

Edutainment and entrepreneurship: A field experiment on youth in Tanzania

by

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"This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Neither the institution, the advisor, nor the sensors are - through the approval of this thesis - responsible for neither the theories and methods used, nor results and conclusions drawn in this work."

Executive Summary

The aim of our thesis is to examine an innovative way to educate people in developing countries about business training. This paper analyses whether the edutainment show Ruka Juu, broadcasted in Tanzania in the spring of 2011, has had an informational or inspirational impact on youth in Tanzania when it comes to entrepreneurship. We find that Ruka Juu has led to increased business knowledge for male viewers who have not watched similar shows before, indicating that the show has had an informational impact. In addition we find an inspiration to learn more about business related topics for females. If an edutainment show like Ruka Juu successfully can express its educational approach, it can help create employment opportunities in developing countries.

Preface

This paper is written as the final thesis of our master degree at the Norwegian School of Economics, within the specialisation of Economics. The thesis is written as part of a research program on edutainment in Tanzania, supervised by a collaboration between a research group at NHH Norwegian School of Economics and Femina HIP. We are grateful for being selected as research assistants and to write a contribution to the program.

In May 2011 we went to Dar es Salaam in Tanzania to conduct the last part of the experiment “Edutainment and entrepreneurship: A field experiment in Tanzania”. Together with a fellow master student we visited a large number of schools where we prepared and implemented the lab sessions that formed the basis of the evaluation. The experiment is based upon a reality show broadcasted in the spring of 2011. Femina HIP, a non-governmental organisation with the largest media platform in Tanzania, was responsible for the edutainment show in question.

We would like to thank our thesis supervisor Professor Kjetil Bjorvatn for invaluable assistance and useful guidance. In addition we also want to express our gratitude to Erik Sørensen, Linda Helgesson Sekei and Bertil Tungodden for useful recommendations.

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1 Introduction

1.1 Context

In 2010 about 280 000 students were enrolled in the last year of ordinary level (O-level) in public secondary schools in Tanzania, and out of them only 9.3 percent will continue to the next level of schooling (National Bureau of Statistics, 2011b). According to Fema Magazine (2011b), a total of one million young Tanzanians enter the labour market looking for a job each year, comprising both students who leave school before finishing and students who have completed the O-level. However, there is not nearly enough growth in employment for the additional job hunters to be employed each year (Mfaume & Leonard, 2004). Today, only six percent of Tanzanians are formally employed, indicating that the dominant share of the economically active population is part of the private informal sector. In fact, 90 percent of businesses in the country are small-scale businesses with four employees or less.¹ These small-scale businesses range from retail trade and wholesale to different kinds of services, for instance soda sellers and barbers. One of the reasons why they do not register their business in the formal sector is high entry costs. In fact, businesses start-up costs have been estimated at 31 percent of GNI per capita (Legatum Institute, 2011).

Fear of inequity within districts and within the population has led to entrepreneurship being neglected by the government in Tanzania for many years, reflecting a bias against private enterprises (Pfliegner, 2008). Today, however, the Tanzanian government encourages self-employment, although the support system for self-employed people and entrepreneurs is very limited (Helgesson Sekei, 2011). This puts young people in a vulnerable position (Helgesson, 2006).

1.2 Human capital as a limiting factor for business growth

The starting of new businesses creates new workplaces. Schumpeter (1934) and Baumol (1968) both state that entrepreneurial activity contributes to further economic growth. It is considered to be a driving force behind changes in the economy. An entrepreneur is an individual who has the skill to find and evaluate an existing business opportunity, and take advantage of it (Mfaume & Leonard, 2004). The Kiswahili word for entrepreneurship is Ujasiriamali, meaning bravery and looking for money with action (Femina HIP, 2011a). To

¹ The percentages are taken from the episodes of Ruka Juu, as described in section 3.2.

start one's own business takes courage, creativity, motivation and probably some basic knowledge of how to run a business. Poor, self-employed entrepreneurs rarely have any formal training in business skills, but still most discussions on development policies for entrepreneurship assume that the availability of credit is the main constraint for the entrepreneurs (Karlan & Valdiva, 2011).

A study of business training of micro entrepreneurs in Tanzania conducted by Bjorvatn and Tungodden (2010), finds that business training results in improved business skills. Their conjecture is that business knowledge is a good proxy for business results. In addition they find a stronger effect for male entrepreneurs of business training on sales, business practice and profits. For females the effect is absent on profits and sales, and for business practice it is much weaker than for males (Berge, Bjorvatn, & Tungodden, 2010). The long-term impact of this study on business training is being assessed at the moment, after the conduction of a follow-up study of the same entrepreneurs.

It sounds reasonable that knowledge on how to run a business should give an advantage and a higher likelihood for success for the entrepreneurs. Klinger and Schündeln (2011) find in their empirical study that entrepreneurial activity really can be taught. The probability that individuals open a new business or expand an existing business increases for those who have participated in a full business training program. The kind of business training which has been analysed in most research projects up until now is mainly classroom training of relatively few entrepreneurs. Such business training is costly, and raises the question of whether it is possible to reach a larger share of people in a cheaper and more cost efficient way.

1.3 Business training via television

In the urban areas of Tanzania 75 percent of the population say they watch TV every week (Bagger, 2010). If it is possible to communicate education through television one has the opportunity to reach a large audience at relatively low cost. If it is also possible to educate youth about entrepreneurship and basic business skills via television, it could be a means of helping people out of poverty and unemployment by inspiring them to become entrepreneurs, and increase their chance of succeeding with their own business.

In this paper we evaluate the impact of a reality TV-show broadcasted in Tanzania in the spring of 2011. The show, called Ruka Juu na Fema TV Talk show ("Ruka Juu", for short),

has an educational approach of teaching its target audience, namely youth between 15 and 25 years, about entrepreneurship. We want to examine if youth in their last year of O-level at secondary schools in Tanzania really have been informed or inspired from watching this show. If the educational approach of the show is successful, it can help create employment opportunities in Tanzania.

1.4 Studies on edutainment

The literature on edutainment, that is, education-entertainment, in developing countries is very limited. Below, we present two studies on edutainment in soap operas from Brazil and Tanzania.

La Ferrara, Chong and Duryea (2008) analyse the impact of edutainment in the context of TV soap operas broadcasted in Brazil. The soap operas portray families that are much smaller than in the Brazilian reality, and the educating aim of the shows is to affect fertility rates. The soap opera shows were broadcasted in different areas in Brazil at different times, and the authors exploit this information to see if there was an effect of the shows. They find that women living in areas where the shows are broadcasted have significantly lower fertility.

Another paper that focuses on edutainment, this time in Tanzania, is Rogers et al. (1999). A field experimental design was used to evaluate the effect of an entertainment-education radio soap opera introduced in Tanzania in 1993. The aim of the edutainment approach was to affect the listeners' behaviour when it comes to family planning and HIV/AIDS prevention. An alternative program was broadcasted on another radio station, and its listeners worked as a control group. Those who listened to the soap opera were the treatment group. Based on data gathered in five annual surveys the soap opera seemed to have strong behavioural effects on family planning adoption. The radio show increased its listeners' self-efficacy regarding family planning adoption and influenced listeners to talk with their spouses and peers about contraception.

Based on studies on the effectiveness of edutainment, like the two studies mentioned above, it appears that edutainment in mass media can be successful. However, the success depends crucially on the quality of the show and the way the message is being presented. Both the TV-shows and the radio show mentioned above are soap operas with a "hidden" educational approach, and with a main focus on entertaining the audience. Ruka Juu, on the other hand,

has a clear educational approach, often with the presenter talking directly to the audience saying that she hopes they have learned something from the show.

1.5 Learning and gender differences

How the viewers learn from an edutainment show is likely to depend on their individual learning preferences, learning skills, interests and attentiveness. As mentioned earlier, Berge, Bjorvatn and Tungodden (2010), find that female entrepreneurs are weakly or not at all affected by the business training in Tanzania. Perhaps females need more time than males to put new learning into practice, or perhaps males and females just learn differently.

Gurian (2011) argues that boys are more deductive than girls when it comes to learning. This implies that boys use general principles as the starting point of a reasoning process, and apply them to an individual case. Due to this difference, he emphasises that boys on average answer more quickly than girls on fast multiple-choice tests. In addition, when students learn mathematics from a blackboard, boys learn better than girls, who find it easier when they are taught using objects and manipulatives. However, Gurian (2011) also refers to statistics showing that girls are about one and a half year ahead of boys when it comes to reading and writing competency. In similarity, Fuller, Hua and Snyder (1994) find that girls perform better than boys in reading and language achievements, confirming that learning processes and outcomes depend on gender. Put into the context with edutainment it might be easier for boys to learn hard facts through edutainment, while girls might find it easier to comprehend knowledge that is put into a story in an edutainment show.

1.6 The experiment and its results

Through a field experiment of about 2000 students in their last year of O-level at secondary schools in Dar es Salaam, we evaluate the impact of Ruka Juu. The idea behind the experiment is to see whether entertainment can be a source of education and inspiration, in this case about entrepreneurship. Based on the gender differences in learning found in the literature, we analyse the data with regard to possible learning differences between males and females.

The participants in the study were randomly assigned into treatment and control groups, where the treatment group was incentivised to watch Ruka Juu. In this paper we analyse (1) whether the incentive to watch the show has been successful, (2) whether there has been an

informational impact of the show and (3) whether the show has been an inspiration to search for more knowledge about entrepreneurship.

We find that (1) the incentive appears to have worked well, (2) Ruka Juu has led to increased business knowledge for male viewers who have not watched similar shows before and (3) entrepreneurial inspiration has increased among female participants.

The remainder of the paper is organised as follows. Chapter 2 gives a brief presentation of the context the experiment has been conducted in and the NGO behind Ruka Juu. In chapter 3 we explain the theoretical definition of edutainment and further put it into the context of Ruka Juu. Chapter 4 explains the timeline of the experiment, and in chapter 5 we go into further details of the final lab experiment. In chapter 6 we describe characteristics of the participants in the sample and discuss the randomisation process through looking at the treatment-control balance. Chapter 7 presents econometric specifications and the results from our analyses. Finally we make some concluding remarks in chapter 8.

2 Institutional framework

2.1 About Tanzania

The experiment was carried out in Tanzania. The country we know today was formed by the two sovereign states Republic of Tanganyika and Republic of Zanzibar in 1964. Tanzania is the world's 31st largest country with a population of almost 43.2 millions (National Bureau of Statistics, 2011b) (Central Intelligence Agency, 2011). The life expectancy at birth is quite low, 52.85 years, and in a ranking of life expectancy it makes them number 204 out of a list of 221 countries. The median age is also remarkably low with 18.5 years. Kiswahili is the official language, while English is the primary language of commerce, higher education and administration (Central Intelligence Agency, 2011).

The growth rate of GDP in Tanzania was seven percent in 2010, which is high both compared to its own historical growth performance and compared to international growth rates. With an inflation rate of 5.5 percent the same year, the economical situation at the macro level in Tanzania looks fairly stable (National Bureau of Statistics, 2011b). However, 50 percent of the population lives below the poverty line, and the Government of Tanzania faces the

difficult challenge of translating the achievements of the macro economy into poverty reduction (UNDAF, 2001).

2.1.1 A historical perspective

When Tanzania became independent in 1961 Julius Nyerere served as the first president. He was a Pan-Africanist who wanted to make Tanzania a self-supporting and socialist state. Since Tanzania is an ethnic diverse country Nyerere founded a one-party state in 1963 to avoid conflicts between different ethnicities. He believed that a state with multiple parties would trigger instability and contradictory interests. In addition he adopted Kiswahili as a national language to further create national unity, making it the only medium of instruction and education in Tanzania. To reach his goal he issued the 1967 Arusha Declaration. The declaration aimed for instance to emphasis self-reliance and to avoid dependence on foreign loans and aid. Self-reliance would be reached through development of the agrarian sector with creation of cooperative farm villages, namely *ujamaa* (community) villages, to be able to produce more efficiently. Nationalisation of production and important services such as banks, mills and plantations, were also an essential means. As a teacher in economics and history, partly educated at the University of Edinburgh, Nyerere put a strong focus on education, by providing free and universal education. In addition, he used mass literacy campaigns to reach the population (Boddy-Evans).

Although Nyerere placed a strong emphasis on education, not all the strategies were successful and thought through. For instance the strategy of ‘Education for self-reliance’ stressed that primary level should be a cycle of learning, rather than a preparation for advancement. According to Ministry of Education and Culture (1985, referred to in Al-Samarrai & Reilley, 2005, p. 3) this strategy succeeded with 100 percent primary gross enrolment rates by the early 1980s. However, at the same time the strategy suppressed the importance of secondary education and encouraged students to enter the labour force, rather than continue to study (Kent & Mushi, 1995). Due to the expansion of primary education, secondary schools were restricted by budget constraints. In addition the Government tried to reduce inequality of access, by restricting establishment of private secondary schools (Al-Samarrai & Reilly, 2005). Secondary education was therefore only intended to graduate enough people to meet the requirement for skilled manpower in the country. It was a very small part of the population who then could occupy modern sector jobs since secondary education was limited to only a tiny minority of Tanzanians (Wedgwood, 2005).

The ambitious and often unrealistic development strategies adopted due to the Arusha Declaration, in combination with the war with Uganda, caused the Tanzanian economy to falter rapidly during the late 1970s and the early 1980s. As a result the primary enrolment rates declined, and the restrictions on secondary schools eased (Al-Samarrai & Reilly, 2005). When the country had difficulties to pay off debt, and the IMF and the World Bank strongly recommended Tanzanian government to give up its socialist policies and adopt a structural adjustment programme, Nyerere refused to accede the recommendation. The creation of ujamaas also proved to be flawed when peasant farmers did not produce more efficiently on a cooperative basis, which led to an overall decrease in agricultural production. In 1985 Julius Nyerere resigned as president, but he retained the position as a chairperson in the ruling party, keeping himself as an important political figure (Ahluwalia & Zegeye, 2001). Not until 1990 he finally admitted that not all of his policies had been successful, and then gave up his position in the party (Boddy-Evans).

In 1989, the World Bank issued a document blaming the governance structure for “development problems” in Tanzania and other African countries. Tanzania was still strongly dependent on donors to survive as a country. These economical and development problems laid the ground for a need of greater political freedom in the country. Tanzania responded to the pressure for change by deciding to adopt a multi-party system in 1992. This resulted in an opportunity for various groups to press their concerns for improved economic structures, business, consumer and personal freedoms, and transparency in public information (Marsden-Dole & Jones, 2010).

Today Tanzania is still a poor economy dependent on donations and aid from other countries, but due to gold production and tourism GDP growth has stabilized at a relatively high level in recent years (Utz, 2008). Agriculture accounts for a major part of the economy and employs about 80 per cent of the workforce. Both within the agricultural sector and in trade women slightly dominate the workforce (Ellis et al., 2007).

2.1.2 Education in Tanzania

The education system in Tanzania has three levels: primary, secondary and tertiary levels. Seven years of schooling is compulsory, until the students reach the age of fifteen years. The secondary level consists of advanced level in addition to ordinary level. Education at the O-level is also known as Form I – IV. In 2007 only 15 percent of potential students, enrolled at a

secondary school (National Bureau of Statistics, 2011a) (Ministry of Education and Vocational Training). When attending O-level the students can choose between three streams, namely arts, business and science (Helgesson Sekei, 2011).

The compulsory seven years of Primary School are tuition free, while there has to be paid enrolment fees per year of public secondary education (Helgesson, 2006). Families also have to pay academic contributions, furniture contributions, identity fees, testing fees and more. It can be hard for poor families with many children, single parents or orphans to afford these fees and especially girls are often kept out of secondary school due to economic reasons. The government has increased the number of public secondary schools dramatically over the last years to offer affordable education to more students, but still the incentives to teachers are low or non-existent, as is evident in many developing countries (Glewwe & Kremer, 2005). The increase in secondary schools indicates that the Ministry of Education and Culture (2004) in Tanzania has changed the educational focus over the last decades. However, Nyerere's education policies with a focus on a broad primary base are still reflected in today's policies. Wedgwood (2005) argues that one outcome of this is that Tanzania still has one of the lowest secondary enrolment ratios in the world. Few secondary graduates can be seen as a potential barrier to poverty reduction because there are only limited human resources available for developing the capacity of systems such as education, primary healthcare and agricultural extension systems. Secondary education is now considered by the government as a fundament for the human resources required for building a competitive economy. Further, the Ministry of Education and Culture considers the more achievable access to secondary level education as a motivation to remain in Primary School, making the enrolment rates in Secondary School increase and the drop-out rates in Primary School decrease. In addition, the increase in secondary schools has social benefits, for instance health will improve and the social participation will enhance. These benefits are means to an optimal growth of the economy.

The education system in Tanzania has a bilingual policy. Kiswahili is, as mentioned, the national language in Tanzania and is the medium of instruction at the primary level. At the secondary level it is taught as a compulsory subject and at the tertiary level Kiswahili is optional. In contrast, English is a compulsory subject in primary education and the medium of instruction after primary level. The motivation behind a bilingual policy is for the students to keep in touch with their heritage and cultural values when learning Kiswahili, and prepare the

students to have an international link through administration, commerce and technology when learning English (Tibategeza, 2010).

2.1.3 Dar es Salaam and its districts

The experiment analysed in this paper was carried out in Dar es Salaam which is the major commercial and industrial centre in Tanzania. The city is an outlier in a Tanzanian perspective, due to for instance a higher education level than the rest of the nation (Bagger, 2010). Dar es Salaam is divided into three districts, namely Kinondoni, Temeke and Ilala. The schools and the participants in our sample are from all the three districts. Kinondoni has the highest population, almost half the population of Dar es Salaam, followed by Temeke and Ilala (Dar es Salaam City Council, 2004).

2.1.4 About media and TV trends in Tanzania

In Tanzania television had a late arrival. The country's first TV channel came in 1994, and due to this TV is still a novelty. Since 1994 the development of the area has been noticeable with more and more TV stations starting to air, but the production of programs has yet to become national. Most of the programs one can watch at Tanzanian television are bought from neighbouring countries. According to a survey of media habits and consumption in Tanzania, Tanzania All Media and Products Survey (TAMPS), the number of people watching TV nationally is still quite low. 43 percent of the Tanzanians watch TV every week. In all likelihood this low number is due to TV's late appearance. If you look at the overall media consumption it is still low, and it is filled with gaps and inequalities. This is true even if the number of radio stations has increased with 600 percent within the last decade, and the number of TV stations also has been growing (Bagger, 2010). In other words, from a low starting point the supply and availability of media products are increasing rapidly.

Some trends in Tanzania are worth noticing. First of all the urban population consumes more media products than the rural ones. TV viewing stands for the greatest difference between the two groups. In the urban area 75 percent watch TV every week, and in the rural area only 30 percent do the same. Although the urban population watches TV more frequently it is however a myth that TV viewing is just an urban phenomenon. Secondly, if you look at all media products in total, men consume more than women in all categories. However, the difference between males and females for TV viewing is small, 46 percent and 40 percent respectively. Thirdly, it is worth noticing that the consumption of media production decreases

with age. 37 percent of the TV viewers in Tanzania are between 15 and 24 years old. The survey also presents that owning a TV can be characterized as a middleclass phenomenon. 22 percent of the poorest Tanzanians state that they watch TV every week, and about 90 to 100 percent of the middle-income groups state the same. Family members, neighbours and friends often watch TV programmes together in homes or at the local community centre or bar, making TV viewing a social activity in Tanzania (Helgesson Sekei, 2011).

2.2 Femina HIP

Femina HIP (Health Information Project) is a non-governmental organisation (NGO) in Tanzania that aims to educate its audience through entertainment, namely *edutainment*. The donor-funded organisation has developed greatly since its start in 1999 and today it is one of the most influential Tanzanian media platforms. It began as an initiative to help youth in Tanzania adopt a healthy lifestyle, with focus on sexual and reproductive health and rights. The idea is to empower the people, thus creating supportive communities where there are room for public debates. Femina HIP's recipe for success is based upon setting alternative agendas on the edge of the mainstream media, and by that becoming a pro-poor platform (Bagger, 2010).

Today Femina HIP is considered a multi media house that uses different communication channels such as magazines, radio and TV to reach its audience. Through its channels the organisation focuses on topics such as health, education, entrepreneurship and sexuality. The Fema TV Talk Show, for instance, has proved to be a success. According to TAMPS 4.6 million Tanzanians are aware of the show and 3.4 million watch it. The show has a total of only one million regular viewers, but it still makes the talk show one of the most popular Tanzanian programming productions. As few quality programs are being produced in Tanzania, being one of the most popular Tanzanian productions might not seem that impressive, but it is worth noting that the supply of TV programs is increasing, the audience is becoming more demanding and hence the competition is becoming fiercer. According to TAMPS, the four main topics the viewers of Fema TV Talk Show are most interested in are youth leadership, civic education, reading culture and entrepreneurship. Entrepreneurship is a relatively newly introduced topic in Fema TV Talk Show, and Femina HIP is proud to announce that the majority of the viewers are aware of the new area of focus in the show.

Femina HIP works at three different levels of intervention. Firstly, the organisation works at the individual and family level. Here they provide information relevant to their audience. At the same time they create channels for dialogue and debate by letting the audience comment and ask questions by SMS. Secondly, Femina HIP is also represented at the community level. At secondary schools youth can join a Fema Club where they address issues of concern. Thirdly, the organisation tries to join the public debate as a vocal participant at the national level. At all levels Femina HIP strives to reach a two-way dialogue, rather than simple information dissemination (Tufté & Mefalopulos, 2009). According to the audience, increasing knowledge and awareness, and most importantly changing behaviour are the changes that the organisation contributes with, in the Tanzanian society (Bagger, 2010).

Femina HIP's latest project is the TV reality show *Ruka Juu*, where they focus solely on entrepreneurship. The TV-show is the fundament of our experiment, and in this paper we will analyse it thoroughly.

3 Edutainment

3.1 The concept of edutainment

Edutainment, also referred to as entertainment-education (E-E), enter-educate or infotainment, is a way of educating and informing people through entertaining approaches. There are different ways to use edutainment as a social media message, but the basic idea is that the message must both educate and entertain. The main aim of edutainment is to shift social norms, change overt behaviour and create favourable attitudes of the media's audience. In total the audiences' knowledge about an educational issue should increase. Edutainment is therefore also seen as a communication strategy to bring about social and behavioural change (Singhal et al., 2004). The Henry J. Kaiser Family Foundation (2004) states that the strategy of edutainment "involves incorporating an educational message into popular entertainment content in order to raise awareness, increase knowledge, create favourable attitudes, and ultimately motivate people to take socially responsible actions in their own lives" (p.1).

To reach the goal of edutainment the process must purposely be designed and then implemented as both educating and entertaining. According to Wallack (1990, referred to in Singhal et al., 2004, page 7) the purpose of edutainment is to bring about a direct social change at an individual, community or society level. He also states that it can contribute to

two ways of social change. Firstly, edutainment can reach a socially desirable end by influencing the audience's attitudes, awareness and behaviour. Secondly, it can also help create the necessary conditions for social change at the system level by influencing the external environment, meaning the interpersonal and social-political sphere, of the audience. In that way edutainment can serve as for instance a social mobilizer or agenda-setter that influences public and policy initiatives in a socially desirable direction (Singhal et al., 2004).

Tufte (2005) presents three generations of entertainment-education. The first generation focused on the marketing of social behaviour, most often related to health. Edutainment approaches in the first generation mainly focused on individual behavioural change. The second generation of edutainment, however, recognised the complexity in social and health related problems, and began to see society as a unit of change, rather than only individuals. In the recently developed third generation of entertainment-education one observes a different focus than the first two generations. Rather than just equipping the audience with knowledge, the edutainment approach wants to strengthen people's ability to identify the problems in everyday life, and their ability to act upon them, both collectively and individually. The key word of the third generation edutainment is empowerment of the people.

Bandura's theory (1977 and 1997 referred to in Rogers et al., 1999, p.194) of social learning hypothesises that a person learns new behaviour by observing and imitating the behaviour of for example a role model possessing the wanted behaviour. As a result, the person gains a sense of self-efficacy, believing that he can control specific outcomes in life. This has been shown in a research project where self-efficacy is associated with contraceptive use among women at risk of unintended pregnancy and HIV infection (Galavotti et al., 1995 referred to in Rogers et al., 1999). In edutainment the role models should have a positive, negative, or transitional behaviour, and their fate serves as indirect learning experience about the realistic consequences of alternative behaviours (Rogers et al., 1999). The media messages that the edutainment is sent through take different forms. Television, radio and print media are some examples of common platforms for edutainment.

3.2 Edutainment in the case of Ruka Juu

The Ruka Juu show aims to inspire young people to become entrepreneurs by offering them education about the subject. With its focus on the societal problem of lack of business training in school, and through the social change approach of wanting to inspire people to start their

own businesses, Ruka Juu can be put in the category of what Tufte (2005) refers to as the third generation of entertainment education.

Ruka Juu edutains its audience by following six entrepreneurs who compete for a life-changing opportunity. The show's main target group is youth between the ages of 15 and 25 from rural and urban areas. As mentioned in the introduction, more than one million students leave school every year hoping to find a job, and since the supply of employment opportunities is scarce, many of the students become self-employed. Through the TV-show the audience will be able to learn how to use resources and skills to develop and build a business on their own. In addition the show offers a better understanding of how money and finances work. The aim is therefore to give the audience "Help for self help" (Femina HIP, 2011b).

3.3 The episodes of Ruka Juu

Ruka Juu is a reality show of eleven episodes, with each episode lasting for about an hour. In each episode the participants and the audience learn new aspects of entrepreneurship. The six contestants in the show are small-scale entrepreneurs from different districts in Tanzania. To maintain a gender balance, three of the contestants are male and three are female. In order to be chosen as a contestant there was a certain maximum size of the business, concerning both sales and number of employees. For instance, all the micro-businesses had to be older than one year. During the show the participants are tested through nine tasks and challenges, which reveal for instance how they deal with successes and failures. After each challenge three judges evaluate the contestants' solutions to tasks and give them points based on their performances. Throughout the show there are two permanent judges and one guest judge in each episode. The permanent judges are both successful entrepreneurs, and the guest judges have different fields of expertise. The solution to the challenges and the evaluation thereafter makes it easier for the audience to pick up knowledge from the show. The main presenter guides the contestants and viewers through each episode and initiates discussions on topics related to business. A young successful Tanzanian entrepreneur is the co-presenter of the show. She runs her own renewable energy business and shares her own experiences and views of potential challenges with the contestants and viewers throughout the show.

In each episode there is a "clown" who is an aspiring entrepreneur and who "does everything wrong". He does what the contestants are not supposed to do, in a funny way, and his short

individual shows are always ended with a lesson to be learned presented as a fact sheet on the screen. In addition many episodes include information sheets with entrepreneurial facts.

The viewers are able to influence the results by voting via SMS for their favourite contestants, thus making the reality show more interactive. In addition there is a competition for the audience in each program, where they can answer entrepreneurship related questions by SMS and win prizes.

In the following we will explain each of the episodes in detail. For the readers' information, our evaluation of the show is based on the English subtitles of the episodes. Therefore there might be some shortcomings compared to the Kiswahili version of the show.

3.3.1 Episode 1: Introduction

The first episode of Ruka Juu was an introductory episode. The structure of the show was explained, and the six contestants and the judges were introduced. None of the contestants have any education above secondary form. They are in the age group 26 to 29 years old and come from different districts in Tanzania. The first contestant, Noel, is a soda seller. He has one employee and sells crates of soda which he distributes around on his bicycle. Saumu is the second contestant. She runs two cosmetics shops; one selling cosmetics and juice and one selling clothes. The third contestant, Benitha, is a tailor. She owns five sewing machines and has four students working for her, who she also educates in tailoring. The fourth contestant, Idrissa, is a barber. He owns two barbershops with three employees. The fifth contestant, Rajab, works as a power supplier. Discovering that a lot of people in his village could not even charge their phones due to lack of power, he started to supply electricity to households via a generator. The sixth, and last, contestant, Mariam, is a café owner. She runs a café, with a couple employees, selling typical Tanzanian food.

In this episode some facts were presented on factsheets on the screen for a few seconds for the viewer to read. The first fact from this episode was that “90 per cent of businesses in Tanzania are small-scale businesses with four employees or less.” The second factsheet presented that “One million students leave school every year looking for a job”, and that “only six percent of the population is formally employed.” In addition, the viewers learned from the clown's wrongs that it is important for an entrepreneur to remember that “the customer is king, so serve him well.” These facts were the only entrepreneurial knowledge that could be taken from the episode.

3.3.2 Episode 2: Promote your business

In the second episode each contestant got 100 000 TZS (60 USD) to promote their business within one day. Some decided to use the money to print flyers to distribute in their neighbourhood, some made a new signboard for their business, and some promoted their business on the radio or by using microphone and speakers in the neighbourhood. Others decided to improve their business, for instance by using the money to increase their stock, before they started the promotion. Most of the contestants used a mix of different ways to promote.

The clown again got it all wrong, and the lesson for him and the viewers was to “always know the proper way to advertise your business.” There were no fact sheets in this episode, but the viewers were supposed to learn the importance of promoting the business and were through the contestants attempts introduced to various ways of promoting. An important element in the episode was to keep track of the money you spend and to bargain for good deals. The judges evaluated how the participants used the money and graded them according to their performance.

3.3.3 Episode 3: Take care of your customer

The third episode discussed how an entrepreneur should take care of his customers. The entrepreneurs were challenged with a task, which was supposed to test the contestants’ communication and business skills and the contestants’ patience towards a client while dealing with the given challenge.

The task the contestants unknowingly met was a fake annoying customer who was almost impossible to satisfy. The customer was never pleased no matter how the entrepreneurs approached him. Some of the entrepreneurs responded with understanding and regret on behalf of the customer, while others could not control their temper and responded with anger and indifference. It was evident that some of the contestants handled the annoying customer quite well, while others did not, leaving the viewers with examples of how you should behave and how you should not behave in order to please your costumers.

During the episode the audience learned through fact sheets that “Tanzania’s population has increased from 11 million to 41 million people since attaining independence in 1961” and that “65 percent of Tanzanians are below the age of 25 years.” In addition the clown taught the

audience that an entrepreneur must always make sure his or her business is safe and well protected at all times.

3.3.4 Episode 4: Take care of yourself

In the fourth episode the contestants had to answer questions concerning sexual health and HIV. Some of the questions were slightly connected to entrepreneurship and all the questions were asked from a panel of students from a Fema club. The judges evaluated the contestants based on their answers to the questions about health.

A fact sheet presented that in Tanzania “One percent of the youth between ages 15 to 19 have been infected by HIV.” In this episode the clown, who tries a new profession every week, ate up all the food he was supposed to sell from his food stall. The lesson at the end was for entrepreneurs to remember to “avoid mixing capital and personal spending.”

Femina HIP’s focus on sexual health generally and HIV specifically probably laid the ground for the content of this episode. The viewers were supposed to learn that good health is important in order to run a business and that an entrepreneur also have to look after his employees’ health. The episode did not explicitly inspire entrepreneurship or teach knowledge on entrepreneurship, but in the country of Tanzania sexual health and HIV actually can be seen as hindrances to youth who want to start their own business, and hence it is an important subject to address.

3.3.5 Episode 5: Take care of your business

In episode 5 the contestants learned how they should take care of their businesses. The contestants were tested in how to handle crisis and disasters. The judges were to look for calmness and contemplation from the contestants in tackling this challenge.

The Ruka Juu team hired people to steal some things from each small-scale business, either when the entrepreneurs were not watching or through the thief leaving the store without paying. The contestants all handled the situation differently - some blamed their employees who had been present and other forgave their employees at once. Only one person suggested reporting the incident to the police, while one contestant waited for God to handle the situation. The judges evaluated the contestants’ reactions, and Idrissa was highlighted as the only person who took the necessary step in the situation, as he wanted to call the police.

Also in this episode a fact sheet was presented. The audience learned that “a lot of Tanzanians do not use insurance services and they do not know the value of using insurance.” The co-presenter emphasised that it is smart to have a security guard every day, it is important to make the workers keep track of the stock and that in case of shortfalls the workers should be held responsible. In addition the clown taught the viewers that as an entrepreneur you must remember to allocate time for resting so you can run your business efficiently when you work.

The hope for the episode was that the audience would learn how to take safety precautions such as a security guard and insurance, remember what customers look like in case of theft suspicion, where to report theft, to have a solution in case of crisis such as important numbers in your phone, and that it is important to have some savings in case you need to replace stock in case of theft or fire. Some of these messages were clearly presented in the episode, while others were not. During the episode the audience learned for instance where to report a theft, but it was not emphasised that you must remember a customer’s face or that the entrepreneurs should keep extra savings in case they need to replace stock due to theft.

3.3.6 Episode 6: Save your money!

In episode six the contestants were to give advice to the clown who wants to become an entrepreneur on how to save money. The clown asked for advice on where and how to save his money and how to be more careful and avoid reckless spending. The evaluation criteria were whether the contestants knew the importance of savings, whether they knew different savings opportunities, and whether their possible savings aimed to reach a goal.

Rajab, the power supplier, lives in a village far from any bank offices, and therefore emphasized the possibility of alternative savings opportunities for entrepreneurs who live in rural areas with few banking institutions nearby. Rajab invested his savings in cattle, which he bought on auctions and sold at a higher price when possible. Other contestants also mentioned the difference between saving opportunities in rural and urban areas. Some mentioned informal saving groups, and most of the contestants said that they had a bank account.

The judges wanted the contestants to mention both saving through depositing money in banks and investing in assets or land as possible ways of saving. The contestants, who mentioned how important it is always to put some money aside instead of spending everything you earn,

got extra points from the judges. In addition, the ones who mentioned that expenditure must not exceed income earned extra points.

The fact sheet presented on the screen in this episode said that “only twelve percent of Tanzanians have a bank account.” In the clown’s individual part of the show he talked on the phone instead of helping his customer. The lesson for the viewers to learn was to “avoid mixing business with pleasure.”

The aim of this episode was to teach the audience about different ways to save money. A lot of possibilities were mentioned, and the best ways of saving were emphasized by the judges. One example mentioned was that it might be smart to invest in a business that does not interfere with your own business. The viewers learned that start-up capital can come from both savings and agriculture. The judges therefore encouraged the young audience to save the money they have, and not use it on pleasure. In addition they said that one should have a goal before deciding where and how much to save.

3.3.7 Episode 7: Find working capital

In episode 7 the audience was to learn how an entrepreneur can find working capital. The contestants were given a fake order of their products two weeks ahead in time. They would first be paid for the order at the day of the event, and meanwhile they had to find an alternative way to get capital to cover the expenses. The criteria the judges evaluated according to, were how they planned, how they exploited the resources around them and if they knew of more than one place to find capital. In addition creativity and innovative ideas were rewarded.

The entrepreneurs used different kinds of ways to raise capital. Some of them asked their supplier to be granted a deferment of the payment till the day of the event, and those who had established good relations with their suppliers succeeded at this attempt. Others used a combination of good supplier relations and their own savings. A couple of the contestants also asked for a loan, one with a friend and one at a bank.

The viewers could read from a fact sheet that “15 percent of adult Tanzanians depend on their families and their relatives as their only source of income.” From the clown the audience learned that a faithful relationship with your client is important to be successful.

This episode was very informative. The challenge given was a great way of showing different ways to raise capital when an entrepreneur receives an unexpected order. All the solutions that were chosen by the participants were useful alternatives. For instance the audience should have understood from the contestants' actions that a loan is not always in cash, but it can also be goods on credit. In addition they may have picked up on the fact that a loan usually comes with an interest, except from some loans from friends and family. The viewers should also have learned that it is important to be reliable to your suppliers, so that you can go to them when in need of capital. The alternative of borrowing in a micro finance institution was not used by any of the contestants, but it was mentioned enough times during the episode for the audience to recognise it as a possibility for raising capital.

3.3.8 Episode 8: Embrace your gender

In the eighth episode all the contestants came together at a “boot camp” in Dar es Salaam. Here they stayed for the last three episodes before the final. In the eighth episode they were faced with issues of how gender relates to entrepreneurship. The contestants had to work in teams with the other contestants of the same sex. Their task was to collaborate with their team to find a way to explain their understanding of entrepreneurship through a painting. The judges evaluated leadership, participation, creativity, teamwork, efficiency, confidence and risk-taking.

The fact sheet in this episode presented that “the total number of self-employed women who earn less than 10 000 TZS² per month is twice more than that of working men who are in the same salary bracket. “ In this episode the clown misunderstood an order from a customer. He fulfilled an order the customer did not want, which made the clown accumulate large costs. The lesson was to “be careful when you are getting an order from a customer. If possible have it written and signed.”

A discussion about gender issues related to entrepreneurship was held after the competition, concluding that men are more confident and willing to take risks than women. The judges encouraged female entrepreneurs to be more confident in order to succeed. Women were however discussed to be better at collaborating than men, and this was clearly shown in the two teams of males and females in the episode.

² Approximately 6 USD

3.3.9 Episode 9: Learn what you can

The aim of the episode was to learn more hard knowledge about entrepreneurship in a four day workshop. The episode took place in a classroom and different kinds of experts were invited to talk about their area of expertise. Two lecturers from the department of entrepreneurship at the University of Dar es Salaam lectured about entrepreneurship and creativity among other topics. A successful entrepreneur selling jeans also gave a presentation about being unique, and a man from Tanzania Revenue Authority (TRA) taught the contestants about tax rules. In addition to general entrepreneurship knowledge, the contestants learned how to make and present a business plan. The contestants were to arrange a meeting together, plan the agenda, hold the meeting and evaluate the meeting and each other afterwards. In this episode there were no judges, and only the audience were to evaluate the contestants by contributing to the results through SMS voting.

In the fact sheet presented in this episode the audience could learn that “a lot of Tanzanians know about loans, but 60 percent do not know what interest is”. The clown focused on the environment, and the viewers were to learn that a clean environment and talking nicely to people adds to the prosperity of your business.

In this episode the thought was that the audience would learn about money management, insurance, creativity, importance of staff, income and cost analyses and how to divide cost of a large investment over a number of months or years. However, the episode only gives brief glimpses of the lectures with the presenter talking in the background listing the topics the entrepreneurs had learned about without any deeper explanations. Examples of what the audience probably did learn during this episode, however, is to think outside the box in addition to reach goals, and that you must delegate and work together in order to solve a task.

3.3.10 Episode 10: Put it to work

At the “boot camp” the contestants had to present their business plan to three new judges. Each contestant was given four minutes to present and the presentations should include the history of the business, the market of the business, motivation, and a business strategy to expand or change the business in the future. The contestants were reviewed by three guest judges; a managing director of an NGO, which assists entrepreneurs, an assistant lecturer from the University of Dar es Salaam and a managing director of a national competition on business plans.

All the contestants presented how their businesses help society, for instance through employing young people. They all laid out the goals they had set for their business. The judges gave each contestant questions on which qualities a person would need to work in their business, and what they would use the winning prize for. If a contestant did not talk sufficiently about plans for market expansion, the judges gave them follow-up questions on this topic.

The fact sheet in the tenth episode told the viewers that “for your business to be legitimate you must register it at the appropriate government department. Every business must be registered lawfully.” The clown in this episode taught the lesson that “once you start saving money stand by that viewpoint and avoid temptations.”

This episode gave some insight in how to present your business to others, for instance to potential funders. However, a specific layout of a good business plan was not presented, but the viewers got some examples on what to include in a business plan. The viewers also got a good overview of the contestants’ different businesses throughout the presentations.

3.3.11 Episode 11: The final

The final episode was sent live from studio with an audience present. Some highlights from the previous episodes were shown. The audience got the chance to ask questions to both the contestants and the judges. The contestants talked about how they all had become famous entrepreneurs in their districts due to their participation in Ruka Juu, and it seemed like their businesses had benefitted from the fame. People also came to their businesses to ask for advice on how to become successful entrepreneurs. Before the final votes were counted, Idrissa, the barber, and Benitha, the tailor, were in the lead. Each of the contestants received a bank account with 500 000 TZS (300 USD) before the winner was announced. The judges gave some concluding advices to each of the contestant, which were the only explicit knowledge on entrepreneurship that the viewers could take away from this episode. After the final votes were counted, Idrissa, who had been the most popular contestant both with the judges and the viewers throughout the whole show, won by a wide margin. He then received a cheque of 5 000 000 TZS (3000 USD).

3.3.12 The aftermath of the show

Helgesson Sekei (2011) also reports that focus group discussions with the contestants after the show revealed that they all have become famous entrepreneurs in their local communities.

Apparently Ruka Juu has had local spin-off effects in the communities of the contestants. To draw this spin-off effect even further Femina HIP has facilitated the contestants with magazines, Ruka Juu signs for their businesses and other material to create a business support centre for young people at their place of business.

4 Empirical design

4.1 Timeline

The experiment was conducted in four parts from January to June 2011, as shown in table 1, with participants from 43 different classes at 42 different secondary schools in Dar es Salaam, Tanzania. All the schools were randomly selected public schools located in the three districts of Dar es Salaam. Private schools were left out of the sample to obtain a homogenous group. The classes in the experiment were art or business stream classes at form IV, the last year of O-level. 2126 students participated in the baseline survey. Due to exams, illness and the start of vacations, 1927 of them took part in the final lab experiment. After controlling for some missing information our final sample contains 1918 students.

Table 1: Timeline

Randomisation and contracts	Baseline survey	Midterm quiz	Lab experiment
January 2011	Feburary - March 2011	April 2011	May - June 2011

In January the participants in the study were randomly assigned to be in either the treatment or the control group of the experiment, and signed a contract stating which TV-show they were supposed to watch. After the shows had been broadcasted for some weeks, the students participated in a baseline survey in February/March. Here they filled out questionnaire concerning personal and family related information in addition to TV habits and plans for the future. To remind the students about the research project they were part of, they were given a midterm quiz about their respective shows in April. Finally, a lab experiment was conducted in May/June after the last episode of Ruka Juu had been broadcasted. Here the students were

asked to perform various tasks to map out possible informational, inspirational or behavioural impacts from the show. In the following we present a more detailed description of the different parts of the experiment.

4.2 Randomisation

Randomisation was used in order to evaluate the causal effect of the edutainment show on information and inspiration (see (Duflo, Glennerster, & Kremer, 2006) and (Deaton, 2010)). The method involves randomly offering one group treatment, while the other group constitutes the control group.

One can randomise at different levels, for instance at individual level or at group level. When choosing which level to randomise on one most think of the possibility of spillover effects between participants in the experiment. Spillovers from treatment to control groups can bias the estimation of the treatment effects. When analysing individual data from a program that is randomised at the group level, it is important to keep in mind that the error term may not be independent across individuals, but might be correlated within the groups (Duflo, Glennerster, & Kremer, 2006).

4.2.1 Randomisation in the case of the Ruka Juu project

Randomisation in the Ruka Juu project was done at school level rather than at the individual level to avoid spillover effects between the participants in the study. Although randomisation is done at school level, spillover effects are not necessarily absent, but they are at least likely to be much smaller than if the randomisation was done at individual level.

We analyse our data at the individual level even though the randomisation is done at group level, hence the error term might be correlated within the groups. Imagine that one of the classes in our sample is subject to the same shock, for instance a new talented and inspiring teacher, within the period of the program implementation. It will then be impossible to distinguish the effect of the new business teacher from the effect of the Ruka Juu show when it comes to business information and business inspiration. When group outcomes are correlated, we need to control for this in our estimations to get correct standard errors. Hence we cluster on school, which is equivalent to classes, when estimating our model. This controls for the common shocks the classes might have been subject to, and gives us more accurate standard errors for the estimate of the treatment effect.

The method used in this experiment is an encouragement design, where randomly selected groups receive extra incentives to undertake the intervention. For an encouragement design to be successful it should be possible to estimate the effect of the encouragement and the effect of the intervention as well. In our experiment the encouragement design, as a special case of an experimental design, is used because we have little control over the participants' compliance and therefore we have randomised the encouragement and not the application of the intervention itself. The randomisation of the encouragement should increase the likelihood that the participants will go through with what they are encouraged to do (Diamond & Hainmueller, 2007).

4.2.2 The contracts and the making of treatment and control groups

The experiment started with the signing of contracts by the students. In the contracts they were informed that they were chosen to be a part of a research project about media and youth in Dar es Salaam. The contracts for the treatment group stated that the students' task was to watch all eleven episodes of the reality TV-show Ruka Juu.³ The students were informed that they could choose to either watch the show Saturday night from 6.30-7.30 pm on the TV channel ITV or Sunday night from 9.00-10.00 pm on TBC1. The eleven episodes would be broadcasted in the period 12th/13th of March to 21st/22nd of May depending on the TV channel. The control group was instructed to watch the weekend movie every Sunday at 9.00 pm, which was then broadcasted at the same time as the Sunday broadcasting of Ruka Juu.⁴ The weekend movie would be broadcasted at East African TV, and the students were to watch eleven movies in total, during the same period as the treatment group. For the experiment to be ideal we would have to make sure the participants in the control group did not watch Ruka Juu. We could for instance have chosen a control group in an area where the access to watch TV was limited, but then the two groups probably would be socio-economically different, thus not comparable. If we rather told the control group not to watch Ruka Juu it would probably only trigger a curiosity and awareness about Ruka Juu, and as a result the control group would perhaps watch the reality show. By asking them to watch another show broadcasted at the same time as the main showing of Ruka Juu, it would hopefully prevent them from watching Ruka Juu. The participants were not aware of the real aim of the project,

³ The contract is included in appendix 1.

⁴ The contract is included in appendix 2.

and were not told of the treatment and control groups, making the experiment single blind (Shuttelworth, 2008).

In the last part of the contracts all the students were informed that they would receive a compensation of 5000 TZS (3 USD) when the student and a parent or guardian of the student signed the contract. Through the need of signature from parents or guardians, the students' families were made aware of the commitment to watch the show. The households' awareness about the students' participation in the experiment would hopefully make it easier for the students to watch the TV-show at home. Additionally, in the last part of the contract the students were reminded of the opportunity to win money in the last phase of the experiment, the final workshop.

The headmasters and the teachers at the participating schools also signed a contract and were given an economic compensation of 30 000 TZS (18 USD) to remind the students to watch the respective shows during the research period. In addition they helped out in the different surveys and compiled the grades of all the students.

4.3 Baseline survey

The baseline survey was conducted before the first episode of Ruka Juu was broadcasted, mainly in February. The survey consisted of questions concerning the participants' families, their families' economy, other household issues and TV issues.⁵ Further, they had to answer questions about their initial knowledge of different TV-shows, among them Fema TV Talk Show, Ruka Juu's predecessor. The baseline also included some questions on the students' general knowledge and their plans for the future. Additionally, the students, as in the contracts, had to fill out their contact information. The treatment and control group were given exactly the same questionnaire, and it was no compensation or opportunity to win money involved.

4.4 Midterm quiz

The midterm quiz was the third phase of the experiment. It was conducted approximately after the fifth episode of Ruka Juu had been broadcasted. In the midterm quiz the students first had to list some contact information, and next they had to answer various questions about

⁵ The baseline survey is included in appendix 3.

the programs. The treatment group answered questions concerning the Ruka Juu show, while the control group answered questions concerning the weekend movie. The types of questions asked in the midterm were how much they liked the respective programs, and which episode had been their favourite so far. They were also asked if they had missed any episodes, and if yes, why. The midterm was conducted to remind the students of their participation in the experiment and for the researchers to get preliminary information. Similar to the compensation in the baseline survey, the students were given an additional 5000 TZS (3 USD) for answering the midterm quiz.

4.5 Lab experiment

The last phase of the experiment was conducted right after the final episode of Ruka Juu was broadcasted, from May 24th to June 6th. The final lab experiment was a two to three hour workshop held in all the participating classes. During the lab experiment the students were to answer and perform 21 different tasks and challenges, shown in table 2 below. Handouts 2 to 14 comprise the incentivised tasks, while the rest of the tasks were completed without the possibility to gain money. In this paper we base our analyses on handout 4, questions about entrepreneurship, and handout 15, where the students decide whether to use money on one or two business courses, or keep the money themselves.

Table 2: Handouts in lab experiment

<i>Handouts</i>		<i>Description</i>
1	Registration	Information about the students
2	Program Content 1	10 questions about the weekend movie ⁶
3	Program Content 2	10 questions about Ruka Juu ⁶
4	Entrepreneurship	24 questions about entrepreneurship ⁶
5	Production	Student exercise: counting number of squares within a time limit
6	Distribution 1	Dictator game
7	Distribution 2	Spectator game
8	Risk	3 questions on risk to reveal the students riskiness
9	Time Preference 1	The students had to choose to receive an amount of money eight weeks after the lab, or a bigger amount sixteen weeks after, for three different increasing amounts.
10	Time Preference 2	The students had to choose to receive an amount of money the day of the lab, or a bigger amount eight weeks after, for three different increasing amounts.
11	Beliefs	Beliefs about the students own performance in adding numbers compared to their classmates ⁷
12	Adding Numbers 1	Student exercise: Adding numbers within a time limit
13	Competition	The students had to decide whether they wanted to compete with the rest of the class in the next task of adding numbers
14	Adding Numbers 2	Student exercise: Adding numbers within a time limit
15	Participation Fee	The students were given 4000 TZS and could choose whether to take the money in cash or to spend some or all of them on participating in one or two business courses the upcoming autumn
16	Personality	A number of personality questions
17	Career Choice	Questions about career choices
18	Fairness	Questions on their view of fairness
19	Happiness	Questions on their own happiness
20	TV-show Evaluation 1	Evaluation of the weekend movie
21	TV-show Evaluation 2	Evaluation of Ruka Juu

⁶ In both program content tasks and entrepreneurship task the students received 200 TZS per correct answer.

⁷ Not incentivised

5 Lab experiment

During the lab experiment the students, as informed in the contract, had the opportunity to win money. Because of this opportunity it was important to ensure that no one tried to cheat their way into the lab experiment, for instance by pretending to be an actual participant when they were not. To make sure that the participants in the workshop really were the same as those who had participated in the baseline and the midterm quiz, control questions concerning the students' families and contact information were asked before they were allowed to enter the classroom.

To make the lab experiment anonymous, the students were given number tags. These tags gave identification to each student, which they were to use on the handouts during the lab. They were also seated according to the tags. To minimize cheating the students sat without desks to make more space between them. The students' teacher had the opportunity to be present during the lab, but he or she was not allowed to hand in the questionnaires or see what the students had answered. In that way the students' answers remained anonymous. A spin-off of the teachers' presence was to keep an eye on the students, preventing them from cheating and to make sure they behaved.

The moderator started the workshop by introducing the lab experiment and the procedure of the workshop. He also explained rules of conduct, informed that the researchers would keep track of the amount each student had earned during the experiment, and that at the end of the session they would prepare envelopes containing the earned amount of money, which would be given to each student.

The lab experiment was conducted by the students on paper handouts, one handout for each task. A moderator explained the students' tasks, how to answer them and read all the questions out loud to ensure that all the students comprehended the tasks correctly.⁸ The moderator continuously reminded the students to answer all questions even if they did not know the correct answer. One motivation mentioned was that they would have the chance to win money simply by guessing.

⁸ Both the handouts and the explanations were given in Kiswahili.

The workshop was quite long, and to maintain the students' motivation and concentration they were given a break and some refreshments approximately half way through the incentivised part. Lab assistants made sure that the students did not talk to each other about the experiment during the break.

5.1 Entrepreneurial knowledge questions

All of the entrepreneurship questions were presented as a multiple-choice question with four possible answers. The questionnaire included questions concerning business related facts, e.g. percentages and definitions, and questions concerning best business practice. The 24 questions are shown in appendix 4.

After having watched the episodes and reviewed the questions carefully, we now give a presentation of the different kinds of entrepreneurship questions included. We explain them according to five categories.

5.1.1 Questions from fact sheets⁹

Five of the 24 questions are questions from fact sheets presented during the episodes. They are taken from four different episodes, where two of them are taken from the introduction episode. Considering that the show consisted of eleven episodes, which were broadcasted once a week, and since the lab experiment was conducted after the final episode, it was approximately twelve weeks since the students had read the fact sheets from the first episode, making the correct answers more difficult to remember. Typical fact sheet questions are “How many percent of Tanzanians have a bank account?” or “Which businesses need to be registered in Tanzania?” The first-mentioned question is taken from the sixth episode where the topic was “Save your money”. The fact sheet is suitable for the topic, but since the answer, that 12 percent of the Tanzanians have a bank account, is only presented once in the episode the fact is clearly difficult to remember. Considering that the fact sheets are also presented alone and without a voice reading them aloud makes it harder to comprehend, especially for students with poor literacy abilities.

⁹ Questions 1,2,3,17 and 22 are included in this category

5.1.2 Facts not presented in fact sheets¹⁰

Further, we have defined four of the entrepreneurship questions as facts not presented in fact sheets. These four are mainly from episode 7, episode 9, and episode 10. An example is question 24 where the students are to tick off which one of the four following answers that is not correct. The statement that is not true, and therefore the correct answer, is that banks require immovable property as collateral for all types of loans. During the episode it was evident that some of the contestants believed that the opposite was true, that one had to have immovable property as collateral to get a loan, and therefore they did not contact a bank to get help when they needed working capital. As mentioned, there was always one guest judge in addition to the two main judges in each episode, and in this episode it was a bank representative. He could inform the viewers of the Ruka Juu show that the contestants' assumption was incorrect. In contrast to the category above these questions should be easier to comprehend since the facts are presented more than once during the specific episode, and in addition the fact can be put into a context, which might make it easier to remember.

5.1.3 Definitions¹¹

The next category is definitions. Three of the questions are clearly definitions. The students are, for instance, asked what business insurance is or what profit is, namely how you calculate profit. The answer to the former question is mentioned in episode 9, where the contestants arrange a meeting to discuss topics they have learnt about during the workshop. One of these topics is what you have to do as an entrepreneur to secure your business in case it catches fire. All the contestants agree that they should have insurance, and thus the correct answer is that business insurance is a protection against risk of fire. Because of the narrow definition in the answer, the students have to have watched episode 9 and paid attention in the contestants' discussion to be able to answer this question correctly.

5.1.4 Learned through contestants' behaviour¹²

Nine of the questions fall into the group of knowledge that could be learned through contestants' behaviour. Watching the contestants solving a task or challenge should equip the viewers with the correct answer. The nine questions are taken from approximately four episodes; where four of them are taken from the content in episode 7. An example of a

¹⁰ Questions 6,20,23 and 24 are included in this category

¹¹ Questions 12, 14 and 16 are included in this category

¹² Questions 7,8,9,11,13,15,18,19 and 21 are included in this category

knowledge question is “Why is it important for your business to have enough working capital?” In the episode the contestants got a large unexpected order and had to find a way to finance the order before it was paid for. The questions in this category can often have more than one correct answer, but only one of the four listed alternatives is the most correct one. For instance, this applies in question 7 where the students were meant to answer that to use a community radio is a cost-effective way to advertise if you want to reach many people outside of your neighbourhood. This was not clearly emphasised in episode 2, where the question is taken from. The method was used by two of the contestants, but also the other alternative answers were used as methods or evaluated as methods of advertising. With logical thinking, however, a student should be able to answer this question, even without watching the episode, since both outside your neighbourhood and cost-effective are mentioned as clues in the question.

5.1.5 Learned through contestants’ statements and discussions¹³

In this category the questions are only based on knowledge presented orally by the contestants and the judges’ responses, meaning that the contestants’ action does not necessarily represent the correct answer. This might make it more difficult to catch the message during the episodes. In this category three questions are included, which represent two different episodes. Two of the questions are taken from episode 4, and as mentioned in section 3.3.4, the contestants were in this episode supposed to answer questions asked by students from Fema youth clubs. Question 4 and 10 are from this episode, and in both questions the students are to choose the answer which is not correct, making three of the answers correct. In the former question, the students from the youth clubs emphasized the three correct reasons for why HIV/AIDS is spreading in Tanzania through asking the contestants questions on these topics. However, they did not say that multiple drug addicts are not a reason why HIV/AIDS is spreading in Tanzania, which is the correct answer to the question. If one has seen the episode and remembers the three correct reasons, one should be able to weed out the wrong alternative. The same procedure goes for question 10.

5.1.6 Summing up

In summary, there are 24 questions in the entrepreneurship part of the lab experiment. We have categorised the questions in five different groups, trying to label and explain them

¹³ Questions 4,5 and 10 are included in this category

according to how we have understood the Ruka Juu show and the questions in its entirety. The 24 questions are taken from eight episodes. On average there are approximately two questions from each of the eight episodes, except from episode 7, “Find working capital”, where six questions are taken from. Due to this fact episode 7 can be seen as a key episode in order to answer many of the questions correctly.

The three categories, fact sheet questions, facts not in fact sheets, and definitions, include questions that require much attention when watching the episodes, to be answered correctly by the students. The knowledge needed in these questions we therefore consider difficult to pick up from the show, thus it is harder to answer these questions correctly. Twelve of the 24 questions are placed in one of these three categories.

The two last categories are based on the contestants’ behaviour and statements in the show, and the content often has to be converted into general knowledge by the students themselves. The contestants perform a task or solve a challenge, and based on their behaviour and the judges’ comments the viewers are supposed to learn something. We consider these two categories of questions easier to answer than the questions in the first three categories, at least if the students have seen the episodes where the questions are taken from. Twelve of the questions are placed in the last two categories.

6 Treatment-control balance

Of the 1918 students in our total sample 45 percent of the participants are male and 55 percent are female, as shown in table 3. The participants are between 14 and 24 years of age, with a mean age of 18 years.¹⁴ Apparently, classes in Tanzania are not as homogenous as in the Western world when it comes to age. One explanation is the common grade repetition in developing countries (Glewwe & Kremer, 2005).

¹⁴ The min and max figures are not shown in the table of descriptive statistics.

Table 3

Descriptive statistics of the participants

<i>Participants' characteristics</i>	<i>Measure</i>	Mean (standard deviation)			<i>Difference</i>
		<i>Total</i>	<i>Treatment</i>	<i>Control</i>	
Treatment	Share of sample	0.47 (0.01)			
Age	Years	18.01 (1.17)	17.97 (1.13)	18.05 (1.21)	- 0.08 (-0.05)
Male	Share of sample	0.45 (0.50)	0.38 (0.49)	0.51 (0.50)	-0.13 (-0.02)
Arts stream	Share of sample	0.62 (0.49)	0.57 (0.50)	0.66 (0.47)	-0.09 (-0.02)
TV at home	Share of sample	0.76 (0.43)	0.78 (0.42)	0.74 (0.44)	0.03 (0.02)
Working beside school	Share of sample	0.06 (0.23)	0.06 (0.24)	0.06 (0.23)	0.00 (0.01)
Ever watched Fema	Share of sample	0.71 (0.46)	0.70 (0.46)	0.71 (0.45)	-0.01 (-0.02)
Initial general knowledge	Number correct	2.85 (0.98)	2.87 (0.91)	2.83 (1.03)	0.04 (0.04)
Initial entrepreneurship knowledge	Number correct	1.97 (0.84)	1.93 (0.87)	2.00 (0.82)	-0.07 (-0.04)
Average grade	Percentage Grade	36.90 (12.63)	37.04 (13.84)	36.33 (11.57)	0.54 (0.61)
Siblings	Total number	4.31 (1.95)	4.26 (2.00)	4.36 (1.90)	-0.10 (-0.09)
Sibling number	Number in line	2.81 (1.84)	2.81 (1.86)	2.82 (1.83)	-0.00 (-0.08)

Notes: The difference column refers to difference between the treatment and control group. Standard deviations in parentheses for Total, Treatment and Control. Standard errors in parentheses for Difference.

From the baseline survey we know that half of the participants live together with both their father and their mother, and more than two thirds of the sample are born in Dar es Salaam. As many as 46 percent of the heads of households own their own business, making it the most common occupation among them. Based on this one might expect that students living in such families know more about entrepreneurship than other students. However, students with a parent or guardian who works all hours to keep his business running, might be tempted to go into a less demanding profession.¹⁵

The students in our sample have an average of above four siblings. It is well-known that less-rich families in developing countries have more children due to mortality rates and to secure the families' future (Hooegeveen, 2008). Therefore the number of siblings might reveal the families' prosperity. On average the students in the survey are the third oldest in their family of brothers and sisters. Those who have many siblings might have a poorer chance of going to school because the parents have to pay enrolment fees per child in school, at secondary level. At the same time it might be an inspiration and a source of knowledge to have older siblings enrolled in school or who are entrepreneurs.

76 percent of the students claimed that they had a TV at home, indicating that a dominant share of the sample have daily access to watch TV and should therefore have the possibility to watch the assigned TV-shows of the experiment. Six percent of the participants worked beside school at the time of the baseline survey. This information might also help us understand the living conditions of the students and their families, and the participants' opportunities to focus on schooling. However, few of the students working beside school do not necessarily indicate that the families are wealthy, but could rather be an indication of few employment opportunities.¹⁶

In addition to the information referred to above, the students were asked questions concerning their current TV knowledge and general knowledge in the baseline survey. For instance, the students were asked if they had ever watched Fema TV Talk Show. In our final sample 71 percent of the students stated that they had watched this TV-show before. Those who have

¹⁵ These figures are not shown in the descriptive statistics.

¹⁶ The participants who work beside school work 0.39 days and earn 5782.98 TZS (3.5 USD) per week on average.

watched the talk show might have gained knowledge about entrepreneurship and other relevant topics prior to the start of the experiment.

The students were asked seven knowledge questions in the baseline survey.¹⁷ Four of these were questions of general knowledge, for instance the name of the minister of education and vocational training in Tanzania and which vitamin carrots contain. Three of the questions were more related to entrepreneurship and business, for instance what profit is and when insurance is most useful. Number of correct answers to these questions tells us something about the participants' initial knowledge before the experiment. On average the students managed to get about 70 percent of the initial general knowledge questions correct and 66 percent of the initial entrepreneurial knowledge questions correct.¹⁸

The students were also asked questions on their plans after finishing form IV. 96 percent of the students wanted to continue their education, only two percent wanted to start their own business and next to no one wanted to start working right after school. This might reflect the lack of job opportunities in the market. Another way of mapping out the students' future plans in the baseline survey was for them to assume that they could choose between a given set of job opportunities, and that the income and work hours were exactly the same in all of them. 22 percent of the students then ranked starting their own business above the other alternatives of private sector employee, government employee and farmer.¹⁹

From the students' teachers we got an overview of the students' grades in each course. The average grade for the whole sample is quite low, of around 37 percent when looking at percentage grades, corresponding to the grade D. The business and arts stream students had some different courses, but most of the courses were the same for both streams, like for instance Kiswahili, English and mathematics. In our final sample 62 percent of the students are in an arts class, and 38 percent are in a business class.

From table 3 we see that the pre-existing characteristics of the participants in the treatment and the control group are reasonably similar indicating that the randomisation process was successful. However, three of the variables are somewhat different.

¹⁷ These questions are shown in the last part of the baseline survey in appendix 3.

¹⁸ The percentages are calculated based on the averages in the descriptive statistics and the total number of possible correct answers.

¹⁹ These figures are not shown in the descriptive statistics.

The first one is gender where there is below 40 percent males in the treatment group, and above 50 percent in the control group. One of the classes in the control group consists of only male students and creates this imbalance between treatment and control. However, as we run gender specific regressions in our analyses this imbalance should not matter.

The second variable differing between the two groups is arts stream. In the treatment group 57 percent of the participants are in an arts class, and in the control group the share is 66 percent. When the grouping is between arts and business, equal shares in the treatment and control group are more important than if the two streams were arts and science for instance, in a project focusing on entrepreneurship and business knowledge like this. Due to for instance the subject business keeping, students in a business class should know more about the project's focus area than students in an arts class. Taking this into consideration, we control for stream in our analyses.

The third variable that differs is the number of participants in each group. The percentage is 46.5 for the treatment group and 53.5 for the control group. However, since the two groups are equal on most observables, there is no reason to believe that there has been any selection bias in the lab participation. Finding no systematic difference between the treatment and control group we can trust the possible result we get, and we should be able to say that the possible difference between them is due to the Ruka Juu show.

7 Results

Before analysing the possible informational and inspirational impact from Ruka Juu, we look at the number of episodes actually watched, and how well the students answer questions about the program content of the shows they were supposed to watch. We then present the results for the informational impact through looking at entrepreneurial knowledge, and inspirational impact through looking at the students' willingness to pay for business training.

7.1 Econometric specifications

We apply an intention to treat approach which is an analysis based on the initial intended treatment group. In such an analysis one compares the individuals according to whether they were offered treatment (Angrist and Pischke, 2009). Within our intention to treat analysis, we use two different econometric specifications.

7.1.2 OLS models

For intention to treat analyses of informational impacts from the show, number of correct answers to entrepreneurship questions is the dependent variable, and we use a classical linear model (CLM) to look for a treatment effect. For the analyses of inspirational effects, however, our independent variable of high willingness to pay takes only two values: zero and one. Hence, we are dealing with a binary outcome. Multiple regression models with a binary outcome are called linear probability models (LPM) (Wooldridge, 2009). In the intention to treat approach, this will be a classical regression with a treatment-dummy as the key independent variable. The two most important disadvantages of LPM are that the estimated response probabilities can be less than zero or greater than one and the partial effect of any explanatory variable is constant (Wooldridge, 2009).

7.1.3 Probit models

To control for the shortcomings of LPM in our intention to treat analysis of inspirational effects, we also apply the specification of probit regressions, which is a more sophisticated binary response model of nonlinear nature. A probit model ensures that the fitted probabilities are strictly between zero and one. In addition the model implies diminishing marginal magnitudes of the partial effects (Wooldridge, 2002). The errors in a probit model are assumed to be normally distributed (Wooldridge, 2009).

To sum up, within the intention to treat analyses for the informational impact we look at CLM estimations and within the intention to treat analyses for the inspirational impact we compare the results of LPM and probit models.

7.2 Number of watched episodes of Ruka Juu and the program content knowledge

Table 4

Mean number of Ruka Juu episodes watched

	<i>Total</i>	<i>Treatment</i>	<i>Control</i>	<i>Difference</i>
<i>Total</i>	3.85 (3.25)	5.73 (2.98)	2.18 (2.49)	3.55 (0.12)
<i>Male</i>	3.43 (3.14)	5.60 (3.00)	2.02 (2.33)	3.57 (0.18)
<i>Female</i>	4.19 (3.30)	5.82 (2.96)	2.35 (2.63)	3.46 (0.18)

Notes: The difference column refers to difference between the treatment and control group. Standard deviations in parentheses for Total, Treatment and Control. Standard errors in parentheses for Difference.

In the lab experiment all the participants, regardless of if they were in the treatment or the control group, had to state how many episodes of Ruka Juu they had really watched.²⁰ This was not in the incentivized part of the lab, so the students should not have been tempted to overstate the number of episodes watched. As shown in table 4 the students in the final sample watched 3.85 episodes of Ruka Juu on average, out of a maximum of eleven. The treatment group watched 5.73 episodes on average, while the control group watched 2.18 episodes on average. When looking at the difference in number of watched episodes between genders in the whole sample, males have on average seen 3.43 episodes, while females have seen 4.19 episodes. If we also divide the genders into the treatment and control groups, males in treatment have seen approximately 3.5 more episodes than males in the control group, with an average of 5.60 and 2.02 episodes respectively. The difference between females in the two groups is also approximately 3.5 episodes, but the average number of watched episodes is somewhat higher for females than males in total. Females in the treatment group have the highest average of number of watched episodes with 5.82, while the females in the control group have seen on average 2.35 episodes. All the differences mentioned are statistically significant. Only 66 of the students in our final sample watched all the eleven episodes of

²⁰ The handout where the number of episodes watched was asked for is shown in appendix 5.

Ruka Juu, and 53 of these were in the treatment group. Frequent power cuts are a likely reason for the fairly low average number of Ruka Juu episodes watched in the treatment group.

In order to analyse if the students really have watched the number of episodes they claimed, we look at how much they know about the program content of the two shows. There were ten questions about the content of Ruka Juu and ten questions about the content of the weekend movie, respectively²¹. The ten questions in the part for Ruka Juu included questions concerning names and location of the contestants and names of guests in the show, questions which only demand that the students have the ability to observe and memorize. Having watched the TV-show and reviewed all the questions from the lab experiment, we believe that these questions should be fairly easy to answer correctly if you have watched the episodes with some attention. However, if you have not watched the particular episode that the question refers to, answering it correctly will be difficult. How many correct answers the treatment group obtained from the content of the Ruka Juu show and how many correct the control group managed from the weekend movie, will tell us whether the groups who were supposed to watch the respective shows really remember something about the content. The number of correct Ruka Juu content questions is shown in table 5.

Table 5
Number of correct Ruka Juu content questions

	<i>Total</i>	<i>Treatment</i>	<i>Control</i>	<i>Difference</i>
<i>Total</i>	4.56 (2.03)	5.53 (1.97)	3.71 (1.68)	1.82 (0.08)
<i>Male</i>	4.25 (1.98)	5.36 (2.02)	3.54 (1.58)	1.82 (0.12)
<i>Female</i>	4.81 (2.04)	5.64 (1.92)	3.89 (1.76)	1.75 (0.11)

Notes: The difference column refers to difference between the treatment and control group. Standard deviations in parentheses for Total, Treatment and Control. Standard errors in parentheses for Difference.

²¹ See appendix 6 and 7, respectively.

On average the treatment group answered 5.53 of the Ruka Juu questions correctly, indicating that the treatment group got more than 50 percent of the answers to the questions correct. In similarity the control group answered an average of 6.16 questions correctly about the content of the weekend movie.²² The number of correct answers can partly be explained by luck since all the program content questions were multiple-choice questions with four alternatives. Just out of pure luck a student should be able to answer 2.5 questions correctly by randomly choosing an answer.²³ However, with both groups answering more than 50 percent of the content questions from their respective shows correctly, it is obvious that they have picked up some information from the shows, supporting that they have really watched the shows they were supposed to. This also supports that the students reported the number of watched episodes in an honest way. The difference between the treatment and the control group in number of correct answers on program content from Ruka Juu is statistically significant, as is the number of episodes of Ruka Juu watched. Hence, the incentives appear to have worked well.

Apparently, the average student remembers quite a lot about the content of the show he or she was supposed to watch. Exactly how many answers they manage to get correct about the program content, however, differs between males and females, even when we control for number of episodes watched.²⁴ Therefore it seems to be a difference between the genders when it comes to picking up information from a TV-show. This is supported by findings in literature on learning differences between genders. To account for this possible difference, we separate between subsamples of males and females in our following analyses.

7.4 Informational impact

Out of the 24 entrepreneurial knowledge questions the students on average managed to get 8.59 of the answers correct. The average number of correct answers in the treatment and the control group are almost equal with an average of 8.56 and 8.62 correct answers respectively. The maximum number of correct answers in the sample was 19 and the minimum number was two. The fact that no one managed to get all the entrepreneurial knowledge questions correct indicates a fairly high degree of difficulty of the questions. As the knowledge

²² The number of correct answers about the weekend movie content is not shown in table 5.

²³ Ten questions in total, and four alternative answers for each question: $10/4 = 2.5$

²⁴ See appendix 8.

questions about entrepreneurship are, in similarity with the program content questions, questions of multiple choice with four alternatives, a student should be able to answer six of the questions correctly just out of pure luck²⁵. When we take this into account when looking at average number of correct answers, the average is surprisingly low. The distribution of number of correct answers is shown in figure 1 and 2.

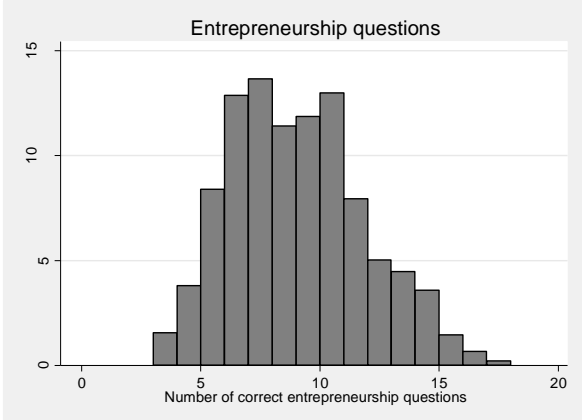


Figure 1: Treatment group

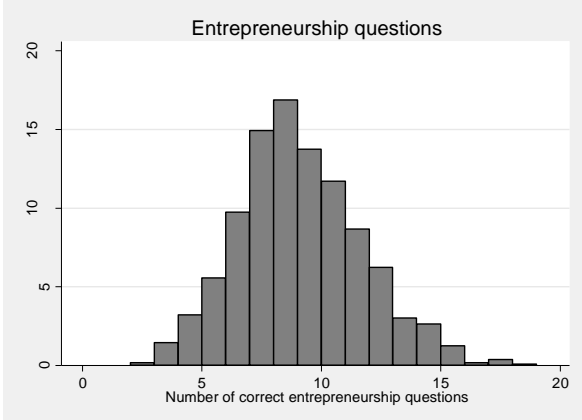


Figure 2: Control group

7.4.1 Treatment analyses of entrepreneurial knowledge

To analyse if Ruka Juu has had the desired effect on entrepreneurial knowledge we test for a treatment effect. We use a CLM regression to clarify if being part of the treatment group has had a significant effect on the students’ entrepreneurial knowledge. We analyse the regression

$$(I) \quad \text{Entrepreneurial knowledge}_i = \beta_0 + \beta_1 DTreatment_i + u$$

where the independent variable is entrepreneurial knowledge, comprising how many correct answers the participants managed to get on the entrepreneurship questions in the lab experiment. Treatment is a dummy corresponding to one if a participant is in the treatment group, and zero if a participant is in the control group.

The results from model (I) are shown in table 6, column (1) and (3) for males and females, respectively. The treatment estimate from the subsample of males is positive, indicating that the male participants in the treatment group answer more questions correctly than the control group on average. The size of the coefficient is fairly small, and tells us that a male in the

²⁵ 24 questions in total, and four alternative answers for each question: 24/4 = 6

treatment group answer 0.17 more questions correctly than a male in the control group. However, the coefficient is not statistically significant. Therefore we are not able to state a positive treatment effect for males on entrepreneurial knowledge from this model.

The results from regression (I) on the subsample of females are shown in table 6 in column (3). As opposed to the effect for males, the treatment coefficient in the sample for females is negative, indicating that the female participants in the treatment group answer fewer of the questions correctly compared to the control group. The size of this coefficient tells us that females in the treatment group answer 0.13 less questions correctly than females in the control group on average. This effect is, however, not statistically significant. Hence, no inference can be drawn from this estimate either.

Table 6: Informational impact from Ruka Juu

Dependent variable: Entrepreneurial knowledge (1)-(4)				
	(1) Males no covar.	(2) Males with covar.	(3) Females no covar.	(4) Females with covar.
Treatment	0.172 (0.289)	0.132 (0.239)	-0.138 (0.292)	-0.065 (0.232)
Arts stream		-0.258 (0.243)		-0.477* (0.237)
High grades		0.409* (0.221)		0.496** (0.214)
Initial entrepreneurial knowledge		0.713** (0.101)		0.726** (0.088)
Ever watched Fema		0.629** (0.195)		0.801** (0.133)
Number of siblings		0.024 (0.047)		0.073* (0.041)
Age		-0.174** (0.071)		-0.220** (0.095)
Constant	8.766** (0.148)	9.914** (1.379)	8.459** (0.172)	10.077** (1.635)
<i>N</i>	864	851	1051	1046
<i>R</i> ²	0.001	0.091	0.001	0.105

Notes: This table shows estimates from OLS regressions. Column (1) and (2) show results for the male subsample, and column (3) and (4) show results for the female subsample. The dependent variable is the number of entrepreneurship questions that a participant is able to answer correctly (from 24 questions). Mean dependent variable for males=8.84. Mean dependent variable for females=8.38. Treatment is a dummy with the value of one if the participant is in the treatment group, and zero if the participant is in the control group. Arts stream is a dummy that takes the value of one if the participant is in an arts class, and zero if the participant is in a business class. High grades is also a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Initial entrepreneurship knowledge is equivalent to how many correct entrepreneurship questions the participants answered in the baseline survey (from three questions). Ever watched Fema is a dummy with the value of one if the participants have watched Fema TV Talk Show before, and zero otherwise. Number of siblings is equivalent to the number of siblings the participants have. Age is equivalent to the participants' age. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools.

* $p < 0.10$, ** $p < 0.05$.

To improve the model and hopefully sort out a cleaner treatment effect we expand the regression (I) with a set of control variables, which we believe to be important to control for. We analyse the regression

$$(II) \quad \textit{Entrepreneurial knowledge}_i = \beta_0 + \beta_1 \textit{DTreatment}_i + \gamma Z_i + u$$

where the independent variable still is entrepreneurial knowledge, and Z_i is a set of control variables, containing arts stream, high grades, initial entrepreneurship knowledge, ever watched Fema, number of siblings and age.

The results from regression (II) for males are presented in column (2) in table 6. The coefficient for the treatment effect is still positive in the subsample. The size of the coefficient is fairly similar to the estimate from model (I). The treatment coefficient in column (2) tells us that males in the treatment group answer 0.13 more questions correctly than males in the control group, *ceteris paribus*. In similarity to the results in (I) the effect is not statistically significant. Hence, controlling for variables we believe to be important, we still cannot infer that there is a treatment effect on entrepreneurial knowledge for males.

The results for females are shown in table 6, column (4). The coefficient of the treatment dummy still have a negative sign, but the coefficients are somewhat smaller in size, implying that females in the treatment group answer almost 0.07 less questions correctly than females in the control group. The estimate is insignificant and gives us no grounds to draw a conclusion.

Of the included control variables in the regressions based on model (II) three of them are statistically significant at a five percent level for both males and females, see column (2) and (4) in table 6, respectively. The first variable is initial entrepreneurial knowledge. The variable is created based on three business related questions asked in the baseline survey, thus the maximum value of the variable is three and the minimum is zero. We believe that this is important to control for when looking for an effect from the Ruka Juu TV-show, as initial knowledge about entrepreneurship might limit the knowledge gained from the TV-show. The effect is positive and has the largest impact of all the controls in the male subsample. It seems reasonable that having initial knowledge about entrepreneurship accounts for a noticeable part of correct answers on entrepreneurship questions. The coefficient indicates that if a male participant answered all the three initial entrepreneurial questions correctly he would get

above two more entrepreneurial questions correct, compared to a male participant who answered all the initial knowledge questions wrongly. This effect is slightly higher in the subsample for females.

The second control variable that is statistically significant at a five percent level for both the subsamples is the variable of whether the students have ever watched Fema before. This is a dummy that takes the value of one if the students had watched the Fema TV Talk Show prior to the broadcasting of Ruka Juu. According to the coefficient for the male subsample, having watched Fema before makes a male participant answer 0.63 more questions about entrepreneurial knowledge correctly than a male participant who have never watched Fema before. Again the effect is somewhat higher for females. The positive sign of this effect seems reasonable since it is likely to believe that those who have watched Fema TV Talk Show perhaps will know more about entrepreneurship beforehand.

The last control variable that has a significant effect on the dependent variable for both males and females on a five percent significance level is age. We find it sensible to expect age to affect one's knowledge, but the direction of the sign is ambiguous. In our models the effect is negative, indicating that the older a student is the less he or she answers correctly on the entrepreneurship questions. The size of the coefficient for males indicates that being one year older makes a participant answer 0.17 less questions correctly. The size of the effect for females is fairly similar. If the reason for being older than the others in a class is due to having failed levels in school and having retaken them, the older you are the less smart you are, probably. Then a negative sign of the age variable seems reasonable.

For the male subsample the variable of high grades is statistically significant at a ten percent level. For females the same effect is significant at a five percent level. High grades is a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Both the estimates are positive, indicating that a student knows more about entrepreneurial knowledge if he or she has grades above the average. This seems reasonable. A female participant will on average answer approximately half a more question correctly than a female with low grades. The inference is similar when looking at the male subsample.

Two control variables are not significant in the subsample for males, but statistically significant at a ten percent level for the subsample of females. The first one reported in table 6 is the arts stream variable. Arts stream is a dummy variable equal to one if the student is in an arts class and zero if he or she is in a business class. When looking for an effect on entrepreneurial knowledge it seems reasonable that the coefficient has a negative sign, indicating that the students in arts classes know less about entrepreneurship than their fellow students in business classes. The estimate from column (4) tells us that a female participant in a business class will answer about half a question more correctly than a student in an arts class.

The second control variable which is significant at a ten percent level for the female subsample is number of siblings. The estimate is positive indicating that the more siblings a female student has, the more entrepreneurial knowledge she possesses. A positive effect of having siblings on knowledge can be argued to seem reasonable as it might be an inspiration and a source of knowledge to have older siblings enrolled in school or who are entrepreneurs. Having one more sibling makes the average female answer 0.07 more questions about entrepreneurship correctly, *ceteris paribus*, which is an almost negligible effect.

All the control variables appear to be reasonable hence the included set of control variables should improve the model.

To summarize the intention to treat analyses on males and females presented above, we cannot conclude on any informational effects on either of the gender samples.

7.4.1.1 Subsample of prior exposure to Fema TV Talk Show

Fema TV Talk Show, the predecessor of Ruka Juu, focuses, among other topics, on entrepreneurship. As mentioned in section 2.2, the talk show has been quite popular in Tanzania, and both youth and adults regularly watch the show. In the baseline survey we asked the participant whether they had watched Fema before, and as already explained we find this information important to control for when looking for a causal effect between those who have watched Ruka Juu and the impacts of Ruka Juu. To analyse the importance of this variable for entrepreneurial knowledge we run a regression where we look at those who have watched Fema TV Talk Show before and those who have not, separately.

The results for males and females who have not watched Fema TV Talk Show before are shown in table 7. Column (1) and (3) present the results for the simple regression of entrepreneurial knowledge on treatment for males and females, respectively. For males the treatment coefficient is positive with a size of 0.539, indicating that a male participant in the treatment group will correctly answer above half a question more than a male participant in the control group. For females the coefficient is, however, negative, indicating that those females who are in the treatment group know less than the ones in the control group. The size of the coefficient is 0.355, only representing a third of a question. However, none of the coefficients are statistically significant, and therefore we cannot conclude based on these estimates. In column (2) and (4) the results from a regression with control variables are shown, for males and females respectively. The control variables which are significant in these regressions seem to be of reasonable signs and magnitudes, as discussed for the results in table 6. Again the treatment coefficient for males is positive, but the size is greater than in the simple regression with a figure of 0.605. According to this result, males in the treatment group will answer approximately 0.6 more correct questions compared to males in the control group. The effect is statistically significant at a ten percent level, thus we can infer that males who have not watched Fema before get an informational impact from watching Ruka Juu. When looking at females in the extended regression, namely column (4), the treatment coefficient is still negative, and it has also decreased in size. Neither in this regression the treatment effect is statistically significant; we can therefore not interpret the results.

Table 7: Participants who have not watched Fema before

Dependent variable: Entrepreneurial knowledge (1)-(4)				
	(1) Males no covar.	(2) Males with covar.	(3) Females no covar.	(4) Females with covar.
Treatment	0.539 (0.338)	0.605* (0.342)	-0.355 (0.352)	-0.164 (0.288)
Arts stream		0.373 (0.314)		-0.713** (0.293)
High grades		0.458 (0.301)		0.497* (0.290)
Initial entrepreneurial knowledge		0.740** (0.160)		0.540** (0.154)
Number of siblings		0.016 (0.072)		0.045 (0.079)
Age		-0.065 (0.103)		-0.306** (0.140)
Constant	8.120** (0.172)	7.221** (1.826)	7.891** (0.229)	12.237** (2.531)
<i>N</i>	290	288	268	266
<i>R</i> ²	0.012	0.086	0.005	0.104

Notes: This table shows estimates from OLS regressions for the subsample of participants who had not watched Fema prior to the broadcasting of Ruka Juu. Column (1) and (2) show results for the male subsample who had not watched Fema before, and column (3) and column (4) show results for the female subsample who had not watched Fema before. The dependent variable is the number of entrepreneurship questions that a participant is able to answer correctly (from 24 questions). Mean dependent variable for males=8.35. Mean dependent variable for females=7.71. Treatment is a dummy with the value of one if the participant is in the treatment group, and zero if the participant is in the control group. Arts stream is a dummy that takes the value of one if the participant is in an arts class, and zero if the participant is in a business class. High grades is also a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Initial entrepreneurship knowledge is equivalent to how many correct entrepreneurship questions the participants answered in the baseline survey (from three questions). Number of siblings is equivalent to the number of siblings the participants have. Age is equivalent to the participants' age. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools. * $p < 0.10$, ** $p < 0.05$.

Table 8: Participants who have watched Fema before

Dependent variable: Entrepreneurial knowledge (1)-(4)				
	(1) Males no covar.	(2) Males with covar.	(3) Females no covar.	(4) Females with covar.
Treatment	0.081 (0.335)	-0.081 (0.286)	-0.057 (0.297)	-0.040 (0.254)
Arts stream		-0.565* (0.284)		-0.414 (0.260)
High grades		0.379 (0.286)		0.488** (0.240)
Initial entrepreneurial knowledge		0.694** (0.140)		0.785** (0.091)
Number of siblings		0.034 (0.060)		0.082* (0.048)
Age		-0.252** (0.094)		-0.194 (0.116)
Constant	9.062** (0.189)	12.281** (1.758)	8.655** (0.185)	10.220** (1.966)
<i>N</i>	567	563	781	780
<i>R</i> ²	0.000	0.084	0.000	0.083

Notes: This table shows estimates from OLS regressions for the subsample of participants who had watched Fema prior to the broadcasting of Ruka Juu. Column (1) and (2) show results for the male subsample who had watched Fema before, and column (3) and column (4) show results for the female subsample who had watched Fema before. The dependent variable is the number of entrepreneurship questions that a participant is able to answer correctly (from 24 questions). Mean dependent variable for males=9.09. Mean dependent variable for females=8.62. Treatment is a dummy with the value of one if the participant is in the treatment group, and zero if the participant is in the control group. Arts stream is a dummy that takes the value of one if the participant is in an arts class, and zero if the participant is in a business class. High grades is also a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Initial entrepreneurship knowledge is equivalent to how many correct entrepreneurship questions the participants answered in the baseline survey (from three questions). Number of siblings is equivalent to the number of siblings the participants have. Age is equivalent to the participants' age. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools. * $p < 0.10$, ** $p < 0.05$.

In table 8 the same simple regression as described above is run for the subsample of males and females who have watched the Fema show before. In column (1) and (3) the results for males and females respectively, are shown. For males the treatment coefficient accounts for 0.08 more correct questions, an effect that seems to be negligible in size. The female treatment coefficient is still negative. As for males, the size of the coefficient is very small, accounting for only 0.06 less correct questions for a female participant in the treatment group. None of the coefficients are statistically significant. Again we extend the simple regression with a set of control variables. These results are shown in column (2) for males and (4) for females. Again, the control variables which are significant in these regressions seem to be of reasonable signs and magnitudes. The treatment coefficient for males has changed sign, and is now negative. The coefficient is still negligible at 0.081. For females, the coefficient is even smaller in size with a negative sign. Neither of these treatment coefficients are statistically significant; hence we cannot infer any effects from these estimates.

From the analysis of those who have watched Fema TV Talk Show before, and those who have not, we can conclude that we find a treatment effect for males who have not watched Fema TV Talk Show before on entrepreneurial knowledge. Hence, there has been an informational impact from Ruka Juu for this subsample.

7.5 Inspirational impact

In the Participation Fee-part of the final lab experiment the students were asked to choose between receiving an amount of 4000 TZS cash or to use all or a part of this money on attending one or two business courses two to three months after the lab experiment.²⁶ We believe that those who want to use money on business training are more interested in entrepreneurship and more inspired to perhaps become an entrepreneur themselves one day, and we want to analyse if this inspirational effect can be attributed to Ruka Juu. We analyse the inspirational effect of Ruka Juu by creating a dummy for high willingness to pay for additional training, which takes the value one if a participant signs up (and therefore is willing to pay) for both courses, and zero otherwise. About ten percent of the students in our final sample chose to attend both courses. In the treatment group twelve percent chose to use the money on both courses, while eight percent in the control group chose the same.

²⁶ See appendix 9.

We analyse the inspirational impact with a treatment analysis with two different specifications, namely LPM and probit models. Also in these analyses we will separate between males and females, using two different subsamples of the dataset.

7.5.1 Treatment analyses of high willingness to pay

We want to test if the treatment group has a higher willingness to pay than the control group, in other words if they are more inspired. We therefore regress

$$(III) \quad \text{High willingness to pay}_i = \beta_0 + \beta_1 DTreatment_i + u.$$

As in the previous analyses we start off with a simple regression where treatment is the only explanatory variable.

The results from model (III) with no covariates are reported in table 9, column (1) and (3), for the male subsample. We see from both the specification of LPM and the probit model that the treatment coefficient is similar. The coefficients for the treatment effect is positive, indicating that being in the treatment group makes a male student more likely to have a high willingness to pay for business training. The size of the coefficients tell us that a male participant is on average 1.7 percent more likely to pay to attend the two business courses if he is in the treatment group rather than the control group. This effect, however, is not statistically significant.

For the female subsample the results from model (III) are reported in table 10 in column (1) and (3). As for males, we see that the treatment coefficients for females are similar in the two specifications of the LPM and the probit model. A female participant in the treatment group is on average 5.5 percent more likely to have a high willingness to pay for business training than a female in the control group. The treatment effect on high willingness to pay for females is, in contrary to the effect for males, statistically significant at a ten percent level. From this simple model we can conclude that being in the treatment group has a positive inspirational effect for females. However, to make the model more precise, we have to control for some other independent variables than just treatment.

Table 9: Inspirational impact, male subsample

Dependent variable: High willingness to pay (1)-(4)				
	(1)	(2)	(3)	(4)
	LPM no covar.	LPM with covar.	Probit no covar.	Probit with covar.
Treatment	0.017 (0.028)	0.017 (0.027)	0.017 (0.028)	0.017 (0.027)
Arts stream		-0.006 (0.025)		-0.005 (0.024)
High grades		-0.035 (0.026)		-0.034 (0.025)
Initial entrepreneurial knowledge		-0.001 (0.015)		0.000 (0.015)
Ever watched Fema		-0.023 (0.020)		-0.022 (0.019)
Number of siblings		-0.004 (0.007)		-0.003 (0.006)
Age		0.001 (0.007)		0.001 (0.007)
Constant	0.089** (0.015)	0.136 (0.164)		
<i>N</i>	864	851	864	851
<i>R</i> ²	0.001	0.006		
pseudo <i>R</i> ²			0.001	0.009

Notes: This table shows estimates from LPM regressions and the marginal effects from probit estimations for the subsample of males. The dependent variable is a dummy that takes the value of one if a participant has a high willingness to pay for business training, and zero otherwise. Treatment is a dummy with the value of one if the participant is in the treatment group, and zero if the participant is in the control group. Arts stream is a dummy that takes the value of one if the participant is in an arts class, and zero if the participant is in a business class. High grades is also a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Initial entrepreneurship knowledge is equivalent to how many correct entrepreneurship questions the participants answered in the baseline survey (from three questions). Ever watched Fema is a dummy with the value of 1 if the participants have watched Fema TV Talk Show before, and 0 otherwise. Number of siblings is equivalent to the number of siblings the participants have. Age is equivalent to the participants' age. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools. * $p < 0.10$, ** $p < 0.05$.

Table 10: Inspirational impact, female subsample

Dependent variable: High willingness to pay (1)-(4)				
	(1)	(2)	(3)	(4)
	LPM no covar.	LPM with covar.	Probit no covar.	Probit with covar.
Treatment	0.055* (0.032)	0.053* (0.031)	0.055* (0.032)	0.054* (0.030)
Arts stream		0.030 (0.030)		0.029 (0.029)
High grades		-0.006 (0.022)		-0.006 (0.022)
Initial entrepreneurial knowledge		0.006 (0.014)		0.005 (0.013)
Ever watched Fema		0.006 (0.023)		0.004 (0.022)
Number of siblings		0.003 (0.006)		0.004 (0.005)
Age		0.019 (0.012)		0.018* (0.010)
Constant	0.068** (0.017)	-0.304 (0.209)		
<i>N</i>	1051	1046	1051	1046
<i>R</i> ²	0.009	0.016		
pseudo <i>R</i> ²			0.014	0.026

Notes: This table shows estimates from LPM regressions and the marginal effects from probit estimations for the subsample of females. The dependent variable is a dummy that takes the value of one if a participant has a high willingness to pay for business training, and zero otherwise. Treatment is a dummy with the value of one if the participant is in the treatment group, and zero if the participant is in the control group. Arts stream is a dummy that takes the value of one if the participant is in an arts class, and zero if the participant is in a business class. High grades is also a dummy with the value of one if the student has an average grade above the sample average of 37 percent, and zero otherwise. Initial entrepreneurship knowledge is equivalent to how many correct entrepreneurship questions the participants answered in the baseline survey (from three questions). Ever watched Fema is a dummy with the value of one if the participants have watched Fema TV Talk Show before, and zero otherwise. Number of siblings is equivalent to the number of siblings the participants have. Age is equivalent to the participants' age. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools.

* $p < 0.10$, ** $p < 0.05$.

We extend our model to include a set of control variables. We regress

$$(IV) \quad \text{High willingness to pay}_i = \beta_0 + \beta_1 DTreatment_i + \gamma Z_i + u$$

where Z_i denotes the set of control variables, corresponding to the same controls as in the models above.

The results from model (IV) are reported in table 9 in column (2) and (4) for the male subsample. Here we find coefficients of the treatment dummy very similar to the ones for the model without covariates reported in column (1) and (3), supporting that the model is fairly robust. Still the coefficients are insignificant and we cannot infer on any inspirational effect from Ruka Juu for males.

The results for the female subsample for model (IV) are also similar to the results from the simple model (III) as can be seen in table 10 column (2) and (4). The model seems to be robust to inclusion of covariates, and we can still find a significant treatment effect for females of about five percent. In other words, female students in the treatment group are about five percent more likely to have a high willingness to pay for business training than females in the control group. This indicates that having watched Ruka Juu has an inspirational effect on females.

We do not extend the analyses high willingness to pay for the subsamples of whether the students have watched Fema before, as we believe this characteristic not to be crucial when searching for the inspirational impact of Ruka Juu.

7.6 Summary of results

To sum up the results, we find a causal effect between having watched Ruka Juu and entrepreneurial knowledge for males in our treatment analysis, although only for males who have not been exposed to similar programs before. For females, however, we find no significant effects. This implies that Ruka Juu has had an informational impact on its male viewers.

From the analyses of the inspirational impact of Ruka Juu, we find a treatment effect for females. This effect is not evident for males. Hence, females seem to have been inspired to learn more from watching Ruka Juu.

8 Concluding remarks

Our study is based on empirical data from a research project investigating the impact of an edutainment show, Ruka Juu, in Tanzania. We wanted to see whether entertainment could be a source of education and inspiration, in this case about entrepreneurship. We analysed the data with regard to possible learning differences between males and females, based on the gender differences in learning found in the literature.

When looking at the number of episodes watched of Ruka Juu by the treatment group and number of episodes watched of the weekend movie by the control group (1) the incentive to watch the shows appeared to have been successful. In addition we found that both groups answered a majority of the program content questions of the respective shows correctly, indicating that the statement of number of episodes watched is not an overstatement just to please the researchers. The participants' knowledge of the program content points towards a long-term impact of having watched Ruka Juu. Although both males and females picked up a lot of the program content from the shows, females knew more than males on average. This finding supports the theory that genders learn differently.

Analysing the number of correct answers to entrepreneurship questions in the lab experiment we found that (2) there is an informational impact of Ruka Juu for males who have not watched similar shows before. More specifically we found a treatment effect for male participants who have not watched Fema TV Talk Show prior to the broadcasting of Ruka Juu. As this effect is not evident for the female sample, we again find results indicating that boys and girls comprehend knowledge differently. We seem to discover the same principles as the ones stated by Gurian (2011), namely that boys do deductive reasoning faster than girls. In addition Gurian argues that boys favour abstract thinking, compared to their female counterparts who seem to prefer concrete thinking. From the questions on program content knowledge we know that girls pick up more of the program content for both Ruka Juu and the weekend movie, than males. When being able to answer well on the program content questions and not that well on the entrepreneurship questions it might indicate that one is not able to convert information from specific behaviour or actions into general knowledge. Males who have seen the show, however, get the informational impact because they manage to abstract the important knowledge from Ruka Juu.

Analysing the students' high willingness to pay for business training we found that (3) there is an inspirational impact from Ruka Juu on female participants. Females in the treatment group are inspired to learn more about entrepreneurship. As we find an inspirational effect on females, but not on males, it will be particularly interesting to follow those who participated in the business courses in the autumn of 2011 after having chosen this option in the lab experiment. Helgesson Sekei (2011) informs that research was conducted during these courses and the students who participated will be followed over a number of years to see if there will be a combined effect of watching Ruka Juu and attending the courses with classroom business training. "If they are not selected for further secondary education, will *Ruka Juu* in combination with the training influence their career choices and the way they will run their businesses?" (Helgesson Sekei, 2011, p.41). Perhaps the inspirational effect on females will be stronger after the business training, and perhaps there will also appear evidence of inspirational impacts on male participants.

An effect of the show that we have not been able to measure in this paper is the impact it has had on the local community where the contestants are from. As previously mentioned, focus group discussions with the contestants showed that Ruka Juu has had local spin-off effects where entrepreneurs and youth in the contestants' neighbourhoods came to the Ruka Juu-businesses to learn more. Apparently the inspirational effect is evident in the local communities of the Ruka Juu-entrepreneurs, and this is a desirable outcome of the show. Being able to inspire neighbours of the contestants, one should be able to inspire other viewers as well, supporting the finding of inspirational effects on females in our analyses.

The treatment effects we discover in our analyses are based on the sample of students who signed contracts to watch particular shows. One should be careful when generalising results from such a study as a person who is incentivised to watch a TV-show probably will watch it more intensely than a person who just watch the TV-show out of own initiative. However, making the students watch Ruka Juu at home in their own spare time, instead of in a controlled environment, has probably made the results better suited for generalisation.

Based on the above discussion we can conclude that males have an informational impact from the show and that females have an inspirational impact from the show. Apparently, Ruka Juu has been educating as well as entertaining. Both genders know quite a lot about the program

content, but they get different outputs from the educating aim of Ruka Juu. In that respect, the results of our analyses points towards the importance of taking into deeper consideration that males and females learn differently when creating an edutainment show. Perhaps there should have been used even more examples and less fact sheets to communicate entrepreneurial facts to achieve an informational impact on females as well.

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Appendix 1: The contracts of Ruka Juu

TV VIEWING CONTRACT, FORM IV STUDENTS, DAR ES SALAAM

During February and July, 2011, research about media and youth is undertaken in Dar es Salaam. The research is facilitated by the Norwegian Business School (NHH). You have been selected to be part of this study which has 3 phases:

- 1) A questionnaire, to be filled in by you during class (February to March, 2011)
- 2) A mid-term quiz five weeks after the questionnaire (April, 2011)
- 3) A one day workshop where you will do a test and participate in games where you can win money (End of May/beginning of June).

Your task is to watch all 11 episodes of the reality TV entrepreneurship competition ***Ruka Juu***, which is broadcasted on **ITV every Saturday night from 6.30-7.30pm and on TBC1 every Sunday night from 9.00-10.00pm**. You may select if you want to watch the show on ITV or TBC1. The first Ruka Juu show on ITV starts on Saturday the **12th of March** and on TBC the first show is on Sunday the 13th of March. The last show is on the 21/22nd of May.

You will be compensated for your input in this research. You will be given 5,000 Tsh when you and one of your parents/guardians have signed this contract. As already mentioned, you will also be able to win money at the workshop at the end of May/beginning of June.

.....

To be filled in by the student:

Student's full name:

School:

Class:

Address:

Mobile phone nrs:

Parent/guardian's name:

Mobile phone nrs:

By signing this contract, I hereby agree to participate in the study and to watch the programme every week.

.....
Date

.....
Signature of student

.....
Date

.....
Signature of parent/guardian

Appendix 2: The contracts of the weekend movie

TV VIEWING CONTRACT, FORM IV STUDENTS, DAR ES SALAAM

During February and July, 2011, research about media and youth is undertaken in Dar es Salaam. The research is facilitated by the Norwegian Business School (NHH). You have been selected to be part of this study which has 3 phases:

- 1) A questionnaire, to be filled in by you during class (February to March, 2011)
- 2) A mid-term quiz five weeks after the questionnaire (April, 2011)
- 3) A one day workshop where you will do a test and participate in games where you can win money (End of May/beginning of June).

Your task is to watch the **weekend movie on East African TV every Sunday night at 9pm** during 11 weeks. The first movie you will watch is on the **13th of March, 2011** and the last movie is on the 22nd of May, 2011.

You will be compensated for your input in this research. You will be given 5,000 Tsh when you and one of your parents/guardians have signed this contract. As already mentioned, you will also be able to win money at the workshop at the end of May/beginning of June.

.....
To be filled in by the student:

Student's full name:

School:

Class:

Address:

Mobile phone nrs:

Parent/guardian's name:

Mobile phone nrs:

By signing this contract, I hereby agree to participate in the study and to watch the programme every week.

.....
Date

.....
Signature of student

.....
Date

.....
Signature of parent/guardian

Appendix 3: Media baseline survey

Baseline survey for media project 2011

Contact information

Name	
Gender Male/Female	
Age	
Name of school	
Stream (Arts/Business)	
Home address	
Postal address	
Street address	
Ward	
District	
Mobile phone number (if you have a mobile phone)	
Alternative phone number where you can be reached. Specify whose number this is.	
Were you born in Dar? (Yes/No)	

Parents/Guardians

Who do you live with? 1=Father and mother 2=Father or mother 3= Other; specify	
Name of head of household where you live	
Phone number of head of household	
Occupation of household head 1=Government employee 2= Private company employee 3= Peasant 4= Own business 5= Other; specify	

Siblings

How many siblings do you have?	
Among your siblings, which number are you? 1=the oldest 2=second oldest 3=third oldest 4=fourth oldest etc	
What does your oldest brother do? 0= I don't have an older brother 1=Studies 2=He is unemployed 3=He works; please specify	
What does your oldest sister do? 0= I don't have an older sister 1=Studies 2=She is unemployed 3=She works; please specify	

Household-issues

Do you have a computer at home? (Yes/No)	
Does the household head read the newspaper? (Yes/No)	
How many servants do you have in the house? (Write 0 if you don't have any servants)	
How often do you eat meat at home in a week? (Answer in number of days per week)	

TV-issues

Do you have a TV at home? (Yes/No)	
Where do you normally watch TV? 1=At home 2=A friend's place 3=Other, specify	
In a normal week, how many days do you watch TV? (Answer is 7 if you watch TV every day, 6 if you watch TV six days a week, etc)	
In a normal day, how many hours do you watch TV?	
If you want to watch your favourite TV-program, how easy is it for you to find a place to watch it? 5=Very easy 4=Quite easy 3=Sometimes easy, sometimes difficult 2=Quite difficult 1=Very difficult	

Popular TV-shows

	Have you heard about this show? (Yes/No)	Have you <i>ever</i> watched this show? (Yes/No)	During <i>the last week</i> , have you watched this show? (Yes/No)
Daladala (TBC1)			
Mizengwe (ITV)			
Weekend Movie (EATV)			
Jiji Letu (ITV)			
Ben and Mai Live TBC1)			
Fema TV Talk Show (TBC1/ITV)			
Uswazi (EATV)			

Money-issues

Do you have income from work? (Yes/No) If Yes, specify what kind of work this is.	
In a normal week, how many days do you work for an income? (Answer is 7 if you work every day a week, 6 if you work six days a week, etc)	
In a normal week, what is your income from this work? (Tsh)	
Do you have other sources of income? 1=Pocket money 2=Daily allowance for school 3=Monthly allowance for school 4=Other; specify	

Plans for the future

<p>What do you plan to do after you have completed Form IV? 1=Take an education 2=Start a business 3=Work for someone 4=Other, specify</p>	
<p>Briefly explain your plan on what to do after you have completed Form IV</p>	
<p>What would you do if you had 1 million Tsh? 1=Use them to buy something nice for myself or my family 2= Use them to start a business 3=Use them to pay for my education, 4= Other, specify</p>	

<p>Assume that you could choose between the following job opportunities, and that the income and work hours were exactly the same in all of them. How would you rank them (1-4), where 1=my first choice, 2=second choice, 3= third choice, 4=fourth choice</p>			
Private sector employee	Government employee	Own business	Farmer

General knowledge questions

Below are some multiple choice questions on a range of topics. Place a tick at the answer you think is correct. Note: Tick only one answer for each question.

1. Who won the “Vodacom Miss Tanzania” title in 2010?

A: YYY	
B: XXX	
C: Genevieve Emmanuel	
D: QQQ	

2. When is insurance most useful?

A: When you face an unpleasant event, like an accident or theft	
B: When you wish to enter the University	
C: When your business is visited by the tax inspector	
D: When you wish to open a bank account	

3. Which of the following vitamins is plenty in carrots?

A: Vitamin A	
B: Vitamin B	
C: Vitamin C	
D: Vitamin D	

4. If you take a loan from a bank of 100 000 Tsh, to be paid back after one year with an annual interest of 15%, how much should you pay back the bank?

A: 100 000 Tsh	
B: 15 000 Tsh	
C: 115 000 Tsh	
D: 150 000 Tsh	

5. Who is the minister of education and vocational training in Tanzania?

A: XXXX	
B: Shukuru Jumanne Kawambwa	
C: YYYY	
D: QQQQ	

6. What is profit?

A: Profit is sales in the business.	
B: Profit is sales less operating expenses in the business.	
C: Profit is what the owner of the business takes home from the business every day.	
D: Profit is what the owner of the business spends to help his family.	

7. Which country is Diego Maradona from?

A: Brazil	
B: Argentina	
C: Ghana	
D: Spain	

Appendix 4: Questions about entrepreneurial knowledge ¹

Entrepreneurship YOUR NUMBER _____

Q1. How many percent of Tanzanians have a bank account ?

A 12%

B 54%

C 4%

D 69%

Q2. How many percent of all businesses in Tanzania are micro-businesses with four employees or less?

A 5%

B 20%

C 50%

D 90%

Q3. How many percent of Tanzanians are in formal employment?

A 2%

B 50%

C 6%

D 40%

Q4. Which of the following answer is *not* a major reason why HIV/AIDS is spreading in Tanzania?

A Lack of awareness

B Lack of condom use

C Many drug addicts

D Multiple partners

¹ We have crossed out the answer that is correct in each question with an X. This was not done on the actual handouts.

Q5. Which of the following is the most common way to save in rural areas ?

- A In livestock
- B In banks
- C On the stock market
- D In M-pesa

Q6. Where do most entrepreneurs in Tanzania get their start up capital?

- A From own saving, family and friends
- B From a reliable supplier
- C From a bank
- D From a microfinance institution or SACCO

Q7. Which of the following ways is a cost-effective way to advertise if you want to reach many people outside of your neighbourhood?

- A To put up posters
- B To use national TV
- C To distribute flyers
- D To use community radio

Q8. What is most important when advertising?

- A To have a funny message
- B To create nice posters
- C To reach your customers
- D To sponsor a popular radio programme

Q9. Which of the following is an important part of customer service?

- A To never recommend the most expensive products to customers
- B To always praise the goods you sell.
- C To be reliable in relations with the customer
- D To always recommend cheap products to customers

Q10. Which of the following statements is *not* true?

- A It is important for entrepreneurs to stay healthy
- B Entrepreneurs should give advice to their friends about health
- C It is acceptable that entrepreneurs use their status for sexual favours
- D It is advisable to get tested for HIV on a regular basis

Q11. Is appearance and to look smart important for an entrepreneur?

- A No, good behaviour is all that matters
- B No, it is the prices of your goods which matters
- C Yes, it is important for the overall impression
- D Yes, if you are in the beauty business

Q12. What is business insurance?

- A A scheme for saving money
- B A system of record keeping in the business
- C A payment scheme for business debt
- D A protection against risk of fire

Q13. Why is it important to pay suppliers on time?

- A To follow the rules of TRA
- B To gain reputation as trustworthy
- C To have more time for friends and family
- D To improve record keeping

Q14. What is profit?

- A Profit is sales of the most important products
- B Profit is sales minus cost of goods and operating expenses
- C Profit is sales minus cost of goods and what you take home from the business
- D Profit is sales plus cost of goods and operating expenses

Q15. Why is it important for the business to keep stock?

- A To have goods available for family consumption
- B To have goods available for the customers
- C To have goods available for the suppliers
- D To have goods available for a family emergency

Q16. How do you calculate your sales for a particular good?

- A Sales is the price times the number of items you sell of the good
- B Sales is the price of the good
- C Sales is the price of the good plus the number of items you sell
- D Sales is the price of the good minus what you pay the supplier for this good

Q17. Which businesses need to be registered in Tanzania?

- A Small businesses
- B Medium sized businesses
- C Large businesses
- D Any business

Q18. What are some of the important things to remember when you present your business plan to potential funders?

- A Never mention that there are competitors to your business
- B Tell the potential funder your problems and how you have been struggling to make ends meet
- C Always tell the funders that there are very low risks involved in your business
- D Dress smart, have a realistic plan, articulate the goals and present a budget

Q19. What is a common characteristic of businesswomen in Tanzania?

- A Fast in decision making
- B Good at collaborating
- C Never give up
- D Risk takers

Q20. What is an important element in a business plan?

- A A detailed plan for how to handle difficult customers
- B The inspection certificate
- C A strategy for market growth
- D A detailed record of last year's sales

Q21. Why is it important for your business to have enough working capital?

- A To pay the workers a higher wage
- B In case you get a larger order than usual
- C You have enough money to pay for insurance
- D To satisfy minimum requirements of TRA

Q22. How many percent of Tanzanians do not understand what an interest rate is?

- A 80%
- B 20%
- C 40%
- D 60%

Q23. When do you have to prepare a financial statement for tax estimation?

- A If you run a business
- B If you run a business with sales exceeding 20 million Tsh per year
- C If your business is registered
- D If you run a business with profits exceeding 5 million Tsh per year

Q24. Which of the following statements is *not* correct?

- A Banks require immovable property as collateral for all types of loans
- B Banks typically require a collateral for a loan
- C Banks pay interest on savings
- D Banks charge an interest rate on a loan

Appendix 5: Evaluation of the Ruka Juu show

TV Show Evaluaton 2 YOUR NUMBER _____

Questions on the TV entrepreneurship competition "Ruka Juu"

Q1. How many episodes of Ruka Juu have you watched (Answer 0-11)?

Q2. How difficult was it for you to watch the Ruka Juu episodes that you wanted to watch?

Very difficult 1	Somewhat Difficult 2	Neutral 3	Somewhat easy 4	Very easy 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q3. Did you like Ruka Juu?

Not at all 1	2	Neutral 3	4	Very much 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Below are some statements about Ruka Juu.
Please indicate your opinion on these statements

Q4. "Ruka Juu was entertaining"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q5. "Ruka Juu was informative"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q6. "Ruka Juu taught me how to start my own business"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q7. "Ruka Juu taught me how to develop and present a business plan"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	Did not watch
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TV Show Evaluaton 2 YOUR NUMBER

Q8. "Ruka Juu taught me how to promote a business"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	
					Did not watch

Q9. "Ruka Juu taught me how to take care of customers"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	
					Did not watch

Q10. "Ruka Juu made me more motivated to start my own business"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	
					Did not watch

Q11. "Ruka Juu made me more motivated to save money"

Strongly agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Strongly disagree 5	
					Did not watch

**Q12. Which of the following topics would you have wanted Ruka Juu to focus more on?
(you may tick off more than one alternative)**

- How to:**
- A ...find working capital
 - B ...protect a business
 - C ... promote a business
 - D ...take care of customers
 - E ...present a business plan
 - F ...manage money
 - G ...save money
 - H ... health and business
 - I ... gender issues in business
 - J Don't know

Appendix 6: Program content about the Ruka Juu show

Program content 2 Desk number _____

Questions on the TV entrepreneurship competition Ruka Juu

Q1. What was Benita's business in Ruka Juu?

A Barbershop

B Restaurant

C Tailoring

D Soft drinks

Q2. How many core judges were there in each programme of Ruka Juu?

A 5

B 2

C 1

D 4

Q3. Where was the barbershop businessman Idrissa located?

A Dar es Salaam

B Kibaha

C Tanga

D Njombe

Q4. What is the name of the comedian in Ruka Juu who is trying to become a successful entrepreneur?

A Bwana Solo

B Bwana Ishi

C Dada Amabilis

D Dada Bahati

Program content 2

Desk number _____

Q5. What did Mariam in Ruka Juu do when an annoying customer wanted to order food?

- A She was polite and served the customer rice and chicken
- B She talked badly about the customer to her friend over the phone
- C She told the customer that there was no food and come back tomorrow
- D She first ignored the customer and then started shouting at the customer

Q6. Who were asking the health questions to the entrepreneurs in Ruka Juu?

- A The judges and presenter
- B Amabilis and Bahati
- C Bwana Ishi and his boss
- D Students from Fema clubs

Q7. What did Idrissa in Ruka Juu do when he realised his business had been broken into?

- A He wanted to report the case to the police
- B He called the insurance company
- C He tried to find the thief but didn't succeed
- D He accused his employee of being a thief

Q8. Where does Bwana Ishi in Ruka Juu save his money?

- A In SACCOS
- B In a VICOBA
- C In a piggy bank
- D In a bank

Q9. What did the male entrepreneurs in Ruka Juu paint?

- A A businessman selling second hand clothes
- B Difficulties women face in their businesses
- C An area with many different businesses
- D A bank with many clients waiting outside

Q10. Which Ruka Juu contestants got the highest marks for their business presentation from the judges?

- A Idrissa, Benita and Rajabu
- B Noel, Saumu and Mariam
- C Saumu, Benita and Noel
- D Rajabu, Mariam and Saumu

Appendix 7: The weekend movie program content

Program content 1 Desk number _____

Questions on The Weekend Movie “Roho Sita” and “Cleopatra”

Q1. Who was Daniel in Roho Sita?

- | | | |
|--------------------------|---|------------------|
| <input type="checkbox"/> | A | Fiancée of Tedi |
| <input type="checkbox"/> | B | Fiancée of Kelly |
| <input type="checkbox"/> | C | Father of Chillo |
| <input type="checkbox"/> | D | Brother of Kelly |

Q2. What was the weapon used to kill the vampires?

- | | | |
|--------------------------|---|----------------------------|
| <input type="checkbox"/> | A | The black sharp knife |
| <input type="checkbox"/> | B | The mpingo sharp knife |
| <input type="checkbox"/> | C | The makumbusho sharp knife |
| <input type="checkbox"/> | D | The brand new sharp knife |

Q3. What was the main message in Roho Sita?

- | | | |
|--------------------------|---|------------------------|
| <input type="checkbox"/> | A | Evil does not pay |
| <input type="checkbox"/> | B | People can be vampires |
| <input type="checkbox"/> | C | Vampires are dangerous |
| <input type="checkbox"/> | D | Pastors are respected |

Q4. Who was the main actress in Cleopatra?

- | | | |
|--------------------------|---|-----------|
| <input type="checkbox"/> | A | Shaloo |
| <input type="checkbox"/> | B | Shallon |
| <input type="checkbox"/> | C | Cleopatra |
| <input type="checkbox"/> | D | Kankaa |

Q5. What was the source of misunderstanding between Mzee Chillo and his daughter in Cleopatra?

- A Her visitations to theatre group
- B Her involvement in theatre art
- C Her engagement in love affairs while studying
- D Her lack of respect and dishonesty

Q6. What was the name of the movie acted by Shaloo?

- A Who is like our parents?
- B Who is like a mother?
- C Who is like a woman?
- D Who is like our elders?

Q7. Who used photographs to create misunderstanding in one of the family?

- A Tedi
- B Moden
- C Joshua
- D Shaloo

Q8. Joshua was a good man as:

- A He had a true love
- B He loved both Tedi and Moden
- C He loved both Tedi and Moden
- D He loved all people

Program content 1

Desk number

Q9. What made Tedi cry towards the end of the movie?

A Her discovery that Moden was innocent

B Her recognition that she was a source of trouble

C Her prostitute behaviour

D Her recognition that she had lost her boy friend

Q10. Tedi was not a good woman as:

A She betrayed her parents

B She betrayed Joshua

C She betrayed Moden

D She loved Joshua

Appendix 8: Table of program content

Dependent variables: Number of correct program content questions about (1) Ruka Juu and (2) the weekend movie		
	(1) OLS	(2) OLS
Treatment	1.139** (0.133)	
Control		1.381** (0.141)
Female	0.166* (0.096)	0.456** (0.105)
Age	-0.063* (0.033)	-0.160** (0.039)
TV at home	0.303** (0.090)	0.572** (0.110)
Episodes watched of Ruka Juu	0.188** (0.021)	
Episodes watched of Roho Sita		-0.004 (0.039)
Episodes watched of Cleopatra		0.076* (0.038)
Ever watched Fema	0.474** (0.107)	
Constant	3.803** (0.625)	6.902** (0.767)
<i>N</i>	1858	1898
<i>R</i> ²	0.306	0.175

Notes: This table shows estimates from OLS regressions. In column (1) the dependent variable is the number of program content questions from Ruka Juu that a participant is able to answer correctly (from 10 questions). In column (2) the dependent variable is the number of program content questions from the weekend movie that a participant is able to answer correctly (from 10 questions). Treatment is a dummy corresponding to one if the participant is in the treatment group and zero if the participant is in the control group. Control is the reverse of the treatment dummy. Female is a dummy equal to one if the participant is female, and zero if the participant is male. Age is equivalent to the participants' age. TV at home is a dummy equal to one if the participant has a TV at home, and zero otherwise. The three variables of "episodes watched" correspond to the number of episodes watched of the respective TV-shows. Ever watched Fema is a dummy with the value of one if the participants have watched Fema TV Talk Show before, and zero otherwise. Differences in sample size when we include covariates reflect missing information from some of the participants. Standard errors in parentheses, corrected for clustering on schools. * $p < 0.10$, ** $p < 0.05$.

Appendix 9: Participation fee

Participation fee

Desk number _____

In addition to the money you earn during the lab, everybody will receive a participation fee of 4000 Tsh

You may receive the participation fee in cash, or use it to take one or two courses

Course 1: Starting up a business: What you need to know

Course 2: Starting up a business: Access to finance

Course contents:

Course 1: Information about how to start up and operate a new business

Course 2: Information about procedures for accessing microfinance so that you can apply for a business loan

Each course has a duration of **two full days** during a weekend this autumn

The courses are offered by **experts** on their fields

Each course has a fee of **2000 Tsh**

Below, we give you four choices, you should tick off only one.

A I would like to receive the **4000 Tsh** participation fee in cash today

B I would like to take part in **Course 1**
"Starting up a business: What you need to know"
and receive **2000 Tsh** of the participation fee in cash today

C I would like to take part in **Course 2**
"Starting up a business: Access to finance"
and receive **2000 Tsh** of the participation fee in cash today

D I would like to take part in both **Course 1 and Course 2**
and receive **zero Tsh** of the participation fee today

Note that there is a limited number of seats at these courses.

If there are more applicants than seats, invitations to attend will be randomly selected among those of you who have signed up for a course, indicated by your tick above.

Those of you who have signed up but do not receive an offer, will be paid back the course fee when the researchers visit the school again this autumn