.043***	32.869***
	(0.392)	(0.942)	(5.028)	(9.107)
Woman Video vs. Placebo (only females)	0.202**	0.287	1.763	3.847*
	(0.083)	(0.212)	(1.368)	(2.167)
Man Video vs. Placebo (only females)	0.228**	0.106	3.020**	2.271
	(0.099)	(0.178)	(1.286)	(2.317)
Observations	319	336	336	336
R^2	0.194	0.048	0.087	0.092
School Fixed Effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two rows located in the middle part of the table indicate the treatment effect sizes and were obtained by using the contrast command in Stata. Control variables: *Age in years, Science focus, Economic status, Job at present, Vanilla family, Friends group, Frequency meeting outsiders, Frequency smartphone usage, Highest degree mother, Current index*; *Gender imbalance group*: 1 if there is an uneven number of female and males in the group of four, 0 if there is a balance.

7.3 Can the Mechanism Variables Explain Behavior in the Field Experiment?

In table 6 we present the results of the OLS estimation for our outcome *Complete Application* controlling for performance in Task-1 and Task-2 (see column 2), the aspiration and current index (see column 3), and general and academic self-efficacy beliefs (see column 4). Controlling for the mechanism variables, we find that the significance level of the Female Role Model treatment effect reduces to the 10 percent level when we control for the aspiration and current index. Further, we find that the current index is significantly and positively related to the outcome variable (yet very small in magnitude). These results hold when adding all mechanism variables (see column 5).

Table 6: Relation of Mechanism Variables to Complete Application

	(1) Complete application	(2) Complete application	(3) Complete application	(4) Complete application	(5) Complete application
Woman video	0.173**	0.190**	0.149*	0.176**	0.162*
	(0.085)	(0.086)	(0.086)	(0.085)	(0.088)
Man video	0.086	0.119	0.072	0.086	0.093
	(0.086)	(0.092)	(0.091)	(0.087)	(0.096)
Female	0.036	0.044	0.032	0.033	0.031
	(0.100)	(0.100)	(0.100)	(0.100)	(0.101)
Woman video × Female	0.075	0.078	0.096	0.076	0.102
	(0.132)	(0.133)	(0.133)	(0.133)	(0.135)
Man video × Female	0.025	0.020	0.030	0.027	0.032
	(0.134)	(0.134)	(0.139)	(0.135)	(0.140)
Perf. 1		-0.005			-0.002
		(0.020)			(0.022)
Perf. 2		-0.012			-0.008
		(0.020)			(0.021)
Asp. index			0.082		0.088
			(0.064)		(0.065)
Current index			0.006**		0.006*
			(0.003)		(0.003)
General SE				0.000	-0.001
				(0.005)	(0.005)
Academic SE				-0.001	-0.001
				(0.003)	(0.003)
Constant	-0.392	-0.241	-0.406	-0.358	-0.242
	(0.438)	(0.476)	(0.440)	(0.471)	(0.518)
Observations	336	336	319	336	319
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Control variables: *Age in years, Science focus, Number of brothers, Economic status, Job at present, Vanilla family, Friends group, Frequency meeting outsiders, Frequency smartphone usage, Gender imbalance group, Highest degree mother.*

8 Discussion and Conclusion

In this paper, we analyze the effect of a role model intervention on female's decision to participate in the labor market. We implemented a field and lab-in-the-field experiment with secondary school students in Madagascar. We either screened a Female Role Model, a Male Role Model, or a Placebo video to the students. The female and the male video tell the story of two individuals who succeeded in becoming a teacher at a University, while the placebo video is about life in rural and urban Madagascar. After video exposure, we measured inter and intra- competitive preferences using a lab-in-the-field experiment and obtained students' aspirations and beliefs through survey questions. At the end of the session, we offered students the opportunity to apply for two jobs in the research project of one of the principal investigators. They could either apply to be an assistant or a coordinator. The coordinator position involves tasks with more responsibility and has a 13 percent higher compensation. The students were aware of this at the moment of making the decision.

Our research finds that providing information of a role model through a video has a positive effect on students' willingness to apply for the jobs we advertised. In particular, the Female Role Model video significantly increases female (and male students) applications to one of the two positions offered compared to the Placebo video. While we find no average treatment effect in the likelihood to apply to the coordinator position compared to not applying, we observe that the Male Role Model video increases the chances that female students apply to the coordinator position compared to the Placebo condition. The proportion of females applying to the coordinator position increases by 16 percentage points in the Male Role Model video compared to the Placebo group. Consequently, the gender gap in applications to the coordinator position present in the Placebo group and even in the Female Role Model group shrinks.

One novelty of our study lies in relating the decisions from the lab experiment with the decisions

students took in the field experiment. This allowed us to explore potential mechanisms through which role models encourage behavioral changes. We find that role models encourage female and male students to exert more effort and thus increase their performance in the real-effort task. We also find treatment effects on aspirations, general self-efficacy, and academic self-efficacy beliefs. Female students in the Female Role Model and the Male Role Model video report higher aspirations and beliefs compared to females in the Placebo group. Yet, we do not find similar results when comparing male students in the treatment groups versus male students in the placebo. We use these measures to explore a possible mechanism and find that the decision to apply to any of the two job positions can partly be explained by participants' aspirations and current level of achievements.

Our results also show that exposing individuals to role models who share a similar background with the target population and talk about how they achieved their goals effectively encourage students to apply. We can rule out that our observed treatment effects are driven by demand effects since our videos do not refer to the labor market or gave information about the announced positions. Further, the experimenter advertised the positions at the end of the session in a casual way and provided the same information to all groups without raising hopes about future outcomes. Yet, important to consider is the effect of unsuccessful applications on aspirations and beliefs (McKelway, 2020). Unfortunately, we were not able to hire any of the applicants due to low communication skills.[18] If aspirations are not realized, this can lead to frustration and a decrease in investments (Genicot & Ray, 2017). A possible remedy could be to increase exposure to successful experiences of others (role models) or decrease the barriers to attaining a job.

The literature studying the effects of role models on social behavior suggests that same-sex interactions are successful (Stout et al., 2011; Beaman et al., 2012; Meier et al., 2020). Our female character was successful in encouraging female students to apply to the assistant position, which is less competitive. Surprisingly, we find that the Male Role Model video encourages more females to apply to the more competitive job (coordinator position). This might imply that it is important to consider the traits that the different genders represent. In general, males are perceived to be more competitive than females (Blau & Kahn, 2017). Hence, one way to explain that females are more likely to apply to the more competitive position after being exposed to the Male Role Model, is that videos with a male character could nudge females towards more competitive behavior since males could appear more competitive compared to females. However, we find no effect on competitive behavior in the lab-in-the-field experiment. One could also argue that females' decision to apply for a competitive job after seeing a Male Role Model, could be driven by a 'defiance' response of females to stop replicating stereotypes embedded in social norms (Schier, 2020). Interestingly the Male Role Model did not encourage competitive behavior among male participants. A potential reason why males did not react to the Male Role Model compared to the Placebo could lie in the content of the Placebo video. Future research could use different Placebo videos or different characters to test this conjecture.

Our paper does not address other potential mechanisms that could play a role in determining females' willingness to participate in the labor market, such as discrimination, stereotype threats, or pre-existing

[18] After receiving the job applications, we went through the screening process. We checked each application taking into account the following points: 1) Check names in the database to make sure applicants participated in the sessions; 2) Check for the position applied; 3) Check the English and French level reported. At least one has to be rated as "good". After the screening, we selected 33 candidates for the personal interviews. Since we collected all the candidates' personal information, it was possible to reach all of them after the sessions. The interviews took place in November 2018 and July 2019 in each of the different cities the experiments took place. Unfortunately, none of the candidates we interviewed was eligible for the assistant or coordinator positions as they were very shy towards the researcher and translator, and hence it was difficult to communicate with them. Thus, even though they had the formal requirements, they lacked the confidence that probably develops through previous work experiences.

social norms, which could have been affected by the video. We did not collect information on students' ability at school (i.e: the grade point average - GPA). Thus, we cannot tell which one of the females applied more to one of the positions in terms of their ability which is also important to consider when exposed to competitive environments. Lastly, we acknowledge that, due to the school strikes, our sample is smaller than what we registered, and we encourage future research to replicate this study using larger samples.

The results obtained in Madagascar can be similar to other contexts in which female students experience a behavioral poverty trap. It would be interesting for future research to test whether similar results can be drawn from other contexts. Our study shows that video interventions about successful individuals provide a low-cost alternative in contexts where there is a lack of role models that are similar and geographically close. Other examples of policy measures that could be implemented are to increase the share of female role models through affirmative action such as quotas (Beaman et al., 2012; Niederle et al., 2013; Ibanez & Riener, 2018). These measures should go hand in hand with lifting external constraints such as discrimination and tertiary enrollment barriers.

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Appendices

A Randomization checks

Table 7: Summary Statistics

	(1) Placebo	(2) Woman Video	(3) Man Video	(4) p-value
Female	0.400	0.450	0.455	0.655
	(0.046)	(0.047)	(0.048)	
Age in years	19.192	18.968	18.884	0.420
	(0.180)	(0.160)	(0.175)	
Science focus	0.557	0.577	0.509	0.587
	(0.047)	(0.047)	(0.048)	
Number of brothers	2.339	2.180	1.973	0.156
	(0.134)	(0.149)	(0.119)	
Economic status	2.652	2.748	2.609	0.429
	(0.070)	(0.082)	(0.078)	
Job at present	0.061	0.117	0.109	0.297
	(0.022)	(0.031)	(0.030)	
Vanilla family	0.713	0.658	0.700	0.646
	(0.042)	(0.045)	(0.044)	
Friends group	0.835	1.090	1.418	0.000
	(0.088)	(0.102)	(0.088)	
Frequency meeting outsiders	4.200	4.667	4.600	0.000
	(0.097)	(0.083)	(0.071)	
Frequency smartphone usage	2.670	4.135	3.855	0.000
	(0.164)	(0.137)	(0.156)	
Raised in city	0.513	0.545	0.545	0.854
	(0.047)	(0.048)	(0.048)	
Highest degree mother	1.545	1.640	1.736	0.126
	(0.074)	(0.052)	(0.070)	
N	115	111	110	

Notes: Column 4 reports the p-value from joint orthogonality test of treatment arms. Mean values are shown. Standard errors in parentheses. Variable description: *Female*: 1 if the student is female and 0 otherwise; *Age in years*: Age of participant calculated from the year participants were born; *Science focus*: 1 if the student chose the science focus and 0 if he/she instead chose the language focus; *Number of brothers*: Number of brothers (not siblings) participants reported; *Economic status*: Takes the values from 1 (poor) to 5 (wealthy) according to the economic situation reported by the student; *Job at present*: 1 if the participant has a job at the moment of the experiment, 0 otherwise; *Vanilla family*: 1 if the participant comes from a family that is in the vanilla business, 0 otherwise; *Friends group*: Number of friends the participant reported to be in his/her group of four, takes the values from 1 to 3; *Frequency meeting outsiders*: takes values from 1 to 5, where 1 indicates that students never meet outsiders and 5 indicates they meet every day with outsiders; *Frequency smartphone usage*: takes values from 1 to 5, where 1 indicates students never have used an smartphone and 5 indicates they use it every day; *Raised in city*: 1 if the participant was raised in an urban area, 0 otherwise; *Highest degree mother*: 0=no education, 1=primary education, 2=secondary education, 3=university degree.

B Robustness

Table 8: Treatment Effects on Applications: Probit Model

	Complete Application			Coordinator Position		
	(1)	(2)	(3)	(4)	(5)	(6)
Woman video	0.155**	0.213***	0.183**	-0.149*	-0.107	-0.105
	(0.063)	(0.065)	(0.084)	(0.088)	(0.096)	(0.116)
Man video	0.077	0.096	0.090	-0.021	0.041	-0.092
	(0.063)	(0.067)	(0.083)	(0.093)	(0.095)	(0.117)
Female		0.064	0.065		-0.242***	-0.240***
		(0.055)	(0.055)		(0.076)	(0.074)
Woman video × Female			0.059			0.033
			(0.121)			(0.161)
Man video × Female			0.015			0.321*
			(0.126)			(0.177)
Observations	336	336	336	186	186	186
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	No	Yes	Yes

Notes: Robust standard errors in parentheses. Coefficient present marginal effects evaluated at a man. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Control variables: *Age in years*: Age of participant calculated from the year participants were born; *Science focus*: 1 if the student chose the science focus and 0 if he/she instead chose the language focus; *Number of brothers*: Number of brothers (not siblings) participants reported; *Economic status*: Takes the values from 1 (poor) to 5 (wealthy) according to the economic situation reported by the student; *Job at present*: 1 if the participant has a job at the moment of the experiment, 0 otherwise; *Vanilla family*: 1 if the participant comes from a family that is in the vanilla business, 0 otherwise; *Friends group*: Number of friends the participant reported to be in his/her group of four, takes the values from 1 to 3; *Frequency meeting outsiders*: takes values from 1 to 5, where 1 indicates that students never meet outsiders and 5 indicates they meet every day with outsiders; *Frequency smartphone usage*: takes values from 1 to 5, where 1 indicates students never have used an smartphone and 5 indicates they use it every day; *Gender imbalance group*: 1 if there is an uneven number of female and males in the group of four, 0 if there is a balance; *Highest degree mother*: 0=no education, 1=primary education, 2=secondary education, 3=university degree.

Table 9: Multinomial Logit Complete Applications

	Complete Application (1)	Complete Application (2)
Assistant Position		
Woman video	1.313***	1.222**
	(0.413)	(0.538)
Man video	0.411	0.761
	(0.428)	(0.524)
Female	0.862**	1.037*
	(0.337)	(0.573)
Woman video × Female		0.188
		(0.760)
Man video × Female		-0.694
		(0.784)
Constant	-6.521***	-6.488***
	(2.486)	(2.514)
Coordinator Position		
Woman video	0.765**	0.682
	(0.386)	(0.461)
Man video	0.501	0.253
	(0.372)	(0.447)
Female	-0.140	-0.478
	(0.328)	(0.564)
Woman video × Female		0.231
		(0.762)
Man video × Female		0.726
		(0.738)
Constant	-3.948	-4.083*
	(2.455)	(2.409)
Observations	336	336
School Fixed Effects	Yes	Yes
Controls	Yes	Yes

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Base outcome is not completing an application. Control variables: *Age in years, Science focus, Number of brothers, Economic status, Job at present, Vanilla family, Friends group, Frequency meeting outsiders, Frequency smartphone usage, Gender imbalance group, Highest degree mother.*

C Aspirations

Table 10: Aspirations in the Placebo Group by gender

	(1) Male	(2) Female	(3) p-value
Education goal	19.478	19.359	0.824
	(0.337)	(0.418)	
Income goal (in 1000 Ariary)	1,603,510.290	11,615.978	0.374
	(1,452,904.200)	(4,870.621)	
Status goal	9.188	9.109	0.970
	(1.039)	(2.053)	
Assets goal (in 1000 Ariary)	3,886,260.145	2,400,739.674	0.619
	(1,956,301.477)	(2,169,228.375)	
N	69	46	

Notes: Column 3 reports the p-value from joint orthogonality test of treatment arms. Standard errors in parentheses.

D Multiple Hypothesis Testing

Table 11: Multiple Hypothesis Testing

Outcome variable	Treatment	Subgroup	Difference	p-value not adjusted	p-value adjusted (B-H)
Complete Application	Female Video vs. Control	Female	0.248	0.020	0.070
Complete Application	Male Video vs. Control	Female	0.111	0.308	0.451
Complete Application	Female Video vs. Control	Male	0.173	0.041	0.096
Complete Application	Male Video vs. Control	Male	0.086	0.322	0.451
Coordinator Position	Female Video vs. Control	Female	-0.065	0.659	0.769
Coordinator Position	Female Video	Female vs. Male	-0.320	0.010	0.070
Coordinator Position	Male Video	Female vs. Male	-0.036	0.799	0.799

Notes: For the multiple hypothesis testing we use the Benjamini–Hochberg method as it has been shown to be less conservative, especially with low power samples, than the Bonferroni correction.

E Experimental Instructions

Dear participant, welcome to our workshop!

We are part of a research group called Diversity Turn. This is a project from the University of Göttingen. The objective of our project is to study vanilla production and the decisions students make under different incentive schemes in the SAVA region.

What are you doing today?

Today you will be participating in a workshop in which you will have the opportunity to earn money. Just for your participation you will receive a bonus of 2,000 ariary at the end of the workshop. In addition, you can increase that amount by earning money in the different activities of the workshop. The amount of money that you earn will depend on your decisions and the decisions taken by people from other communities in the SAVA region. To calculate your earnings, we first need to finish the workshops in the other communities. Therefore, we will pay you in the next week once we have finished the workshops in the region.

This workshop has two parts. The first part will last approximately 1 hour and consist of four different activities. Thereafter, there will be a survey. Once you have finished both parts you will receive the 2,000 ariary as a bonus of your participation and you will receive the additional earnings next week.

If at any time you feel uncomfortable, you are free to leave the room whether we have started the workshop or not. However, in that case you will not earn money.

Maybe you might have heard about this workshop before, yet what we will be doing today might be different. In order to do the activities correctly, please read carefully and pay attention when I explain them.

I would like to thank you for taking the time to come to this workshop. The results of each of the activities that we will be doing today will be very helpful for the research project. We appreciate your help very much. I would also like to clarify that your identity will be kept anonymous along the workshop. This means that except from my colleagues and me, nobody will know your identity. We are only interested in the decisions that you take today and not in your identity. We will identify your decisions with the number that is on your table.

From now on, if you have questions, please quietly raise your hand and one of my colleagues will come to you to clarify your questions. Please do not talk to other participants in the workshop. This is very important.

How is this workshop organized?[19]

Now we will start the first part of the workshop. As I explained before in this part of the workshop you

[19]The instructions included omit the first two activities (Activity Triangle, Activity Circle) as they are part of another study. The activities were the same for all treatment and control groups.

will have the opportunity to earn money. We will do four activities, which we will refer to as Activity Triangle, Activity Circle, Activity Square, and Activity Rhombus. In each of these activities, except of Activity Square, you have the possibility to earn money. Yet, only one of the activities would be selected for the final payment.

At the end of the session one of the activities will be chosen randomly for payment and your earnings will be calculated according to the results of this activity. This means that each activity can get potentially relevant for your payoff, so please make careful decisions in each activity. Some of the activities that we will be doing today are very similar that is why we ask you to read carefully each of them and follow the instructions accordingly.

E.1 Lab-in-the-field Instructions

Instructor: Now we will prepare our next activity. In the meantime we will show you a video. Please remain in your seat and be quiet. Please pay attention, after the video has finished you we will be asked some questions about the video and yourself.
[Individuals were randomly allocated into 3 different rooms, in each room they either watched a video of a female, male role model or a placebo video about the life in rural vs. urban areas]

Please answer the following questions. Circle the answer that best applies to what you think or feel:

1. Do you know the person in the video? Yes No

If your answer is "YES" please continue with question 2
If your answer is "NO" please continue with question 3

2. On a scale from 1 to 5, where 1 is not close at all and 5 is very close, how you rate the relationship you have with the main character[s] shown in the video?

1 Not close at all	2	3	4	5 Very close

3. On a scale from 1 to 5 where 1 means "I strongly disagree" and 5 means "I strongly agree", how much do you agree or disagree with the following statements? Please circle your answer.

3.1. "I feel motivated by the video I have just seen"

1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree

3.2. "I like the main character(s) of the video"

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

3.3. "I can identify with the main character(s) of the video"

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

3.4. "The main character(s) of the video is successful in his/her life"

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

3.5. "The main character(s) of the video is a person who is not afraid of taking risks."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

3.6. "I think I can be as successful as the main character(s) of the video within the next ten years."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Activity Square

Instructor: Now, we will start with a new activity. We will ask you some questions on the categories: education, income, social status and assets. For every category we will provide you with a scale to help you answer the questions. You can also report higher levels than those that we suggest in the scales. Please be careful in answering the questions. Consider that when we ask you for **what you would like to achieve**, we aim to understand your desires, your goals; and with the question on what do you **expect to achieve** we would like to know the level that you think you will probably achieve.
The answers you will provide here are completely anonymous and will only be used for academic purposes. This means that neither your name, nor any other names, will be mentioned at any time. Nobody will be able to identify that you gave this information. This is not a test; therefore there are no right or wrong answers. You should answer the questions according to your opinion and current situation.
If you still do not understand the difference between **what would you like to achieve** and **what do you expect to achieve** please mark the "I still don't understand the difference" box below. If you have understood the difference please mark the "I understand the difference" box below.

☐ I still do not understand the differences

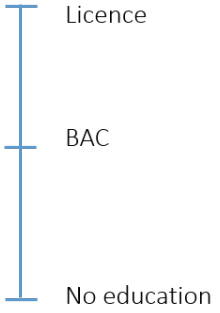
☐ I understand the difference

Categories Questions

Category 1. Education:

1. To answer the following questions, please consider the scale below. You are free to report higher levels than those suggested. If you have questions please raise your hand.

Figure 6: Education scale



   (a) What is the maximum level of education an average person in the city or village that you come from can have?

   (b) What is the minimum level of education that an average person in the city or village that you come from can have?

   (c) What is the education level that you have achieved until now?

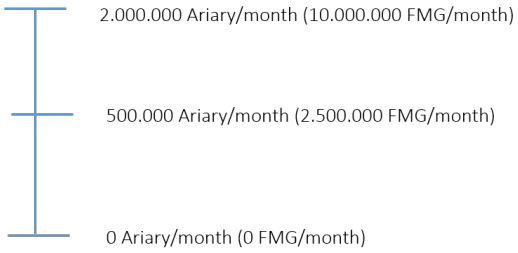
   (d) What is the level of education you would like to achieve in your life? (goal/desire)

   (e) What is the level of education you expect to achieve in your life? (what you will probably achieve)

Category 2. Income:

1. To answer the following questions, please consider the scale below. You are free to report higher levels than those suggested. If you have questions please raise your hand.

Figure 7: Income scale



   (a) What is the maximum level of average income per month that an average person in the city or village that you come from can have? (ariary/month)

   (b) What is the minimum level of average income per month that an average person in the city or village that you come from can have? (ariary/month)

   (c) What is your average income per month at the present? (ariary/month)

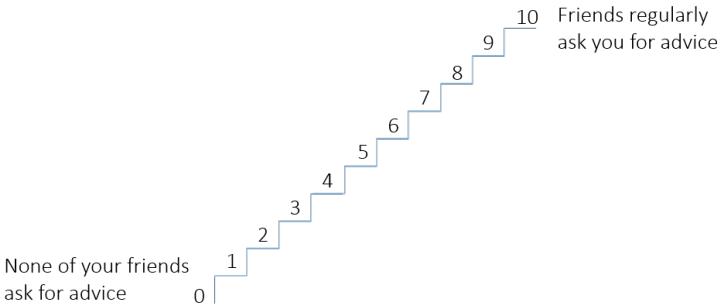
   (d) What is the level of average income per month you would like to achieve in your life? (goal/desire) (ariary/month)

(e) What is the level of average income per month you expect to achieve in your life? (what you will probably achieve) (ariary/month)

Category 3. Social Status:

1. To answer the following questions, please consider the ladder below. High social status means that your friends ask you regularly for your advice. No social status means that none of your friends asks you for your advice. You are free to report higher levels than those suggested. If you have questions please raise your hand.

Figure 8: Social Status ladder



(a) What is the maximum level of social status that an average person in the city or village that you come from can have?

(b) What is the minimum level of social status that an average person in the city or village that you come from can have?

(c) What is the level of your social status at present?

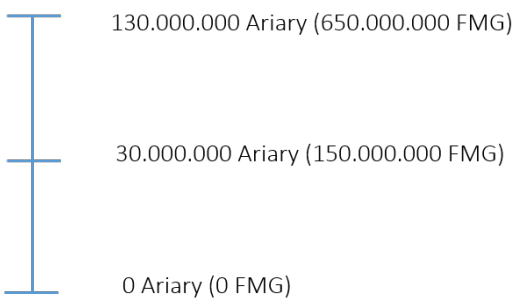
(d) What is the level of social status you would like to achieve in your life? (goal/desire)

(e) What is the level of social status you expect to achieve in your life? (what you will probably achieve)

Category 4. Assets:

1. To answer the following questions, please consider the scale below. You are free to report higher levels than those suggested. If you have questions please raise your hand.

Figure 9: Asset scale



(a) What is the maximum level of assets (house and furniture, no other assets) an average person in the city or village that you come from can have? (ariary)

(b) What is the minimum level of assets (house and furniture, no other assets) that an average person in the city or village that you come from can have? (ariary)

(c) What is the level of assets (house and furniture, no other assets) you have at present? (ariary)

(d) What is the level of assets (house and furniture, no other assets) you would like to achieve in your life? (goal/desire) (ariary)

(e) What is the level of assets (house and furniture, no other assets) you expect to achieve in your life? (what you will probably achieve) (ariary)

Now we would like you to tell us which of these four categories are the most important for you and to weight them accordingly. A small weight attributed to a category means that you do not attach any importance to it. A large weight in a category means that you attach a high importance to it.

You have 20 points that you can distribute among the categories according to the importance you attach to them.

Category	**Number of points (importance)**
Education	
Income	
Social Status	
Assets	
Total	**20**

Activity Rhombus

Instructor: Now we will start activity Rhombus. This activity has a total of 5 Tasks.

What TASK will you be doing today?

The TASK consists in circling and counting the 1's in matrices for 3 minutes. After you have finished counting the 1's in each matrix, you will have to write down the number of 1's that you found. You can see this in the example.

Each one of you will receive the same pile of matrices. We will provide you with enough number of matrices so you will have the chance to solve as many as you can in the 3 minutes time, one after the other. To perform the TASK you have to start with Matrix 1 and continue with Matrix 2, 3, etc. Please follow the given order. You will be paid according to your performance in correctly counting the 1's in the matrices. However, only one of your performances of the five tasks will determine your earnings of this activity and it will be randomly chosen at the end of the workshop. If you still do not understand the task please raise your hand.

TASK 1

Instructor: Now, we will start TASK 1. If TASK 1 is randomly selected for payment at the end of the workshop, you will be paid 500 ariary for each matrix that you solve correctly, meaning circling and finding the correct number of 1's in the matrix, during the 3 minutes time limit.

As you can see there are many matrices, and you have the chance to solve as many as you can, one after the other. Please start with Matrix 1 and continue with Matrix 2, 3, etc. Please follow the given order.

Once everybody has received the papers we will blow a whistle so you know that you can turn around the papers with the matrices and start the TASK. We will blow a whistle again for you to know that the time is up. Once the whistle sounds after the three minutes please put your pen aside. Please remain quiet and in your seat. Our enumerators will be collecting the papers. Do not discuss your performance with anyone else.

——MATRICES——

Instructor: Please stop counting and writing. Our enumerators will collect the TASK 1 now. Before continuing with TASK 2, please answer the question that our enumerators are distributing at the moment.

TASK 1-a

Now please answer the following question. If your guess is correct you will be paid 1000 ariary.

How many matrices do think you have solved correctly during the 3 minutes time in this TASK 1?

TASK 2

Instructor: Now, we will start TASK 2. In this TASK you will be competing against the 3 persons who are sitting in the same row as you. This means that you will be in a group of 4 people. The person who solves more matrices correctly, meaning circling and finding the correct amount of 1's in the matrix, during the 3 minutes time will win the tournament. If TASK 2 is randomly selected for payment at the end of the workshop, the person who wins the tournament will be paid 2,000 ariary per correct solved matrix. The persons who lose the tournament will receive nothing.

If there is a tie for the first place, the winner will be selected randomly.

You will not know how many matrices your competitors have solved correctly. Therefore, you will not know whether you have won the tournament or not.

As you can see there are many matrices and you have the chance to solve as many as you can, one after the other. Please start with Matrix 1 and continue with Matrix 2, 3, etc. Please follow the given order.

Once everybody has received the papers we will blow a whistle so you know that you can turn around the papers with the matrices and start the TASK. We will blow a whistle again for you to know that the time is up. Once the whistle sounds after the three minutes please put your pen aside. Please remain quiet and in your seat. Our enumerators will be collecting the papers. Do not discuss your performance with anyone else.

——MATRICES——

Instructor: Please stop counting and writing. Our enumerators will collect the TASK 2 now. Before continuing with TASK 3, please answer the question that our enumerators are distributing at the moment.

TASK 2-a

Now please answer the following questions. If your guess is correct you will be paid 1,000 ariary.

How many matrices do think you have solved correctly during the 3 minutes time in this TASK 2?

TASK 3

Instructor: Now, will start TASK 3. In this TASK you will have the opportunity to choose the payment that you would like to have in case TASK 3 is randomly selected for payment at the end of the workshop. You can either decide to have an individual pay rate of 500 ariary for each matrix that you solve correctly, or to enter into tournament against the persons in your group, the 3 persons sitting in the same row as you.

If you choose to enter into tournament and compete against the persons in your group, your performance in this TASK 3 will be compared with the number of matrices that each of the members of your group had solved correctly in TASK 2.

We will not provide you with the information of the scores that you have to beat. Before you make a decision, we will explain how each of the payment choices work:

Individual Pay: You will be paid 500 ariary for each matrix that you solve correctly in TASK 3, meaning circling and finding the correct number of 1's in the matrix, during the 3 minutes time limit.

Tournament against the TASK 2 performances of the persons in your group: You will be competing against the performance the persons in your group had in TASK 2.

If in this TASK 3 you solve more matrices correctly than the persons in your group had in TASK 2, you will win the tournament and you will be paid 2,000 ariary for each matrix that you solve correctly in this TASK. If you solve fewer matrices correctly than the persons in your group had in TASK 2, you will receive nothing.

You will not know how many matrices your competitors have solved correctly in TASK 2. Therefore, you will not know whether you have won the tournament or not.

If there is a tie for the first place, the winner will be selected randomly.

Before performing the TASK you first have to decide which of the two payment choices you would prefer to have for this TASK. Please mark an X only in one of the options. Your decision will not influence the payoff of the other participants as you will compete against their past performance. Now, our enumerators will start distributing the decision sheet for the TASK 3.

Decision sheet TASK 3

Now you will have the opportunity to choose the payment that you would like to have for this TASK 3. You can either decide to have an individual pay rate of 500 ariary for each matrix that you solve correctly, or to enter into tournament against the persons in your group, the 3 persons sitting in the same row as you.

If you choose to enter into tournament and compete against the persons in your group, your performance in this TASK 3 will be compared with the number of matrices that each of the members of your group had solved correctly in TASK 2. We will not provide you with the information of the scores that you have to beat.

The payment choices are the following:

Individual Pay: You will be paid 500 ariary for each matrix that you solve correctly in TASK 3, meaning circling and finding the correct number of 1's in the matrix, during the 3 minutes time limit.

Tournament against the TASK 2 performances of the persons in your group: You will be competing against the performance the persons in your group had in TASK 2.

If in this TASK 3 you solve correctly more matrices than the persons in your group had in TASK 2, you will win the tournament and you will be paid 2,000 ariary for each matrix that you solve correctly in this TASK 3. If you solve fewer matrices correctly than the persons in your group had in TASK 2, you will receive nothing.

You will not know how many matrices your competitors have solved correctly in TASK 2. Therefore, you will not know whether you have won the tournament or not. If there is a tie for the first place, the winner will be selected randomly.

Which payment do you prefer for TASK 3? Please mark an X only in one of the options below. Your decision will not influence the payoff of the other participants as you will compete against their past performance.

Option	**Payment**	**Your decision (mark an X in one option)**
Individual Pay	500 ariary for each correctly solved matrix	
Tournament against the performance of the people in your group in TASK 2	If you win: 2,000 ariary for each correctly solved matrix If you do not win: 0 ariary	

Instructor: Now, our enumerators will start distributing the papers for TASK 3. In this TASK you chose already which payment option you would like to have for your performance in this TASK in case it is randomly selected for payment at the end of the workshop. As you can see there are many matrices [show pile of papers] and you have the chance to solve as many as you can, one after the other. Please start with Matrix 1 and continue with Matrix 2, 3, etc. Please follow the given order. Once everybody has received the papers we will blow a whistle so you know that you can turn around the papers with the matrices and start the TASK. We will blow a whistle again for you to know that the time is up. Once the whistle sounds after the three minutes please put your pen aside. Please remain quiet and in your seat. Our enumerators will be collecting the papers. Do not discuss your performance with anyone else.

—MATRICES—

Instructor: Please stop counting and writing. Our enumerators will collect the TASK 3 now. Before continuing with TASK 4, please answer the question that our enumerators are distributing at the moment.

TASK 3-a

Now please answer the following question. If your guess is correct you will be paid 1,000 ariary.

How many matrices do think you have solved correctly during the 3 minutes time in this TASK 3?

TASK 4

Instructor: Now we will start TASK 4. In this TASK 4 you do not have to solve matrices. You only have to decide which payment you would like to receive for your performance in TASK 1. You can either decide to have an individual pay rate of 500 ariary for each matrix that you solve correctly or to enter into tournament against the persons in your group, the 3 persons sitting in the same row as you.

If you choose to enter into tournament and compete against the persons in your group, your performance in this round will be compared with the number of matrices that each of the members of your group had solved correctly in TASK 1.

We will not provide you with the information of the scores that you have to beat. We will just remind you about the number of matrices that you believed you solved correctly in TASK 1.

Before you make a decision, we will explain how each of the payment choices work:

Individual Pay: You will be paid 500 ariary for each matrix that you solve correctly in TASK 1.

Tournament against the TASK 1 performances of the persons in your group: You will be competing against the performance the persons in your group had in TASK 1.

If in TASK 1 you solved more matrices correctly than the persons in your group had in TASK 1, you will win the tournament and you will be paid 2,000 ariary for each matrix that you solved correctly in TASK 1. If you solved fewer matrices correctly than the persons in your group had in TASK 1, you will receive nothing.

You will not know how many matrices your competitors have solved correctly in TASK 1. Therefore, you will not know whether you have won the tournament or not.

If there is a tie for the first place, the winner will be selected randomly.

Now our enumerators will give back the paper where you stated your beliefs for TASK 1 in order to help you to make the decision for this TASK.

Decision sheet TASK 4

In the paper you have just received, you will find your belief of the correct matrices that you have solved in TASK 1. Please have a look at it before answering the question below.

In this TASK 4 you will have the opportunity to choose the payment that you would like to have for TASK 1. You can either decide to have an individual pay rate of 500 ariary per correctly solved matrix or to enter into tournament against the persons in your group, the 3 persons sitting in the same row as you.

If you choose to enter into tournament and compete against the persons in your group, your performance in TASK 1 will be compared with the number of matrices that each of the members of your group had solved correctly in TASK 1.

We will not provide you with the information of the scores that you have to beat. The payment choices are the following:

Individual Pay: You will be paid 500 ariary for each matrix that you solved correctly in TASK 1 during the 3 minutes time limit.

Tournament against the TASK 1 performances of the persons in group: You will be competing against the performance the persons in your group had in TASK 1.

If in TASK 1 you solved more matrices correctly than the persons in your group had in TASK 1, you will win the tournament and you will be paid 2.000 ariary for each matrix that you solved correctly in TASK 1.

You will not know how many matrices your competitors have solved correctly in TASK 1. Therefore, you will not know whether you have won the tournament or not.

If there is a tie for the first place, the winner will be selected randomly.

Which payment would you like to receive for your performance in TASK 1?

Please mark an X only in one of the options below. Your decision will not influence the payoff of the other participants as you will compete against their past performance.

Option	**Payment**	**Your decision (mark an X in one option)**
Individual Pay	500 ariary for each correctly solved matrix	
Tournament against the performance of the people in your group in TASK 1	If you win: 2,000 ariary for each correctly solved matrix If you do not win: 0 ariary	

TASK 5

Instructor: Now, will start TASK 5. In this TASK you will have the opportunity to choose the payment that you would like to have in case TASK 5 is randomly selected for payment at the end of the workshop. You can either decide to have an individual pay rate of 500 ariary for each matrix that you solve correctly or to enter into tournament against yourself.

If you choose to enter into tournament against yourself, your performance in this TASK 5 will be compared with the number of matrices that you solved correctly in TASK 2.

We will not provide you with the information of the score that you have to beat. We will just remind you about the number of matrices that you believed you solved correctly in TASK 2.

Before you make a decision, we will explain how each of the payment choices work:

Individual Pay: You will be paid 500 ariary for each matrix that you solve correctly in this TASK 5, meaning circling and finding the correct number of 1's in the matrix, during the 3 minutes time limit.

Tournament against your TASK 2 performance: You will be competing against yourself in a tournament. In TASK 2 you might have solved certain number of matrices correctly and in this tournament against yourself you will have the possibility to improve your score.

If you solve more correct matrices in TASK 5 than in TASK 2 you will win the tournament against yourself and therefore you will be paid 2,000 ariary for each matrix that you solve correctly in this TASK 5. If you have the same or less correct matrices in TASK 5 than in TASK 2 you will not win the tournament against yourself and therefore you will receive nothing.

Like in the tasks before, you will not know whether you have won the tournament or not.

Before performing the TASK you first have to decide which of the two payment choices you would prefer to have for this TASK. Please mark an X only in one of the options. Now, our enumerators will start distributing the decision sheet for the TASK 5.

Decision sheet TASK 5

In the paper you have just received, you will find your belief of the correct matrices that you have solved in TASK 2. Please have a look at it before answering the question below.

Now you will have the opportunity to choose the payment that you would like to have for this TASK 5. You can either decide to have an individual pay rate of 500 ariary for each matrix that you solve correctly in this task, or to enter into tournament against yourself.

If you choose to enter into tournament and compete against yourself, your performance in this TASK 5 will be compared with the number of matrices that you solved correctly in TASK 2.

We will not provide you with the information of the score that you have to beat. The payment choices are the following:

Individual Pay:

You will be paid 500 ariary for each matrix that you solve correctly in TASK 5, meaning circling and finding the correct number of 1's in the matrix, during the 3 minutes time limit.

Tournament against your TASK 2 performance:

You will be competing against yourself in a tournament. In TASK 2 you might have solved certain number of matrices correctly and in this tournament against yourself you will have the possibility to improve your score.

If you solve more correct matrices in TASK 5 than in TASK 2 you will win the tournament against yourself and therefore you will be paid 2,000 ariary for each matrix that you solve correctly in this TASK 5. If you have the same or less correct matrices in TASK 5 than in TASK 2 you will not win the tournament against yourself and therefore you will receive nothing.

Like in the tasks before, you will not know whether you have won the tournament or not.

Which payment do you prefer for TASK 5? Please mark an X only in one of the options below.

Option	**Payment**	**Your decision (mark an X in one option)**
Individual Pay	500 ariary for each correctly solved matrix	
Tournament against yourself	If you win: 2,000 ariary for each correctly solved matrix If you do not win: 0 ariary	

Instructor: Now, our enumerators will start distributing the papers for TASK 5. In this TASK you chose already which payment option you would like to have for your performance in this TASK in case it is randomly selected for payment at the end of the workshop.

As you can see there are many matrices and you have the chance to solve as many as you can, one after the other. Please start with Matrix 1 and continue with Matrix 2, 3, etc. Please follow the given order.

Once everybody has received the papers we will blow a whistle so you know that you can turn around the papers with the matrices and start the TASK.

We will blow a whistle again for you to know that the time is up. Once the whistle sounds after the three minutes please put your pen aside. Please remain quiet and in your seat. Our enumerators will be collecting the papers. Do not discuss your performance with anyone else.

—MATRICES—

Instructor: Please stop counting and writing. Our enumerators will collect the TASK 5 now. Before continuing, please answer the question that our enumerators are distributing at the moment.

TASK 5-a

Now please answer the following question. If your guess is correct you will be paid 1,000 ariary.

How many matrices do think you have solved correctly during the 3 minutes time in this TASK 5?

—END OF TASKS—

Instructor: Before finishing this activity, we will distribute some question to you now. With each question that you solve correctly you will earn 1,000 ariary.

Please answer the following questions. For each correct answer you are going to be paid 1000 ariary.

1. When you think of TASK 1 where you were payed for each correctly solved matrix 500 ariary. Which rank do you believe you had in comparison to the other 3 people in your group? 1 is the best performing student in your group of 4 people and 4 is the worst performing student in the same group of people.

I ranked ——— out of 4

2. When you think of TASK 2 where you competed against the other persons in your group. Which rank do you believe you had in comparison to the other 3 people in your group? 1 is the best performing student in your group of 4 people and 4 is the worst performing student in the same group of people.

I ranked ——— out of 4

3. On average, how many matrices do you think that the others in your session (all participants in the room) solved correctly in the different tasks?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

☐ 8

☐ 9

☐ 10

4. How many people in your group of 4 do you think chose to compete in TASK 3?

☐ 0

☐ 1

☐ 2

☐ 3

End

Instructor: Now, in order to select which activity will be used as your payment, one of you will take out one card of this non-transparent bag. According to the name written on the card we will pay each of you the earnings of that activity according to the decisions you made. For example if the name "Activity Triangle" comes up, we will pay you what you earned in that activity, if the name "Activity Rhombus" comes up, then we will pay what you earned in that activity. Same with "Activity Circle". As mentioned before, Activity Square will not be paid and thus will not be included in the bag.

If the result of the bag is Activity Rhombus, then we will use an extra bag to decide which TASK will be used to calculate the earnings of that activity. Remember that in Activity Rhombus we had 5 different tasks; however, only one of them will be paid. Therefore, the same person that comes to the front will randomly select the TASK that we will be using to calculate your earnings. In this other bag there are 5 small and equal papers. Each paper has a number from 1 to 5 written on it. This will guarantee that only one TASK will be picked for the payment calculation of Activity Rhombus in case it is selected. Please remember that you can receive also nothing, for example, if the TASK selected is TASK 2 and you lost the competition in this TASK.

In addition to the amount you earn from the Activity selected, each of you will receive 2,000 ariary as a bonus for your participation today. As we mentioned in the beginning, today you will receive the 2,000 ariary and in one week we will come back to give you the money that you possibly earned in the Activity selected.

In the name of Diversity Turn, I want to thank you very much for your time and collaboration today.

While we prepare the bonus payment, please fill the questionnaire my colleagues are giving to you at the moment. Once you have finished you will receive the bonus payment for your participation today.

E.2 Post-experimental Questionnaire

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

Diversity Turn in Land Use Science

Participant No. ——

Hello! We are researchers from the University of Goettingen and we are investigating about vanilla production and the decisions students make under different incentive schemes in the SAVA region. Today, we kindly ask for your cooperation by filling this questionnaire. The answers you will provide here are completely anonymous and will only be used for academic purposes. This means that neither your name, nor any other names, will be mentioned at any time. Nobody will be able to identify that you gave this information. This is not a test; therefore there are no right or wrong answers. The answers should only correspond to your reality or your opinion. In name of the University we thank you very much for your time and collaboration.

1. Did you have difficulties in answering one or more of the activities you did today? Please mark your answer with an X.

☐ Yes

☐ No

If yes, in which one(s)? ——

2. Did you understand the instructions of the activity? Please mark your answer with an X.

☐ Yes

☐ No

3. Did you get exhausted as time in the experiment went by, so that you could concentrate less? Please mark your answer with an X.

☐ Yes

☐ Yes, a little

☐ No

4. Which track are you studying? Please mark your answer with an X.

☐ A1

☐ A2

☐ C

☐ D

5. Which occupation do you want to have in the future? Please indicate: ——————

6. In how many years do you expect you will achieve to work in your desired occupation? – YEARS

7. How likely is it that you will work in your desired occupation?
Please mark your answer with an X.

1	2	3	4	5
Very unlikely	Unlikely	50 percent likely	Likely	Very likely

8. How likely is it that you go to university? Please mark your answer with an X.

1	2	3	4	5
Very unlikely	Unlikely	50 percent likely	Likely	Very likely

9. How likely is it that destiny, good or bad luck or other people affect your chances to work in your desired occupation? Please mark your answer with an X.

1	2	3	4	5
Very unlikely	Unlikely	50 percent likely	Likely	Very likely

10. What is the highest school degree your mother has? Please mark your answer with an X.

☐ No education

☐ Primary education

☐ Secondary education

☐ University degree

11. What is the highest school degree your father has? Please mark your answer with an X.

☐ No education

☐ Primary education

☐ Secondary education

☐ University degree

12. At which age would you like to get married? —— YEARS

13. How often do you meet other people who are not at your school and who are not from your family? Please mark your answer with an X.

1	2	3	4	5
Never	Once a year	Once a month	Once a week	Every day

14. How often do you use a smartphone? Please mark your answer with an X.

1	2	3	4	5
Never	Once a year	Once a month	Once a week	Every day

15. Do you have a person you look up to? Please mark your answer with an X.

☐ Yes

☐ No

15.1 If yes, specify the gender: Female Male

15.2 If yes, specify the location where she/he lives: ————

15.3 If no, go to question 16.

16. On a scale from 1 to 5, where 1 is strongly disagree and 5 is strongly agree, how much you agree or disagree with the following sentences. Please mark your answer with an X.

16.1. "To follow a career is more typical for men."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

16.2. "Women can generally achieve their occupational goals."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

16.3. "Men are typically performing better in competitive tasks."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

16.4. "Men are better at counting 1's in matrices."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

16.5. "Men believe that women are less able to count 1's in matrices."

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

16.6. How do you like to be in competition with somebody else? Please tick a box on the scale, where the value 1 means: 'I do not like this' and the value 5 means: 'I like it very much':

1 I do not like this	2	3	4	5 I like it very much

17. Are you generally willing to take risks, or do you try to avoid risks? Please mark your answer with an X. In the scale the value 1 means: 'Not willing to take a risk" and the value 10 means 'fully prepared to take risks'.

1 Not willing to take a risk	2	3	4	5	6	7	8	9	10 Fully prepare to take risks

18. Suppose you were given the choice between receiving some money today or some money in one year. We will present to you three different situations. For each of these situations we would like to know which option you would choose. These situations are hypothetical. Please mark your answer with an X.

18.1. Would you rather receive 100.000 ariary today or 150.000 ariary in 1 year?

☐ Today

☐ In one year

18.2. Would you rather receive 100.000 ariary today or 125.000 ariary in 1 year?

☐ Today

☐ In one year

18.3. Would you rather receive 100.000 ariary today or 105.000 ariary in 1 year?

☐ Today

☐ In one year

19. Imagine a coin is flipped six times. Before each time, a lottery is offered to you and you could decide whether you want to accept or reject it. The amount that could be won is the same in all lotteries, while the amount that could be lost increases. Please decide whether you would accept or reject each of the following lotteries. As the amount that could be lost increases along the lotteries, you can only switch from "Accept" to "Reject" once. Please mark your answer with an X.

Hypothetical Lottery	Accept	Reject
#1. If the coin turns head up, then you would lose 1.000 ariary; if the coin turns up tails, you would win 3.000 ariary		
#2. If the coin turns head up, then you would lose 1.500 ariary; if the coin turns up tails, you would win 3.000 ariary		
#3. If the coin turns head up, then you would lose 2.000 ariary; if the coin turns up tails, you would win 3.000 ariary		
#4. If the coin turns head up, then you would lose 2.500 ariary; if the coin turns up tails, you would win 3.000 ariary		
#5. If the coin turns head up, then you would lose 3.000 ariary; if the coin turns up tails, you would win 3.000 ariary		
#5. If the coin turns head up, then you would lose 3.500 ariary; if the coin turns up tails, you would win 3.000 ariary		

20. Rate your degree of confidence by writing down a number from 1 to 10 using the scale given below.

1 Cannot do at all	2	3	4	5	6	7	8	9	10 Highly certain can do

Confidence (1-10)

20.1 Learn general mathematics _____
20.2 Learn biology _____
20.3 Learn reading, writing, and language skills _____
20.4 Learn to use computers _____
20.5 Learn science _____
20.6 Learn a foreign language _____
20.7 Learn social studies _____

21. Please rate the truthfulness of the following statements, according to how you see yourself. On the scale, 1 means 'not true of myself' and 5 means 'true of myself'.
Please mark your answer with an X.

21.1 I can always manage to solve difficult problems if I try hard enough.

1 Not true of myself	2 Slightly true of myself	3 Half true of myself	4 Mostly true of myself	5 True of myself

21.2 If someone opposes me, I can find the means and ways to get what I want.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.3 It is easy for me to stick to my aims and accomplish my goals.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.4 I am confident that I could deal with unexpected events.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.5 Thanks to my resourcefulness, I know how to handle unforeseen situations.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.6 I can solve most problems if I invest the necessary effort.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.7 I can remain calm when facing difficulties because I can rely on my abilities to reduce stress.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.8 When I have problems, usually think of a solution

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.9 If I am in trouble, I can usually think of a solution.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

21.10 I can usually handle whatever comes on my way.

1	2	3	4	5
Not true of myself	Slightly true of myself	Half true of myself	Mostly true of myself	True of myself

22. In the following you will be presented with a pair of two statements: A and B. Please state for each pair with which statement you agree most. Please mark your answer with an X.

22.1. A: Many of the unhappy things in people's lives are partly due to bad luck.

B: People's misfortunes result from the mistakes they make.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

22.2. A: In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

B: Many times exam questions tend to be so unrelated to course work that studying is really useless.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

22.3. A: Becoming a success is a matter of hard work, luck has little or nothing to do with it.

B: Getting a good job depends mainly on being in the right place at the right time.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

22.4. A: When I make plans, I am almost certain that I can make them work.

B: It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

22.5. A: Sometimes I can't understand how teachers arrive at the grades they give.

B: There is a direct connection between how hard I study and the grades I get.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

22.6. A: What happens to me is my own doing.

B: Sometimes I feel that I don't have enough control over the direction my life is taking.

1	2	3	4
I agree much more with A	I agree slightly more with A	I agree slightly more with B	I agree much more with B

23. With how many people in your group are you friends with?
Please mark your answer with an X.

☐ 0

☐ 1

☐ 2

☐ 3

24. In which year were you born? ———

25. Where have you been raised? Please mark your answer with an X.

☐ In a big city

☐ In the rural area

26. What is your gender? Please mark your answer with an X. Female Male

27. How many brothers do you have? Please write how many. ———

28. How many sisters do you have? Please write how many. ———

29. Please indicate your economic situation on a scale from 1 to 5, where 1 means 'poor' and 5 'wealthy'. Please mark your answer with an X.

1				5
Poor	2	3	4	Wealthy

30. Do you have a job? Please mark your answer with an X.

☐ Yes

☐ No

31. How many hours a week do you work? ——— hours per week

32. Does your family cultivate vanilla? Please mark your answer with an X.

☐ Yes

☐ No

33. How often do you go to the market to buy food? Please mark your answer with an X.

1	2	3	4	5
Never	Once a year	Once a month	Once a week	Every day

34. What is your name: ———————

Thank you very much for your participation!

E.3 Field Experiment Instructions - Job Announcement

[Researcher enters the room and communicates the following]

Thank you very much for your participation today! Before you go, I would like to share with you some information about a job opening in our research project. In my work I visit different villages from the SAVA region and I am in contact with vanilla farmers. For my next visit, I am looking for assistants and a coordinator to work with me. The job will be starting this year in November to December [starting next year in July to August]. In this paper that I will distribute to all of you, you can find more information about the jobs and application process.

JOB ANNOUNCEMENT – *PUBLIC Decision Sheet*

Before finishing the workshop of today, we would like to inform you about a job opening at our research project. Our project works with vanilla farmers in the SAVA region. We are looking for assistants and a coordinator who help us with our data collection starting this year in November to December [starting next year in July to August]. During the data collection we will do different workshops with the farmers. The job of the assistant consists in helping with the organization of the workshops and to fill in questionnaires with different farmers once the workshop is finished. The job of the coordinator is to visit the villages and plan the workshops in advance with the village chief. As the coordinator has more responsibilities than the assistant, the salary of the coordinator is 13 percent higher. The candidates for each position should be motivated to work in rural areas, be good team members and have good communications skills. Fluency in French or English is ideal but not a must.

If you are interested in applying for the job and want to know more about it please mark in the box below that you are interested. Once we have collected the decisions of all the people in the room we will call your name out loud to confirm that you are interested in applying for the job. If you mark that you are not interested, your name will not be called. Please remain in your seat and don't discuss your decision with the people around you.

Are you interested in applying for the job?

☐ I am interested

☐ I am not interested

If you are interested in the job, for which position exactly?

☐ Assistant

☐ Coordinator

For those who are interested, we will collect your name, E-Mail address and/or phone number and when we come back next week to give you your additional earnings of the workshop, you will have to fill in a job application. If you mark that you are not interested you will not have to fill in a job application next week. Your name, E-mail and/or telephone numbers will only be used for the job selection process. If you are interested in applying, please write down your name, E-Mail address/ telephone number here:

Name:
Email/telephone number:

Your name, E-mail and/or telephone numbers will only be used for the job selection process.

JOB ANNOUNCEMENT – *PRIVATE Decision Sheet*

Before finishing the workshop of today, we would like to inform you about a job opening at our research project. Our project works with vanilla farmers in the SAVA region. We are looking for assistants and a coordinator who help us with our data collection starting this year in November to December [starting next year in July to August]. During the data collection we will do different workshops with the farmers. The job of the assistant consists in helping with the organization of the workshops and to fill in questionnaires with different farmers once the workshop is finished. The job of the coordinator is to visit the villages and plan the workshops in advance with the village chief. As the coordinator has more responsibilities than the assistant, the salary of the coordinator is 13 percent higher. The candidates for each position should be motivated to work in rural areas, be good team members and have good communications skills. Fluency in French or English is ideal but not a must.

If you are interested in applying for the job and want to know more about it, please mark in the box below that you are interested. If you are not interested please mark in the box below that you are not interested. Your decision will not be shared with anybody in the room. Please remain in your seat and don't discuss your decision with the people around you.

Are you interested in applying for the job?

☐ I am interested

☐ I am not interested

If you are interested in the job, for which position exactly?

☐ Assistant

☐ Coordinator

For those who are interested, we will collect your name, E-Mail address and/or phone number and when we come back next week to give you your additional earnings of the workshop, you will have to fill in a job application. If you mark that you are not interested you will not have to fill in a job application next week. If you are interested in applying, please write down your name, E-Mail address/ telephone number here:

Name:
Email/telephone number:

Your name, E-mail and/or telephone numbers will only be used for the job selection process.
[After students have filled one of the decision sheets, the researcher tells them the following:]

Thank you for your time. As we mentioned before, in exactly one week we will be here at the same time to distribute the earnings of activity X [activity randomly selected for payment]. In addition, for those who expressed their interest in any of the job positions, we will bring the application forms on that day so you can fill them with your personal information. It is important that you bring one photo of you, as we will attached it to the application form. Please do not forget to bring the photo, otherwise your application will not be taken into account for the selection process. Now, please make a line at the front so each of you can receive the 2.000 ariary for your participation today.

E.3.1 Job Application Form

Job Application form

Full Name:	_____
Date of Birth:	_____
Phone number:	_____
Email Address:	_____
Where do you live?	_____
Would you be able to find accommodation in Sambava for this job?	_____
Date Available to Start:	_____
Track of study:	_____
Average grade Terminal (last year of school):	_____
Language skills:	English: Very good Good So so Not good
	French: Very good Good So so Not good
Did you hear about the project before we visited you school?	Yes No
What are your salary expectations?	_____
Do you like working in a team?	Yes No
Do you have health problems that might impede you to travel by car or moto?	Yes No If yes, which ones? _____
Have you worked in the past?	Yes No
Where have you worked before and for how long?	Place: Duration of work:
	Place: Duration of work:
Please list three references and their contract information	Name: Telephone number: Relation to you:
	Name: Telephone number: Relation to you:
	Name: Telephone number: Relation to you: