



The Role of Industry Partnerships and Internship Programs in TVET Institutions in Enhancing Solar Photovoltaic Industry Readiness in Uasin Gishu County, Kenya

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Abstract

The sudden rise of renewable energy, more so in the solar PV sector, increases the demand for a highly competent workforce that can install, maintain, and operate Solar PV Plants. This demand has increased calls by the industry in Kenya for work-readiness among graduates from Technical and Vocational Education and Training institutions. In Uasin Gishu County, the adoption of solar energy is increasing, making it even more relevant for TVET institutions to engage more with the industry players in preparing students for the workforce. However, despite all these initiatives, the preparedness of graduates for the demands of this industry still remains a major cause for concern due to challenges such as outdated equipment and limited industry engagement, affecting graduate readiness. This study evaluated how industry partnerships and internship programs can better prepare trainees for careers in the solar photovoltaic (PV) sector in Uasin Gishu County, Kenya. Using a descriptive survey research design, the research focused on trainers and trainees from various technical training institutions, targeting a population of



321 individuals using a stratified random sampling method to gather a representative sample of 178 participants. Data was collected through structured questionnaires and interviews. To ensure the study's integrity, pilot testing was done conducted and statistical analyses performed to confirm the validity and reliability of their instruments. Data was analysed descriptively and inferentially using SPSS version 26. The results showed a weak but statistically significant relationship between industry partnerships and internship programs and industry readiness among TVET graduates in Uasin Gishu County ($r=0.374$, $p<0.01$). Further, while industry partnerships and internship programs did have an influence on industry readiness, the effect was not statistically significant ($\beta_1= 0.209$, $p> 0.05$). Therefore, this study recommends that there is need for industries to strengthen ties and increasing practical exposure through internships and collaborative projects to better prepare trainees for the solar PV sector.

Keywords: Industry Partnerships, Internships, Solar Photovoltaic Training, TVET Institutions

Introduction

Traditional and well-established roles of Technical and Vocational Education and Training (TVET) institutions have been the very foundation for supply of a skilled workforce to various industries (Okon, 2019). Currently, renewable energy, especially solar photovoltaic technology, is the latest field of engagement for these training institutions. Rapid advancement in solar technologies, continuous cost reductions, and greater awareness of environmental issues have fueled the growth of the solar photovoltaic industry (Lucas, Pinnington & Cabeza, 2018). According to Renné, in 2022, solar photovoltaic capacity recorded an unprecedented increase of 115 GW. This is huge compared with the accumulated 70 GW over the past twenty years. The quantum leap underlines the acute need for a competent labor force who will be capable of designing, installing, and maintaining solar photovoltaic systems in response to growing demand for renewable energy. Because of this, most countries are trying very hard to make sure their TVET curricula and training methods are in line with the rapidly changing demands in the solar PV sector. For example, Germany's dual education system serves as an international benchmark for vocational education (Gessler, 2017). The blend of classroom training and hands-on apprenticeship in the system provides students with productive experience for industries like solar PV. This practical learning approach helps students gain the industry-specific skills needed for employment right after graduation. Similarly, in the Netherlands, the Energy Academy Europe initiative promotes collaboration between the



renewable energy sector and TVET institutions, enabling students to engage in internships and field-based learning that bridges the gap between theoretical knowledge and practical skills (Monavarifard & Alibaygi, 2023).). Asia has made noteworthy advancements in meeting the increasing need for expertise in solar photovoltaic (PV) technologies (Pandey et al., 2022). In India, the Skill Council for Green Jobs (SCGJ) partners with Technical and Vocational Education and Training (TVET) institutions to provide focused educational programs and internships specifically designed for the renewable energy field, thereby ensuring that graduates possess current technical competencies (Lucas, Pinnington & Cabeza, 2018; Okon, 2019; Pavlova, 2019). According to Stewart (2015). China's rapidly growing solar industry has promoted strong collaborations between Technical and Vocational Education and Training (TVET) institutions and solar enterprises, thereby guaranteeing that students obtain pertinent and hands-on training to adapt to swift technological progress (Stewart, 2015).

In North America, the United States has initiated a number of programs to close the gap in skills within the solar photovoltaic industry. The Solar Training Network is supported by the Department of Energy to provide the solar workforce with quality training and developing relationships internally in the industry. Furthermore, the NREL works in collaboration with academic institutions on curriculum development and also in conducting workforce analyses specific to the solar industry's needs (Allison, McCrory & Oxnevad, 2019).). Concurrently, Canada has established the Canadian Solar Institute, which provides applied, sector-specific instruction in solar photovoltaic technology to ensure that graduates are adequately prepared to fulfill market requirements (Athienitis, et al., 2023).

In Africa, various countries are just starting to include solar PV training into their TVET programs as a way to address local energy needs. Ghana, for example, has launched the Renewable Energy Master Plan to promote collaboration between TVET institutions and government agencies in developing solar PV training programs (Oteng, Iledare, Peprah & Gamette, 2024).). Rwanda, through its Rwanda Green Fund (FONERWA), supports workforce development by training solar PV technicians and engineers, addressing both the country's energy needs and the global demand for renewable energy expertise (Mwaba, 2021).

Kenya is also progressing in the development of a technically proficient workforce for the solar photovoltaic (PV) industry. The Kenya Off-Grid Solar Access Project (KOSAP), which receives support from the World Bank, seeks to improve energy accessibility in rural regions through the education and training of local communities and entrepreneurs in solar PV technology (Wanjiru, Njogu & Mbaka, 2020). Institutions like KTTC have introduced specialized courses in solar PV systems to make sure that students



acquire relevant practical skills upon graduation (Kiplimo, 2018). These efforts do not come without their challenges, though. Most TVET institutions in Kenya are still struggling with outdated infrastructure, insufficient funding, and a shortage of qualified instructors, limiting the effectiveness of solar PV training programs. A significant challenge confronting Technical and Vocational Education and Training (TVET) institutions globally is their ability to adapt to the swift technological advancements within the solar photovoltaic sector. Numerous institutions are impeded by antiquated equipment, insufficient exposure to industry practices, and deficiencies in faculty qualifications, factors that collectively influence the preparedness of graduates to satisfy workforce requirements (Munene, R. M. (2023). What is needed to address these issues is partnerships between TVET institutions and industry players, as well as strong internship programs. Such collaborations enable the students to acquire practical experience in current technologies and industry standards. Kiplimo (2018) showed that work experience increases the employability of the TVET graduate, while Okoye & Edokpolor (2021). emphasized that curriculum development with industry needs will definitely enable students to acquire those skills which have a greater demand in the solar PV sector.

Despite these efforts to bridge the skill gap in the solar photovoltaic industry, significant challenges remain. In Uasin Gishu County, Kenya, for instance, many TVET institutions still grapple with outdated equipment and limited industry engagement. This disconnect leads to a mismatch between the training programs offered and the actual needs of the solar PV industry, resulting in graduates who are not fully prepared to enter the workforce. This requires a deeper understanding of how industry partnerships and internship programs within the TVET institutions can be extended in order to make students better prepared for the solar PV sector. It thus follows that, in the years to come, TVET will lie at the very heart of the emergent renewable energy industry workforce. With stronger collaborations between industry and TVET, updates of curricula contents, and more practical learning opportunities for students, TVET can play a significant role in reducing this gap and in better preparing graduates to meet the demands of this rapidly growing industry in solar PV. This study therefore evaluated the role of industry partnerships and internship programs in TVET institutions in enhancing solar photovoltaic industry readiness in Uasin Gishu County, Kenya. Hence, the study hypothesized that;

H₀₁: There is no significant effect of industry partnerships and internship programs in enhancing solar photovoltaic industry readiness.



Methodology

Study Area

This study was undertaken in Uasin Gishu County, Kenya. With an area of 3,345.2 square kilometers, the county lies between longitudes 34°50'E and 35°37'W and latitudes 0°03'S and 0°55'N (Akenga et al., 2020). It consists of six sub-counties: Soy, Turbo, Moiben, Ainabkoi, Kapseret, and Kesses. The county borders several counties that include Elgeyo Marakwet, Trans Nzoia, Kericho, Baringo, Nandi, and Kakamega.

The participated TVET institutions in the county included public and private vocational centers, technical colleges, and specialized training facilities. The size and resources of these institutions are unequal, with some being much better placed in terms of offering specialized courses in renewable energy technologies such as solar PV systems. Uasin Gishu County was a selected location because it is one of those counties in Kenya that play the most important role in technical and vocational education and is looking at renewable energy, especially within the solar PV market. Its capital, Eldoret, is also a fast-growing urban center, attracting investment in renewable energy and further supporting its selection for the study. Good infrastructure and industry links in Uasin Gishu provided an appropriate setting in which to gauge how partnerships and internships in the TVET institutions were aiding students in preparing themselves for entry into the solar PV industry.

Besides this, the county receives most of the solar irradiance throughout the year, and it is well-suited to host solar PV projects and training. Bringing all these together, the educational focus of the institution, partnership with the industry, and most importantly the geographic advantages, make Uasin Gishu an ideal destination for a hub of renewable energy training and development, hence placing the findings of the study in a strategic position to enhance the adoption of solar PV solution locally and regionally.

Research Design

According to Abutabenjeh & Jaradat, (2018), research design is the strategic blueprint that outlines the systematic approach a researcher takes to investigate and answer specific research questions or objectives. This study employed a descriptive survey research design. This particular design focuses on elucidating and portraying the characteristics of a particular phenomenon or population.



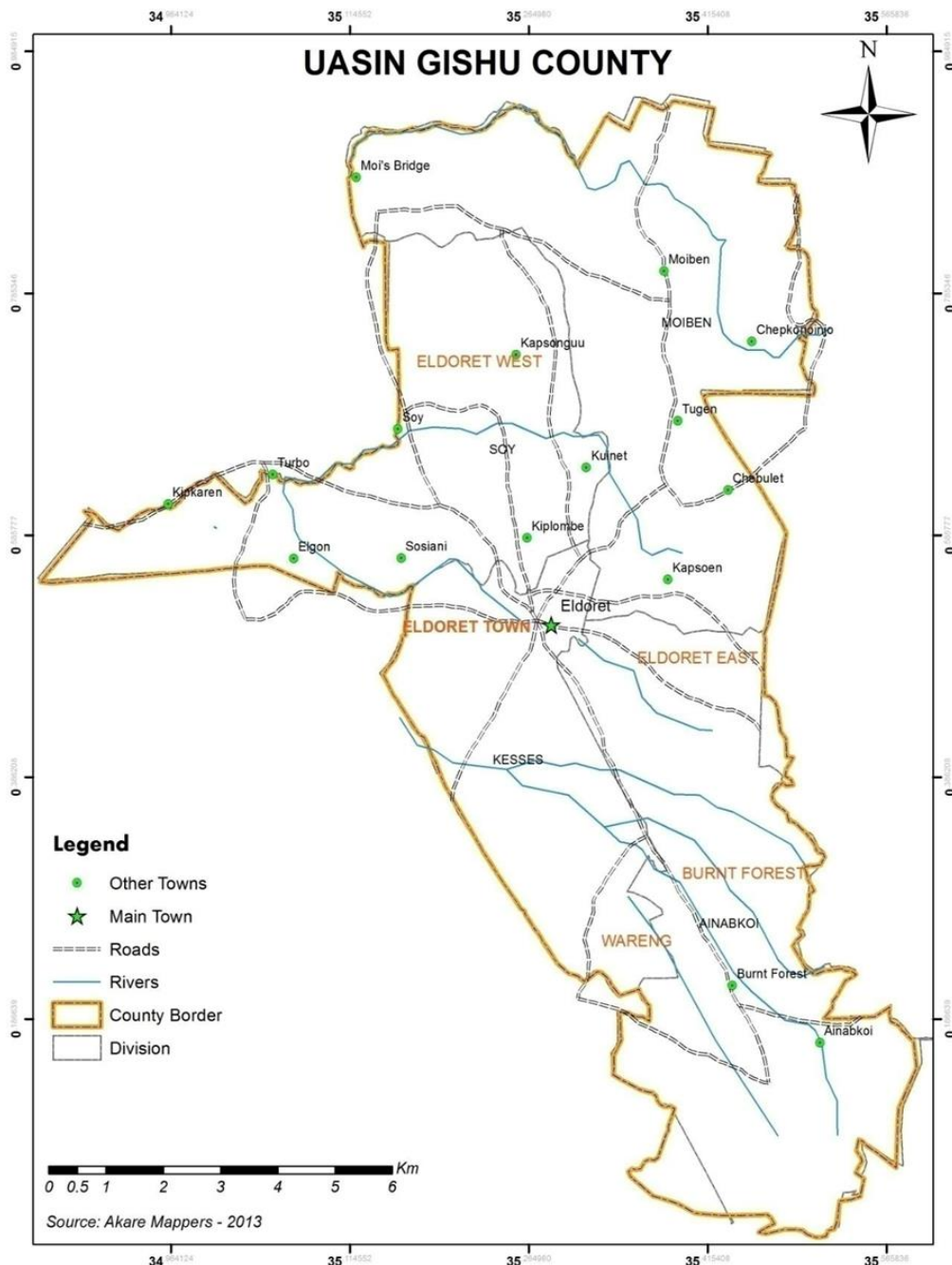


Figure 1: Map of the study area
Source; Author (2024)

Target Population

The target population consisted of trainers and trainees from technical training institutes due to their expertise in solar PV installation and their understanding of consumer behavior regarding the adoption of solar PV systems. Specifically, the study focused on graduates who have been trained



and certified in PV solar system installation from a National Polytechnic and five Technical Training Institutes in Uasin Gishu County. The total target population included 321 respondents: 6 principals, 20 trainers, and 295 trained artisans in PV solar installations as illustrated in Table 1.

Table 1: Target Population

Institution	Principals	Trainers	students	Total
The National Polytechnic	1	5	97	103
First Technical Training institute	1	3	36	40
Second Technical Training institute	1	2	25	28
Third Technical Training institute	1	2	23	26
Fourth Technical Training institute	1	2	31	34
Fifth Technical Training institute	1	6	83	90
Total	6	20	295	321

Source; Author (2024)

Sampling Procedures

Stratified sampling improves sample accuracy and reduces error by focusing on predetermined characteristics to either increase similarity or decrease variability within subgroups (Mweshi & Sakyi, 2020). This study used stratified random sampling because the target population consisted of individuals from diverse backgrounds that could be divided into distinct subgroups, or strata. These strata were based on various technical institutions, which, while homogeneous within each institution, were diverse enough across institutions to ensure unique strata.

Sample Size

Elfil & Negida (2017) defines a sample as part of the target population that procedurally represent it. The sample size was determined through the use of the Yamane formula.

$$n = \frac{N}{K + N(e)^2}$$

Where n is the sample size, N is the population, K is constant (1), and e is the degree of error expected, which is 0.05.

$$n = \frac{321}{(1 + 321(0.05^2))} = \frac{321}{(1 + 0.8025)} = 178$$



The final sample size was 178 elements distributed proportionately in each institution as indicated in Table 2.

Table 2: Sampling Size Distribution

Institution	Principals	Trainers	students	Total
The National Polytechnic	1	3	53	57
First Technical Training institute	1	2	20	22
Second Technical Training institute	1	1	13	15
Third Technical Training institute	1	1	13	12
Fourth Technical Training institute	1	1	17	18
Fifth Technical Training institute	1	3	45	49
Total	6	11	161	178

Source; Author (2024)

Data Collection Instruments

Data in the current study were collected using structured questionnaires and interviews. The main tool used was a standardized questionnaire, adapted because it can be efficient in collecting standardized responses from a large population, ensuring consistency with minimal bias (Kothari, 2004). These questionnaires were distributed to students attending different targeted TVET institutions in Uasin Gishu County. These concerned students' experiences, perceptions and preparedness for the sector of solar photovoltaic-especially, how industry partnerships and internships contributed toward preparedness.

Additionally, structured interviews with the management and trainers from the sampled TVET institutions were conducted. These interviews provided deeper details on the challenges, opportunities and effectiveness of solar PV training, as well as industrial partnerships. Through the combination of both approaches, the study made possible an in-depth comprehension of factors that affect the solar photovoltaic industry readiness for TVET graduates in Uasin Gishu County.

Validity and Reliability

In ensuring the questionnaire's validity, a pilot test was done with 30 students in one of the Technical Training Institute in Nandi County. This helped in refining the instrument and ensuring content validity. The responses from university supervisors further improved both content and face validity,



making the questionnaire clear and in line with the objectives of the study. Once the pilot test data was collected, responses were subjected to analysis through SPSS software to calculate Cronbach's alpha. Reliability was assessed by using Cronbach's alpha (threshold of 0.70 as per Taber (2018) to ensure that the measurement was reliable and free from error. The calculate alpha was .823 and this therefore implies that the questionnaires were reliable for data collection.

Data Analysis Procedures

Data preparation involved serialization, verification, and coding before entry into SPSS version 26. Descriptive analysis included frequency distribution, means and standard deviations which were presented in charts and tables.

Results and Discussion

Return rate

The response rate refers to the proportion of respondents who completed the survey out of the total sample size (Parashos, Morgan & Messer, 2005). After distributing 161 questionnaires, the researcher reviewed them for completeness and accuracy. Of these, 123 were fully completed and returned, resulting in a response rate of 76.6%. This percentage concurs with Creswell and Creswell, (2017) who argues that for generalization a response rate of 50% is adequate for analysis and a response rate of 70% and over is excellent, thus 86% was very good for an analysis.

Demographic Information of the Respondents

The study sought to find out the demographic information of the respondents which were gender and age. This was important since it forms the foundation under which the study can fairly adopt in deriving conclusions.

Gender of the Respondents

The study participants were asked to specify their gender in the questionnaires provided. Figure 2 shows that 72(58.4%) of the respondents were male while 51(41.6%) of the respondents were female. This implies that majority of the students in TVET institutions in Uasin Gishu County are male. A study by Ngugi & Muthima, (2017. highlighted persistent gender imbalances in enrollment and completion rates across various technical and vocational education and training (TVET) programs worldwide. According to Technical and Vocational Education and Training (2024), in Kenya, for many decades, the number of girl students enrolling in TVET courses has been



persistently low and sometimes declining, especially in Science, Technology, Engineering, and Mathematics STEM fields.

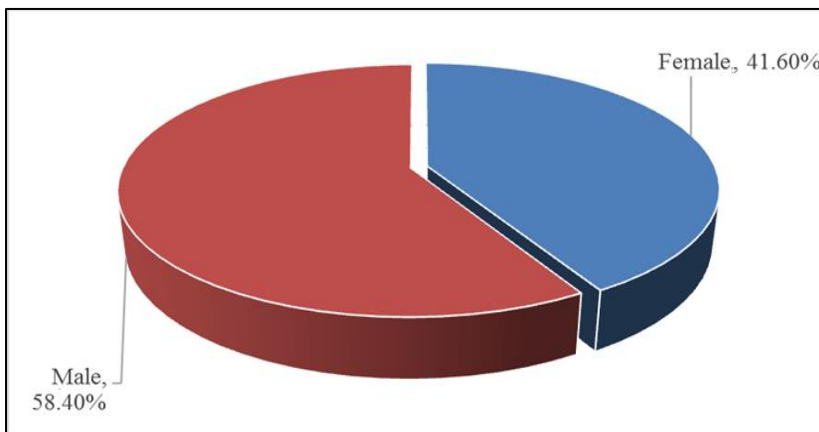


Figure 2: Gender of the Respondents

Source; Author (2024)

Age of the Respondents

Most of the respondents 106 (86.2%) were aged between 20-25 years. A smaller portion, 12(9.8%) of the trainees, were in the age bracket of between 26-34 years old, while only 5(4%) respondents were over the age of 35 years. This highlights that the majority of TVET trainees in Uasin Gishu County are younger individuals, with those in the 20-25 age group forming the largest demographic as portrayed in Figure 3.

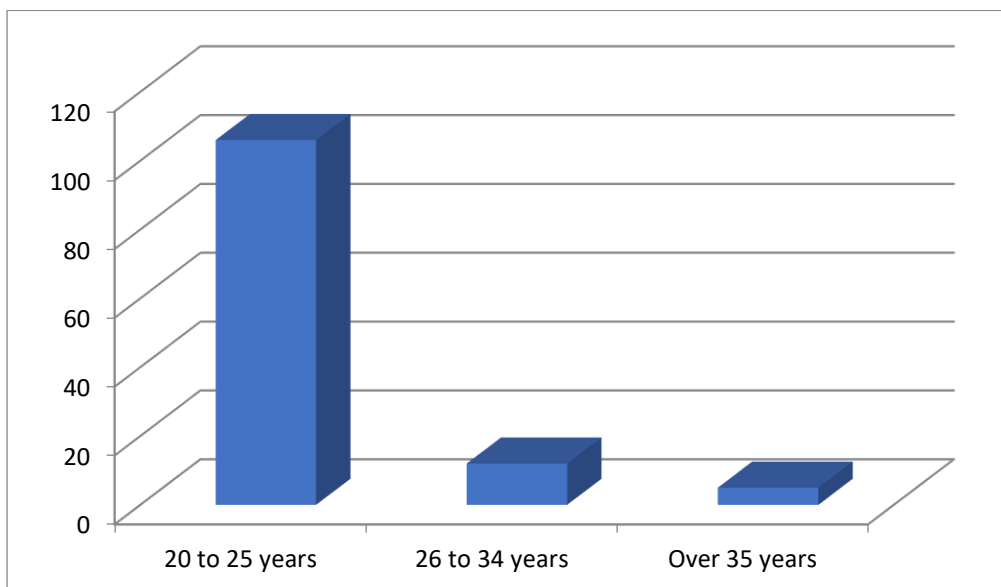


Figure 3: Age Bracket of the Respondents

Source; Author (2024)



Industry Partnerships and Internship Programs and Industry Readiness

The study assessed trainees' perceptions of industry partnerships and internship programs, focusing on their impact on industry readiness. To achieve this objective, respondents were required to rate their responses using a five-point Likert scale; 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree. The findings are summarized in Table 2.

Table 2: Trainee Response on Industry Partnerships and Internship Programs and Industry Readiness

Statement	SD		D		N		A		SA		Mean	Std.Dev
	F	%	F	%	F	%	F	%	F	%		
Industry partnerships enhance practical skills development.	10	8.1	3	2.4	10	8.1	44	35.8	56	45.5	4.08	1.171
Internship programs provide valuable hands-on experience.	1	0.8	12	9.8	14	11.4	55	44.7	41	33.3	4.00	0.958
Collaboration with industry increases job opportunities.	8	6.5	7	5.7	20	16.3	44	35.8	44	35.8	3.89	1.154
Internship programs improve networking opportunities.	11	8.9	8	6.5	18	14.6	41	33.3	45	36.6	3.82	1.248
Industry partnerships contribute to understanding industry demands.	10	8.1	9	7.3	16	13.0	47	38.2	41	33.3	3.81	1.210
Internship experiences enhance problem-solving abilities.	9	7.3	12	9.8	21	17.1	42	34.1	39	31.7	3.73	1.215
Industry partnerships promotes a smoother transition to the workplace.	11	8.9	13	10.6	24	19.5	27	22.0	48	39.0	3.72	1.321
Internship programs improve readiness for professional challenges.	1	0.8	0.0	0.0	13	10.6	38	30.9	71	57.7	4.45	0.749

*Key: SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree and SA –Strongly Agree
Source; Author (2024)*

As shown on Table 2, majority of the respondents agreed that Industry partnerships enhance practical skills development (M=4.08, SD=1.171). This implies that the majority of respondents in the study recognize the significant positive impact of industry partnerships on practical skills development in TVET institutions in Uasin Gishu County. This finding is similar to a study by Ondieki, Kimani and Tanui. (2018) who conducted research on the influence of industry partnerships in vocational training programs and found out that



industry partnerships significantly contributed to practical skills development among trainees, resulting in better industry readiness and employability.

Results further indicated that the majority of respondents in the study strongly agree that internship programs offer valuable hands-on experience ($M=4.00$, $SD=0.958$). This suggests that there is a strong consensus among respondents regarding the significance of internships in facilitating experiential learning and skill development, crucial for preparing trainees for the solar photovoltaic industry. This result is in line with the findings from a study done by Kagema et al. (2019), that assessed the effectiveness of internship programs in imparting skills among techno-technical graduates. Nyangweso, (2022) also established that the internship programs were designed to offer broad on-job training that was quite vital in developing skills and ensuring that the students acquire relevant industrial experience before joining the industry.

Additionally, respondents agreed with the statement that collaboration with industry increases job opportunities ($M=3.89$, $SD=1.154$). This implies that a substantial portion of respondents in the study acknowledge the positive correlation between collaboration with industry and increased job opportunities within the solar photovoltaic sector. This finding is similar to a study by Keter (2018), which investigated the effects of industry collaboration on employment outcomes in vocational education programs. Nyangweso, (2022) found that collaboration with industry positively influenced job opportunities for vocational education graduates. This finding is consistent with a study by Kagema et al. (2019) who found positive effects of industry collaboration on employment outcomes in vocational education programs. Keter (2018), found that collaborative initiatives with industry partners positively influenced job opportunities for vocational education graduates.

Similarly, respondents agreed with the statement that industry partnerships contribute to understanding industry demands. This implies that a considerable number of respondents in the study recognize the importance of industry partnerships in contributing to the understanding of industry demands within the solar photovoltaic sector. This finding emphasizes the perceived value of collaborative efforts between TVET institutions and industry partners in aligning educational programs with the evolving needs of the solar photovoltaic industry. This finding resonates with a study by Ondieki, Kimani & Tanui. (2018) which investigated the impact of industry partnerships on educational outcomes in vocational training programs.

Also, majority of the respondents further agreed that internship programs improve networking opportunities ($M=3.82$, $SD=1.248$). This reinforces the importance of designing internship programs that not only build technical skills but also promote meaningful industry relationships for



TVET graduates. In Kenya, research by Adams (2019) found that internship programs in TVET institutions significantly contribute to students' exposure to real-world industry practices and help them build professional networks. Similarly, a study by Walters (2018) revealed that students who participated in internships had higher chances of securing employment due to the professional connections they established during their placements.

Additionally, a higher proportion of the respondents were in agreement that internship experiences enhance problem-solving abilities ($M=3.73$, $SD=1.215$). This implies that a significant majority of respondents in the study perceive internship experiences as valuable opportunities for enhancing problem-solving abilities within the solar photovoltaic industry. This finding is consistent with a study by Kanyanjua and Kamau (2013), which examined the effects of internship experiences on skill development in vocational education programs.

On the statement that industry partnerships promote a smoother transition to the workplace, majority of the respondents were agreed with the statement ($M=3.72$, $SD=1.321$). This finding is similar to a study by Muthee (2019), which investigated the impact of industry partnerships on workplace readiness in vocational education programs. Johnson et al. found that perceptions regarding the role of industry partnerships in facilitating a smoother transition to the workplace varied among participants.

Lastly, majority strongly agreed that internship programs improve readiness for professional challenges ($M=4.45$, $SD=0.749$). This suggests that internship programs are highly effective in improving readiness for professional challenges within the solar photovoltaic industry. This finding was similar to Kintu, Kitainge and Ferej, (2019) study investigated effects of internship training programs on professional readiness in the context of vocational education. They stressed that the internship programs were one of the most efficient ways to increase the readiness of participants for professional challenges, which corresponds to the results of the present research.

On interviewing the principals one of the participants; P5 said;

“At our institution, we have forged several successful industry partnerships within the solar photovoltaic sector that have significantly enhanced student readiness for the industry. One notable example is our collaboration with Powergen Renewable Energy Ltd., a leading solar energy company in the region. Through this partnership, our students have had access to internship opportunities, where they gain hands-on experience in installing, maintaining, and troubleshooting solar photovoltaic systems. Additionally, Powergen Renewable Energy has provided our institution with cutting-edge equipment and technical expertise, allowing us to offer industry-



relevant training programs tailored to current market needs. These partnerships have not only enriched our students' practical skills but have also provided invaluable insights into industry best practices and emerging technologies, ensuring they are well-prepared for successful careers in the solar photovoltaic sector”.

This response points out the TVET institution's successful partnership with a prominent player in the solar photovoltaic sector. Through this collaboration, students have gained practical experience through internships and access to industry-standard equipment and expertise. The partnership has facilitated a direct connection between classroom learning and real-world applications, enhancing students' readiness for the solar photovoltaic industry. In emphasizing hands-on experience and exposure to industry practices, the institution ensures that its graduates are well-prepared and equipped with the necessary skills to thrive in the solar energy sector. These sentiments resonate with the results of a study by Kintu, Kitainge and Ferej (2019), which emphasized the significance of industry partnerships in enhancing student readiness for the solar photovoltaic sector. They found out that partnerships with industry players contributed to practical skill development, exposure to industry practices, and alignment of training programs with industry needs. On the second interview question regarding the structure and relevance of the curriculum, the second participant P3 said:

“Ensuring the influence of internship programs in the solar photovoltaic field is a top priority at our institution. We employ a structured approach to design and implement these programs to provide students with valuable practical experience and prepare them for the industry's demands. Firstly, we work closely with industry partners to tailor internship placements to align with current industry needs and emerging trends. This ensures that students are exposed to relevant technologies, practices, and challenges faced by professionals in the field. Secondly, our internship programs that allow students to apply classroom learning in real-world settings. Additionally, we assign experienced mentors from both our faculty and collaborating organizations to guide and support students throughout their internship journey, facilitating skill development and professional growth. Regular assessments and feedback mechanisms are also in place to monitor students' progress and ensure that they are meeting industry standards. In adopting this approach, we aim to equip our students with the practical skills, knowledge, and confidence necessary to excel in the dynamic and demanding solar photovoltaic industry”.



The response points out the institution's comprehensive approach to ensuring the influence of internship programs in the solar photovoltaic field. It emphasizes the collaborative effort with industry partners to design tailored internship placements that align with industry needs. The structured curriculum integrates theoretical knowledge with hands-on experience, allowing students to apply what they learn in real-world scenarios. The provision of experienced mentors ensures guidance and support throughout the internship, facilitating students' skill development and professional growth. The institution's commitment to regular assessments and feedback mechanisms demonstrates a dedication to monitoring student progress and maintaining industry standards. This sentiment aligns closely with the findings of Honorati (2015), who discovered the importance of structured internship programs in preparing students for the demands of specific industries. who found out that collaboration with industry partners, employing a structured curriculum, mentorship, and regular feedback mechanisms are key elements in ensuring the influence of internship programs.

Correlation

Pearson's product moment correlations were employed to examine the influence of industry partnerships and internship programs in industry readiness. Table 3 provides information on both the strength and direction of the association between the variables under examination and their corresponding results.

Table 3: Correlation Analysis

		Industry Readiness	Industry Partnerships and Internship
Industry Readiness	Pearson Correlation Sig. (2-tailed)	1	
Industry Partnerships and Internship	Pearson Correlation Sig. (2-tailed)	.374**	1

b. Listwise N=123

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author (2024)

Table 3 results indicated that there was a statistically significant relationship between industry partnerships and internship programs and industry readiness among graduates in the TVET institutions within Uasin



Gishu County, $r=0.374$, $p=0.00$. According to Deya (2016), the partnership that will be created between industries and educational institutions serves to bridge gaps for students to acquire relevant practical skills, meeting the prevailing market demands.

Multiple Regression Analysis

The multiple regression analysis was used to determine the influence of industry partnerships and internship programs in TVET institutions on solar photovoltaic industry readiness. The model was used to create β coefficients for the independent variable capacity building programs, which were then employed to assess the hypotheses of the study. The t-test was employed to determine the statistical significance of the capacity building programs in relation to its contribution to the model. The β -values showed the contributions of each predictor to the model were provided in Table 4.

Table 4: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1 (Constant)	.194	.207		.936	.350
Industry Partnerships and Internship Programs	.209	.070	.024	.414	.679

a. Dependent Variable: Industry Readiness

Source: Author (2024)

The results of the study indicate that industry partnerships and internship programs have a statistically significant impact on industry readiness, as evidenced ($\beta_1= 0.209$, $p>0.05$). Enhancing Industry Partnerships and Internship Programs contributes to Industry Readiness. The null hypothesis (H_{01}) was adopted due to the p-value being greater than 0.05. Hence, it can be inferred that the amount of industry partnerships and internship programs exerted a substantial impact on industry readiness.

Conclusion and recommendation

The findings of this study indicate that there is a statistically significant relationship between industry partnerships and internship programs and industry readiness among TVET graduates in Uasin Gishu County at a moderate level of association. As such, though it is effective in building practical skills and hands-on experience and employability traits among



respondents, the strength of association on overall industry readiness is not that strong. The results again underpin the need for close collaboration between TVET institutions and industry players to make sure that training provided matches the continuously evolving demands of the solar photovoltaic sector. Indeed, relevant internship experiences provided to students and industry networking facilitated by the TVET institution will contribute toward making graduates more job-ready with the required competency level and industrial connections to succeed in the competitive solar energy sector. Results, therefore, postulate that the role of industry partnerships and internship programs in the TVET institutions can be furthered, especially in improving the readiness of the solar photovoltaic industry at County level in Kenya through the strengthening of such institution-industry stakeholder linkages. This may include the development of formal internship programs, industry visits, and other project collaborations with associated businesses within the solar energy sector.

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