

**Lyra**  
IN AFRICA

**UNIVERSITY OF HELSINKI**  
**FACULTY OF AGRICULTURE AND FORESTRY**



### **A Case study**

**What is the impact of the Lyra program on  
Women, girls and youth in Tanzania?**

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**Rose Ingutia and John Sumelius**

### **Abstract**

The 2030 Agenda pledge to ensure “no one will be left behind” by 2030 by guaranteeing human well-being, economic prosperity, and environmental protection for all. Issues contributing to socioeconomic development affect men and women differently. Inclusive good quality relevant education is a gender equality driver and is critical to the fulfilment of all the set goals. In rural Tanzania, girls lag behind boys in the transition from primary to secondary school and in education results. A majority of the youths work in the informal sector in an uncondusive environment with inadequate resources. Women earn significantly less than men earn and are less likely to own assets or property.

Lyra brings in a multi-pronged approach, including girls hostels: the community formally requests Lyra for collaboration, the former commits to pay 20% of the cost of the hostel, and then the two parties jointly construct hostels for secondary school girls. Moreover, Lyra steps in by closing digital divide for rural secondary school students; financial literacy and entrepreneurship youth training; and empowers women by the creation of self-sustaining village savings and loans associations. The evaluation investigates to ascertain and provide evidence regarding the relevance, effectiveness, impact and sustainability of the programs, to facilitate Lyra’s decision- making and the way forward. Primary data was generated using interviews of semi-structured questionnaires and Focus Group Discussions with relevant stakeholders. Data analysis was done using descriptive statistics and probit propensity matching regressions.

The hostel program is relevant; it saves girls walking long distances to school. The intervention is effective for it has contributed to the improvement in school performance. It is impactful by closing gender gap in math and science scores, leading to science careers at university level with potential economic opportunities. In sum, the 15 hostels that accommodate over 1600 girls yearly have contributed to zero reported pregnancies and minimal dropouts among the boarders during the 11 years of Lyra’s operation. Subsequently, hostel girls have a promising future given that for every year a girl stays in school, results on average to higher income levels, smaller and healthier families thereby creating a virtuous circle. The program is sustainable given that it is community driven and has positive outcomes. The beneficiaries request Lyra to provide full support of basic needs to the underprivileged girls; to have more quantity and diversified diet and more light to enable them to study at night.

Lyra’s digital literacy (DL) program is highly relevant given it is novel in the rural communities; neither households nor schools possessed computers. DL program is generally effective for it has contributed to the improvement of students’ overall school performance. However, nearly all the students indicated that their DL skills were still underdeveloped. The program is impactful it has added to gender equality considering that female and male students are benefiting equally. There is potential for the sustainability of the program for Lyra has collaborated with the government of Tanzania to take over at the end of the program. Students are requesting Lyra for repair of computers without lapse of time; more computers; enlargement of the computer rooms; increase the frequency and the duration of computer lessons; installation of solar energy; DL teachers should be stationed at respective schools. Teachers of other subjects to ease their workload ask Lyra for teachers specific for DL; request for laptops for they are more practical.

The relevance of financial literacy and entrepreneurship youth training program is due to the fact that nearly all the youth trainees are self-employed, but lack critical entrepreneurial resources. The training is effective given that majority of the trainees have acquired skills in financial literacy; microcredit knowledge; business management; teamwork; leadership; problem solving; and work ethics. The training is impactful for it has contributed to the closing of gender gap in accessing credit and in the job market. The program is sustainable for it collaborates with local business mentors to build businesses; has built an enabling environment for gender equality; youth trainee graduates starting income generating activities will create local jobs. The youth request Lyra to increase the training time, be available on regular basis, seed capital after training; diversified training opportunities (including digital literacy) based on consultation with them.

The relevance of Lyra’s VSLA objective of empowering women to have equal economic opportunities in their communities is manifested by gender disparities in access to productive resources including monthly income and asset ownership. The program is effective since the beneficiaries have developed saving habits, increased income levels, improvement in knowledge and skills, boosted household expenditure. The differences in results obtained between female and male members, are mostly insignificant, with the exception of acquiring knowledge and skills, and access to loans for other purposes besides living costs where men are on the higher side. Also, fixed monthly contributions to VSLA with women on the higher side. Wives earn less than their husbands’ do. The VSLA intervention is impactful as evidenced by the program’s effectiveness, furthermore a percentage of beneficiaries have increased ownership of assets and access to loans. Sustainability of VSLA is foreseeable due to Lyra’s creation of self-sustaining VSLA program; the relevance, effectiveness and impact of the VSLA; capacity building of the stakeholders; and access to informal banking services with

ease. Potential risks to the sustainability of VSLA include illiterate members of the community feel left out; some husbands are not in favor of their wives starting income generating activities. *VSLA members* request Lyra for the creation of more VSLA centers in their vicinity; more education programs and frequency, particularly the entrepreneurship training; receive frequent visits from the Lyra team and more seminars; agents appointed by Lyra in villages to get financial support; and assistance from Lyra after the formation of groups.

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### **Abbreviations**

DAC	Development assistance committee
SDGs	Sustainable Development Goals
VSLA	Village savings and loan associations
PSM	Propensity Score Matching
FGDs	Focus Group Discussions
DL	Digital literacy
OECD	The Organization for Economic Co-operation and Development

## **EXECUTIVE SUMMARY**

### **Background**

The 2030 Agenda for Sustainable Development Goals (SDGs) pledge to ensure “no one will be left behind” by 2030 by guaranteeing human well-being, economic prosperity, and environmental protection thereby achieving a better and more sustainable future for all. Education is critical to the fulfilment of all the set goals because it leads to human capital formation, knowledge production and innovation. Issues that contribute to human well-being, economic prosperity and environmental protection impact men and women differently. Inclusive good quality relevant education is a gender equality driver given that it improves women’s (girls who later become women) access to productive resources and opportunities including sustainability education, training and employment. Subsequently leading to better livelihoods for the women, their families and the community at large thereby, leaving no one behind and at the same fulfils the SDGs.

Tanzania’s GDP growth is positive, regardless of the good performance in GDP growth; the COVID-19 pandemic and the ongoing war in Ukraine have augmented poverty rates. There is a disparity in poverty levels; rural poverty is much higher than urban poverty because rural areas lack access to basic services. Tanzania experiences high unemployment rates, social and income inequalities.

In Tanzania, the young population ages 0-17 years account for nearly 50% of the population. The out-of-school numbers of children, adolescents and youth of primary and secondary school age are high. This is particularly true in remote areas with girls lagging behind boys in the transition from primary to secondary school and in education results. Girls’ access to secondary education is limited by long unsafe journeys to school and dropout rates are increased by an unwanted pregnancy, child marriage and child labour.

A majority of Tanzania’s population, particularly the youths work in the informal sector where they are generally underemployed, credit constrained, lack financial literacy skills, and entrepreneurship knowledge, and lack access to basic digital skills. Women earn significantly less than men earn and are less likely to own assets or property. Factors contributing to these gender disparities include women’s lack of knowledge and awareness, they lack income and have limited access to credit due to lack of collateral exacerbated by traditions and customs that limit women’s land inheritance.

### **Purpose**

In response to the prevailing state of affairs in Tanzania, Lyra steps in to contribute towards the achievement of economically sustainable and vibrant communities in rural Tanzania. Lyra does this by

- Investing in girls’ education by collaborating with rural communities to build safe eco- friendly hostels for teenage girls to live in while attending secondary school

- Closing digital divide for rural secondary school students
- Financial literacy and entrepreneurship youth training
- Creation of self-sustaining village savings and loans associations

The purpose of this evaluation is to inform Lyra's decision-making and provide evidence –based assessment on the performance of Lyra's programs in reaching its goals. The principal objective of the evaluation is to ascertain and provide evidence regarding the relevance, effectiveness, impact and sustainability of the programs launched by Lyra. The evaluation determines if Lyra's programs have:

- Enabled girls to complete and succeed in secondary education
- Closed the digital divide for rural secondary school students
- Empowered both women and girls to have equal economic opportunities
- Boosted the youth to thrive in economically vibrant, equitable and sustainable rural communities.

## **Methods**

The study area was the Iringa region, Tanzania. Primary data was generated using interviews of semi-structured questionnaires and Focus Group Discussions (FDG) with relevant stakeholders. The qualitative and quantitative methods helped to understand how, why, and under what conditions Lyra's interventions worked or did not work and what were the unanticipated consequences or side effects, the responses of the participants largely depended on their goals and expectations from the program.

An assessment of what would have happened if Lyra's program had not been in place called for a comparison between the treated and the control groups, statistical tests were done using Cohen's d test. A Probit Propensity Score Matching regression model was applied to check the robustness of the comparisons relating to the progress of Lyra's programs.

## **Findings**

Certainly, Lyra hostel program is highly relevant.

- The program is greatly appraised by nearly all the beneficiaries, and a majority of day-scholars who complained walking long distances to school, and too much domestic duties after school interfered with their studies.

The intervention is effective, for it has achieved its objectives.

- There is improvement in school performance through the comparison of the beneficiaries' performance before and after becoming members of the hostels.

Lyra's hostel program impact is shown by its contribution to closing the gender gap in math and science known to be masculine's domain.

- Hostel girls perform better in these subjects as compared to day-scholar girls. Hostel girls are most likely to pursue science careers at university level thereby closing gender gap in economic opportunities.

Sustainability of Lyra's hostel program is viable.

- It is community driven, furthermore its effectiveness as shown by the outcomes, and its impact in the society through the boosting of gender equality all point to its sustainability.

*FGDs comments*

- The underprivileged hostel girls that get partial benefits from Lyra such as paying only for their food request Lyra for full support of basic needs.
- Hostel girls are asking for more food and diversified diet.
- Boarders would like to have more light to enable them to study at night.

Lyra's DL program is highly relevant given it is novel in the rural communities; it is groundbreaking in introducing digital knowledge to the students. Factors pointing to the students' deprivation of DL services signifying the relevance of Lyra DL program:-

- None of the DL students had computers at home, thus lacked the basics of computers.
- DL students' schools practically lacked resources to facilitate computer studies.
- Below 20% of the students were in possession of smartphones to utilize for learning digital skills.

In general the DL program is effective for it has contributed to the improvement of students' overall school performance.

- DL students perform better in school grade scores as compared to the non-DL students.

Although most of the students had been attending DL for about two years

- DL students' self-rating of digital skills reported that 89% had basic skills and 11% had intermediate skills, thus nearly all the students indicated that their digital literacy skills were still underdeveloped.

The program is impactful.

- The outcomes matter to the beneficiaries as they uphold the remarkable changes the program has contributed to their studies.
- The program has added to gender equality since female and male students are benefiting equally.

There is potential for the sustainability of the program.

- Lyra has collaborated with the government of Tanzania to take over at the end of the program.
- There is room for the expansion of the program since there are many students interested in the program but are yet to be reached.



### *Students' and teachers' comments during FGDs*

- Computer technical problems have interrupted computer club lessons, for instance in Mazombe secondary school they have faced this problem since November 2022 and have informed Lyra.
- The computers that breakdown should be repaired without lapse of time for it puts on hold DL lessons.
- The DL students suggested to have DL teachers stationed at respective schools, because teachers from Lyra project travel long distances and this inconveniences students.
- Teachers of other subjects felt they had enough workload thus could not add digital teaching to their workload.
- There is a limited number of computers thus; majority of students have constrained access. Students are requesting Lyra for more computers, and the enlargement of the computer rooms to accommodate more students.
- Computers should be more accessible by increasing the frequency and duration of computer lessons.
- Some schools have no electricity limiting the use of computer thus, request Lyra to assist with the installation of solar energy. This can also complement electricity in case of power outage.
- Teachers noted that laptops are more practical to use in classroom aided by projectors and should have internet.
- There is need to sensitize the benefits of acquiring DL to encourage those students who are missing computer lessons.

The relevance of Lyra financial literacy and entrepreneurship youth training program is affirmed by the findings that indicate

- Although nearly all the youth trainees are self-employed, they lack critical entrepreneurial resources for startup and for running the businesses successfully.
- Nearly all the trainees appreciate the training for it equips them with knowledge and skills key to a promising future.

The effectiveness of the training is linked to the relevance of the training, for it demonstrates and expands on the knowledge and skills that motivated the youths to join the training:

- A majority of the trainees have acquired skills in financial literacy, microcredit knowledge, business management, teamwork, leadership, problem solving, and work ethics.
- Cohen's d effect size was mostly negligible and small in terms of the comparison of the socio-economic factors of youth participants in entrepreneurship training and non- participants. Moreover, the regression results obtained from probit propensity score matching confirmed that the success of youth training is attributable to the effectiveness of the training.

Youth financial literacy and entrepreneurship training is impactful for it has contributed to long lasting economic and transformational changes:

- The program works towards the closing of gender gap in accessing credit and in the job market resulting to increased income for all (female and male) consequently benefiting their families, and communities.

The program is sustainable:

- It collaborates with local business mentors to build businesses.
- The intervention has built an enabling environment for gender equality, for female's capacity has been strengthened.
- Youth trainee graduates starting IGA will create local jobs, naturally, they will train their employees creating a ripple effect of a pool of qualified youths, increased incomes, boosting local economies and reducing poverty levels.

*FGDs comments from the youth trainees*

- The youth request Lyra to increase the training time, make the training to be available on regular basis and introduce more learning resources including digital literacy.
- The youth appreciate the training they receive from Lyra, but would like Lyra to consider giving them seed capital (startup) after training.
- The youth would appreciate diversified training opportunities based on consultation with them.

The relevance of Lyra's VSLA objective of empowering women to have equal economic opportunities in their communities is manifested by

- Gender disparities in access to productive resources including monthly income and asset ownership.
- All the beneficiaries of VSLA value the program because it has met their needs of improving their financial status.

The effectiveness of Lyra VSLA program in empowering women to have equal economic opportunities is demonstrated by the outcomes of the program:

- Developed saving habits, increased income levels, improvement in knowledge and skills, boosted household expenditure thereby enhanced the wellbeing of women and their households, and their communities.
- Benefits are maximized mostly after a lapse of time, the highest percentages of those declaring the effectiveness of the program were found among those in their third year of membership.
- The Cohen's d effect size of the differences in results obtained between female and male members, suggests the differences are not remarkable with the exception of acquiring knowledge and skills whose

effect size is medium with men on the higher side. Also, fixed monthly contributions to VSLA whose effect size is medium, with women on the higher side.

- The comparison between members and non-members of VSLA, the notable effect sizes was wives earning less than their husbands whose effect size was medium.
- The regression analysis of probit propensity score matching confirmed that the possible factors that contributed to the good outcomes in VSLA program were attributable to the effectiveness of Lyra's VSLA.

The impact of VSLA intervention in contributing to long-term economic changes is demonstrated through

- High percentages of beneficiaries with increased knowledge and skills, ownership of assets, income, savings and access to loans.
- Cohen's d effect size about the economic factors contributing to potential transformational changes empowering women to have equal economic opportunities indicates that the notable effect size is medium where the percentage of men who have acquired knowledge and skills, and access to loans for other purposes besides living costs is higher than women's.

Sustainability of VSLA is foreseeable due to

- Lyra's creation of self-sustaining VSLA program.
- Capacity building of the stakeholders through knowledge and skills, and creating an enabling environment to access informal banking services that the stakeholders would otherwise not access speaks sustainability of the program and potential replication in other regions.
- Sustainability is reinforced by the relevance, effectiveness and impact of the VSLA
- The stakeholders are content with the program.

Notwithstanding, there are potential risks to the sustainability of VSLA –

- Illiterate members of the community feel left out since they cannot keep up with the VSLA proceedings.
- Husbands who do not want their wives to start income generating activities, risks Lyra's objective to empower women economically; and yet IGA is known for boosting families' sustenance.

*Suggestions from FGDs to make VSLA to serve the members better*, majority of the VSLA members request for

- The creation of more VSLA meeting spaces in their vicinity
- The increase of education programs and frequency, particularly the entrepreneurship training.
- The VSLA members would like to have frequent visits from the Lyra team and more seminars.
- The agents appointed by Lyra in villages do not get financial support to facilitate the fulfilment of their duties.

- Lyra supports the formation of groups, but group members request further assistance from Lyra after the formation of groups.

## **Recommendations**

Access to safe and reliable water, sanitation and hygiene (WASH) is a critical precondition for providing a safe school environment that supports equal opportunities for high-quality education and healthy development of children. Girls will make the best of their stay in the hostel if other factors that complement well-being are taken into account.

- Water shortage in the hostels compels hostellers to walk to streams to fetch unclean water. Lyra could consider collaborating with other NGOs working with water projects to either dig water boreholes, or install rainwater-harvesting tanks.
- The hostel girls lack dining halls, they squat in the open air while eating.
- The kitchens are dilapidated
- It would be helpful to have a house for the hostel matron (teacher) to facilitate monitoring students in the night; one matron said at times her attention is needed in the middle of the night to attend to emergencies at the hostel. It is risky for her to travel from her home.

We noted from the members of VSLA feedback that family planning needs are not met; the responses of the students and the youth to the questionnaires revealed that there is need for reproductive sexual health education.

Our findings indicate that students' performance partly depends on parents' interest in their children's studies. It is helpful for Lyra to highlight parents–teacher meetings.

There is need for Lyra to engage a public relations person that is responsible for communications with stakeholders to the benefit of Lyra and the stakeholders.

The demand for digital literacy is an overwhelming task and yet digital skills are pivotal for innovative, inclusive and sustainable growth, which in turn revitalizes entrepreneurship and self-employment, job creation, facilitates the delivery of goods and services, reduction of inequality and poverty. Maybe Lyra can consider liaising with digital technology companies with investments in Africa.

In sum, Lyra's programs benefits extent beyond the beneficiaries to their communities, to Tanzania, to Africa, and globally for there is a common consensus of the critical role of education and gender equality in our global community as highlighted in the SDGs among others. It is hoped that other organizations can follow Lyra in meeting the needs of marginalized communities as expressed by the stakeholders. Inclusiveness and partnerships with the communities lays a foundation for the sustainability of the projects.

## **CHAPTER 1: INTERVENTION CONTEXT AND PROGRAM DESCRIPTION**

### **1.1 No one should be left behind**

The 2030 Agenda for Sustainable Development Goals (SDGs) pledge to ensure “no one will be left behind” by 2030 by guaranteeing human well-being, economic prosperity, and environmental protection thereby achieving a better and more sustainable future for all (United Nations General Assembly 2015). Education is critical to the fulfilment of all the set goals because it leads to human capital formation, knowledge production and innovation (Chankseliani and McCowan 2021). Issues that contribute to human well-being, economic prosperity and environmental protection impact men and women differently (Santos and Klasen 2021). Inclusive good quality relevant education is a gender equality driver given that it improves women’s (girls who later become women) access to productive resources and opportunities including sustainability education, training and employment (ECLAC. 2022; Guerrero and Puerta 2023; Cabeza-Garcia et al. 2018). Subsequently leading to better livelihoods for the women, their families and the community at large (economic growth, poverty reduction and decreasing inequalities, lower birth rates, lower child mortality rates, longer life expectancies, and improved basic needs provision) thereby leaving no one behind and at the same fulfils the SDGs (Gewehr et al. 2020; Banigo et al. 2017). Comparisons across gender, residence, income status, and regions in sub-Saharan Africa indicate there is marginalization in education systems characterised by inefficient schools evidenced by insufficient inputs, untrained, poorly paid teachers and biased public expenditure (Ingutia 2020).

### **1.2 Country brief**

Tanzania is an East African country, situated south of the equator and is bordering the Indian Ocean. Neighboring countries include Burundi, Democratic Republic of the Congo, Kenya, Malawi, Mozambique, Rwanda, Uganda, and Zambia. The geography of Tanzania is diverse with Lake Victoria in the west, mountains in the northeast and coastal plains. According to the population and Housing Census (2022), Tanzania’s population was 61.7 million, 21.5million in urban areas and 40.2 million in rural areas as of August 2022. The young population ages 0-17 years accounted for nearly 50% of the population, they were 30.3 million (Ministry of Finance and Planning 2022). The World Bank (2023) estimates that Tanzania’s GDP growth was 4.6% in 2022 regardless of the good performance in GDP growth; the COVID-19 pandemic and the ongoing war in Ukraine have augmented poverty rates from 26.2% in 2019 to 27% in 2021. The international extreme poverty line of US\$ PPP 1.90 per day indicates that 49% of Tanzanians are below the poverty line (World Bank 2019). There is a disparity in poverty levels; rural poverty is much higher than urban poverty because rural areas lack access to basic services like health, education, clean water, sanitation and transportation (Kyara et al. 2022; Adam et al. 2017). Tanzania experiences high unemployment rates, social and income inequalities, and the vicious circle of poverty (Aikeli et al. 2021).

In Tanzania both gender inequality in education, and inequality in education between rural and urban areas is diminishing; however the percentages of the disparities are still high (Maliti 2019). According to World Bank (2022), the lower secondary (O Level) completion rate was 33% comprising 35% females and 32% males in 2020. The out-of-school numbers are high, 6.7 million children, adolescents and youth of primary and secondary school age are out of school. This is particularly true in remote areas with girls lagging behind boys in the transition from primary to secondary school and in education results (UNESCO 2016). Distance to school and family income are determinant factors in the probability of a secondary school aged child attending school, children from poorest households and lived more than two hours from the nearest schools had 18% probability, while those poorest but were 30 minutes away from school had 28% probability. Whereas children from richest households and living within 30 minutes to schools had 50% probability, and those living 2 hours from school had over 30% probability (Pezzulo et al. 2022).

Accessing and attending school is critical particularly for girl children it protects them from child marriage and early pregnancies with a positive impact on their health and their contribution to development. Other factors influencing enrolment, completion and education outcomes include gender of the student, child labour, disability, size of the family, wealth and parent's educational attainment (Issa et al. 2022; Doe et al. 2022; Pezzulo et al. 2022). While institutional factors are policies, norms, schools are not girl-friendly, financing, untrained teachers (Mjaaland 2021). Educational outcomes are hampered by poor quality teaching methodologies, girls' access is limited by long unsafe journeys to school and dropout rates are increased by an unwanted pregnancy, child marriage and child labour (Chuwa 2018; Kinabo and Eduful 2021).

A majority of Tanzania's population, particularly the youths work in the informal sector where they are not only credit constrained but also lack financial literacy skills, and entrepreneurship knowledge (Krause et al. 2016). The youths are generally underemployed and have minimal opportunities at their disposal. Furthermore, the digital divide is a challenge, only 22% of Tanzania's population was using the internet as of 2020, thus youths generally lack access to basic digital skills (World Bank 2022). For example, according to Tanzania Country Climate Risk Profile (Undated) Kilolo district in the Iringa region has one internet centre and five mobile service points. Digital skills are pivotal for innovative, inclusive and sustainable growth, which in turn revitalises entrepreneurship and self-employment, job creation, facilitates the delivery of goods and services, reduction of inequality and poverty (Africa Union Commission and OECD 2021; Raphael 2022). Women earn significantly less than men and are less likely to own assets or property. Factors contributing to these gender disparities include women's lack of knowledge and awareness, they lack income and have limited access to credit due to lack of collateral exacerbated by traditions and customs that limit women's land inheritance (Magambo and Nyamwesa; Ingutia and Sumelius 2022).

## **1.3 Evaluation purpose**

### **1.3.1 Lyra programs**

Lyra's vision is to contribute towards the achievement of economically sustainable and vibrant communities in rural Tanzania. Lyra has confidence in the potency of education as an instrument in reducing poverty, therefore this NGO works to equip youth, focusing on girls to drive systemic change, and create a positive multiplier effect throughout their rural communities. Lyra invests in girls' education by collaborating with remote and rural communities where children involuntarily drop out or leave school without vital basic skills.

Rural women traditionally earn less than men earn; are smallholders as well as own informal businesses. However, women's economic activities are constrained by limited access to assets, property and financial services. Lyra advances gender economic equality through entrepreneurship training to support women and girls to take control of their lives and create a route towards financial independence. Lyra elevates women and girls by offering them business training and mentoring services including safe, informal financial systems. Furthermore, Lyra uses technology to help women to see potential opportunities, connect, learn and reach new markets; the new knowledge helps them to start and grow successful businesses.

### **1.3.2 Purpose and objectives**

Purpose of this evaluation is to inform Lyra's decision-making and provide evidence –based assessment on the performance of Lyra's programs in reaching its goals.

The principal objective of the evaluation is to ascertain and provide evidence regarding the relevance, effectiveness, impact and sustainability of the programs launched by Lyra. The evaluation determines if Lyra's programs have:

- Enabled girls to complete and succeed in secondary education
- Closed the digital divide for rural secondary school students
- Empowered both women and girls to have equal economic opportunities
- Boosted the youth to thrive in economically vibrant, equitable and sustainable rural communities.

## CHAPTER 2: EVALUATION METHODS

The study area was the Iringa region, Tanzania. The research was done with the application of both qualitative and quantitative methods. These methods helped to understand how, why, and under what conditions Lyra's interventions worked or did not work and what were the unanticipated consequences or side effects, the responses of the participants largely depended on their goals and expectations from the program. Our aim was to determine the causal impact which is the difference between the outcome with support from Lyra and the outcome without Lyra's support. An assessment of what would have happened if Lyra's program had not been in place called for a comparison between the treated and the control groups, to enable the investigation of the respondents' views, experiences, and outcomes in depth. Primary data was generated using interviews of semi-structured questionnaires on (a) socioeconomic characteristics in general and (b) pre-project and after-project conditions of Lyra's beneficiaries. The numbers of the treatment groups and control groups were

- Digital literacy students interviewed were 100 and 100 from the control group.
- The number of youth training for entrepreneurship and financial literacy interviewed were 100 and the control group was 100.
- Hostel girls interviewed were 50 and 50 girls from the control group
- Members from village savings and loan associations interviewed were 100, and 100 from the control.

The treatment group consisted of the recipients of Lyra's programs such as girls in Lyra's hostels, digital literacy students, youths receiving entrepreneurial and financial training, and members of village savings and loan associations (VSLA). While control group was composed of girls who were day-scholars, youths not in entrepreneurial training, and women or men not members of VSLA groups. The criteria of the control group was that they must have comparable characteristics (with the treated group) including age, gender, socio-economic group, and level of qualifications achieved. A matching approach was used to allocate each participant in the treatment group with the participant in the control group in terms of their comparable characteristics. Then Propensity Score Matching (PSM) a derivative of the matching approach was used. PSM uses a single measure (the propensity score) as an indicator of the likelihood of participation in the program. It is assumed that the participants and their matched non-participants had an equal likelihood of embarking on the program. Based on this assumption the differences in the outcomes, attitudes, and activities between the two groups are associated with the effects of Lyra's programs.

- Qualitative method of data collection used Focus Group Discussions (FGDs) to gather information assessing the value of Lyra's activities as perceived by its principal users and other stakeholders. Four FGDs were carried out, every session had on average 15 participants lasting approximately two hours.



Respective sessions consisted of Hostel girls and day-scholars, we had a separate session with the hostel matron who at the same time was a teacher

- Digital literacy (DL) students, we had a separate session with the DL teachers
- VSLA members and nonmembers
- Youth entrepreneurship and financial literacy trainees and non-trainees

The facilitator of FGDs used open-ended questions to allow participants to express themselves in their own words. This encouraged participants to express their views, experiences, perceptions, preferences, needs, suggestions and recommendations related to Lyra programs' usefulness or the way they are delivered.

The discussions were both recorded and notes of major points were taken. After the discussions, responses were reviewed and those based on personal experiences were given greater weight and summarized. FGDs helped to identify potential constraints to people's participation in Lyra's projects, as well as obtain feedback on reactions to Lyra's intervention during implementation. FGDs encouraged the participants to develop ideas for addressing shortcomings or problems to improve the program. FGDs complemented the questionnaire survey, they provided reliable qualitative in-depth information on the views of the beneficiary population which will be useful in Lyra's policies and activities to improve beneficiaries' lives.

Data entry, processing, cleaning, descriptive statistics, and empirical analyses were done using MS Excel 2010 and STATA statistical package. The aim was to assess the changes in knowledge, skills, and attitudes, and income levels of Lyra's beneficiaries and to determine the factors contributing to the project's outcome. Statistical tests were carried out based on comparisons of means using Cohen's d test. Cohen's d tells us how large the difference is between the mean of the treated group and that of the control group (Laken 2013). Cohen (1988) suggested that  $d = 0.2$  is considered a small effect size,  $0.5$  is a medium effect size and  $0.8$  a large effect size, differences below  $0.2$  are negligible. A Probit regression model was applied to check the robustness of our comparisons relating to the progress of Lyra's programs' including hostels, digital literacy, entrepreneurship and financial skills training, and VSLA.

### **Limitations**

The first limitation of the study relates to the representations of the sample, Lyra's hostel girls who graduated from secondary schools and have moved on, time could not permit to track them and get information, which could have been useful as baseline information. The other limitation is we would have liked to include the local community leaders, parents, school committee members in the focus group discussions, but the circumstances at the time of FGDs could not permit.

## CHAPTER 3: PROJECT EVALUATION'S FINDINGS

The evaluation findings are presented in the form of sub-chapters as follows hostel girls, digital literacy, entrepreneurship and financial literacy training, and VSLA. The performance of the program is assessed along the lines of evaluation criteria established among donors -DAC evaluation criteria (OECD 2021).

- Relevance gauges if the intervention is doing the right things by responding to beneficiaries' needs.
- Effectiveness investigates if the intervention has achieved its objectives.
- Impact examines the extent to which the intervention has made a difference such as economic, social or environmental effects; it captures the indirect long-term effects.
- Sustainability questions if the benefits of the intervention are likely to continue or will last financially, economically, socially and environmentally

### 3.1 Hostel girls

#### 3.1.1 Relevance

**To what extent has Lyra's program aligned with needs affecting girls' education in their communities?**

We analyze the relevance of Lyra's program of constructing hostels for girls by assessing the extent to which the intervention addresses girls' needs to enable them to complete and succeed in secondary education. The needs of the beneficiaries cannot be understood in isolation, for they are shaped by their socioeconomic context. The first section of Table 1 portrays the socioeconomic characteristics of both the hostel girls (treated) and day-scholar girls (control). Cohen's d effect size is the magnitude of the standardized mean difference between the two groups on a given variable. The effects are either small (0.2), medium (0.5) or large (over 0.8) sizes. If the difference has a positive sign, it implies it is in the direction of improvement (a predicted direction), while a negative sign indicates that it is in the direction of retrogression (opposite to the predicted direction). The effect sizes of the socioeconomic differences between the two groups are mostly small with the exception of mother's occupation (farmer), household owning TV set and number of cattle whose effect sizes are medium.

About 50% of day-scholars complained that lack of a convenient place to stay negatively affected their studies. Day-scholars (33%) noted that after school they have too much work to do at home, thus hardly have time for their studies. Walking long distance to school contributes to being late; this affects 33% of the day-scholars. Moreover, 33% of the day-scholars mentioned that they had friends who either are dropouts or have never been to school who in most cases may have a bad influence on them. Day-scholars have high risks of dropping out of school or of getting pregnant. These reasons among others are also presented in Table 1 under the section

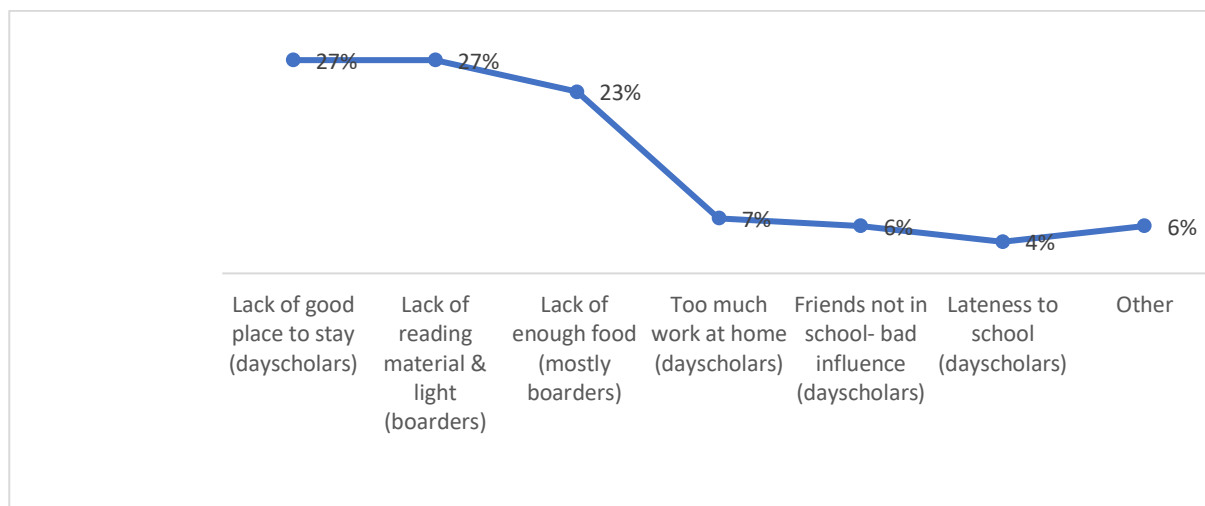
of factors affecting education. Evidently, the effect sizes of the factors in question are medium, with the exception of 'friends not in school affects studies', 'lateness to school affects studies', 'lack of light affects studies', 'number of hours spend studying' and 'parents come to meet your teachers' whose effect sizes are large. All the factors with medium and large effects in affecting education signify the relevance of Lyra's program, given that these factors can derail girls from completing and succeeding in secondary education, thereby limiting them from having equal economic opportunities.

**Table 1. Comparisons of factors affecting school performance of hostel and day-scholar girls**

	Hostel girls		Day-scholars girls		Diff Cohen's d
	Mean	Std.err.	Mean	Std.err.	
<b>Socioeconomic characteristics</b>					
Age	15.51	1.43	15.63	1.53	-0.08
Mother's education	1.51	0.60	1.28	0.73	0.34
Father's education	1.51	0.71	1.24	0.62	0.41
Mother's occupation farmer	0.56	0.50	0.86	0.35	-0.70
Father's occupation farmer	0.63	0.49	0.73	0.45	-0.21
Number of siblings	4.82	2.07	5.16	1.53	-0.19
Household owns TV set	0.67	0.48	0.42	0.50	0.51
Household owns radio	0.62	0.49	0.77	0.43	-0.34
Number of cattle	11.33	11.12	18.22	15.28	-0.52
Regular income	0.63	0.49	0.47	0.50	0.33
<b>Factors affecting education</b>					
Education enables finding better jobs	0.75	0.44	0.65	0.48	0.20
Education enables a better position in society	0.98	0.13	0.91	0.29	0.35
Repeated a grade (class)	0.14	0.35	0.35	0.48	-0.50
Regular school attendance	0.95	0.23	0.84	0.37	0.37
Dropped out of school	0.02	0.14	0.00	0.00	0.28
Lack good place to stay & focus on studies	0.19	0.40	0.50	0.51	-0.68
Inadequate food affects studies	0.42	0.50	0.19	0.40	0.52
Too much work interferes with studies	0.19	0.40	0.43	0.50	-0.53
Friends not in school affects studies	0.06	0.24	0.33	0.48	-0.77
Lateness to school affects studies	0.04	0.19	0.33	0.48	-0.88
Lack of reading material affects studies	0.79	0.41	0.45	0.50	0.73
Lack of light affects studies	0.46	0.50	0.07	0.26	1.02
Lack of supportive teachers affects studies	0.93	0.26	0.88	0.32	0.16
Number of hours spend studying	2.60	1.23	6.69	9.75	-0.75
Number of hours playing games	2.76	6.68	0.85	0.88	0.50
Feel uncomfortable in school	0.16	0.37	0.31	0.47	-0.36
Satisfied with school performance	0.63	0.49	0.52	0.51	0.22
Harassment in school	0.35	0.48	0.26	0.44	0.21
Harassment in the classroom	0.21	0.41	0.23	0.43	-0.05
Parents come to meet your teachers	0.77	0.43	0.13	0.35	1.64
Number of female teachers	8.14	4.57	8.16	5.22	0.00
Number of male teachers	14.82	2.73	14.26	3.51	0.18

Note: red= negligible effect, small= small effect, medium= medium effect and large= large effect

Figure 1 depicts selected factors affecting both hostel and day-scholar girls' education. Lack of a good place to stay takes 27% out of 100%, too much work at home (7%), friends not in school as a potential bad influence (6%), and lateness to school (4%) affected education as reported by day-scholars. While 27% of hostel girls disclosed that lack of reading material and light; and 23% noted that lack of enough food interfered with their studies.



**Figure 1. Selected factors affecting girls' education (boarders and day-scholars) in percentages**

Lyra hostel girls' program relevance extends not only to Tanzania but also to Africa as a continent, given that gender inequality in education and inequality in education between rural and urban areas are contributing to poverty issues in Africa. Furthermore, the program resonates with SDGs since education is crucial to the fulfilment of all the set goals that require human capital.

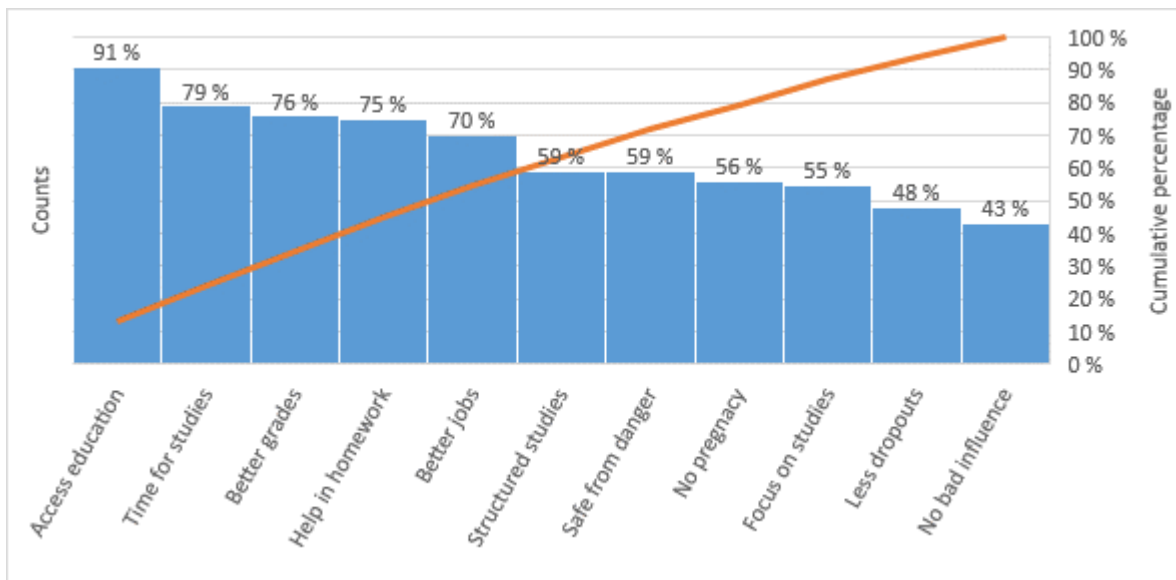
### 3.1.2 Effectiveness

**To what extent has Lyra's program intervention enabled girls to complete and succeed in secondary education?**

Results of the field survey indicated that about 89% of hostel girls expressed satisfaction of living in the hostels; reasons for their satisfaction are indicated in Figure 2.

About 91% of the students expressed their satisfaction of living in the hostels, for it enabled them to get education not available in their villages, probably those from remote areas could not have attended secondary school education with ease. In rural Africa domestic work to assist families after school or before going to school limits time for studies, 79% of the hostel girls voiced out this issue. Having enough time to study due to being a hosteller contributes to getting better school grades as noted by 76% of the hostel girls. Better school grades

are partly attributed to students helping each other after school to do homework as reported by 75% of them. 70% of hostel girls alluded that the good education they are receiving enabled by living in the hostel will lead to better job prospects. Beneficiaries' satisfaction of the benefits of living in the hostel as depicted in Figure 2 points to the effectiveness of Lyra's hostel program.

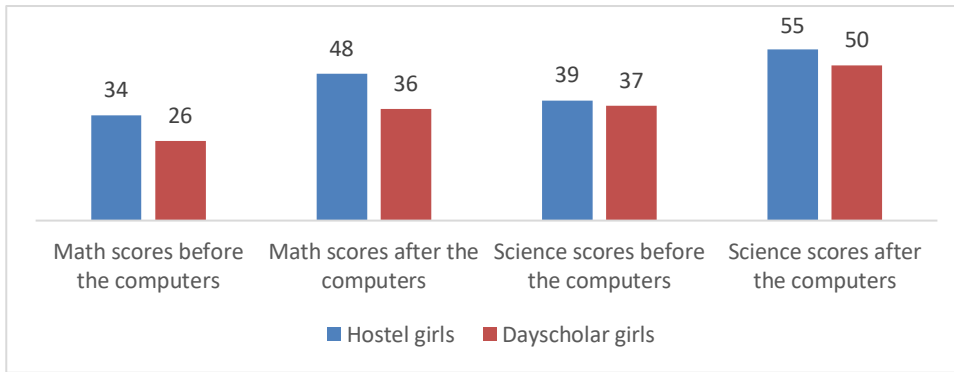


**Figure 2. Reasons hostellers gave for their satisfaction of living in Lyra's hostels**

Note: This is a Pareto chart, the orange line in the middle of the chart is a Pareto line.

The vertical axis of the Pareto chart has 'counts', each vertical bar represents the contribution to the total of the reasons hostellers gave for their satisfaction of living in Lyra's hostels. The bars are on the graph in a rank order, implying 'Access education' has the highest contribution to the factors that count in pleasing the hostellers, while 'No bad influence' far right of the vertical axis counts the least. Where the Pareto line intersects with the bar 'Better jobs' indicates factors above the Pareto line count more than the factors below the Pareto line.

Joining hostel contributes to girls having equal economic opportunities as revealed in the improvement of their school marks. Before becoming hostellers the average of lowest marks was 33, and highest was 59, but after becoming hostellers the lowest marks rose to 41 and the highest to 71. The percentage change of lowest was 24, while for the highest was 20. Moreover, the comparison of the scores in math and science before and after using computers indicates that hostellers outperform day-scholars in both science and math scores as evidenced in Figure 3.



**Figure 3. Comparison of math and science scores before and after DL between hostel and day school girls**

After participating in digital literacy class, the comparison between hostel girls and day-scholar girls indicates that Cohen’s d effect size in math scores was 0.90 (large), while that of science scores was 0.40 (small), please see annex 1 Table on comparison of digital literacy between hostel and day-school girls. To buttress the fact that living in hostel fulfills Lyra’s goal of enhancing girls equal economic opportunities, we have performed in Table 2 Propensity score matching for hostel girls using Probit regression. Table 2 attests to the foregoing descriptive findings, for instance the estimated coefficient of lateness to school affects studies, is statistically significant, this is common to day-scholars that have to walk long distances. The estimated coefficient of mother tongue in all tables in this study represents fixed effects that is variables that are constant, they do not change with time, and their effects are fixed.

The propensity score matching (PSM) balances the distribution of baseline variables between groups (treated and control) to enable the measurement and determination of the independent effect of an intervention in this case Lyra’s hostel program. PSM mitigates unbiased comparisons of the treated group versus the control group. The subsequent differences in intervention outcomes observed between the treated and control groups after PSM can be attributed to the treatment. The output reports the average treatment effect (ATE) after accounting for the imbalance in the distribution of the baseline characteristics between the treated and control groups. In Table 2, the average of the outcome variable being overall school performance indicates that hostel girls’ performance is higher than day-scholar girls by 0.19 units and is statistically significant at 0.05 level.

**Table 2 : Propensity score matching for hostel girls**  
**Treatment: Hostel girls**

Probit regression for program participation:

Dependent variable hostel member =1 or 0

Number of obs = 79

Prob > chi2 = 0.00

Pseudo R2 =0.78

	Coefficients	Std. err.	z	P>z
Lateness to school affects studies	-3.38	1.18	-2.87	0.00
Parents meet teachers	6.17	2.16	2.86	0.00
Father's education	2.03	0.79	2.55	0.01
Number of female teachers	0.29	0.12	2.46	0.01
Insufficient food affects studies	2.43	1.04	2.34	0.02
Have repeated a grade in school	-1.79	0.93	-1.92	0.05
Household has tapwater	2.82	1.54	1.83	0.07
Mother tongue	0.13	0.21	1.05	0.19
Constant	-8.55	3.10	-2.76	0.00

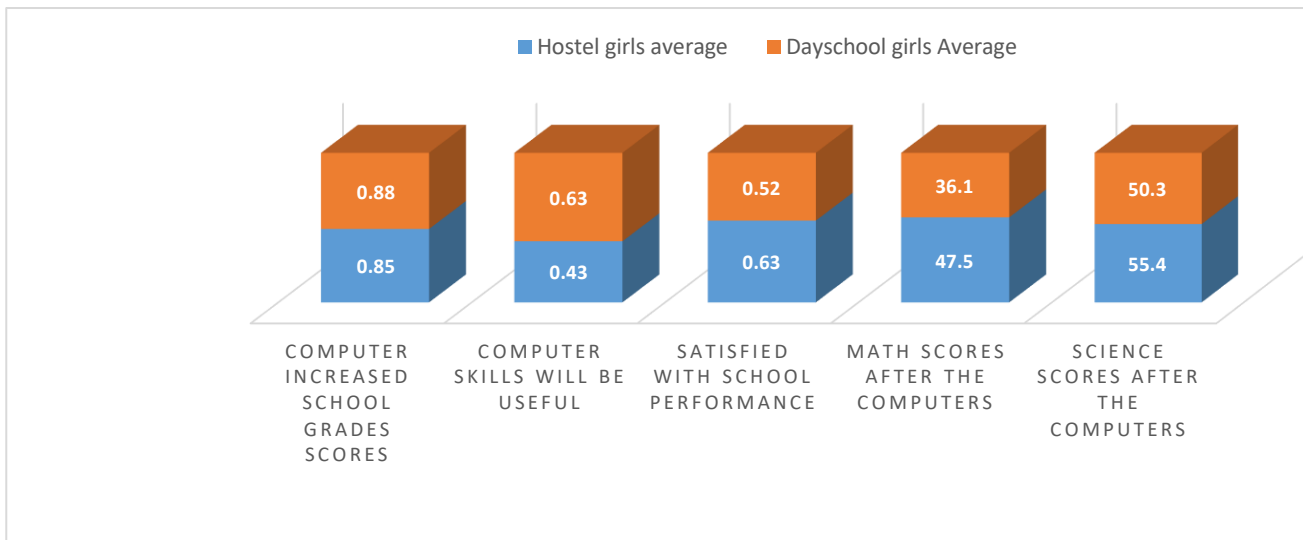
Average treatment effect (ATE)	Overall school performance	Coefficient	AI robust std. Err.	z	P>z
	Hostel member (1 vs 0)	0.19	0.09	2.09	0.04

### 3.1.3. Impact

**To what extent is hostel girls' program likely to contribute to closing gender gap in economic opportunities?**

Gender inequality in education particularly in math and science threatens meeting the SDG 5 on gender equality and empowerment. UNESCO (2022), reports that in middle and high-income countries, girls in secondary schools are achieving significantly higher in science, however boys are overrepresented among the highest performers in math and science. Despite girls excelling in science, biases and stereotypes worldwide are deterrent in girls' decisions to take up scientific careers. Consequently, it affects future labor market outcomes with women left underrepresented in the higher paying math-science fields, for they end up with degrees with lower earnings.

Lyra hostel girls' program contributes to closing gender gap in math and science with potential economic opportunities. Girls learning computer skills equips them with information and communications, thus will not be left behind in digitalized economies, particularly for the girls aspiring careers in trade.



**Figure 4. Hostel and day-scholar girls school performance after becoming students of DL**

Figure 4 suggests DL lessons have given girls confidence to be able to compete in the labor, for they believe that the computer skills they have acquired will be useful in future. The students report satisfaction with school performance; moreover, they state that DL lessons increased their school grades, particularly in math and science. Thus, Lyra’s program is impactful by eventually closing the gender gap in economic opportunities.

### 3.1.4 Sustainability

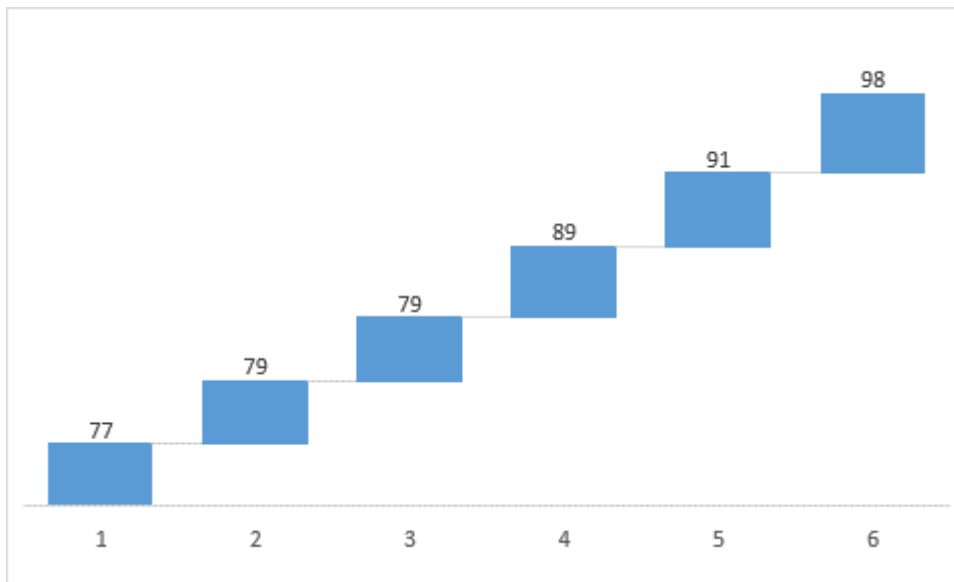
**To what extent is Lyra’s hostel program sustainable?**

Sustainability of Lyra’s hostel programs depends on the enabling environment (community members’ sense of ownership of the program), the continuation of the positive effects experienced by the stakeholders, and potential risks. Lyra hostel program’s relevance in the communities suggests its sustainability, moreover the effectiveness demonstrated by the program’s achievements, and program’s impact are all overriding factors affirming the sustainability of the program.

Lyra’s hostel program is community led, for Lyra consulted with the communities what the NGO could do to improve the lives of the girls in the communities. Hostel construction is the communities’ initiative; they contribute in putting up hostels by supplying the land etc. Once Lyra constructs the hostel, it hands the management of the hostel to the government. A majority of parents who are largely poor see education as a way out of poverty. That is why parents with limited resources sacrifice to invest in their children’s education. The potential benefits of education inspires communities where Lyra hostel program works to participate in the program aiming the sustainability of the program in their communities.



Figure 5 demonstrates factors that boost sustainability of Lyra’s hostel program in percentages. Educated people are highly rated in the societies as reported by 98% of the hostel students. This assertion is vouched for by the fact that 77% of hostel students said that their parents come to their schools to meet with their teachers. This implies parents are keen to see their children succeed in education thus it is assumed that they will participate in the sustainability of the hostel program given it is hosting their daughters.



**Figure 5 depicts factors that boost sustainability of Lyra’s hostel program in percentages**

Note: 1= Parents come to school to meet teachers, 2= Hostel life enhances education due to students having enough time for studies, 3= Early marriage interferes with education, 4= Girls satisfied with hostel life, 5 = Hostel facilitate education not available in boarders’ villages, and 6= Education enables one to have a better position in the society.

### 3.1.5 Conclusions

Certainly, Lyra hostel program is highly relevant as evidenced in the relevance section. The program is highly appraised by nearly all the beneficiaries, and a majority of day-scholars who complained walking long distances to school, and too much domestic duties after school interfered with their studies. The program’s benefits extent beyond the beneficiaries to their communities, to Tanzania, to Africa, and globally for there is a common consensus of the critical role of education and gender equality in our global community as highlighted in the SDGs among others.

The results of the analysis of the effectiveness of the program speak for themselves. The intervention is effective, for it has achieved its objectives. A case in point is the improvement in school performance through the comparison of the beneficiaries’ performance before and after becoming members of the hostels. Lyra’s hostel program impact is shown by its contribution to closing the gender gap in math and science known to be masculine’s domain. Hostel girls perform better in these subjects as compared to day-scholar girls. Hostel girls

are most likely to pursue science careers at university level thereby closing gender gap in economic opportunities. In our judgement the impact of the intervention of Lyra has positive effects in the long term.

Sustainability of Lyra's hostel program is viable since it is community driven, furthermore its effectiveness as shown by the outcomes, and its impact in the society through the boosting of gender equality all point to its sustainability. It is hoped that other organizations can follow Lyra in meeting the needs of marginalized communities as expressed by the stakeholders. Inclusiveness and partnerships with the communities lays a foundation for the sustainability of the projects.

*Comments:*

- The FGDs indicated that the underprivileged hostel girls that get partial benefits from Lyra like paying only for their food request Lyra for full support of basic needs. For example, the 14 hostel girls in Mazombe with partial sponsorship from Lyra face challenges, unlike their peers with full sponsorship from other organizations including Amani and Compassion.
- Hostel girls are asking for more food and diversified diet.
- Water shortage in the hostels compels hostellers to walk to streams to fetch unclean water.
- Boarders would like to have more light to enable them to study at night

### 3.2 Digital literacy program

#### 3.2.1 Relevance

**To what extent is Lyra's program intervention on closing the digital gap for rural secondary school students, aligned with needs in the communities concerning digital literacy?**

We examine the relevance of digital literacy program (DL) by assessing if Lyra DL program aligns with beneficiary's needs; and to find out if the DL students regard the intervention useful and valuable. We also consider the inclusiveness of the program in terms of gender equality. We note from our findings that none of the DL students had computers at home, thus lacked the basics of computers. Consequently, Lyra DL program was groundbreaking in introducing digital knowledge to the students. Table 3 indicates that DL students' schools practically lacked resources to facilitate studies, and below 20% of the students were in possession of smartphones to utilize for learning digital skills. A good number of the students on average noted the benefits of DL including the development of digital skills, increases knowledge in general and improves learning

opportunities. Whereas a shortage of learning materials in schools affects DL. An average of 39% male 51% of female students disclosed they had friends who were interested in DL but had no access to the DL program. The comparison of male and female DL students in Table 3 shows Cohen's d effect size of household regular income was medium. The effect sizes of the other characteristics were negligible with the exception of 'use mobile phones for learning purposes', 'lack of learning materials affects DL' and 'have friends interested in DL but no access' whose effect sizes are small'. These factors point to the students' deprivation of DL services signifying the relevance of Lyra DL program. Female students' household income is low as compared to male students' thus the former have minimal options of accessing computer lessons outside Lyra's program, therefore this program promotes gender equality in DL literacy.

**Table 3. Characteristics of digital literacy (DL) students pointing to the relevance of the program**

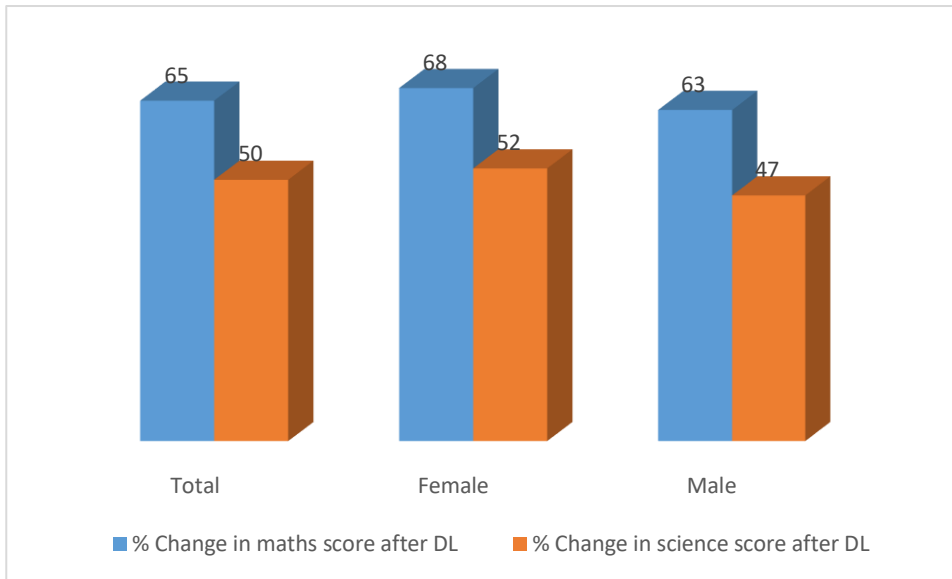
	Male		Female		Diff.
	Mean	Std.err.	Mean	Std.err.	Cohen's d
<b>Relevance</b>					
Household with regular income	0.44	0.50	0.19	0.40	0.55
Enough resources at school to enable studies	0.17	0.38	0.20	0.40	-0.07
Use mobile phones for learning purposes	0.17	0.38	0.10	0.30	0.21
Benefit of DL - increases knowledge	0.46	0.50	0.56	0.50	-0.18
Benefit of DL-develop digital skills	0.45	0.50	0.42	0.49	0.06
DL improve learning opportunities	0.36	0.48	0.37	0.48	-0.02
Lack of learning materials affects DL	0.54	0.50	0.41	0.49	0.26
Know of other schools offering DL	0.33	0.47	0.40	0.49	-0.15
Have friends interested in DL but no access	0.39	0.49	0.51	0.50	-0.24
Valued getting education	0.77	0.42	0.80	0.40	-0.08

Note: red= negligible effect, small= small effect, medium= medium effect and large= large effect

### 3.2.2 Effectiveness

**To what extent did the program intervention close the digital gap for rural secondary school students?**

We gauge the effectiveness of Lyra DL program by investigating if the program has achieved its objective of closing DL gap. We also examine if there are differences in the results obtained by male and female DL students. We establish possible factors that may have contributed to the outcomes by comparing socioeconomic characteristics and performance of DL students and the control group (students not participating in DL program).



**Figure 6. Percentage change in math and science score after accessing digital lessons**

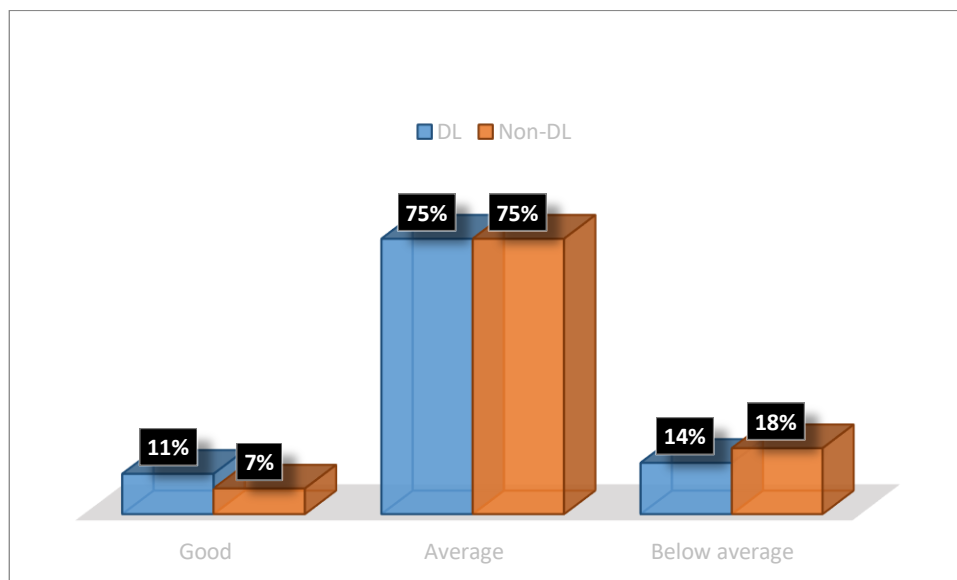
Lyra's DL program is closing the digital gap in rural schools in Tanzania given that majority of the students come from poor households. About 85% of the students reported that DL improved their school grades' scores particularly in math and science. Seemingly, Figure 6 indicates that female students' performance in both subjects was slightly higher than male's. Over 70% of the students reported that DL contributed to the growth in knowledge and skills, which will be useful in the labor market. Competency in using DL resources is below 50% for both female and male students as shown in Table 4. However, the effectiveness of the program is illustrated in increasing school grades scores an average of 84% of male and 87% of female confirmed the improvement.

**Table 4. Comparison of the outcome DL lessons between male and female students**

	Male		Female		Diff
	Mean	Std.err.	Mean	Std.err.	Cohen's d
Math scores before access to DL	26.38	11.71	24.17	9.73	0.21
Math scores after accessing DL	43.13	12.97	40.52	11.86	0.21
Science scores before accessing DL	41.51	11.94	37.77	12.75	0.30
Science scores after accessing DL	61.07	12.20	57.53	12.36	0.29
Competency in using DL resources	0.37	0.48	0.40	0.49	-0.06
DL- increased school grades scores	0.84	0.37	0.87	0.34	-0.08
DL led growth in knowledge and skills	0.66	0.48	0.79	0.41	-0.29
Knowledge and skills acquired will be useful	0.65	0.48	0.74	0.44	-0.20
Parents interest in your schoolwork	0.80	1.13	0.71	0.46	0.11

Note: red= negligible effect, small= small effect, medium= medium effect and large= large effect

The comparison of the performance in school grade scores between DL students (treated) non-DL students (control) in Figure 7 shows that 75% of both groups reported to have average school scores. While 11% of the treated group and 7% of the control group reported to have good scores, 14% of the treated group and 18% of the control group reported to have below average school grade scores.



**Figure 7. Comparison of performance in school grade scores between DL students and non-DL students**

The percentages of the treated group students reporting good performance are higher than the control group. The percentages of control group reporting below average are higher than the treated group. Which factors contribute to these differences? We attempt to answer this question by looking at the socioeconomic characteristics of the two groups presented in Table 5. We note in Table 5 that Cohen's d effect size is mostly negligible, factors that may probably contribute to the differences in school performance could be 'parents meeting teachers' and 'number of books at home' whose effect sizes are medium. These comparisons suggest that Lyra DL program as testified by the beneficiaries has contributed to the differences in school performance between the beneficiaries and non- beneficiaries.

**Table 5. Socioeconomic characteristics of DL students Vs non-DL students**

	DL students		None DL students		Diff
	Average	Std.err.	Average	Std.err.	Cohen's d
Age	15.85	1.46	14.92	1.44	0.64
Mother's education	1.29	0.56	1.33	0.62	-0.08
Father's education	1.39	0.72	1.37	0.84	0.02
Mother's occupation farmer	0.68	0.47	0.69	0.47	-0.04
Father's occupation farmer	0.67	0.47	0.69	0.47	-0.05
Number of siblings	3.84	1.91	3.69	2.02	0.07
Household own TV set	0.45	0.50	0.59	0.51	-0.28

Household own radio	0.92	0.27	0.88	0.33	0.14
Cattles owned	13.39	17.02	11.67	7.42	0.14
Regular income	0.31	0.46	0.26	0.45	0.11
School offer library services	0.28	0.45	0.38	0.50	-0.21
Parents interest in your schoolwork	0.74	0.89	0.50	0.51	0.34
Parents meeting teachers	0.62	0.49	0.27	0.45	0.75
Number of books at home	3.17	1.78	2.50	0.84	0.51
Time spend studying and doing homework	3.45	6.72	2.84	0.62	0.17
Time spend for leisure	3.57	10.39	5.28	12.29	-0.15

Note: **red**= negligible effect, **small**= small effect, **medium**= medium effect and **large**= large effect

We probe further the differences between the control group and the treated with the help of propensity score matching for digital literacy in Table 6. The estimated coefficients of parents coming to school to meet teachers and the number of female teachers are statistically significant as was the case in Table 2. The estimate of the number of students per computer is statistically significant with a negative impact, crowded computers discourages students from joining the program. This probably explains why the estimated coefficient on developing digital skills has a negative effect contrary to the norm. However, we note that one grade increase in the secondary school increases the probability of joining DL classes by 0.73 units, suggesting form 3 or form 4 students are more likely to join DL lessons than form 1 or form 2 students.

The beneficiaries of DL disclosed that it contributes to the improvement of knowledge and skills that will be useful in the future, leading to higher incomes. The PSM as explained elsewhere in this report determines the independent effect of an intervention, in this case the effect of DL on monthly income. The output in Table 6 being monthly income reports the average treatment effect (ATE) after accounting for the imbalance in the distribution of the baseline characteristics between the treated and control groups. The estimated coefficient shows that the monthly income of the students of DL is -0.37 less than that of non-DL students. These results are contrary to the norm, reasons could be partly due to the fact that in Table 4 less than 50% of the DL students reported to be competent in using DL resources.

**Table 6: Propensity score matching for digital literacy**  
**Treatment: Digital literacy program**

Probit regression for program participation-

Dependent variable DL student = 1 or 0.

Number of obs = 200

Prob > chi2 = 0.00

Pseudo R2 =0.28

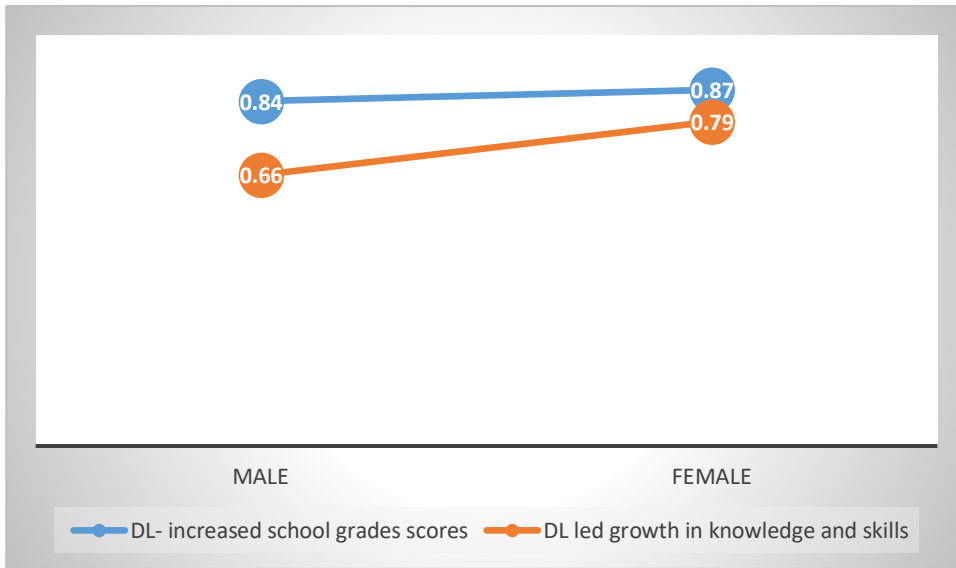
	Coefficients	Std. err.	z	P>z
Grade in secondary school	0.73	0.18	4.16	0.00
Parents meeting teachers	0.88	0.30	2.93	0.00
Number of female teachers	0.08	0.03	2.62	0.00
Develop digital skills	-0.62	0.28	-2.17	0.03
Number students per computer	-0.18	0.09	-2.08	0.04
Type of latrine	-0.43	0.31	-1.40	0.16
Mother tongue	-0.15	0.32	-0.47	0.64
Constant	0.21	0.68	0.30	0.76

Average treatment effect (ATE)	Monthly income	AI robust Coefficient	std. err.	z	P>z
	Digital literacy program (1 vs 0)	-0.37	0.07	-5.10	0.00

### 3.2.3 Impact

**To what extent is Lyra DL program likely to contribute to closing the digital gap for rural secondary school?**

We examine if Lyra DL program has created a change that really matters to the beneficiaries and if both female and male students have benefited equally. Characteristics of DL students depicted in Table 3 reveal that an average of 77% male and 80% of female DL students valued getting education. While Figure 8 illustrates that, an average of 84% male and 87% female DL students reported that DL contributed to the improvement of their school grade scores. These results imply DL program has brought about a change that is of significance to the DL students given that they value getting education. Moreover, the program has benefited both male and female students equally; Figure 8 suggests that the percentages of female DL students benefiting from the program are slightly higher in comparison to the male students.



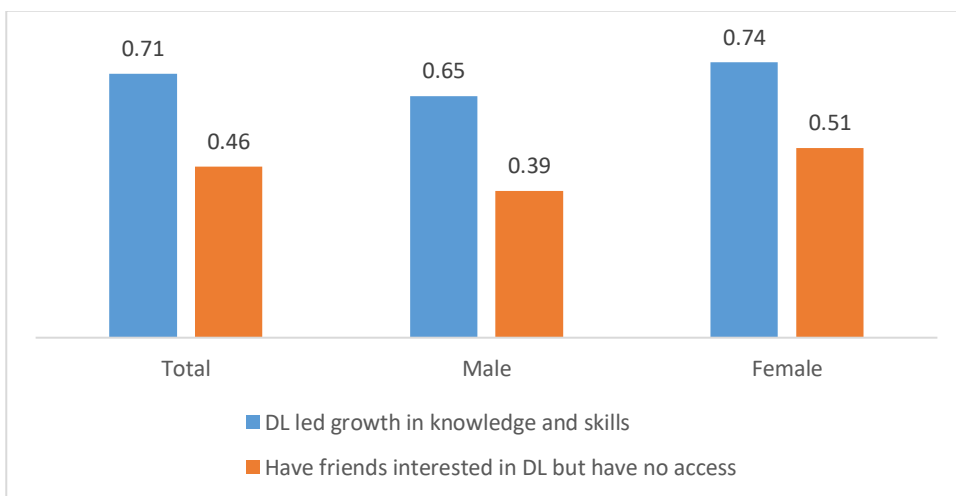
**Figure 8. The impact of Lyra DL program on male and female DL students**

### 3.2.4. Sustainability

**To what extend will the DL program be sustained**

Sustainability of Lyra’s DL program is backed up by the fact that at the onset of the program, Lyra created conditions of sustainability by collaborating with the government of Tanzania to take over at the end of the program. The DL students are very enthusiastic about the program demonstrated by the impactful valuable changes computer knowledge has contributed to the improvement of their school grade scores.

Figure 9 portrays that an average of 71% of DL students admitted that DL knowledge and skills acquired will be useful. While 46% of DL students said they had friends interested in DL but had no possibilities of access. These factors imply that stakeholders are interested in the program, thus asserting the sustainability of the program.



**Figure 9. Factors contributing to the sustainability of Lyra’s DL program**



### 3.2.5 Conclusion

Lyra's DL program is highly relevant given it is novel in the rural communities, however the DL lessons cannot succeed in isolation, lack of resources in schools to facilitate studies is a drawback in the success of the program, the results shows less than a half of the DL students are competent in using DL resources. DL students' self-rating of digital skills reported that 89% had basic skills and 11% had intermediate skills, thus nearly all the students indicated that their digital literacy skills were still underdeveloped. Most of the students had been attending DL for about two years. These descriptive findings are reinforced by the regression results, where the estimates of the 'number of students per a computer', and 'develop digital skills' have negative effects on students' participation in DL lessons. The fulfilment of Lyra's goal to close the digital gap for rural secondary school students requires the reduction of the number of students per computer.

In general the DL program is effective for it has contributed to the improvement of students' overall school performance. DL students perform better in school grade scores as compared to the non-DL students. Parents-teacher meetings pointing to the interest of parents interest in the education of their children is a significant factor in improving student's school performance.

The program is impactful given that the outcomes matter to the beneficiaries as they uphold the remarkable changes the program has contributed to their studies. At the same time, the program has added to gender equality considering that female and male students are benefiting equally. There is potential for the sustainability of the program for Lyra has collaborated with the government of Tanzania to take over at the end of the program. Furthermore, there is room for the expansion of the program since there are many students interested in the program but are yet to be reached.

#### *Students' and teachers' comments during FGDs*

- Computer technical problems have interrupted computer club lessons, for instance in Mazombe secondary school they have faced this problem since November 2022 and have informed Lyra.
- The computers that breakdown should be repaired without much lapse of time for it puts on hold DL lessons.
- The DL students suggested to have DL teachers stationed at respective schools, because teachers from Lyra project travel long distances and this inconveniences students.
- Teachers of other subjects felt they had enough workload thus could not add digital teaching to their workload.
- There is a limited number of computers thus, a majority of students have constrained access. Students are requesting more computers, and the enlargement of the computer rooms to accommodate more students.

- Computers should be more accessible by increasing the frequency and the duration of computer lessons.
- Some schools have no electricity limiting the use of computer thus, request Lyra to assist with the installation of solar energy. This can also complement electricity in case of power outage.
- Teachers noted that laptops are more practical to use in classroom aided by projectors and should have internet.
- There is need to sensitize the benefits of acquiring DL to encourage those students who are missing computer lessons.

### 3. 3. Youth training for financial skills and entrepreneurship

#### 3. 3.1 Relevance

**To what extent is Lyra’s program intervention on boosting the youth to thrive in economically vibrant, equitable and sustainable communities in Tanzania aligned with the needs impeding youths to thrive in their communities?**

We investigate the relevance of Lyra youth training program by checking out if it aligns with the needs of the youth; and if the beneficiaries find the program to be useful and valuable. About 92% of the youths in the financial skills and entrepreneurship training lacked access to credit, 81% had no opportunities for networking with established entrepreneurs, while only 27% had savings account. Lyra’s youth training program meets the needs of the youth by equipping them with knowledge and skills to surpass the obstacles in becoming successful entrepreneurs. The beneficiaries appraise the training program for 95% of the trainees admitted that they were satisfied with the training for it gives them hope of succeeding after the training. In Africa, it is common for youths without high qualifications to turn for job opportunities in the informal sector, 94% of the youth trainees asserted that the training improved their opportunities of employment in the informal sector. The preceding findings alongside the socio-economic characteristics of the youth participants in the entrepreneurship training as depicted in Table 7 signifies the relevance of Lyra’s financial literacy and entrepreneurial youth training.

**Table 7. Comparison of socio-economic factors of youth participants in entrepreneurship training and non-participants.**

	Entrepren. student		Non-entrepreneur stud.		Diff
	Average	Std.err	Average	Std.err	Cohen's d
Female	0.79	0.41	0.33	0.48	1.02
Age	27.62	5.10	27.17	7.17	0.07
Marital status	0.56	0.50	0.56	0.50	-0.01
Education level	1.60	0.53	1.48	0.62	0.20
School grades	2.29	0.61	2.41	0.62	-0.19
Self-employed	0.92	0.27	0.77	0.42	0.43
Monthly income	93117.6	97089.1	129673.9	125274.8	-0.33
Planning to starting income generating activity	0.84	0.37	0.68	0.47	0.38
Lack of access to credit to start IGA	0.92	0.28	0.92	0.27	-0.02
Lack of business networks to IGA	0.81	0.39	0.68	0.47	0.30
Electricity shortage affects running business	0.75	0.44	0.62	0.50	0.28
Water shortage affects running business	0.55	0.51	0.52	0.51	0.05
Bad transportation affects running business	0.75	0.44	0.76	0.44	-0.03
Lack of telecoms affects running business	0.25	0.44	0.19	0.40	0.14
Owning a savings account	0.27	0.45	0.11	0.31	0.43
Do you have a microfinance loan	0.16	0.37	0.16	0.37	-0.01
VSLA's influenced having an account /taking loan	0.78	0.42	0.33	0.47	1.00
Have savings in VSLA	0.82	0.39	0.14	0.35	1.86
Take loan from VSLA for living costs	0.60	0.50	0.27	0.46	0.69

Note: **red**= negligible effect, **small**= small effect, **medium**= medium effect and **large**= large effect

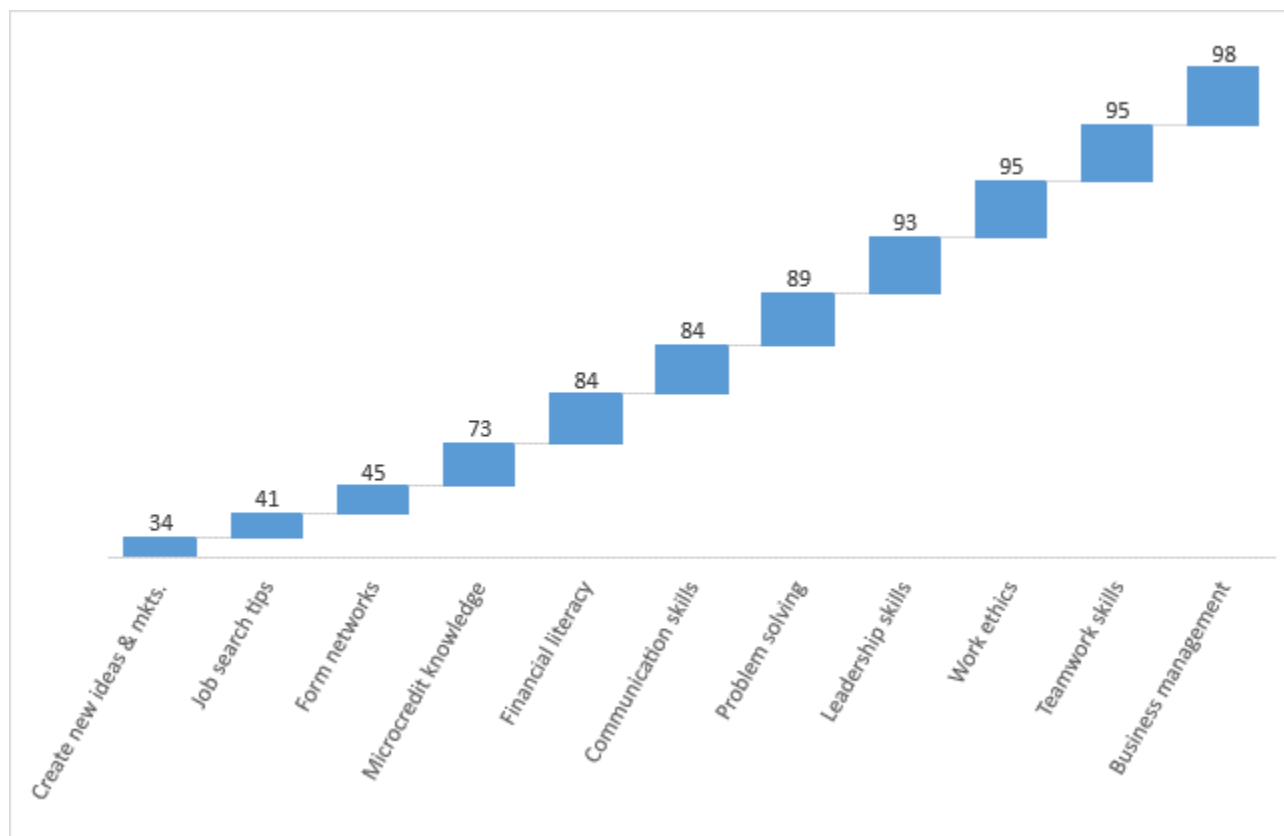
### 3.3.2 Effectiveness

**To what extent did the program intervention boost the youth trainees to thrive in their communities?**

We ascertain the effectiveness of Lyra youth training program by assessing if the program has achieved its objectives of empowering the youths to thrive in their communities. We establish possible factors that may have contributed to the outcomes by comparing socioeconomic characteristics and performance of youth trainees (treated group) and youth non-trainees (control group). We compare female and male trainees to gauge any differences in the training outcomes.

Lyra's youth training in financial literacy and entrepreneurship program with the objective of improving youth's credit and business opportunities is effective as per the response of the program beneficiaries depicted in Figure 10. We found that 98% of the trainees reported to have received skills in business management, 95% in teamwork, 95% in work ethics, 93% in leadership, 89% in problem solving, 84% in communication and financial

literacy, and 73% in microcredit knowledge. Areas where below 50% of trainees reported to have received skills are creating an enabling environment for the creation of business networks with the established entrepreneurs (45), job search tips (41), and the generation of new business ideas and sourcing potential markets (34).



**Figure 10. The percent of youth that learned respective skills during entrepreneurship training**

What could be the possible factors that contributed to the good outcomes in the youth financial literacy and entrepreneurship training? Cohen's d effect size in Table 7 on the comparison of socio-economic factors of youth participants in entrepreneurship training and non- participants is mostly negligible and small. We probe further with the help of regression analysis of probit propensity score matching for youth financial literacy and entrepreneurship training in Table 8. The regression results are in accord with descriptive results; female had a large effect in Table 7, and in Table 8; it has the highest statistical significance. Other estimates like education level and savings account have low statistical significance.

The PSM shows the independent effect of the intervention in this case the effect of financial literacy and entrepreneurial training on starting income generating activity (IGA). The output in Table 8 being IGA reports the average treatment effect (ATE) after accounting for the imbalance in the distribution of the baseline characteristics between the treated and control groups. The estimated coefficient shows that the IGA of the members of financial literacy and entrepreneurial training is 0.24 units more than that of non-members of the

training. It is assumed that after the training, the graduates are better equipped to start IGA activities than those who have not been trained. These results confirm the effectiveness of Lyra’s financial literacy and entrepreneurial training.

**Table 8 : Propensity score matching for youth entrepreneurship training**

**Treatment: Youth entrepreneurship training**

Probit regression for program participation

Dependent variable is member of youth training = 1 or 0

Number of obs = 80

Prob > chi2 = 0.00

Pseudo R2 =0.24

	Coefficients	std. err.	z	P>z
Female	1.41	0.35	4.05	0.00
Self-employed	0.72	0.48	1.50	0.13
Education level	0.44	0.29	1.48	0.15
Savings account	0.63	0.46	1.34	0.18
Mother tongue	- 0.39	0.25	-1.55	0.12
Constant	-1.31	0.81	-1.62	0.11

Average treatment effect (ATE)	Starting IGA	AI robust			
		Coefficient	std. Err.	z	P>z
	Entrepreneurship training (1 vs 0)	0.24	0.08	2.85	0.00

Table 9 indicates that Cohen’s d effect size of the comparisons of the training outcomes between male and female are partly negligible, small, and medium. Effect sizes that are medium include knowledge and skills being useful after the training, ‘ improved financial literacy’, and information on getting employment after the training. The only effect size that is large is ‘improved business practices’.

**Table 9. Male versus female views and performance in youth training**

	Men		Female		Diff
	Mean	Std.err.	Mean	Std.err.	Cohen's d
Self-employed	0.90	0.32	0.93	0.26	-0.09
Regular income	0.55	0.52	0.39	0.49	0.31
Learned micro-credit	0.67	0.50	0.74	0.44	-0.16
Learned business management	1.00	0.00	0.97	0.17	0.34
Network with other entrepreneurs	0.44	0.53	0.46	0.51	-0.02
Learned problem_solving_skills	0.89	0.33	0.89	0.32	0.01
Growth in knowledge & skills	1.00	0.00	1.00	0.00	0.00
Knowledge & skills will be useful	0.91	0.30	1.00	0.00	-0.60

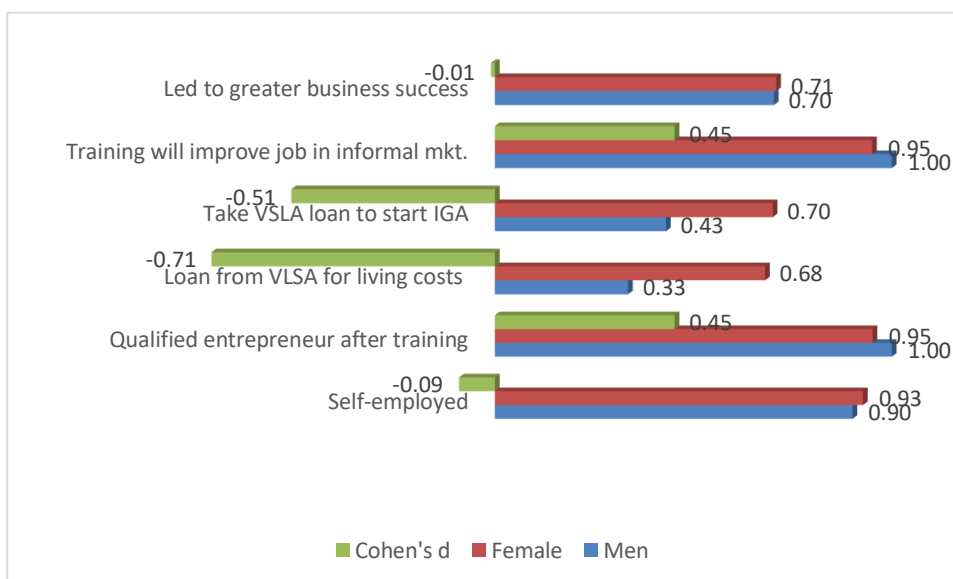
Training in job search assistance	0.33	0.50	0.43	0.50	-0.19
Increased in business knowledge	1.00	0.00	1.00	0.00	0.00
Improved business practices	1.00	0.00	0.85	0.36	0.82
Led to greater business success	0.70	0.48	0.71	0.46	-0.01
Improved entrepreneurial skills	0.90	0.32	0.79	0.41	0.29
Improved financial literacy	0.90	0.32	0.62	0.49	0.70
Info. on employment after the training	0.55	0.52	0.23	0.43	0.67
Training improved- job in informal mkt.	1.00	0.00	0.95	0.22	0.45
Starting income generating activity	0.90	0.32	0.83	0.38	0.21
Take VSLA loan to start IGA	0.43	0.53	0.70	0.47	-0.54
Lack access to credit	1.00	0.00	0.89	0.31	0.68
Lack business networks	0.90	0.32	0.79	0.41	0.30
Qualified entrepreneur after training	1.00	0.00	0.95	0.22	0.45
Have savings account	0.11	0.33	0.31	0.47	-0.51
Have microfinance loan	0.11	0.33	0.17	0.38	-0.17
Loan from VLSA for living costs	0.33	0.50	0.68	0.48	-0.71
Satisfied with training program	1.00	0.00	0.98	0.16	0.31

Note: **red**= negligible effect, **small**= small effect, **medium**= medium and **large**= large effect

### 3. 3. 3. Impact

**To what extent is Lyra financial literacy and entrepreneur training likely to contribute to economic and social change in the lives of the stakeholders?**

We investigate whether Lyra's financial literacy and entrepreneur training will lead to long-term economic changes in the lives of the beneficiaries and their communities. In addition, we investigate if there are potential transformational changes.



**Figure 11. Economic and transformational changes due to Lyra's youth training program**

Economic and transformational changes derived from Lyra's youth training program, are interrelated given the social-economic contextual factors around gender access to productive resources. Generally, there is gender disparity in accessing resources including credit, yet it is crucial for startup capital, and or to sustain commercial activities. The training program has brought a transformational change, for 70% of female and 43% of male trainees disclosed that they would get loans from village loans and saving associations (VSLA) to start IGA, Cohen's effect size is medium. 93% of female and 90% of male trainees are self-employed, access to credit does not only bring economic benefits to the female entrepreneurs but it benefits their families in being able to meet monetary needs creating a multiplier effect by extending the benefits to their communities at large.

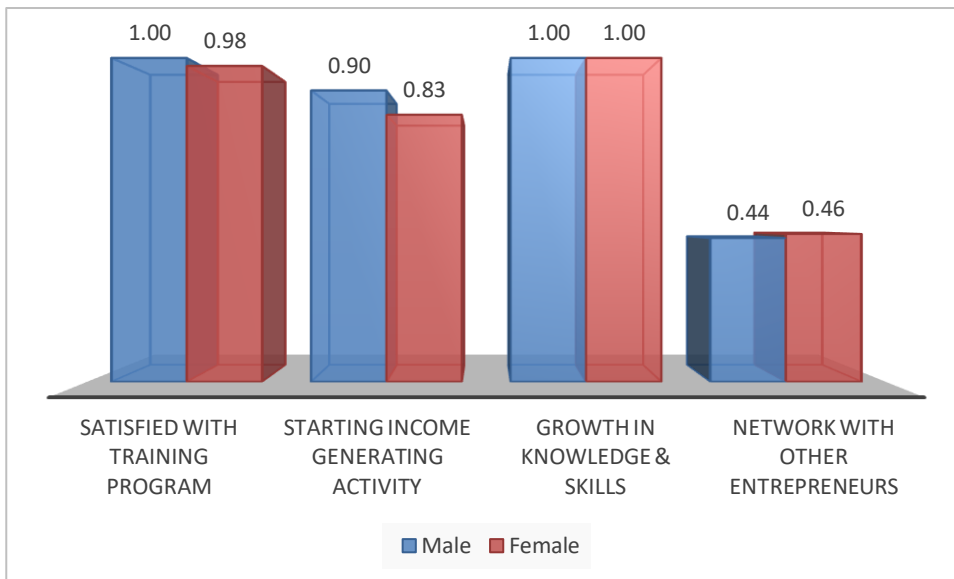
Women face job discrimination both in the formal and informal market, 95% of the female trainees have confidence that after training they have better chances of employment in the informal sector. Normally women tend not to have the skills to compete with men in the labor market apparently 79% of the youth training are female and 21% are male, this is a groundbreaking social-economic transformation. 95% of the female trainees assert that they will graduate as qualified entrepreneurs. While 71% declare that, the training will lead to business success. The findings presented in Figure 11 attests that youth financial literacy and entrepreneurship training is impactful.

### **3.3.4 Sustainability**

**To what extent is financial literacy and entrepreneurial youth training likely to be sustained?**

We examine if the positive effects of the intervention will continue at the end of the program. The findings illustrated in the relevance, effectiveness and impact sections are overriding benchmark for the sustainability of youth training program. Lyra youth training program works through the engagement of local business mentors to build businesses. This strategy implies the foundation laid by Lyra will survive after the end of the program because key collaborators are local business mentors. The enthusiasm displayed by youth trainees suggests that after graduation will start successful IGA by applying the knowledge and skills acquired through training. Problems common to starters including access to credit will not be a challenge for Lyra has set up VSLA where loans are easily accessible to the members.

The intervention has built an enabling environment for gender equality, for female's capacity has been built as disclosed in the impact section. Figure 12 illustrates selected factors supporting the sustainability of the program, for instance 100% of male and 98% of the female trainees expressed satisfaction with the program. 93% male and 83% female expressed interest in starting IGA, what more all the trainees declared they had acquired growth in knowledge and skills.



**Figure 12. Selected factors supporting the sustainability of the program**

### 3.3.5 Conclusion

The relevance of Lyra youth training program is affirmed by the findings that indicate although nearly all the youth trainees are self-employed, they lack critical entrepreneurial resources for startup and for running the businesses successfully. Nearly all the trainees appreciate the training for it equips them with knowledge and skills key to a promising future. The effectiveness of the training is linked to the relevance of the training, for it demonstrates and expands on the knowledge and skills mentioned in the relevance section. A majority of the trainees have acquired skills in financial literacy, microcredit knowledge, business management, teamwork, leadership, problem solving, and work ethics. The investigation in what exactly led to the success of the training by comparing the socio-economic factors of youth participants in entrepreneurship training and non- participants, indicated that Cohen’s d effect size was mostly negligible and small. Moreover, the regression results obtained from probit propensity score matching confirmed that the success of youth training is attributable to the effectiveness of the training.

Youth financial literacy and entrepreneurship training is impactful for it has contributed to long lasting economic and transformational changes. The program works towards the closing of gender gap in accessing credit and in the job market resulting to increased income for all (female and male) consequently benefiting their families, and communities. The program is sustainable given that it collaborates with local business mentors to build businesses. The intervention has built an enabling environment for gender equality, for female’s capacity has been built. Youth trainee graduates starting IGA will create local jobs, naturally, they will train their employees creating a ripple effect of a pool of qualified youths, increased incomes, boosting local economies and reducing poverty levels.



### *FGDs comments from the youth trainees*

- The youth request Lyra to increase the training time, make the training to be available on regular basis and introduce more learning resources including digital literacy.
- The youth appreciate the training they receive from Lyra, but would like Lyra to consider giving them seed capital (startup) after training.
- The youth would appreciate diversified training opportunities based on consultation with them.

## **3.4 Village savings and loan associations (VSLA)**

### **3.4.1 Relevance**

**To what extent is Lyra's VSLA intervention on empowering women to have equal economic opportunities aligned with needs in communities?**

We examine the relevance of VSLA program by assessing if it aligns with the beneficiary's needs; and to find out if the members of VSLA regard the intervention useful and valuable. Lyra formed VSLA with the objective of empowering women to have equal economic opportunities. The averages of the factors contributing to better economic status such as monthly income, 'wife's earnings less than husband's', asset ownership including land ownership and the size of land, as well as the number of cattle owned are higher for men as compared to women (Table 10). Thus, Lyra's objective of empowering women to have equal economic opportunities is of relevance given the disparities of economic opportunities between women and men. Moreover, Table 11 points to the relevance of the program because most of the members are household heads and self-employed, these responsibilities require a consistent source of income; VSLA serve this purpose to the members.

The comparison of the socioeconomic characteristics of the members of VSLA (treated group) versus non-members (control group) in Table 10 indicates that the treated group does not own land, but probably membership in VSLA enables them to get loans. Consequently, the treated group access and control more land as compared to the control group. Moreover, 75% of VSLA members joined with the aim of improving their financial status through the development of their saving habits, and the accessibility with ease to loan facilities. All members report satisfaction with VSLA program indicating that they value the activities of Lyra's VSLA program. The comparisons between female and male show differences that are mostly small.

**Table 10. Comparison of characteristics of female and male members of VSLA; & VSLA members vs. non-members**

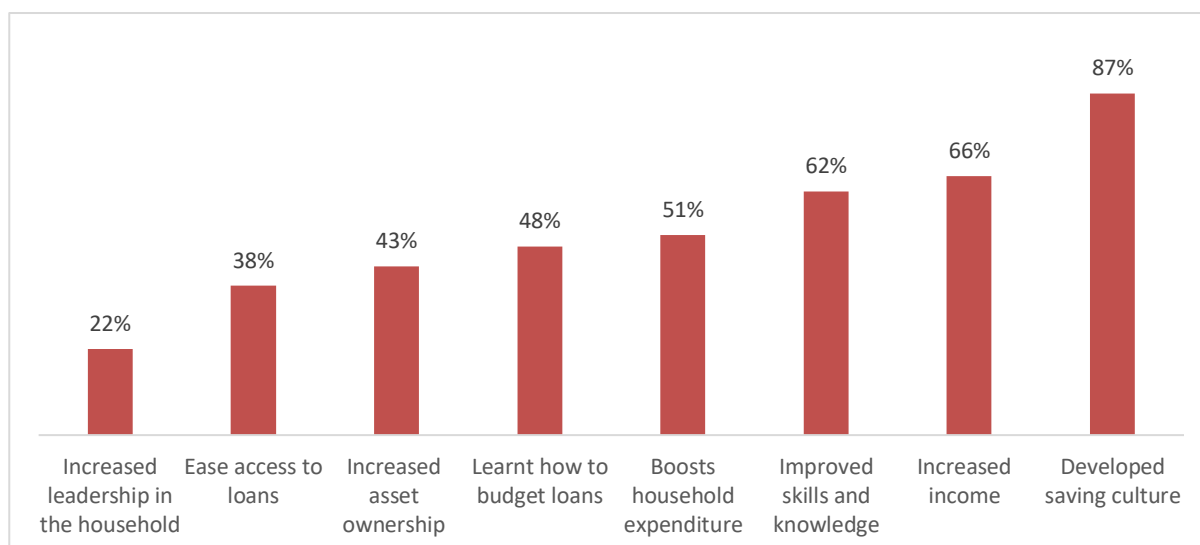
	Male Mean	Std.err	Female Mean	Std.err	Diff Cohen's d
Marital status	0.81	0.40	0.66	0.48	0.34
Household head	0.94	0.24	0.65	0.48	0.81
Land ownership	0.83	0.38	0.69	0.46	0.33
Access & control over land	0.79	0.42	0.75	0.44	0.09
Size of land hectares	3.48	4.46	2.55	2.80	0.26
Ownership of cattle	0.38	0.49	0.30	0.46	0.18
Number of cattle	3.22	7.03	2.45	3.41	0.15
Ownership of TV set	0.15	0.36	0.46	0.50	-0.73
Self-employed	0.93	0.26	0.84	0.37	0.27
Monthly income	49343	54239	45031	57294	0.08
Off farm business	0.41	0.50	0.53	0.50	-0.24
	<b>VSLA members</b>		<b>VSLA non members</b>		
Marital status	0.68	0.47	0.76	0.43	-0.18
Household head	0.81	0.39	0.66	0.48	0.35
Household size	2.60	1.41	2.48	1.27	0.09
Land ownership	0.69	0.47	0.81	0.39	-0.29
Access and control over land	0.82	0.39	0.62	0.50	0.45
Size of land in hectares	3.10	3.93	2.55	2.75	0.17
Number of cattle	2.37	5.75	3.52	3.31	-0.25
Children ages under 17 attend school	0.56	0.50	0.64	0.48	-0.17
Ownership of TV set	0.38	0.49	0.31	0.46	0.16
Self-employed	0.90	0.30	0.83	0.38	0.21
Wife's earnings are less than husband's	0.92	0.55	0.54	0.61	0.65
Off-farm business	0.51	0.50	0.45	0.50	0.12

Note: **red**= negligible effect, **small**= small effect, **medium**= medium effect and **large**= large effect

### 3.4.2 Efficacy

**To what extent has, the intervention program contributed to empowering women in having equal economic opportunities.**

We gauge the effectiveness of Lyra VSLA program by investigating if the program has achieved its objective of empowering women in having equal economic opportunities. We also examine if there are differences in the results obtained by male and female VSLA members. We establish possible factors that may have contributed to the outcomes by comparing socioeconomic characteristics and performance of VSLA members (treated) and people of similar demographic characteristics but not participating in the program (control group).



**Figure 13. The effectiveness of the VSLA program**

Lyra's objective of empowering women to have equal economic opportunities has been achieved, Figure 13 attests to this for 87% of the participants in VSLA reported they had developed a saving culture. While 66% saw an increase in their incomes, 62% have experienced an improvement in their skills and knowledge, and 51% have seen a boost in their household expenditure. Table 11 depicts the effectiveness of the program by disaggregating the outcomes based on the period of membership in years. We note that beneficiaries with higher percentages in the effectiveness of the program are those who have been members for three years. In this set of members 85% of them report that the program has improved women's income; 63% of the group reports that VSLA has led to increase in asset ownership. A hundred percent of this group are in consensus that the program has helped them in developing a saving culture contributing to the increase of their capital. While 74% indicate the program has helped them in meeting their household needs, in addition 64% report the program enables them to access loans whenever the need arises.

**Table 11. The relevance, effectiveness and sustainability of VSLA program vs. period in VSLA**

Period of membership in VSLA in years	1	2	3	4
<b>Relevance</b>				
Female	0.72	0.78	0.63	1.00
Self-employed	0.90	1.00	0.80	1.00
Household head	0.77	0.85	0.85	0.88
<b>Effectiveness</b>				
VSLA has increased income earned by women	0.54	0.62	0.85	0.43
VSLA led to increased ownership of assets	0.28	0.31	0.63	0.57
VSLA has led to increased leadership in the house	0.28	0.31	0.15	0.29
Developed a saving culture - capital increase	0.68	0.89	1.00	1.00
VSLA helped in meeting household needs	0.35	0.41	0.74	0.50
VSLA enables access loans regularly	0.30	0.15	0.64	0.25
Learnt how to budget the loans	0.59	0.67	0.36	0.25
<b>Sustainability</b>				
	0.53	0.48	0.83	0.25

Inability to pay membership fees				
Leadership role in group	0.49	0.63	0.76	0.63
Fear of not being able to pay back the loan	0.13	0.04	0.54	0.00
Illiteracy is a barrier to joining VSLA	0.50	0.74	0.78	0.75
Know people interested in joining VSLA- not able to	0.51	0.65	0.56	0.88
Some men refuse their wives to do IGA	0.92	1.00	0.93	0.63
Wives earn less than their husbands	0.81	0.87	1.00	1.00
Off-farm business	0.61	0.54	0.35	0.71
Family planning needs are met	0.15	0.12	0.35	0.25

Table 12 demonstrates that the average number of female members and their number of years of membership in VSLA is slightly higher than males. The Cohen's d effect size of the differences between female and male members are mixed ranging from partly negligible, mostly small, there are two mediums and one large. The comparisons of effectiveness of the program between female and male in Table 12, the Cohen's d effect size indicates clear differences although mixed, but only one is large. The same case applies to the comparison of characteristics of female and male members of VSLA; and VSLA members vs. non-members in Table 10 which did not indicate any notable effect sizes, with the exception of 'wife's earning less than husband's' whose effect size is medium. What could be the possible factors that contributed to the good outcomes in VSLA program?

**Table 12. Comparison of the effectiveness of the program between female and male members of VSLA**

	Male Mean	Std.err	Female Mean	Std.err	Diff Cohen's d
VSLA membership	0.50	0.50	0.67	0.47	-0.36
Very active in group activities	0.73	0.45	0.66	0.47	0.15
Loan from VSLA for living costs	0.69	0.47	0.71	0.45	-0.05
Period of membership in VSLA	2.09	0.95	2.26	1.16	-0.17
VSLA membership increase women's income	0.69	0.47	0.66	0.48	0.05
VSLA membership increase asset ownership	0.51	0.51	0.40	0.49	0.22
VSLA membership increase knowledge & skills	0.80	0.41	0.54	0.50	0.57
VSLA membership develops a saving culture	0.94	0.25	0.84	0.37	0.31
VSLA enables access with ease to loans	0.55	0.51	0.33	0.47	0.45
Savings balance in VSLA	99027	92922	274161	747399	-0.42
Fixed monthly contribution	0.29	0.46	0.53	0.50	-0.52
Inability to pay membership fees	0.50	0.51	0.60	0.49	-0.20
Pressure of inability to pay back loans	0.49	0.51	0.14	0.35	0.81
Illiteracy is a barrier to joining VSLA	0.76	0.43	0.65	0.48	0.24
Off farm business	0.41	0.50	0.53	0.50	-0.24

Note: red = negligible effect, cyan = small effect, green = medium effect and magenta = large effect

To buttress the descriptive findings we probe further with the help of regression analysis of probit propensity score matching for VSLA in Table 13. The regression results in Table 13 show that all the estimates are statistically significant and with the expected signs in explaining the probability of becoming a member of VSLA. The estimate 'member of women self-help group' is significant but with an unexpected sign because descriptive results indicate a majority of VSLA members are not members of women self-help groups. The estimate 'mother tongue' a proxy for fixed factors has been mostly insignificant in the regressions.

The PSM shows the independent effect of the intervention in this case the effect of membership in VSLA on monthly income. The output in Table 13 being monthly income reports the average treatment effect (ATE) after accounting for the imbalance in the distribution of the baseline characteristics between the treated and control groups. The estimated coefficient shows that joining VSLA is likely to increase the monthly income by TSHS. 25687.50 as compared to the non-participants in VSLA program. It is assumed the benefits that come with VSLA membership facilitate IGA given that majority of the members are self-employed. The descriptive and regression results attest to the effectiveness of Lyra's VSLA.

**Table 13 : Propensity score matching for village savings loans associations**

**Treatment: Village savings loans associations**

Probit regression for program participation  
 Dependent variable- member of VSLA =1 or 0  
 Number of obs = 126  
 Prob > chi2 = 0.00  
 Pseudo R2 =0.54

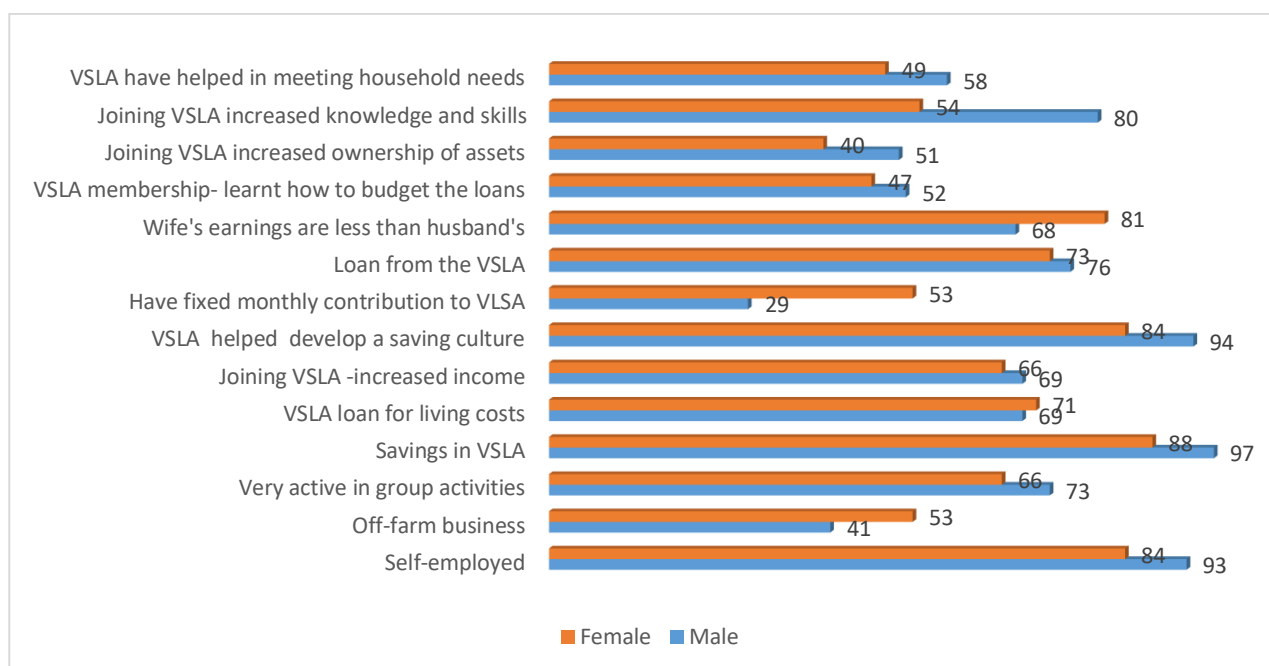
	Coefficients	std. err.	z	P>z
Member of women self-help group	-2.04	0.46	-4.43	0.00
Female	1.81	0.47	3.83	0.00
Received VSLA loan for living costs	1.24	0.42	2.91	0.00
Type of floor	0.57	0.19	2.91	0.00
Very active in group activities	1.21	0.44	2.80	0.00
Type of latrine	-2.86	1.18	-2.44	0.02
Savings in VSLA	1.69	0.74	2.29	0.02
Children ages 7-17 attending school	-0.73	0.38	-1.92	0.05
Mother tongue	0.45	0.34	1.34	0.18
Constant	0.99	1.98	0.50	0.61

Average treatment effect (ATE)	Monthly income	AI robust Coefficient	std. Err.	z	P>z
	VSLA membership (1 vs 0)	25687.50	9661.06	2.66	0.00

### 3.4.3 Impact

**To what extent is Lyra VSLA program likely to contribute to economic and social change in the lives of the stakeholders?**

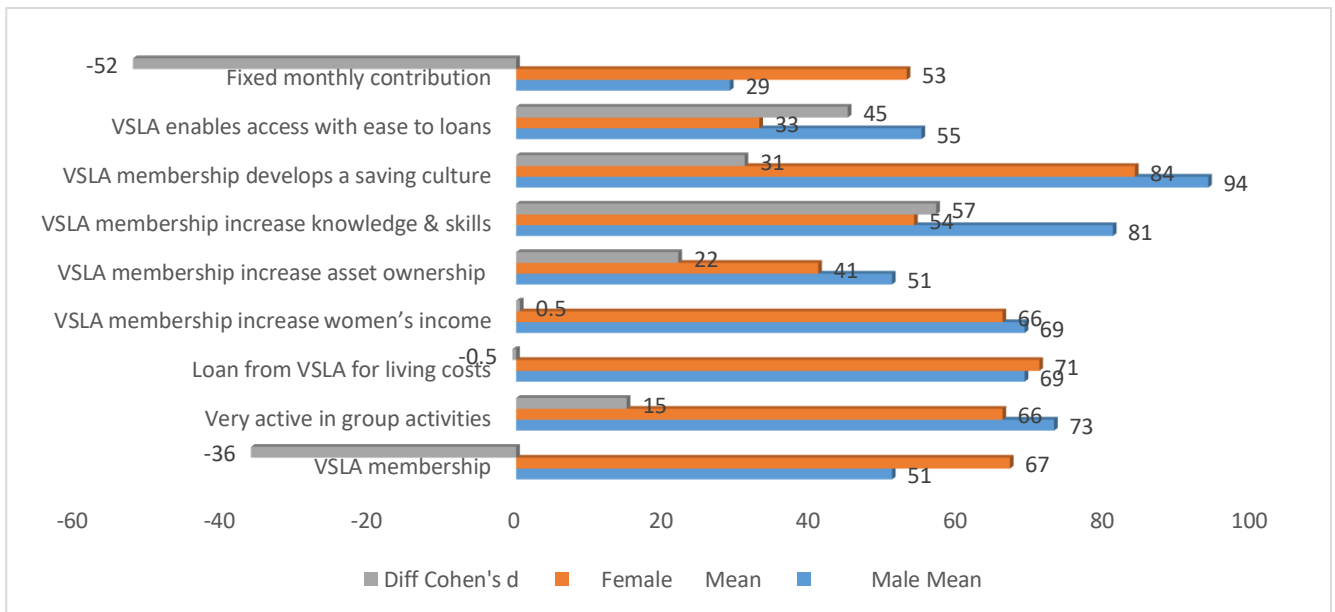
Our quest is to find out if Lyra VSLA intervention will lead to long-term economic changes in the lives of the beneficiaries and their communities. Moreover, we investigate if there are potential transformational changes empowering women to have equal economic opportunities.



**Figure 14. VSLA outcomes resulting to potential long-term economic and transformational changes**

Figure 14 depicts outcomes leading to long-term economic changes including

- Increased knowledge and skills 54% for women and 80% for men
- Increased ownership of assets 40% for women and 51% for men
- Learnt how to budget loans 47% for women and 52% for men
- Loan from VSLA 73% for women and 76% for men
- Helped develop saving culture 84% for women and 94% for men
- Increased income 66% for women and 69% for men
- Loan for living costs 71% for women and 69% for men
- Savings in VSLA 88% for women and 97% for men
- Very active in group activities 66% for women and 73% for men



**Figure 15. Transformational changes empowering women to have equal economic opportunities**

What does Figure 15 inform about Cohen's d effect size about the economic factors contributing to potential transformational changes empowering women to have equal economic opportunities?

- The Cohen's d effect size of fixed monthly contributions to VSLAs is medium, with women's percentage being higher than that of men.
- The Cohen's d effect size of acquiring knowledge and skills is medium, with men's percentage being higher than that of women.
- The effect size of access to loan for living costs is negligible, thus both men and women have nearly equal access.
- The Cohen's d effect size of VSLAs enabling access to loans with ease is nearly medium (0.45), indicating the percentage of men accessing loans is higher than that of women.
- The rest of the economic factors have small effect size, with men having slightly higher percentages than that of women.

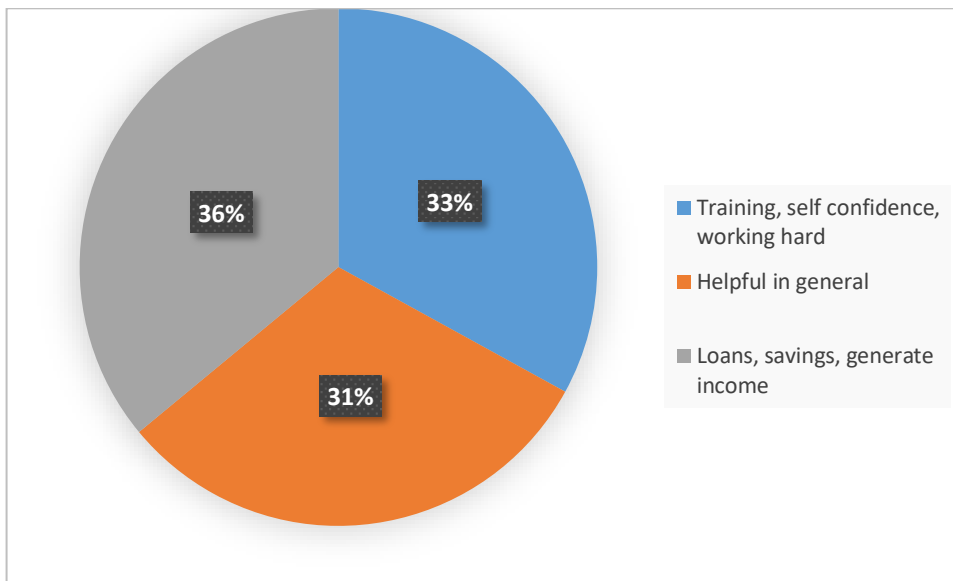
### 3.4.4 Sustainability

**To what extent is Lyra VSLA program likely to be sustained?**

We examine if the positive effects of the intervention will continue at the end of the program. Lyra has helped the creation of self-sustaining VSLA to facilitate the access to informal safe banking system. The VSLA are sustainable since Lyra has created an enabling environment by developing and strengthening beneficiaries' capacities. The source of funds for loans is from members' monthly contributions, the chances of default of

repayment of loan are minimal since members of any given group are mostly acquaintances and peer pressure will make defaulters to pay back the loans. The relevance, effectiveness and impact sections have the same theme of beneficiaries' interest in the program, and of the numerous economic benefits, they have accumulated as being participants in the VSLA.

All the members of VSLA interviewed expressed satisfaction in the program, reasons for their positive feedback are presented in Figure 16



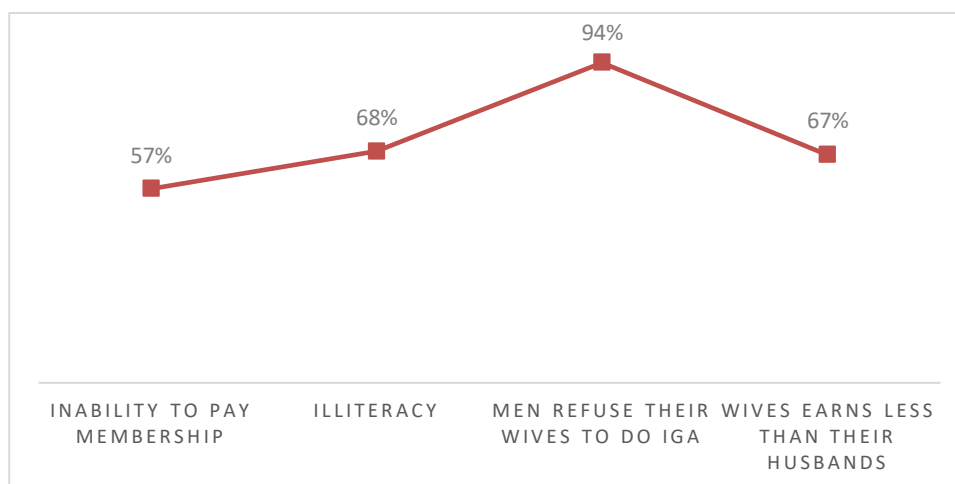
**Figure 16. Reasons for being satisfied with VSLA**

The reasons of satisfaction are grouped in 3

- 33% of VSLA members indicated that they had benefitted from VSLAs through training the program offered which resulted in members becoming self-confident and inspired them to work hard leading to transformed lives and financial stability and freedom.
- 31% of the respondents said it all in three words 'helpful in general'.
- 36% stated VSLA is an informal banking that enables them to access banking services including saving money and getting loans, these activities contribute to generating income.

However, there are potential threats to the sustainability of the program as depicted in Table 11 that presents factors risking the sustainability of the program based on the respondent's period of membership in VSLA, while Figure 16 portrays potential threats to the sustainability of VSLA as voiced by the participants in general.





**Figure 17. Potential threats to the sustainability of VSLA.**

- Prospective members of VSLA are held back from joining, due to the inability to pay membership fee, as reported by 57% of the respondents.
- Illiterate people are not conversant with group activities that require basic skills of counting, reading and writing as indicated by 68% of the respondents.
- The objective of Lyra's VSLA is to empower women to have equal economic opportunities, this goal is threatened because 94% of the respondents stated that some husbands do not allow their wives to take up income generating activities (IGA). Table 10 indicates that 84% of the female members of VSLA are self-employed, accessibility to loans and receiving training will be profitable to respective households and their communities if women have equal economic opportunities.
- Wives earning less than their husbands as pointed out by 67% of the respondents implies the disparity risks the sustainability of the program's intention to contribute to the closing of gender gap in economic opportunities.

### 3.4.5 Conclusions

The relevance of Lyra's VSLA objective of empowering women to have equal economic opportunities in their communities is manifested by gender disparities in access to productive resources including monthly income and asset ownership. All the beneficiaries of VSLA value the program because it has met their needs of improving their financial status.

The effectiveness of Lyra VSLA program in empowering women to have equal economic opportunities is demonstrated by the outcomes of the program including developed saving habits, increased income levels, improvement in knowledge and skills, boosted household expenditure thereby enhanced the wellbeing of women and their households, and their communities. Benefits are maximized mostly after a lapse of time, the highest percentages of those declaring the effectiveness of the program was found among those in their third year of

membership. The Cohen's d effect size of the differences in results obtained between female and male members, suggests the differences are not remarkable with the exception of acquiring knowledge and skills whose effect size is medium with men on the higher side. Also, fixed monthly contributions to VSLA whose effect size is medium, with women on the higher side. The comparison between members and non-members of VSLA, the notable effect sizes was wives earning less than their husbands whose effect size was medium. The regression analysis of probit propensity score matching confirmed that the possible factors that contributed to the good outcomes in VSLA program were attributable to the effectiveness of Lyra's VSLA.

The impact of VSLA intervention in contributing to long-term economic changes is demonstrated through high percentages of beneficiaries with increased knowledge and skills, ownership of assets, income, savings and access to loans. Cohen's d effect size about the economic factors contributing to potential transformational changes empowering women to have equal economic opportunities indicates that the notable effect size is medium where the percentage of men who have acquired knowledge and skills, and access to loans for other purposes besides living costs is higher than women's.

Sustainability of VSLA is foreseeable due to Lyra's creation of self-sustaining VSLA program. Capacity building of the stakeholders through knowledge and skills, and creating an enabling environment to access informal banking services that the stakeholders would otherwise not access speaks sustainability of the program and potential replication in other regions. Moreover, sustainability is reinforced by the relevance, effectiveness and impact of the VSLA, and at the same time, the stakeholders are content with the program. Notwithstanding, there are potential risks to the sustainability of VSLA including illiterate members of the community feel left out since they cannot keep up with the VSLA proceedings. Husbands who do not want their wives to start income generating activities, risks Lyra's objective to empower women economically; and yet IGA is known for boosting families' sustenance.

*Suggestions from FGDs to make VSLA to serve the members better*, majority of the VSLA members request for

- The creation of more VSLA centers in their vicinity
- The increase of education programs and frequency, particularly the entrepreneurship training.
- The VSLA members would like to have frequent visits from the Lyra team and more seminars.
- The agents appointed by Lyra in villages do not get financial support to facilitate the fulfilment of their duties.
- Lyra supports the formation of groups, but group members request further assistance from Lyra after the formation of groups.

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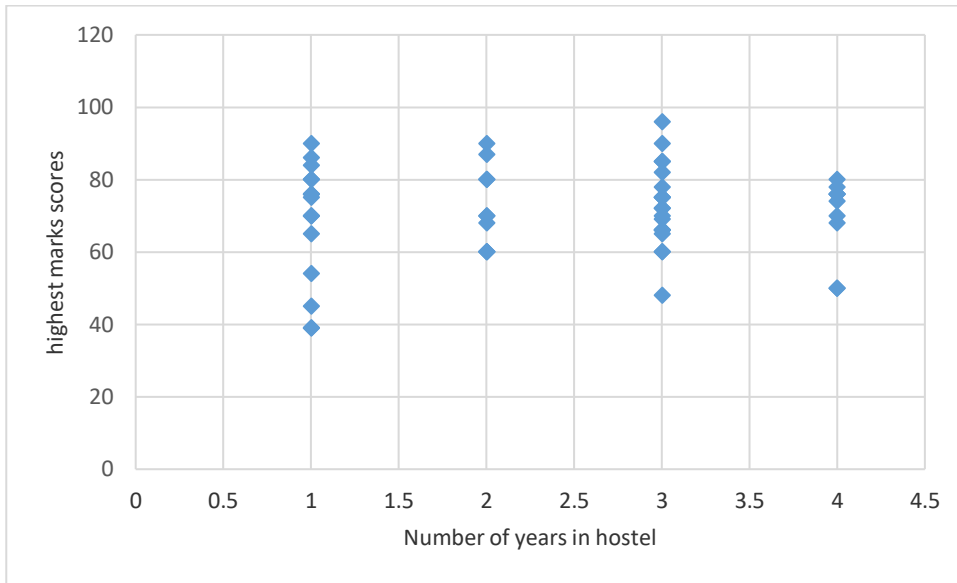
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## ANNEX 1

**Table 1. Comparison of digital literacy between hostel and day-school girls**

	Hostel girls		Day-scholars girls		Diff
	Mean	Std.err.	Mean	Std.err	Cohen's d
Access computers increases computer knowledge	0.82	0.39	0.69	0.47	0.31
Accessing computers develop digital skills	0.29	0.46	0.44	0.50	-0.29
Access computers improves learning opportunities	0.27	0.45	0.15	0.37	0.30
Years of computer lessons	0.93	1.06	0.73	0.85	0.21
Number of people per a computer	4.38	2.55	5.71	3.07	-0.47
How often use computer outside school	7.26	1.61	7.60	1.35	-0.23
Computer increased school grades scores	0.85	0.36	0.88	0.33	-0.09
Math scores before the computers	34.00	14.99	25.74	9.83	0.67
Math scores after the computers	47.55	14.85	36.09	10.67	0.90
Science scores before the computers	38.90	14.61	37.13	11.09	0.14
Science scores after the computers	55.35	14.65	50.35	10.32	0.40
School resources enough to enable studies	0.57	0.50	0.50	0.51	0.14
Lyra taught you computers in the first place	0.74	0.44	0.88	0.33	-0.37
Is your digital literacy in general good	0.15	0.36	0.02	0.15	0.49
Computer skills will be useful	0.43	0.50	0.63	1.54	-0.19
Satisfied with digital skills lessons	0.15	0.36	0.10	0.30	0.14
Lack of time for DL training	0.31	0.47	0.42	0.50	-0.22
DL affected by lack of learning materials	0.65	0.48	0.47	0.51	0.35
Friends interested in computer but have no access	2.67	1.23	3.10	2.38	-0.24
<b>Adolescent reproductive education</b>					
Early marriage leads to lost childhood	0.65	0.48	0.53	0.50	0.23
Early marriage is a denial of education	0.79	0.41	0.65	0.48	0.31
Early marriage contributes to post-natal mortality	0.30	0.46	0.14	0.35	0.39

Note: red = negligible effect, small = small effect, medium = medium effect and large = large effect



**Figure 1. Number of years in the hostel Vs. highest marks scored**

Figure 1 shows that the girls who are first year's in the hostel have the lowest highest marks attained while the third years in the hostel have the highest marks scored.

**Table 2. Hostellers self-rating in performance in studies in general and in digital literacy**

Grade in secondary school	Self- rating of performance in studies generally		
	Good	Average	
Form 1	4	2	
Form 2	4	7	
Form 3	3	13	
Form 4	1	22	
Years in Hostel	Self- rating of digital literacy		
	Basic level	Intermediate	
	1	6	9
	2	2	5
	3	8	13
4	4	6	

Table 2 reports that the third years in the hostel had the highest number of boarders with intermediate skills in DL.

