

**Republic of Rwanda**



**Ministry of Education**



# **Impact Assessment of Industrial Attachment Program for Trainers**

**Kigali**

**August 2021**

# **Impact Assessment of Industrial Attachment Program for Trainers**



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## **EXECUTIVE SUMMARY**

### ***Introduction***

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In a TVET teaching and learning system, Industrial attachment plays a crucial role in providing hands on skills relevant to the labour market. It is a work-based experience programme providing a real-life organisational context for TVET trainers to develop specific or generic skills, valuable to their professional development. Building skills to advance Rwanda's economic agenda, the Priority Skills for Growth (PSG) Program was initiated and targeted to strengthen the skills related to different priority sectors of the Rwandan economy including Manufacturing (Agro Processing), Transport and Logistics and Energy.

The main objective of this program was to expand opportunities for the acquisition of quality, market-relevant skills in the selected economic sectors. One of the ways this objective was planned to be implemented was by pioneering with TVET Schools and IPRCs trainers through industrial attachment. It is in this context that an impact assessment of industrial attachment of trainers was initiated to see how trainers in TVET sector are being empowered in order to increase the number of TVET graduates with skills relevant to the labor market, especially in the selected three priority sectors in this study.

### ***Methodology***

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The impact assessment used both quantitative and qualitative study methods. Quantitative approach aimed at rating the levels of impact of Industrial Attachment of Trainers, their satisfaction with skills acquired during this program, their performance after workplace, practical and new advanced technological skills. The survey also covered the views of host companies. Qualitative approach was used to elicit in-depth data to dig out the fundamental reasons for the phenomenon explored in this assessment. In addition, the qualitative approach aimed to provide various stakeholders views, especially key informants, with a range of issues pertaining to this study. The target population for this assessment was trainers from pioneering institutions to implement trainers' industrial attachment. Furthermore, the target population included host companies identified through the trainers who have been participating in TIAP. The quantitative data were collected using Open Data Kit (ODK). The qualitative data were collected through face to face interviews, google forms, and phone calls. The analysis of quantitative data was performed using Statistical Package for Social Sciences (SPSS) and desegregated using excel and qualitative data were analysed using content analysis.

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## ***Findings***

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Findings indicate that the trainers' industrial attachment contributed significantly and positively to the improvement of trainers' skills. The assessment also found that trainers were enabled to increase their levels of competency to carry out practical sessions relative to their trade expectations. Equally trainers expressed an increased capacity and willingness to reflect on their competencies prior to delivery of courses. Trainers and host companies acknowledge that the exercise empowers participants to refresh and have a broader understanding of new technologies in industry.

The assessment again found that the industrial attachment facilitation process was generally useful and that training materials and consumables were available, but trainers showed that absence of enough work in the host companies is a crucial challenge.

Similarly, to host companies, the attitude of TVET Schools and IPRCs trainers was very conducive towards achieving the intended goal of industrial attachment program and the host companies that are users of new technology. They again suggested that in the upcoming trainers' industrial attachment program the following changes should be considered; supporting hosting companies through collaboration to get sufficient training materials, consumables and even assurance on inconvenience during training, strengthening tripartite partnership between RP, trainers and companies during Industrial Attachment Program preparatory phase.

## ***Conclusion***

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By concluding, trainers' industrial attachment has achieved its objectives as it was appreciated by both trainers and host companies. The trainers gained much in terms of exposure to new technical skills, the quality of skills acquired by trainers was good and the facilitation process was also good. The training material and consumables were available and the good quality of acquired hands-on practical skills compared to module delivery. There were some aspects that were found to undermine the desired outcomes, and their effect was minor compared to positive impact. Therefore, it is assured that market relevant skills acquired through industrial attachment contribute to the tremendous journey towards Priority Skills for Growth.

## ***Recommendations***

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This assessment revealed some changes that need to be introduced in trainers' industrial attachment and among them include:

***In the short term***, it was recommended to support host companies via their collaboration to get sufficient training materials and consumables during industrial attachment, to tighten a

tripartite partnership between RP, trainers and companies during the Industrial Attachment Program (IAP) preparatory phase.

***In the long term***, it was recommended to put in place a self-funding model to facilitate different interventions aimed at skills development including but not limited to industrial attachment for both trainers and students in TVET Schools and IPRCs. To develop and operationalize industrial attachment policy, strategy or guidelines to ensure harmonized procedure of providing hands-on skills through workplace learning in host companies.

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## **ACRONYMS AND ABBREVIATIONS**

BDF	: Business Development Fund
IAP	: Industrial Attachment Program
IPRC	: Integrated Polytechnic Regional College
KIIs	: Key Informants Interviews
Ltd	: Limited
MIFOTRA	: Ministry of Public Service and Labour
MINEDUC	: Ministry of Education
NESA	: National Examination and School Inspection Authority
ODK	: Open Data Kit
PSF	: Private Sector Federation
PSG	: Priority Skills for Growth
RDB	: Rwanda Development Board
RMI	: Rwanda Management Institute
RP	: Rwanda Polytechnic
RRA	: Rwanda Revenue Authority
RTB	: Rwanda TVET Board
SPSS	: Statistical Package for Social Science
TVET	: Technical and Vocational Education and Training
WPL	: Workplace Learning

## **1. INTRODUCTION**

This report presents the assessed outcome of the survey on trainers' industrial attachment program conducted by Rwanda Management Institute (RMI) in partnership with Rwanda Polytechnic (RP). The survey was aimed at collecting information about trainers who undertook the industrial attachment in different private institutions under the Priority Skills for Growth (PSG). The report provides how trainers in TVET sector are being empowered in order to increase the number of TVET graduates with skills relevant to the labor market especially in the selected three priority sectors in this survey namely Manufacturing (Agro Processing), Transport and Logistics and Energy. It also recommends measures for short term and long term recommendations that need to be introduced in the next trainers' industrial attachment program.

### **1.1. Background and Context**

Rwandan Technical and Vocational Education and Training system (TVET) provides young people and the unemployed with the skills to gain productive employment and also provides those already in employment with an opportunity to upgrade their skills, including entrepreneurs and those wishing to work for themselves. Previously, TVET had suffered from negative perceptions by both students and the general public (National TVET Policy 2015) Rwanda TVET was considered as the second choice where general higher learning institutions attracted more trainers. Today TVET is increasingly enjoying popularity because it is viewed as a government priority, a driver for Rwanda's journey to industrialization and social and economic transformation (NST1, Education Sector Strategic Plan).

The Rwandan Government targets that 60% of secondary school trainees are oriented towards TVET and 40% go for general education and universities (GIZ, 2021). It is expected that Technical and Vocational Education and Training (TVET) will further be promoted. In this regard the proportion of students pursuing TVET will increase from 31.1% in (2017) to 60% by 2024 to address the challenge of mismatch in labor market demand. This target will be facilitated by the approved workplace learning policy designed and launched in 2015.

Workplace Learning (WPL) presents an important way to improve quality and relevance of skills development. The term Workplace Learning (WPL) denotes all professional or occupational training and learning that takes place in a real workplace (and not in a training or higher education institution) and that is intentional. WPL can be organized as apprenticeship training, industrial attachment or internship addressing mainly the training and learning needs of young new labour market entrants.

The vision of the Workplace Learning Policy (WPLP) is to unleash Rwanda's potential of workplace training and learning through the development of modern apprenticeship training, increased internship and attachment opportunities in order to ensure that skills development for new labour market entrants responds to the needs of the labour market and assists an increasing number of Rwandan youths to find employment and participate in the country's development (MIFOTRA, 2011). Industrial attachments have always been an important part of most programs in the TVET sector.

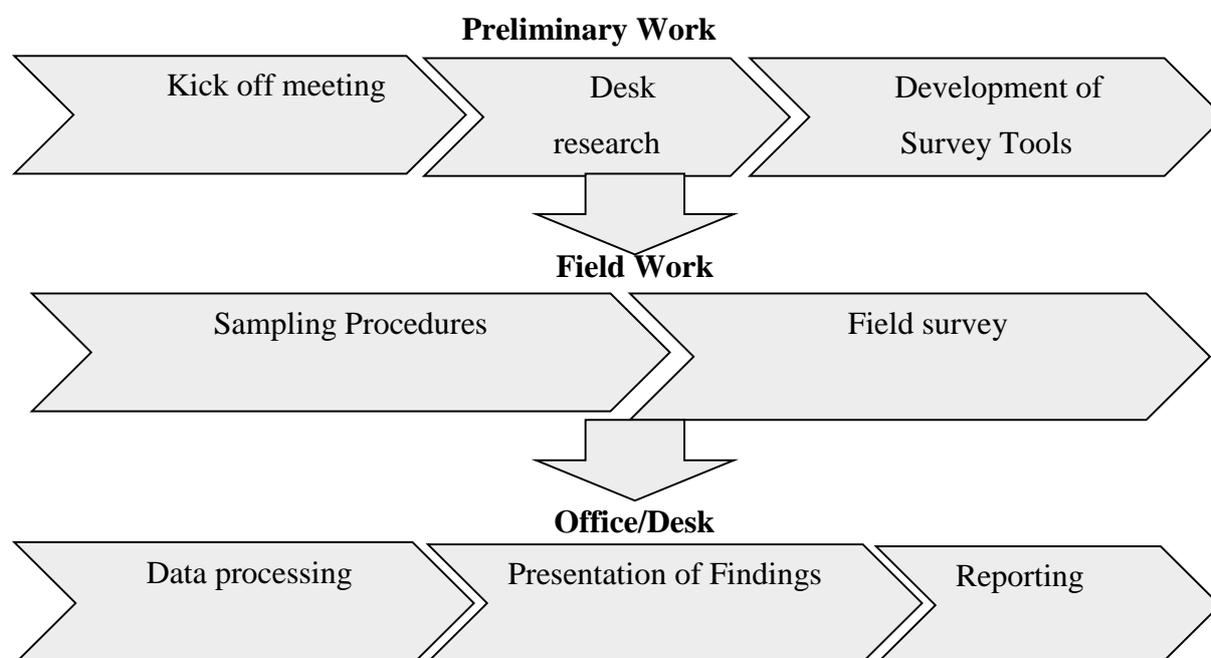
In an attempt to harmonize and streamline those attachment initiatives of individual training providers, the TVET stakeholders developed the Industrial Attachment Program (IAP) in 2011. The IAP is a package of rules and interventions to structure, govern, facilitate and supervise industrial attachments throughout the Rwandan TVET system. The main purpose of this Industrial Attachment was to address the skills gap in three priority sectors, namely: Energy, Manufacturing (Agro-Processing sector / Made in Rwanda), and Transport and Logistics. This would be done through empowering both trainers and trainees in general so that the TVET sector could grow at the same pace at all levels. Although it is still early days since the IAP was launched, some progress with industrial attachment has been registered. The IAP was instrumental in consolidating and improving the quality of industrial attachment in the TVET sector.

## **1.2. Rationale**

As a program under serious consideration in terms of its labour market relevance, organization and practicability, it is important to study whether the programme is adding value to the whole teaching and learning process in TVET sector. It is therefore imperative to get appropriate feedback from the trainers who undertook the industrial attachment. The undertaken survey was set to focus on the feedback on the following areas: quality of skills, hands on performance, availability of facilities, training materials and consumables, challenges hindering well-functioning industrial attachment program as well as proposing solutions for efficient and effective trainers' industrial attachment program. Information was obtained through a questionnaire distributed to TVET trainers who undertook industrial attachment and also from Rwanda Polytechnic (RP) representatives and IPRCs principles. The results of this survey will be used to formulate a much robust industrial attachment program with a solid framework.

## 2. APPROACH AND METHODOLOGY

A mixed methods approach was used during this survey, drawing on primary and secondary data. The study employed a standard methodology of: (i) A continuous comprehensive desk review, (ii) quantitative interviews with trainers, and (iii) qualitative interviews with key informant's interviews / representatives were held with heads of IPRCs and RP.



**Figure 1. Survey Approach**

The survey was organized in chronological order as illustrated by the figure 1, starting with the kick off meeting, the desk review for initial search, development of data collection tool, sampling procedures, field survey, data processing, presentation of findings and reporting.

### 2.1. Sampling

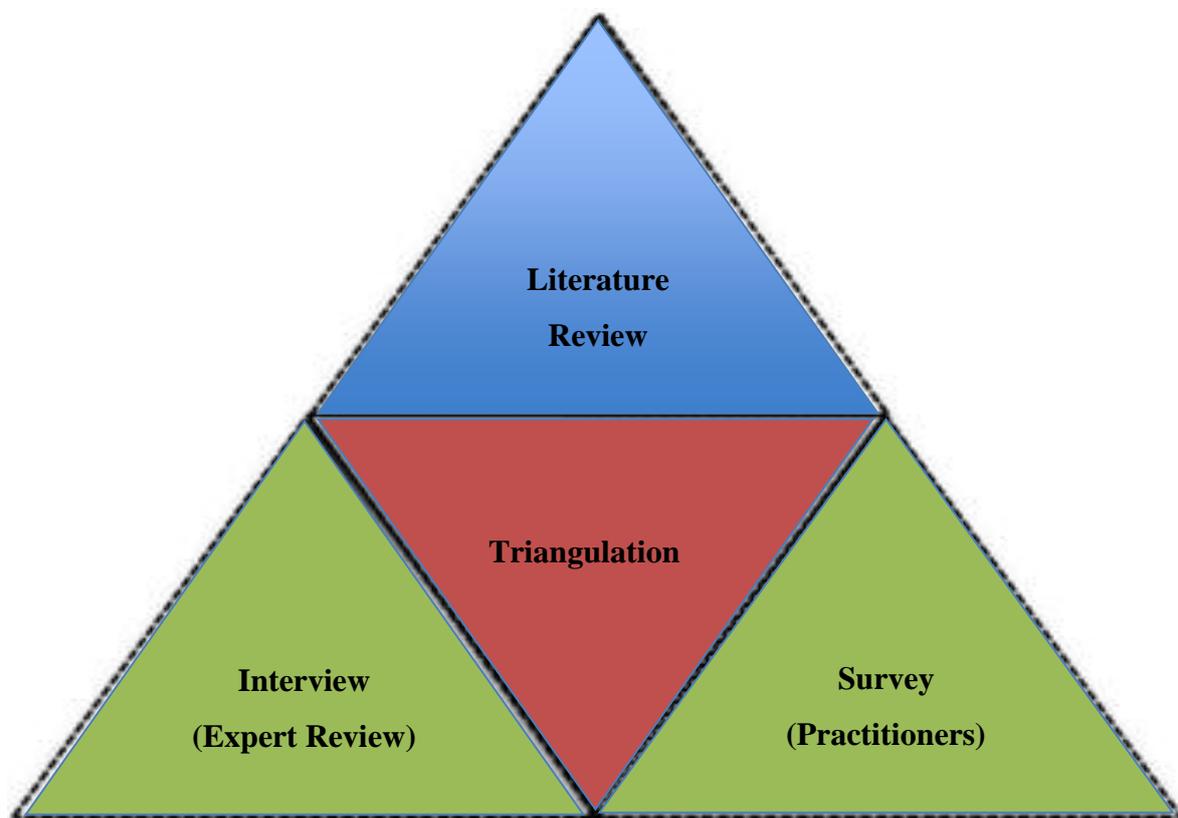
A pool of 29 trainers who went for industrial attachment from pioneering institutions implementing PSG in Crop production, food processing and animal health were purposely selected to respond to the designed questionnaire. These institutions were IPRC Huye, IPRC Musanze, Ntendezi TVET School, Kabutare TVET School, Kinazi TVET School, Kibisabo TVET School, Nyagahanga TVET School, Gakoni TVET School and the management of six companies (Ishingiro Company Ltd, Vision Agri Business, Mukamira Dairy, Nyanza Milk Industry, He Works Ltd, and Ets Urwibutso) that hosted them. These 29 trainers are the only ones who went through industrial exposure and among them 26 replied to the questionnaire during data collections. The questionnaire also had a section designed for host companies and 9 of them were given a questionnaire to have an input from the host companies' side. However, the team also contacted Rwanda Polytechnic (RP) representatives, IPRCs principles, school

managers and deputy school managers for qualitative interview to give comparison between these attached and non-attached and also for survey results triangulation.

## 2.2. Triangulation

Triangulation refers to the process of combining several perspectives on an issue of study. The survey combined qualitative and quantitative methods (mixed approach). This increased both internal validity and reduces bias, as responses converge.

It also provided a flexible and systematic way to gather information especially for such an exploratory study. We also triangulated using different data sources (literature, survey, interviews) using different respondents (TVET trainers and representatives of RP and IPRCs as for key Informants Interviews).



**Figure 2. Multiple triangulation: Adapted from Carugi, 2014**

### 3. IMPACT OF INDUSTRIAL ATTACHMENT PROGRAM FOR TRAINERS: FINDINGS

The aim of the survey was to assess the impact of trainers' industrial attachments programs on training delivery improvements and adjustments to the current arrangements of workplace learning. The questionnaire sought to establish whether in the trainers' opinion the industrial attachment added any value to their teaching and learning process. Out of 29 targeted TVET trainers, only 26 trainers managed to respond the survey questionnaire. This indicates that the response rate was 89.5% which is enough to provide valuable insight into the accuracy of the collected data.

**Table 1. Demographic Profiles of Trainers**

Demographic variables	Male	Female	Total
<b>Age bracket</b>			
25-30	3.8%	-	3.8%
31-35	38.5%	3.8%	42.3%
36-40	23.1%	7.7%	30.8%
41-45	7.7%	7.7%	15.4%
46-50	3.8%	-	3.8%
Above 50	3.8%	-	3.8%
<b>Marital status</b>			
Single	7.7%	-	7.7%
Married	73.1%	19.2%	92.3%
<b>Number of Dependents</b>			
1-3	42.3%	11.5%	53.8%
4-5	23.1%	3.8%	26.9%
Above 5	15.4%	3.8%	19.2%
<b>Time Spent working in TVET sector</b>			
1-3	11.5%	-	11.5%
4-6	19.2%	11.5%	30.8%
7-9	19.2%	-	19.2%
10-12	23.1%	-	23.1%
13-15	3.8%	3.8%	7.7%
16-18	-	3.8%	3.8%
19-20	-	3.8%	3.8%
Above 20	3.8%	-	3.8%
<b>Level of satisfaction of current salary and benefits</b>			
Dissatisfied	26.9%	7.7%	34.6%
Somehow satisfied	26.9%	11.5%	38.5%
Satisfied	26.9%	-	26.9%)
<b>Total</b>	<b>80.8%</b>	<b>19.2%</b>	<b>100%</b>

In this impact assessment, 21 trainers were male representing 80.8% and 5 were female equivalent to 19.2 % participated in this assessment. This type of data was collected to assess the gender balance and views disaggregated by gender on impact of industrial attachment of

trainers. While assessing the distribution of participants by sex in all age categories, it has been remarked that male dominated their fellow female. This can be associated with the fact that the number of male is higher than the number of female trainers in TVET Schools though the number of female is getting a tremendous increment.

Among them, the majority of trainers representing 42.3% were in the age category from 31 to 35 years. In this age category, 38.5% were male against 3.8% female. This age category is followed by 36 to 40 years old with proportion of 30.8 % while the age category from 41 to 45 years old were 15.4% in the whole sample of 26 participants in this assessment. These age categories prevalence indicate that the trainers who participated in Industrial Attachment were not too old to be absolute to use the acquired technical skills. This is also an indication that the acquired skills will be used. These trainers are in age categories of quick learners and eager to get new skills.

Account was held on marital status and the assessment revealed that the majority equivalent to 92.3% were married whereas only 7.7% were single and there was no single one among female. Among married respondents, the majority around 73.1% were male. The prevalence of many people in married status has also some coherent link with the age bracket. This is because in Rwanda people are legally allowed to get married at 21-year-old and in our assessment none was below that age.

Another crucial variable that has been taken into consideration was the number of dependents to the respondent either family members or any other people in society. On this variable, 53.8% have had 1 to 3 people that depend on them. Among them, 42.3% were male against 11.5% female. The number of dependents is directly proportional to the need of the family.

The assessment showed that 30.8% have 4 to 6 years working in the same TVET School. These are followed by 23.1% who have spent 10 to 12 years. The data on duration in TVET institution were collected to have an insight on trainers understanding of the TVET system in the country. The long time spent in the same institution gives the trainer a well-informed status compared to those who are new in the profession. This shows that the data were collected from the right people who understand TVET better.

This is because the more time spent in TVET institution, the more information they have on TVET system and consequently the more useful information they provide. The fact that TVET trainers are within their first five years implies also the need for industrial attachment of TVET trainers because technology change every day.

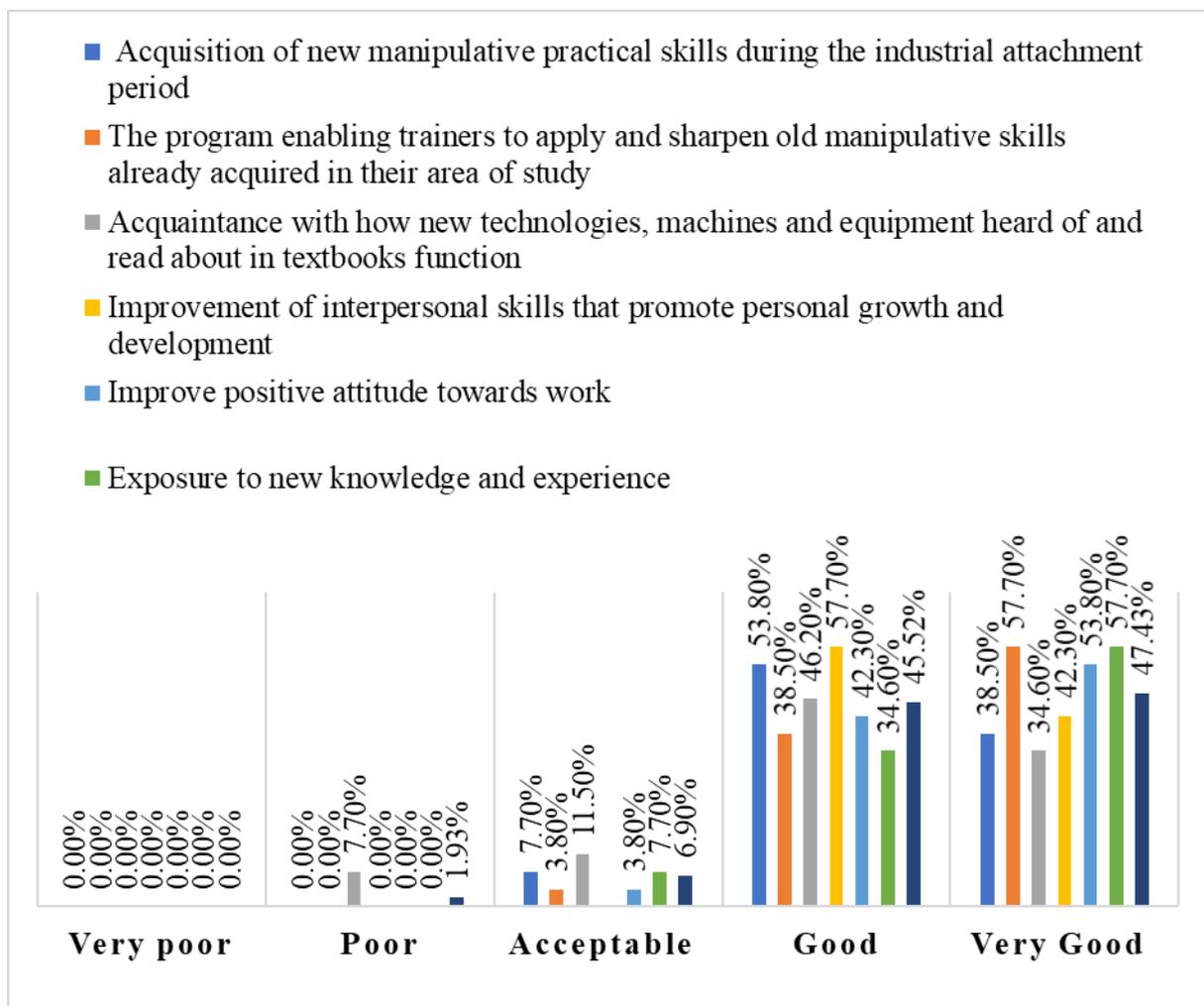
The assessment sought to know the level of satisfaction of trainers with their current salaries and benefits and it was revealed that 38.5% are somehow satisfied, 34.6% are dissatisfied and 26.9% are satisfied. The data on the level of satisfaction among respondents with their current salaries and benefits of this assessment was collected to know their stability in the current employment. This is because satisfied employees are likely to stay where they work. The views of participants saying that they eager to achieve more in terms of both level of skills and financial self-reliance is the reason why many participants have been found to be not satisfied and somehow satisfied.

### **3.1. Quality of Skills Acquired by Trainers from Industrial Attachment**

In its infancy, technical and vocational training system in Rwanda did not meet the requirements of the labour market, and there were severe shortages of skilled manpower. Government priorities are to address the shortage of skilled manpower by improving the quality and practical relevance of education at all levels; strengthening training in science and technology and higher-level management; and emphasizing vocational training. The efforts to strengthen workplace learning respond to an increasingly widespread emphasis in the Rwandan policy framework to deepen the linkages of the education sector with the world of work, and to increase the relevance of skills development through stronger partnerships with enterprises (Rwanda Development Board, 2021).

The shortage of an appropriately skilled workforce in high-growth sectors and widespread unemployment of young Rwandan labour market entrants has attracted public attention towards appropriate mechanisms. This called for enhancement of the quality of skills development, improvement of employability of graduates, and to find ways to swiftly react to changing skills needs in the Rwandan economy. One of the ways to do this is to ensure that trainers acquire quality and market-relevant skills through Industrial experience (academia and industry linkage). Learning in the workplace through industrial attachments is generally considered instrumental resource to achieve these goals.

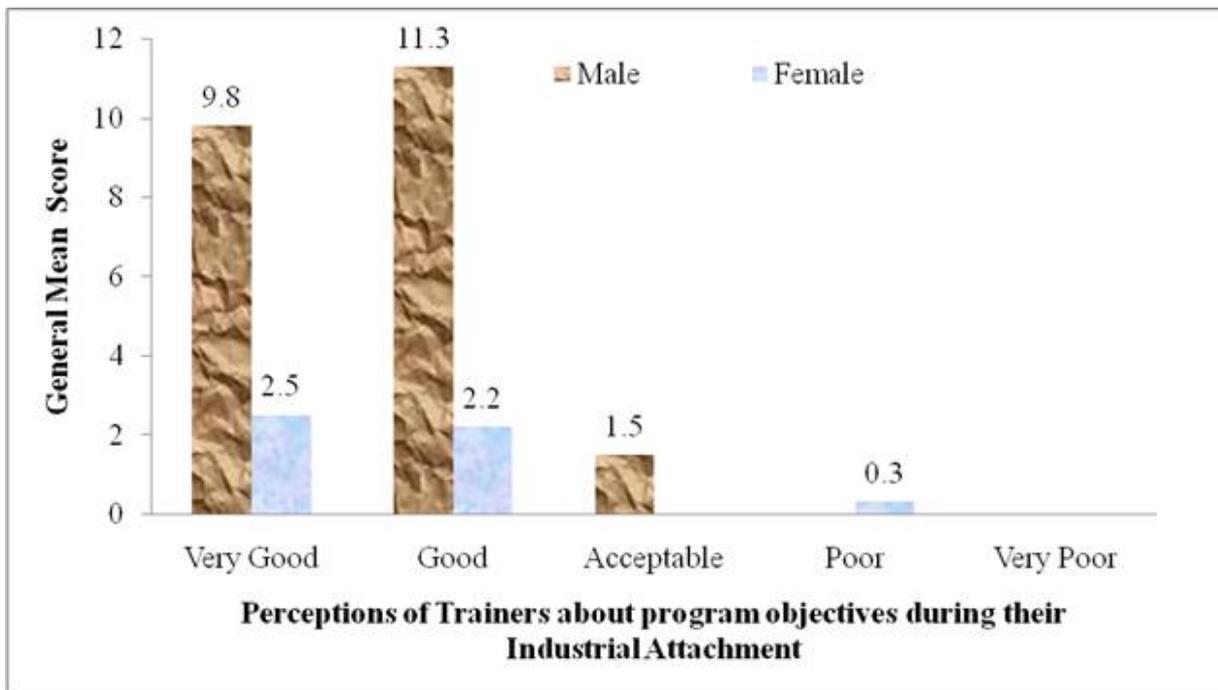
It is for this reason that this assessment considered quality of Skills acquired by Trainers from Industrial Attachment as relevant variable as portrayed by the figure below.



**Figure 3. Quality of Skills Acquired by Trainers from Industrial Attachment**

Source: *Field data, 2021*

The figure 3 about the quality of skills acquired by trainers from industrial attachment indicates that the majority of trainers mainly have a very good perception with regard to the exposure to new knowledge and experience (57.70%), improvement of positive attitude towards work (53.80%), being enabler to apply and sharpen old manipulative skills already acquired in their area of study (57.70%). As depicted by table 1 above, in all indicators showing the quality of skills acquired by trainers from industrial attachment, male (80.80%) represents the majority compared to female (19.20%). The root cause of the male predominance in this industrial is associated with the availability of many male trainers in RP/IPRCS. In view of continuously develop maximum learning ability and attitude towards TVET graduates employability, TVET Schools and IPRC representatives as well as host companies agreed that regular training will help the trainers to provide the needed skills and knowledge at labor market.



**Figure 4. Overall perception of trainers about quality of skills acquired during IAP**

Source: *Field data, 2021*

The assessment sought to know the perceptions of trainers about element of quality of skills acquired from industrial attachment with regard to sex (**figure 4**). It was indicated that male trainers have had positive perception while female have had poor perceptions about element of quality of skills acquired. This was especially on the element of acquaintance with how new technologies, machines and equipment heard of and read about in textbooks function.

### **3.2. Acquired Hands on Performance Compared to Module Delivery**

The most important element in a training situation is the competent trainer. The trainer who is enthusiastic, energetic and genuinely interested in both the subject and getting the knowledge transferred will evoke the greatest response from the trainees. It is in this regard, trainers’ hands on performance Compared to Module Delivery was considered as crucial element to consider when assessing the impact of industrial attachment of Trainers in Rwanda Polytechnic. During interviews, it was said that the level of trainers' skills does not match with the requirements in the industry because most of them in their studies they learned through Knowledge based system while in TVET they should adopt Hands-on skills through competence-based curricula. Therefore, there is a need to improve mechanisms to support TVET trainers for industry exposure.

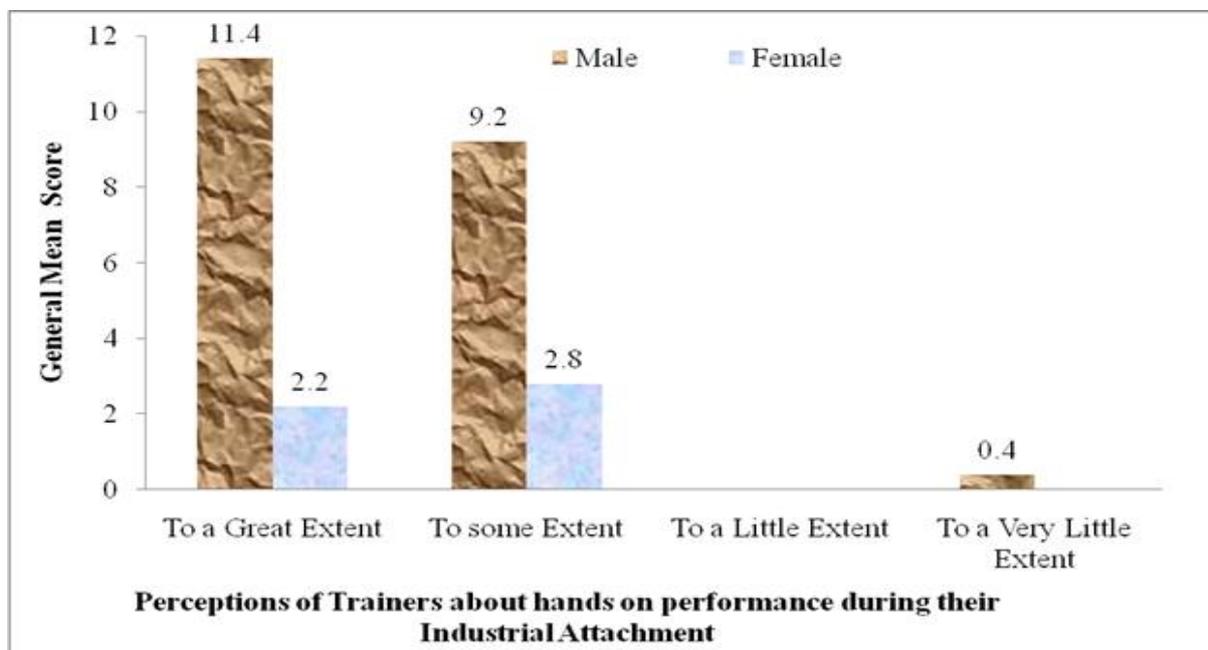
**Table 2: Acquired Hands on Performance Compared to Module Delivery**

<b>Operate machines and equipment heard of and read about in textbooks</b>				
	To a large extent	To a moderate extent	To a small extent	Total
<b>Male</b>	23.1%	50.0%	7.7%	80.8%
<b>Female</b>	7.7%	11.5%		19.2%
<b>Total</b>	30.8%	61.5%	7.7%	100.0%
<b>Acquisition of new skills relating to area of study</b>				
	To a large extent	To moderate extent		Total
<b>Male</b>	46.2%		34.6%	80.8%
<b>Female</b>	11.5%		7.7%	19.2%
<b>Total</b>	57.7%		42.3%	100.0%
<b>Sharpening of old skills already acquired in area of study</b>				
	To a large extent	To moderate extent		Total
<b>Male</b>	46.2%		34.6%	80.8%
<b>Female</b>	11.5%		7.7%	19.2%
<b>Total</b>	57.7%		42.3%	100.0%
<b>Correctly accomplishing practical assignments given by the workplace supervisors</b>				
	To a large extent	To moderate extent		Total
<b>Male</b>	53.8%		26.9%	80.8%
<b>Female</b>	11.5%		7.7%	19.2%
<b>Total</b>	65.4%		34.6%	100.0%
<b>Effectively teach the practical component of courses in teaching sessions.</b>				
	To a large extent	To moderate extent		Total
<b>Male</b>	50.0%		30.8%	80.8%
<b>Female</b>	-		19.2%	19.2%
<b>Total</b>	50.0%		50.0%	100.0%

Source: *Field data, 2021*

The table 2 about acquired hands on performance compared to module delivery during industrial attachment programme indicates that the majority of trainers at large extent appreciate correctly accomplishing practical assignments given by the workplace supervisors (65.4%), sharpening of old skills already acquired in area of study (57.7%), acquisition of new skills relating to area of study (57.7%), effectively teach the practical component of courses in teaching sessions (50.0%) as key features of operation during trainers industrial attachment. Though the majority at large extent appreciate the above mentioned industrial attachment activities, operating machines and equipment (30.8%) need to be improved. In this section, the respondents clearly indicated that the industrial attachment has considerably improved the trainers' ability to deliver the practical training to the trainees in their institutions. These findings were supported by views of Host Companies where they say that level of trainers' skills is sufficient to train trainees. Though there is a need for regular training (both in-house

and off job training) for trainers in order to update them with the knowledge and skills required at labour market. This is due to technology dynamics and changes that calls for trainers regular skills upgrading to understand new skills and technologies from industries.



**Figure 5. Trainers ‘perception on hands-on performance**

*Source: Field data, 2021*

An effort was made to highlight the perceptions of trainers about element of hand on performance with regard to sex disaggregation. The figure 5 above depicts that male trainers have appreciated the hand-on performance more than their fellow female. But in general hand-on performance was perceived to be at some extent by some trainers and in addition to that, the majority of trainers said that it was at great extent.

This implies that hand on performance was obviously seen by trainers as essential steps in industrial attachment though other activities involved are also considered to be essential.

### **3.3. Industrial Attachment facilities for Quality of Workplace Learning**

Responsibility for the facilitation of attachments and internships usually rests in hands of TVET institutions (Rwanda polytechnic in case of the trainers’ industrial attachment of reference). Receiving institutions need to be appropriately resourced to fulfil their tasks. Functions for such body should include mobilization of companies and facilitation of their involvement in training and learning, development of workplace learning programs. This must be done in accordance with labour market needs, quality assurance of workplace learning, and possibly the management of incentive schemes. It is in this context, the perception of trainers about

element of facilitation process has been regarded as necessary point to consider when assessing the impact of industrial attachment in of trainers.

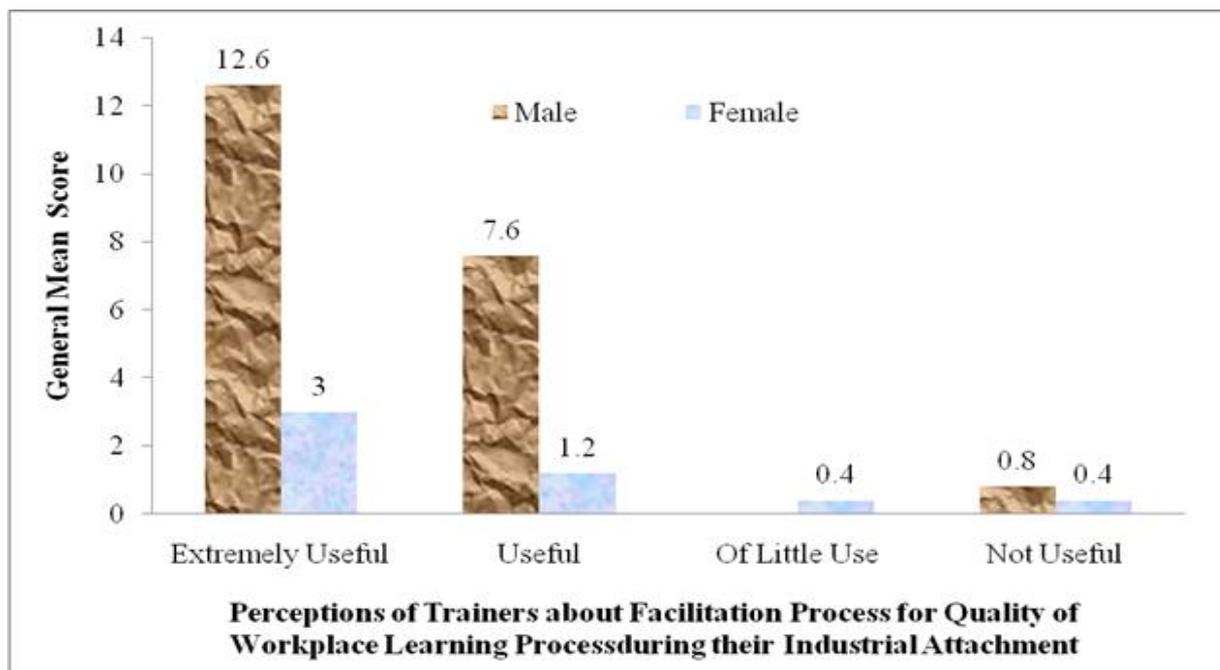
**Table 3: Perception about Industrial Attachment Facilities**

<b>Industrial attachment produces a clear result that is commonly understood and supported by all participants</b>				
	Of little use	Useful	Extremely useful	Total
<b>Male</b>	-	30.8%	50.0%	80.8%
<b>Female</b>	3.8%	3.8%	11.5%	19.2%
<b>Total</b>	3.8%	34.6%	61.5%	100.0%
<b>Interaction and sharing of experiences and problems with industry staff results in quality workplace learning</b>				
	Useful	Extremely useful	Total	
<b>Male</b>	34.6%	46.2%	80.8%	
<b>Female</b>	3.8%	15.4%	19.2%	
<b>Total</b>	38.5%	61.5%	100.0%	
<b>To know the contribution of industry to national skills development</b>				
	Useful	Extremely useful	Total	
<b>Male</b>	38.5%	42.3%	80.8%	
<b>Female</b>	3.8%	15.4%	19.2%	
<b>Total</b>	42.3%	57.7%	100.0%	
<b>Visits made by RP management to see how trainers benefit from the program help to improve the workplace learning process</b>				
	Useful	Extremely useful	Total	
<b>Male</b>	15.4%	65.4%	80.8%	
<b>Female</b>	7.7%	11.5%	19.2%	
<b>Total</b>	23.1%	76.9%	100.0%	

Source: *Field data, 2021*

In light of findings from the table 3 about the perception of trainers and the element of facilitation process during industrial attachment. It is appeared that the majority of the surveyed trainers confirmed that these elements counting one by one were extremely useful. Regarding their level of extent and frequency of trainers in appreciating them indicates that visits made by RP management to see how trainers benefit from the program were helpful to improve the workplace learning process.

During Key Informant Interviews, it was found that IAP is done through partnership between TVET Schools and IPRCs and stakeholders. Rwanda Polytechnics has Memorandum of Understanding with host companies in which the institution should provide some short training to industry employee. They also said that the trainers help the host companies to produce some products during industrial attachment program. The hosting companies' also profits the research done by trainers during industrial attachment that may be used for others purpose of the companies.



**Figure 6. Trainers' perception about Quality of Workplace Learning Process Facilities**

*Source: Field data, 2021*

Findings from figure 6 above about the overall perception of trainers on Industrial Attachment facilitation process for quality of workplace learning process with regard to sex disaggregation indicates that the majority either male or female saw the usefulness of the facilitation process. Though we cannot forget a small proportion of trainers who considers the facilitation process was not useful especially incentives provided by responsible institutions to trainers for a good accomplishment of industrial attachment. This as it was justified by the reason that the majority of trainers complained about the delay of the planned allowance.

### **3.4. Training Materials and Consumables for Practical Knowledge**

One of the expected outcomes of industrial attachment is practical knowledge or hands on skills for trainers. In TVET training and learning approach, this ambitious target requires availability and proper use of consumables for trainers. Therefore, this assessment took into consideration

the availability of Training material and consumables for effective and efficient industrial attachment.

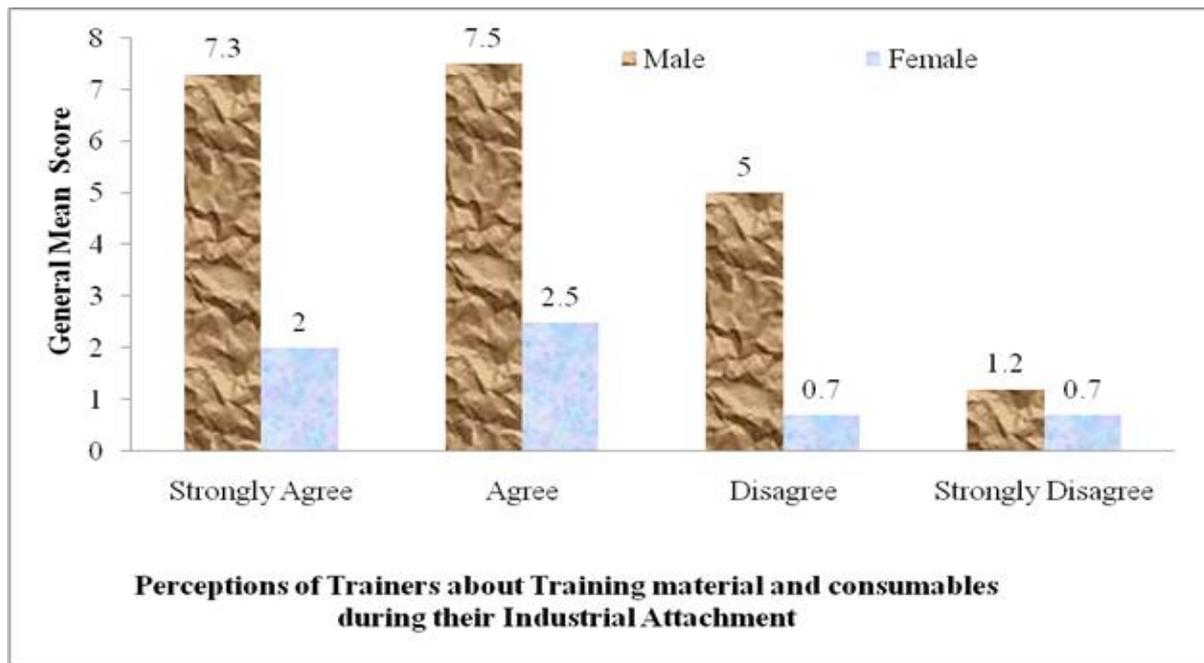
**Table 4: Perceptions of trainers about training material and consumables**

<b>Company has machines and equipment to work</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	30.8%	46.2%	3.8%	-	80.8%
<b>Female</b>	7.7%	7.7%	-	3.8%	19.2%
<b>Total</b>	38.5%	53.8%	3.8%	3.8%	100.0%
<b>Training consumables were available whenever needed</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	7.7%	65.4%	7.7%	-	80.8%
<b>Female</b>	3.8%	11.5%	-	3.8%	19.2%
<b>Total</b>	11.5%	76.9%	7.7%	3.8%	100.0%
<b>The success to machine and equipment was always granted</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	7.7%	7.7%	50.0%	15.4%	80.8%
<b>Female</b>	-	11.5%	3.8%	3.8%	19.2%
<b>Total</b>	7.7%	19.2%	53.8%	19.2%	100.0%
<b>The in-company supervisors were there to help in case of new machine and equipment</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	15.4%	11.5%	42.3%	11.5%	80.8%
<b>Female</b>	7.7%	3.8%	3.8%	3.8%	19.2%
<b>Total</b>	23.1%	15.4%	46.2%	15.4%	100.0%
<b>The availability of industrial attachment liaison officer positively affects the program</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	38.5%	30.8%	11.5%	-	80.8%
<b>Female</b>	-	11.5%	7.7%	-	19.2%
<b>Total</b>	38.5%	42.3%	19.2%	-	100.0%
<b>Visits made by RP management to see how trainers benefit from the program are necessary</b>					
	Strongly agree	Agree	Disagree	Strongly disagree	Total
<b>Male</b>	69.2%	11.5%	-	-	80.8%
<b>Female</b>	19.2%	-	-	-	19.2%
<b>Total</b>	88.5%	11.5%	-	-	100.0%

Source: *Field data, 2021*

By considering the results of assessment as portrayed in the table 4 above, regarding perceptions of trainers about training material and consumables, the majority of the surveyed trainers agreed that all six elements that constitute availability and effective use of training

materials and consumables were relevant and available during practical sessions. On the other hand, there were some trainers who disagreed. This is mainly confirmed by the fact that access to machines and equipment was not always granted as presented by 53.8% of the surveyed trainers. In addition to this position, 46.2% of the surveyed trainers disagreed that in company supervisors were there to help in case of new machine and equipment. In this assessment, it was remarked that granting access to machines and equipment was a problem in 5 host companies, equivalent to 35.7% among 14 host companies considered in this assessment.



**Figure 7. Trainers’ Perception on Availability of Training Materials and Consumables**

*Source: Field data, 2021*

The analysis went further to find out overall perceptions of trainers about Training material and consumables with regard to Sex disaggregation based on general average score shows that both male and female mainly agreed on the way training was offered with regard to availability of training materials and consumables. The figure 7 above also indicates that in both sexes, there were some trainers who strongly disagreed or disagreed about the available training materials and consumables. This was related to factors like inadequate access to machines and equipment. The analysis of an open question annexed to this question shows that attached trainers were denied access to machines only in special period when companies’ operations were very urgent due to high demand of client, and during these occasions, only ordinary staff were allowed to operate the machines.

### 3.5. TVET Trainers' Attitude in the eyes of host companies

During industrial attachment, host companies play a significant role in providing trainers with the ability to relate theory to practice, and to enable them to go out to prepare their students for success in further education and the workplace. The undertaken research went further to explore the perception of host companies about trainer's attitude towards successful industrial attachment.

#### 3.5.1 Perception of host companies about trainers' attitude

Effective trainers continuously practice and show positive attitudes in eyes of them in-company supervisors that were assigned by host companies. The table 5 below is meant to assess perceptions of host companies about trainers 'attitude towards successful industrial attachment.

**Table 5: Perception of Host Companies about trainers' Attitude during IAP**

<b>Trainers' Attitude</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
Trainers felt too big to take instructions from supervisors	37.5%	37.5%	12.5%	12.5%
Trainers reported in good time each day for work	-	-	37.5%	62.5%
Trainers usually closed before the official closing time	37.5%	37.5%	12.5%	12.5%
Trainers were regular at work	-	-	25%	75%
Trainers showed willingness to accept new ideas	-	-	37.5%	62.5%
Trainers were curious in learning new skills	-	-	25%	75%
Trainers adhered to rules and regulations of the organization	-	-	37.5%	62.5%
Trainers observed workplace safety regulations each time they were working	-	-	50%	50%
Trainers had good relationship with colleagues	-	-	50%	50%
Trainers showed respect towards senior officers of the organization	-	-	50%	50%
Trainers had good emotional control	-	12.5%	62.5%	25%
Trainers acknowledge their strengths and weaknesses	-	-	37.5%	62.5%
The trainers acknowledge their knowledge gap and agreed with in companies supervisors	-	-	37.5%	62.5%

Source: *Field data, 2021*

The findings of the assessment as described in the table 6 above regarding perceptions of host companies about trainers' attitude indicated that generally trainers have had encouraging attitude that lead to successful industrial attachment. This is mainly confirmed by the fact that trainers were curious in learning new skills and they were regularly at work during industrial attachment program as all these attitudes were seen by 6 host companies represented by 75%. Advantageous attitude in this program was also substantiated by the following attitude among others: they reported always on time each day for work, they showed willingness to accept new ideas, they adhered to rules and regulations of the organization, and they acknowledged their strength and weaknesses, as well as their knowledge gap and manifested cooperation with in-company supervisors. The availability of a conducive attitude in this industrial attachment means that trainers were eager to acquire new technologies relevant to the labour market.

### **3.5.2 Merits of Trainers' Industrial Attachment Program by host companies**

During industrial attachment program, host companies also appreciated the following aspects of trainers' industrial attachment:

- ✓ Trainers expressed interest in work and performed well the tasks assigned to them by in company supervisors
- ✓ Trainers showed maximum discipline and were excelled during at learning
- ✓ Companies were able to network with TVET Schools,
- ✓ Companies benefited from additional knowledge especially theoretical aspects of the work,
- ✓ Companies got chance to showcase their technologies.
- ✓ Industrial attachment enhanced host companies in increasing skill levels and knowledge base through research.

Appreciation of the programme by host companies in Trainers Industrial Attachment Program is a good indicator that there were mutual benefits. The programme should build on this goodwill and increase participating host companies and contribute to Government of Rwanda's ambition of scaling up the number of TVET trainers with skills relevant to the labour market.

### **3.6. Comparison of performance of attached and non-attached trainers**

The School managers have presented their views on the performance by comparing the attached and non-attached trainers during the module delivery. This is especially in the delivery of hand-on skills and machines, tools and equipment use in accordance to the way they must be used in

the labour market. The school managers also added that the attached trainers understand better the link between theory and practices in line with the labour market needs. They continued by saying that the attached trainers are able to give concrete examples than their peers who did not, while explaining the theories as they are used on labour market. The trainers who did not go for attachment face challenges in linking the theories and the hand-on skills used in labour market. Benefits of workplace learning also extend to TVET practitioners who remain the key ‘connective specialists’ (Young & Guile 1997), linking educational institutions and the workplace. Industrial attachment is seen as an effective professional development activity for TVET practitioners to maintain the currency of their vocational knowledge and expertise including their knowledge of technologies and practices commonly used in contemporary workplaces (Loveder 2005). This ongoing development is necessary because the role of TVET practitioners is constantly changing.

### **3.7. Comparison of practical training delivery before and after industrial attachment**

Industrial attachments typically involve training providers and industries (through employers) forming partnerships to offer situated learning opportunities in the workplace so that learners and Technical Vocational Education and Training (TVET) practitioners have access to authentic experiences that only the workplace can offer.

In this impact assessment, we wanted to compare the quality of practical training by the trainers before and after industrial exposure. The findings are presented in the table below.

**Table 6. Trainers hand-on skills before and after industrial attachment.**

Quality of training indicators	Before industrial attachment				After industrial attachment			
	Poor	Fair	Good	Very good	Poor	Fair	Good	Very good
Training delivery in line with labour markets needs	11.9%	36.0%	34.9%	17.2%	4.0%	7.4%	32.7%	55.9%
Training the trainees on standards of workplace	10.8%	36.7%	50.3%	2.2%		5.8%	54.6%	39.6%
Installation and operation of machines and equipment during practical training		54.6%	39.6%	5.8%	10.8%	2.2%	36.7%	50.3%
The basics of workplace safety and environmental protection during practical training	4.0%	32.8%	55.9%	7.3%	11.9%	17.2%	36.0%	34.9%

The findings presented in the table 6 are showing the respondents how the trainers rank their hand-on skills before and after industrial exposure. In general, looking at these findings it is evident that the trainers had benefited a lot from industrial attachment in terms of hand-on skills.

Industrial attachment is not only critical for trainees, it is equally important to teachers, trainers and instructors (who are referred to as ‘TVET practitioners’ in this section). The term ‘industrial attachment’ is commonly used in Asian and African TVET systems to describe arrangements allowing VET practitioners to replenish and update their skills. In other countries it is called on-the-job learning for teachers and trainers (e.g. Finland), return or back to industry programs (e.g. Australia) and industry placements or secondments (e.g. United Kingdom).

### **3.8. Challenges affecting Industrial Attachment**

Considering progress made by Rwanda Polytechnic and stakeholders towards successful industrial attachment for trainers, trainers claim to have the ability to train students who will compete successfully on the labour market.

### 3.8.1 Trainers' challenges During Industrial Attachment Program

In this assessment, trainers revealed some challenges and also proposed adaptation strategy that can be put in place to ensure successful achievement of the desired ambitious outcomes as defined in this section.

**Table 7 : Challenges affecting Industrial Attachment of Trainers**

<b>Trainers do not have free access to machines and equipment to work with</b>					
	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>Male</b>	-	11.5%	38.5%	30.8%	80.8%
<b>Female</b>	-	15.4%	-	3.8%	19.2%
<b>Total</b>	-	26.9%	38.5%	34.6%	100.0%
<b>Trainers spend a lot of money in traveling from their homes to the workplace</b>					
	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>Male</b>		26.9%	46.2%	7.7%	80.8%
<b>Female</b>	7.7%	3.8%	3.8%	3.8%	19.2%
<b>Total</b>	7.7%	30.8%	50.0%	11.5%	100.0%
<b>Firms/industries are suspicious of Trainers on the attachment program</b>					
	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>Male</b>	-	3.8%	61.5%	15.4%	80.8%
<b>Female</b>	-	-	11.5%	7.7%	19.2%
<b>Total</b>	-	3.8%	73.1%	23.1%	100.0%
<b>Trainers spend a lot of time in finding placement for the industrial attachment</b>					
	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>Male</b>	3.8%	15.4%	50.0%	11.5%	80.8%
<b>Female</b>	-	3.8%	11.5%	3.8%	19.2%
<b>Total</b>	3.8%	19.2%	61.5%	15.4%	100.0%
<b>Supervision from workplace supervisors wasn't effective</b>					
	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>Male</b>	3.8%	15.4%	30.8%	30.8%	80.8%
<b>Female</b>	3.8%	-	7.7%	7.7%	19.2%
<b>Total</b>	7.7%	15.4%	38.5%	38.5%	100.0%

Source: *Field data, 2021*

In light of findings from the table 5 above portrays that some TVET trainers have not experienced challenges related to free access to machines and equipment (73.1%), spending a

lot of money in traveling from their homes to the workplace (61.5%), being suspicious of Trainers on the attachment program in the firm or industries (96.2%), ineffective supervision from workplace supervisors (77%). With regard to their sex, the research did not find specific challenge that can be attributed to sex of TVET trainers. But female TVET trainers have had many claims related to free access to machines and equipment compared to their fellow male trainers. When deeply assessing this issue, it was highlighted that this is associated with the capacity of some host companies, the period in which this industrial attachment was conducted where some host companies did were not having many activities that can use all available machines (not enough work).

The Rwanda Polytechnic representatives and IPRCs principles alleged that most of the companies do not have enough space to accommodate TVET Trainers for industrial attachment and Shortage of attachment places has exacerbated the attachment obstacles to trainers. Among challenges, they supported that Industrial attachment helps create labour force with practical experience and employable skills. But some private sectors are reluctant to take on trainers and do not expose them to real practical experience they need. The required skills and knowledge from companies to be transmitted to the future employees (current trainees) during industrial attachment programs. They continued by saying that the trainers complained that a conducive environment during industrial attachment need improvement and the support given by in-company supervisors during industrial attachment need improvement.

### **3.8.2 Challenges expressed by host Companies during TVET Trainers' Industrial Attachment Program**

The successful industrial attachment program is the results of joint effort of different stakeholders. But it is crucial to recognize the role played by host companies and their experts. It is therefore imperative to understand the challenges of host companies for successful implementation of trainers' industrial attachment program.

In this regard, it was found that some most companies were in need of support in terms of training materials and consumables, tripartite partnership between themselves, RP and trainers during IAP preparation phase. This challenge has been raised by host companies, since they want to assess the need of TVET trainers prior to hosting them. Among others, host companies have limited time to match TVET trainer's technical theory and practices. Data collected from KIIs highlighted that Industrial Attachment challenges trainers to examine the values of the company involved in the experience. It also assesses trainers' education and training activities as they relate to the labor market requirements.

Therefore, it was suggested that RP/IPRCs improve partnerships with the private companies that have technical professional experience of at least one year. These ones should be knowledgeable and have hands-on experience in the field of trainers' attachment.

### **3.8.3 Challenges expressed by RP on TVET Trainers' Industrial Attachment Program**

Industrial attachment remarkably exposes TVET trainers to new technologies and enhancement of technical expertise. This creates ability to train students who are linked with potential employers. Despite the expected results, Rwanda polytechnic still observe challenges in this journey of conducting TVET trainers' industrial attachment program. These challenges include lack of clear policy for the IAP, Strategy or guidelines to implement industrial attachment program for both TVET Trainers and Students. Another challenge expressed is related to lack of strong linkages among TEVT trainers, RP and host organisations though a step has been made. For this specific industrial attachment program, Rwanda polytechnic needs to put in place monitoring and evaluation system to ensure that TVET trainers are being given what is expected effectively.

## **4. 4. CONCLUSION AND RECOMMENDATIONS**

The overall purpose of the Impact Assessment of Industrial Attachment of Trainers was to assess how opportunities for the acquisition of quality, market-relevant skills were delivered to trainers in TVETs. The following sub-sections provide key assessment findings and recommendations.

### **4.1. Key assessment findings and conclusion**

In line with the purpose stated above, the Impact Assessment of Industrial Attachment of Trainers 'major findings are as follows:

#### **(1) Quality of skills acquired by trainers from industrial attachment,**

The Majority among trainers had positive impression of program objectives, derived from what they said were benefits from participating in the program:

- Enabling trainers to apply and sharpen old manipulative skills already acquired in their area of study,
- Exposure to new knowledge and experience,
- Improve positive attitude towards work.

The assessment also found that trainers previously had poor perceptions about certain elements of quality of skills acquired. On the element of acquaintance with how new technologies, machines and equipment heard of and read about in textbooks function.

#### **(2) Acquired trainers' hands on performance compared to module delivery**

Operate machines and equipment heard of and read about in textbooks was seen to have a little significance in terms of perceptions with respect to Likert scale levels of measurement. Contrary to this element, there were three elements agreed upon to a great significance. Those elements are:

- Acquisition of new skills relating to area of study;
- Sharpening of old skills already acquired in area of study,
- Correctly accomplishing practical assignments given by the workplace supervisors.

#### **(3) Industrial attachment facilitation process for quality of workplace learning process,**

Surveyed trainers acknowledged that several elements were beneficial. Regarding level of significance and frequency of trainers in appreciating them indicated that visits made by RP management to see how trainers benefit from the program were helpful to improve the workplace learning process.

#### **(4) Availability of training materials and consumables for the trainers to get practical knowledge.**

The majority of surveyed trainers agreed that all six aspects that constitute availability and effective use of training materials and consumables were relevant and available during practical sessions. However, some trainers differed. Disagreement was with respect to access to machines and equipment which was not always granted as presented by 53.8% of the surveyed trainers. Additionally, 46.2% of the surveyed trainers felt that company supervisors were there to help in case of new machine and equipment handling.

#### **(5) Industrial attachment challenges and proposed recommendations**

The majority of trainers did not express consensus with all the variables under study. Challenges highlighted in the table 5 and figure 8 indicate that supervision from workplace supervisors wasn't effective (38.5%), Trainers did not have free access to machines and equipment to work with (34.6%) and firms/industries were suspicious of trainers on the attachment program (23.1%).

On the other hand, the assessment revealed that some trainers agreed that they faced challenges during their training sessions some of them are depicted in table 5 include the following : Trainers spend a lot of time in finding placement for the industrial attachment was agreed upon by 38.5% of trainer (30.8% agreed and 7.7% strongly agreed), this challenge is accompanied by the fact that trainers spent a lot of money in traveling from their homes to the host companies agreed upon by 34.6% (19.2% agreed and 15.4% strongly agreed). Beside challenges, host companies also proposed some changes to be introduced in trainer's industrial attachment; among those proposed changes there were to support hosting companies to get sufficient training materials and consumables and tripartite partnership between them, RP and trainers during IAP preparatory phase.

In nutshell, industrial attachment of trainers has been appreciated by both trainers and host companies since its beginning. Though there were some aspects that were found to be hindering, their effect was minor compared to positive aspects including but not limited to trainers 'attitude as perceived by host companies as well as eager spirit of trainers to acquire new technologies on the ground through workplace learning.

Therefore, market relevant skills acquired through industrial attachment will contribute to the tremendous journey towards Rwanda's Priority Skills for Growth.

## **4.2. Recommendations**

In relation to the Impact Assessment of Industrial Attachment of Trainers major findings, and conclusion, the following recommendations are formulated:

### **4.2.1 Short term Recommendations**

- Ensure that host companies have adequate facilities to accommodate participation of trainers before deployment including those near the TVET schools where trainer reside;
- Incentivize<sup>1</sup> competent host companies with a view of attracting more companies in the programme;
- There should be selection of adequate companies before sending trainers on IAP;
- There should be planning before sending trainers on IAP to make sure they are sent when it is the right time companies are using consumables to avoid companies' requirements of extra consumables;

### **4.2.2 Long term recommendations**

- Establish and strengthen an industrial attachment model that includes a tripartite partnership involving Rwanda Polytechnic (trainers), Private Sector and trainers;
- Establish and strengthen industrial attachment continuous funding model for TVET trainers to ease facilitation of trainers;
- Develop industrial attachment policy, strategy or guidelines to ensure effective and efficient harmonized industrial attachment delivery
- Ensure close collaboration with private sector in curriculum development in order to align future of TVET trades with future technologies as well as future of work;
- Develop and operationalize a thriving skills ecosystem to attract investments and to partnerships with Rwanda Polytechnic in trainers 'industrial attachment Program.

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<sup>1</sup> Reducing tax among others

### 4.3. Policy action matrix

S/N	Key challenges	Action plan
<b>For trainers</b>		
1.	Insufficient materials and consumables for trainers industrial attachment	Planning before and select companies that are able to host trainers and give them the best of industrial attachment
2.	High cost of travel to the host companies and to the operation sites	Provides trainers with transport facility early enough to be used during this period
3.	Short training period to cover all needed skills	Put in place the scheduling of trainers industrial attachment by increasing the time spent in industries preferably by rotational way
4.	Lack of modern materials and equipment in schools to apply acquired skills compared to those in host companies	To upgrade the materials and equipment of TVET institutions gradually so as to facilitate the trainers apply the acquired knowledge in their training sessions.
<b>For Companies</b>		
1.	Insufficient companies to host trainers	The companies should be incentivised to promote more companies to host trainers
2.	Insufficient facilities for the companies to host trainers	Ensure that host companies have adequate facilities to accommodate trainers before deployment, including those near the TVET schools where trainer reside
3.	Lack of preparedness and inclusiveness	Establish and strengthen an industrial attachment model that includes a tripartite partnership involving Rwanda Polytechnic, Private Sector and trainers
<b>For direct supervisor/RP</b>		
1.	High financial implication	Establish and strengthen industrial attachment continuous funding model for TVET trainers to ease facilitation of trainers
2.	Lack of stakeholders and sponsors to fund the trainers industrial attachment	Develop and operationalize a thriving skills ecosystem to attract investments and to partnerships with Rwanda Polytechnic in trainers' industrial attachment Program
3.	Lack of staff in charge of trainers' IAP supervision	Appointment of staff in charge of trainers' IAP

Source: *Author's compilation, 2021*

## REFERENCES

- Alassafi, Madini & Alshdadi, Abdulrahman & Walters, Robert & Wills, Gary. (2017). A Framework for Critical Security Factors that Influence the Decision of Cloud Adoption by Saudi Government Agencies. *Telematics and Informatics*, Elsevier. 31. 10.1016/j.tele.2017.04.010.
- Bhandari, P. (2020). *An Introduction to Qualitative Research*.
- GIZ. (2021, June 16). *Brief Description of the Technical and Vocational Education training (TVET) System in Rwanda*.
- Han, K.-T., Park, E.-C., Kim, J.-H., Kim, S. J., & Park, S. (2014, August 08). Is marital status associated with quality of life? *Health Quality Life Outcomes*, 12(209). doi:<https://doi.org/10.1186/s12955-014-0109-0>
- MIFOTRA. (2011). *Workplace Learning Policy*. Retrieved from Rwanda Trade Portal: <https://rwandatrade.rw/media/2015%20MIFOTRA%20Workplace%20Learning%20Policy.pdf>
- Patton, M. Q. (1990). *Qualitative Assessment and Research Methods*. Newbury Park, Calif.: Sage Publications.
- Rwanda Development Board. (2021, June 30). *National Skills Development and Employment Promotion Strategy 2019-2024*. Retrieved from Rwanda Development Board: <https://rdb.rw/wp-content/uploads/2019/07/NSDEPS.pdf>
- Selinger, H. W., & Shohamy, E. (1989). *Second Language Research Methods*.
- Van Tonder, E., & Ethlers, L. (2011). Factors threatening the survival of independent financial advisers in their organizational life: an explanatory study. *South Africa Journal of Economic and Management Science*, 2(14), 155-169.
- Zikmund, G. W., Babin, J. B., Carr, C. J., & Griffin, M. (2010). *Business Research Methods* (8 ed.). Mason, HO: Cengage Learning.

# ANNEXES

## Annex 1: Stakeholders to be involved during implementation of Recommendations

Recommendations for implementation	Stakeholders to be Involved
Ensure that host companies have adequate facilities to accommodate participation of trainers before deployment including those near the TVET schools where trainer reside	<b>RP(Lead)</b> ,PSF,RDB,NESA, Development Partners
Incentivize competent host companies with a view of attracting more companies in the programme	<b>RP(Lead)</b> ,PSF,BDF,RRA,NESA,MINICOM,MINECOFIN,BRD
selection of adequate companies before sending trainers on IAP	<b>RP(Lead)</b> ,PSF,RDB,NESA, Development Partners
Planning before sending trainers on IAP to make sure they are sent when it is the right time companies are using consumables to avoid companies' requirements of extra consumables	<b>RP(Lead)</b> ,PSF,RDB, MIFOTRA ,NESA
Develop industrial attachment policy, strategy or guidelines to ensure effective and efficient and harmonized industrial attachment delivery	<b>MINEDUC(Lead)</b> , MIFOTRA ,RP, RTB, PSF, RDB, NESA
Establish and strengthen an industrial attachment model that includes a tripartite partnership involving Rwanda Polytechnic (trainers), Private Sector and trainers	<b>MINEDUC(Lead)</b> , MIFOTRA ,RP, RTB, PSF, RDB, NESA
Establish and Strengthen industrial attachment continuous funding model for TVET trainers to ease facilitation of trainers	<b>RP(Lead)</b> ,PSF,RDB
Ensure close collaboration with private sector in curriculum development in order to align future of TVET trades with future technologies as well as future of work	<b>RP (Lead)</b> , MINEDUC, MIFOTRA , RTB, PSF, RDB, NESA
Develop and operationalize a thriving skills ecosystem to attract investments and to partnerships with Rwanda Polytechnic in trainers 'industrial attachment Program	<b>RP (Lead)</b> , MINEDUC, MIFOTRA , RTB, PSF, RDB, NESA

## **Annex2: Trainers' Industrial Attachment Impact Assessment Questionnaire**

Dear participant,

My name is .....and I am working with the RMI (Rwanda Management Institute). RMI in partnership with RP (Rwanda Polytechnic) are conducting a trainer's industrial attachment Impact Assessment to assess the outcome of the pilot phase of trainers' industrial attachment program.

We will treat all data and responses confidentially and your personal data will not be shared with anyone and the provided information / responses will be analysed anonymously and used for this purpose only. The interview will take approximately 15 minutes.

### **SECTION A. QUESTION FOR TRAINERS**

#### **Part I. Personal Data**

1. What is your Sex?

<b>Female</b>	
<b>Male</b>	

2. What is your age bracket?

Below 25	
25-30	
31-35	
36-40	
41-45	
46-50	
Above 50	

3. What is your marital status?

Single	
Married	
Widow(er)	
Divorced	
Cohabitation	

4. How many dependants do you have

1-3	
4-5	
Above 5	

5. What is your TVET School .....

6. How long have you been working in TVET sector? (in years)

Below 1	
1-3	
4-6	
7-9	
10-12	
13-15	
16-18	
19-20	
Above 20	

7. At which level are you satisfied with your current salary and benefits?

Not at all satisfied	
Dissatisfied	
Somehow satisfied	
Satisfied	
Very satisfied	

8. What was your host company during IAP?

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**PART I: THE QUALITY OF SKILLS ACQUIRED BY TRAINERS FROM INDUSTRIAL ATTACHMENT**

5. How do you rate the quality of skills acquired from industrial attachment?

Please, put a check (√) in the appropriate cell that most adequately reflects your view in relation to the given statement. 5= Very Good, 4=Good, 3=Acceptable, 2=Poor, 1=Very

<b>Element of quality of skills acquired by trainers from IAP</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. Acquisition of new manipulative practical skills during the industrial attachment period					
2. The program enabling trainers to apply and sharpen old manipulative skills already acquired in their area of study					
3. Acquaintance with how new technologies, machines and equipment heard of and read about in textbooks function					
4. Improvement of interpersonal skills that promote personal growth and development					
5. Improve positive attitude towards work					
6. Exposure to new knowledge and experience					

Any other comment.....

**PART II: ACQUIRED TRAINERS' HANDS ON PERFORMANCE COMPARED TO MODULE DELIVERY**

6. To what extent do you perceive the hands-on performance acquired during industrial attachment?

Please, put a check (√) in the appropriate cell that most adequately reflects your view in relation to the given statement. 5=To a Large extent, 4=To a Moderate Extent 3=To a Small Extent, 2=To a Very Small Extent, 1=To an Extremely Small Extent.

<b>Elements of hand on performance</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. Operate machines and equipment heard of and read about in textbooks					
2. Acquisition of new skills relating to area of study					
3. Sharpening of old skills already acquired in area of study					
4. Correctly accomplishing practical assignments given by the workplace supervisors					
5. Effectively teach the practical component of courses in teaching sessions.					

Any other comment .....

**PART III: INDUSTRIAL ATTACHMENT FACILITATION PROCESS FOR QUALITY OF WORKPLACE LEARNING PROCESS**

To what extent do you perceive the usefulness of the program?

Please, put a check (√) in the appropriate cell that most adequately reflects your view in relation to the given statement. 4=Extremely useful, 3=Useful, 2=Of little use, 1=Not useful

<b>Element of facilitation process</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. The responsible institutions provide incentives to trainers for a good accomplishment of industrial attachment				
2. Industrial attachment produces a clear result that is commonly understood and supported by all participants				
3. Interaction and sharing of experiences and problems with industry staff results in quality workplace learning				
4. To know the contribution of industry to national skills development				
5. Visits made by RP management to see how trainers benefit from the program contribute to the improvement of the workplace learning process				

Any other usefulness.....

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7. State any benefits would you appreciate for this trainers industrial attachment program

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**PART III: THE AVAILABILITY OF TRAINING MATERIALS AND CONSUMABLES FOR THE TRAINERS TO GET PRACTICAL KNOWLEDGE.**

What your perceptions on the availability of training materials and consumables for the trainers to get practical knowledge? Please, put a check (√) in the appropriate cell that most adequately reflects the extent to which you agree or disagree with the statement. 5=Strongly agree, 4=Agree,3=Neutral, 2=Disagree, 1=Strongly disagree

<b>Training material and consumables</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. Company have machines and equipment to work with					
2. Training consumables were available whenever needed					
3. The access to machines and equipment was always granted					
4. The company supervisors were there to help in case of new machine and equipment					

**PART IV: INDUSTRIAL ATTACHMENT OUTCOMES, CHALLENGES AND PROPOSED RECOMMENDATIONS**

**What your perceptions on the**

8. What are your views on the challenges of the program?

Please, put a tick (√) in the appropriate cell that most adequately reflects the extent to which you agree or disagree with the statement. 5=Strongly agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly disagree

<b>Element of Challenges</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. Trainers do not have free access to machines and equipment to work with					
2. Trainers spend a lot of money in traveling from their homes to the workplace					
3. Firms/industries are suspicious of Trainers on the attachment program					
4. Trainers spend a lot of time in finding placement for the industrial attachment					
5. Supervision from workplace supervisors wasn't effective					

Any other challenge

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8. State any **two (2)** changes you would like to see introduced into the trainers industrial attachment program to overcome challenges.

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**SECTION B. QUESTIONS FOR HOST COMPANIES**

**PART VI: ATTITUDE OF TRAINERS IN THE EYES OF HOST COMPANIES**

**(This part is to be completed by in-company supervisors *only*)**

This section seeks to find out how you perceive the attitude of the Trainers. Please, put a check (√) in the appropriate cell that most adequately reflects the extent to which you agree or disagree with the statement. 5=Strongly agree, 4=Agree,3=Neutral, 2=Disagree, 1=Strongly disagree

<b>Element of trainers' Attitude</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1. Trainers felt too big to take instructions from supervisors					
2. Trainers reported in good time each day for work					
3. Trainers usually closed before the official closing time					
4. Trainers were regular at work					

5. Trainers showed willingness to accept new ideas					
6. Trainers were curious in learning new skills					
7. Trainers adhered to rules and regulations of the organization					
8. Trainers observed workplace safety regulations each time they were working					
9. Trainers had good relationship with colleagues					
10. Trainers showed respect towards senior officers of the organization					
11. Trainers had good emotional control					
12. Trainers acknowledge their strengths and weaknesses					
13. The trainers acknowledge their knowledge gap and agreed with in companies supervisors					

14. State any **two (2)** changes you would like to see introduced into the trainers industrial attachment program.

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15. State any merits would you appreciate for this trainers industrial attachment program

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### **Annex 3: Interview Guide**

This interview guide will be addressed to Rwanda Polytechnic (RP) representatives and IPRCs principles

1. The status of implementation of the Trainers' Industrial Attachment Program
2. Support provided by Rwanda Polytechnic to host companies for the success of this program
3. The level of trainers' skills match with the requirements in the labour market.
4. Improvement needed for the delivery of trainers industrial attachment program
5. Adequacy of training being provided for graduates to come to labour market in relation to trainers skills.
6. Companies' capacity to accommodate TVET trainers for industrial attachment.
7. Importance of trainers' industrial attachment for the Private Sector for the companies to offer required support.
8. Complaints raised by trainers during industrial attachment

**Annex 4: List of Host Companies**

<b>S/N</b>	<b>Company Category</b>	<b>Company Name</b>
1	<b>Animal Health</b>	Ets Urwibutso
2		New Vision Agribusiness Farm (VAF)
3	<b>Food Processing</b>	Mukamira Dairy
4		Nyanza Milk Industry
3		Shingiro Company Ltd
4	<b>Crop Production</b>	He Works Ltd
6	<b>Electronic/Electricity</b>	Central Electrical International Ltd
7		KPGoltech
8		Fair Technology Company Ltd
9		Metha Electrical Ltd

**Annex 5: List of Trainers' TVETs**

<b>S/N</b>	<b>SCHOOLS</b>
1	EAV NTENDEZI
2	IPRC HUYE
3	EAV KABUTARE
4	KIBISABO TVET
5	TSS KINAZI
6	IPRC MUSANZE
7	EFA NYAGAHANGA
8	UMUTARA POLYTECHNIC GAKONI
9	NGORORERO TVET SCHOOL
10	CYANIKA TVET SCHOOL

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