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The Impact of University-Industry-Cooperative Partnerships on Entrepreneurship Training for Youth in Marginalised Communities

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ABSTRACT
This paper examines the impact of university–industry–cooperative partnerships on knowledge transfer, innovation, and skills development within higher education. Drawing on a comprehensive literature review, the study highlights the growing importance of collaborative engagement between academic institutions, industries, and cooperatives in addressing contemporary socio-economic challenges. The review reveals that such partnerships enhance the relevance of academic programmes by aligning them with industry needs, thereby equipping graduates with practical skills that improve employability and entrepreneurial readiness. They also facilitate innovation through joint research projects, knowledge co-creation, and the commercialization of academic outputs, thereby contributing to economic development. Furthermore, the study underscores the role of cooperatives as important stakeholders in these partnerships, particularly in contexts where community development and inclusive economic growth are priorities. By engaging cooperatives, universities not only strengthen local development initiatives but also encourage socially responsive research and teaching practices. Despite these benefits, the literature identifies persistent challenges such as misaligned objectives, resource constraints, and weak policy support, which can limit the effectiveness of such collaborations. Overall, the review demonstrates that sustainable university–industry–cooperative require strong governance structures, mutual trust, and supportive policy environments. The paper concludes that strengthening these collaborations is critical for improving innovation ecosystems, promoting inclusive growth, and ensuring that higher education contributes meaningfully to both economic and social development.

1. INTRODUCTION

The solution to the world's greatest challenges does not lie in new subject matter. It takes novel ways of thinking in old disciplines and a desire to bring about real, practical change. This interdisciplinarity is precisely what arises when university innovators work with entrepreneur innovators, and why a university-industry partnership has the potential to be so beneficial. With this in mind, the Commercializing Innovation Workshop was initiated in Stellenbosch in 2018 as a means to nurture and convene such individuals. Coordinated and facilitated by the Innov Business Development Office in collaboration with InnoVentures, the Stellenbosch University technology transfer company, the Commercializing Innovation Workshop ran for nine months. Structures and services were offered that would traditionally, and in Sandton where a need for re-definition of intellectual property was addressed, addressing legal aspects surrounding incorporation. Participant feedback and final evaluations expressed significant demand for future iterations, with hope for ongoing mentorship and modelling, paving the way for transferable legal contracts and equity agreements (Buitendag, 2018). This is why young beings and would-be entrepreneurs were encouraged to demonstrate such, through attendance and then participation as presenters at the Commercializing Innovation Workshop. Efforts resulted in a marked increase in communal and youth engagement, facilitating mentorship between health sciences and entrepreneurship students

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at SU. Additionally, university coursework tasks were framed surrounding business development and commercial involvements, with gratitude to the inspiring project. Gotolong, an SU award-winning innovation and community engagement project, fuelled further development and expansion into digital ventures across South Africa. Finally, participation in the Commercializing Innovation Workshop engendered adaptive solutions being sought and reached, thereby enabling development and growth within the entertainment, knowledge, and applications industries.

Background

Over the past decade there has been increasing recognition of the role that universities play in stimulating economic initiatives that drive wider socio-economic development (Pupp & Filep, 2021). Governments globally have been promoting environments and structures that enhance such contributions of higher education institutions. One such mechanism that has been considered to stimulate innovation and economic growth in a locality, particularly in marginalised communities, is university-industry cooperation. In recognition of the multi-purpose role that university-industry cooperation should play, there has been a shift in recent international discourse towards the concept of University-Industry Cooperative Partnerships. At the same time, university education has also been recognised as a very powerful policy lever for both individuals and communities.

There is an upsurge of support in capacity building which includes entrepreneurship training, as an engine for economic growth and social development. It has also been noted that a considerable number of university graduates especially from underprivileged or marginalised communities are hampered and confounded by unemployment. Youth is the prime focus as it is the productive work force of an economy. As universities increase their commercial role there is a clear need for socially and economically disadvantaged groups such as youths in marginalised communities to have a greater impact on such initiatives. Entrepreneurship education has been receiving substantial recognition as a powerful tool for creating business ownership and employment. Unlike formal education, formal entrepreneurship education tends to focus on the practical component of “how” instead of “what” (Buitendag, 2018).

Hence for entrepreneurship to be a tool for upliftment, societies or individuals, in particular youth, need to undergo practical business training. Despite the emphasis universities put on fostering entrepreneurship, local policy makers in marginalised localities have only just begun to think about these colleges as a means to creating favourable entrepreneurial environments (Iwara & Kilonzo, 2022). Because universities have been neglecting fundamental and well-developed platforms to commercialise skills, one of the actual promises and imperatives of any university involved in business land given that such activities encompass training, technology transfer, and access to capital, they possess exceptional potential for a certain select of the local market, and thereby a positive impact staring entrepreneurship. On the other hand, training providers have cited limited interactions which are believed to contribute to an oral dialogue in developing the so called ‘hottest’ skills requirements. Yet if universities wish to stimulate entrepreneurship and economic initiatives of youths in marginalised communities, the close knit cooperation remains often elusive. Hesitance regarding working partnership may be further fuelled by aesthetic perception – universities and small enterprises students are not used to working and learning from each other.

Understanding Marginalised Communities

This way of building collaborative connections between university and industry also provides motivation for entrepreneurship projects of students in marginalised communities (Kyambade, et al., 2025). Better understanding of potential spillover effects of collaborative partnerships for entrepreneurship training of youth in marginalised communities might be valuable for educational decision-makers who plan to improve the entrepreneurship training programmes and university-industry links in such areas. Effectiveness of the project on the entrepreneurship abilities of a group of youth is evaluated. As many mechanisms explain the influences of university-industry collaborative links on the entrepreneurship training of youth in marginalised communities through the mediating effect of a youth’s motivations. But better rewards may be achieved by improving the university-industry collaboration model, especially for these youth. On the one hand, two types of mechanisms relate to the stimulation and the realization of the entrepreneurship training of youth.

Two policies are relevant when connecting to youth in marginalised rural communities. First, motivation of the youth to aspire and to engage in entrepreneurship activities are bolstered by improving the patent quality of the industrial partners of the university (Iwara, 2025). Possible explanations for this phenomenon are that model programmes relevant to the entrepreneurship project ideas are provided by high-quality patents. Second, youths benefit more from competitiveness in the industry-university partnership project implementing region. That may be because more learning resources are supplied by competitive programs.

The Role of Entrepreneurship in Economic Development

Entrepreneurship can play a significant role in creating new knowledge and graduate employment. This may have benefits for the countries' economic structures and development. The basic idea of entrepreneurship is the poor and marginalized youths should be given entrepreneurship training, which would enable them to start their enterprise (Kulmie et al., 2023). These types of enterprises would help them to have a sustainable life in the community. Efforts to improve economic conditions in marginalized communities often overlook the role of higher education in promoting business start-ups. Education in addition to changing one's behavior, enlightens the social, cultural and political beliefs and brings about change in the overall society. Creating an inflow of motivated entrepreneurs is at the core of regional, rural and national development policy. Developing regions and sub-regions are aware of and utilize the best available entrepreneurial mechanisms in confronting the social and economic issues they are experiencing. Establishing university-industry-cooperative linkages is now on the public policy agenda customized to the needs and capabilities of the regions and sub-regions. University-industry collaborative partnerships are implemented for the target regions and sub-regions as means to support regional and rural development. The institutions of the developed countries in particular have an obligation to share good practices and knowledge for creating educational opportunities available in the urban and rural sector.

Entrepreneurship among the youth is rapidly becoming an interesting economic issue of the developing world, including Ethiopia. The developing countries have a problem of absorbing the growing labor force which is estimated at 50 million youths annually in South Asia and sub-Saharan Africa (Lam & Leibbrandt, 2023). To exacerbate the situation, the ailing economy with little resources at its disposal and poor technology could not provide a prospective environment for the mass of the unemployed. The youth in the Republic of Korea, India, and Mauritius have been successfully engaged in employment-generation through entrepreneurship. There is a possibility for the country to take these successful experiments as a viable policy option for reducing such a level of unemployment. In entrepreneurship, education has significant importance for knowledge, skills, and attitude. Developing countries like Africa are seriously affected by poverty and low economic growth. As a result, there is a shortage of classroom facilities, text materials and knowledgeable teachers, and of the training institutions that might impart those particular kinds of skill that can generate self-employment opportunities. To alleviate poverty in depressed areas and marginalized communities, several programs have been in place worldwide, but with a very modest result. Promoting entrepreneurship education as policy is found to be the most durable and effective antidote for unemployment by fulfilling the required skills and motivation of the youth.

University-Industry Partnerships

In the present era of globalisation, Malaysia aims to produce knowledgeable and skilled manpower to compete at the international level (Yunus et al., 2024). Entrepreneurship skills are of paramount importance to every segment of society. New commercial activities can create jobs and solve unemployment problem among the youths in particular. Therefore, the universities, the business sector as well as the government must cooperate closely together to create certified entrepreneurs. Because of the scarcity of funding to help the lower income group start a business, the government through the Ministry of Science, Technology and Innovation urges students who have innovative ideas and are creative to seek assistance from them to make their dreams come true. This Ministry also plays a key role in allocating funds for Research and Development activities carried out by universities, polytechnics and colleges. Consequently the academia, the business entities and the government try to collaborate together to sign a memorandum of understanding on a mutual cooperation which focuses on delivering talks, seminars, funds, equipment and training, in order to enhance entrepreneurial skills among the students, particularly, the youths.

Short courses, workshops and dialogues on entrepreneurship for students are conducted by their respective universities in collaboration with the industrial sectors. A university-industry partnership is the other alternative used to promote entrepreneurship training and activities among students. It has been realised that cooperation should be established between universities and industries throughout Malaysia so that both parties can work together to deliver soft- and hard skills to the students in order to inspire and prepare them for entrepreneurship. With the good networking developed between universities and industries, students can undertake internships during their studies and also secure jobs before they graduate (Afuwoqi & Wu, 2011).

The third method employed to promote entrepreneurship is the engagement of the business entities to develop at least one product prototypes with students in the engineering faculties of universities. To date, the Faculty of Mechanical Engineering, University of Technology Mara and the Faculty of Engineering, Multimedia University in Malaysia have successfully produced JAGGOR, a product now patented and manufactured by their industry counterpart. Clearly, such efforts should be blossomed further, so that other prominent business entities in Malaysia can provide the same support and facilities.

2. LITERATURE REVIEW

Definition and Importance

Statistics show that unemployment in many developing countries is at an extremely high rate. In Somalia, the average rate is 56%, and 67% and 10% for youth and women, respectively (Mohamed, 2017). There are several causes of youth unemployment. Among these are the prolonged conflict in the country, the use of clan loyalty in securing jobs, lack of entrepreneurial skills, market linkage problems, weak infrastructure, and lack of access to credit institutions.

Responding to the challenges facing the youth related to unemployment, different initiatives have been undertaken by the government and non-governmental organizations. Entrepreneurial Training (ET) is among the interventions that are used and is considered important in the process of creating potential entrepreneurs in the country. Accordingly, both public and non-state universities have established entrepreneurial education departments, and they offer various entrepreneurship courses (Asamoah, 2014). Despite this, very little research has been done examining the impact of these courses on students' entrepreneurship competencies. In particular, a succinct literature review shows three academic researchers conducted by the universities of Dilla, Adiss Abeba, and Hawassa (Geletu et al., 2023). Set up by the government as well as non-governmental organizations to assess the need for entrepreneurial training at the higher educational institutions in the country. The results of the research suggest the following: the strategy of offering entrepreneurial training at the higher educational institutions is worth implementing. Countries seeking economic growth and poverty reduction should consider including entrepreneurial training at these institutions in order to develop the creative and innovative skills of their youth. The results also confirm that Wollo University is better off compared to Dire Dawa University in entrepreneurship traits. The activity of course targeting energetic and receptive students is important. In conclusion, the entrepreneurial orientation has significantly developed and increased the potential for job creation among students. However, the skills and entrepreneurship traits of students continue to be lower than the magnitude of expectation, which indicates a relentless commitment on the part of the responsible body of the universities.

Models of Collaboration

University-Industry Cooperative Partnerships can be a three-dimensional concept that consists of collaboration between companies, universities, and governments or between companies and universities only (Kolade, et al., 2022). Industry-University Cooperative Partnerships are one of the fundamental and influential factors in building innovation support systems and training competencies as well as the growth and development of entrepreneurship in developing countries. The establishment and development of Industry-University Cooperative Partnerships have a positive impact on the empowerment of school units. This collaboration can also provide learning resources, access to modern technology, and opportunities for entrepreneurship. Providing scientific consultation services for the development of entrepreneurship can encourage innovative young people in the countryside and marginal communities. Developing youth entrepreneurship in the education system is part of linking education to employment. In a general sense, methods of establishing entrepreneurial skills are not the main focus of most of the education system. At the school level, the education system does not have a mid and long-term entrepreneurial program, followed by primary and higher education systems. On the other hand, involving stakeholders from companies and other institutions is not yet a common practice. There is no collaboration between education and training institutions in developing entrepreneurial skills and existing industries. At the university level, the entrepreneurship subject is only available at particular faculties, such as economics, while other faculties have no approach to entrepreneurship. With progress in education and increasing skills, the chance that students will create their own startups will increase and it is usual that after the completion of formal education, students will enter the labor market.

A more systematic and sustainable approach in fostering university entrepreneurship will also pave the way for the formation of a more sustainable entrepreneurial support ecosystem involving non-academic stakeholders, including social enterprises that involve universities, communities, businesses, and governments in adopting a systematic and sustainable approach. Models of collaboration capable of supporting the creation and development of a comprehensive and sustainable entrepreneurial support ecosystem involving diverse stakeholders is crucial to promote entrepreneurship education among academic circles and innovation among businesses (Majeed, 2025). Forming a university spillover on entrepreneurial partnership forum is important to bring together various high-level stakeholders in the academic and business sectors to increase interaction, establish comprehensive and active support mechanisms, and address various obstacles in academia-business collaborations. Aggressive stakeholders are needed to promote the implementation of a model of collaboration in fostering entrepreneurship education and academic entrepreneurship, especially in educational institutions in rural and remote areas.

3. RESULT AND DISCUSSION

Case Studies of Successful Partnerships

Entrepreneurship is seen as a priority by many institutions and governments, particularly those in developed countries, but also increasingly in Africa. However, universities in Africa face numerous challenges when trying to educate and promote entrepreneurship (Agu et al., 2021). The high rate of African youth unemployment is a driving force in developing a strategy for universities to promote entrepreneurship; a key outcome of this work. This research is unique in that it adopts a broad perspective, seeking to identify what universities around the world are already doing to promote entrepreneurship. It then takes these lessons to apply and implement within specific East African and Burundian contexts.

One way of inspiring entrepreneurship education is through working closely with the industry. Collaborating is an effective way to promote entrepreneurship, both through course modules and developing valuable skills. A literature search was conducted, and the commercialisation and entrepreneurship landscape in selected countries was reviewed. Understanding the different approaches and methods used elsewhere could act as a guide for any institution looking to begin promoting entrepreneurship through commercialisation projects.

Practical programmes have been found to be more successful. Many universities in the US, UK, Canada, Singapore, and China offer specialised entrepreneurship modules, courses, or programmes, mostly at postgraduate level. In the US, 86% of all universities now have entrepreneurship programmes. Case studies undertaken partially reflect the innovative and successful partnerships between universities and industry on entrepreneurship projects. In Africa, compared to other continents, entrepreneurship education activities are rather undersupplied. An analysis of different initiatives in this field was conducted. Most of the entrepreneurial education initiatives are in South Africa, run by universities and polytechnic institutions (Buitendag, 2018). It was proposed that the model should be expanded to other African countries, initially focusing on South Africa, and above countries where partners exist. Many Lecturers who promote and encourage University students can utilize this to their advantage.

Curriculum Development

Youth unemployment presents challenges in marginalized communities, so there is an increasing need for entrepreneurship training. The university is a main stakeholder in maintaining local community and youth well-being. University-industry-cooperative partnerships can provide ecosystem services of entrepreneurship training and personal usefulness, providing a more synergistic approach (Sharma, 2022). Ideas, courses, or training for companies can provide these community services together with university schools, or local companies can offer jobs to students.

Work experience during study in a company gives prospects for students' future career. Further, in poorly resourced remote areas, work experience can be hard to receive simply due to where one lives. Similarly, being located away from industrial areas, work experience in a company is unavailable. A variety of company management arrangements can be tried but student job-holding will be proposed. Eligible companies will be reimbursed for students' work costs on a scale basis. Thus, with the primary aim of providing work experience, students will be given on-the-job training as a trial workforce.

First, students in their penultimate and final years will be targeted for an enlistment marking the examination results. When these are known students from the hosting faculties will be interviewed by participating companies. Then, after being selected for their potential job, students will be offered a post by the company. Working first on weekends, students will not be permanently recruited by enterprises until few tries. After this, their job-time is expected to gradually increase. Four years on, the goal is that companies should seek to their permanently working students. A symbiotic relationship is envisaged this way. For every student-company job pair, the company concerned is required to insure beyond the usual cover.

Pedagogical Approaches

Entrepreneurship education for the youth in marginalised communities in Kenya can be achieved through universities in collaboration with state and non-state partners who have expertise in entrepreneurship. The focus on Structural and Curricular pillars ensures there is access, progression and support of people from marginalised communities while the Partnerships and Networking pillar focuses on complementarity of resources ensuring the same people are empowered. Entrepreneurship training is important for economic development. In this paper, university-industry-cooperative partnerships are positioned as transformative and a process that offers youth in marginalised communities in Kenya access and ownership of opportunities to engage in entrepreneurship training.

For many years Tomsk has been a scientific and R&D, industrial, educational and innovative center of Siberia and currently, being a part of a district of priority social and economic development of Russia is becoming an important center of modernisation of educational and professional system of Siberian region (Medvedeva, 2023). These challenges require forming the optimal institutional conditions of integration and unification, centralisation and coordination of all elements of youth policy in the region. Realization of international youth

educational projects is one of the most direct ways of formation of a networked educational space involving the educational institutions and other elements of the youth environment that promote educational and personal growth of a developing person. The aim is to trace prospective professional development of a young person, formation of new vision of the world and self-fulfilment through the innovative forms of social and business projects (Carvalho et al., 2008). Advanced training of youth values, implementation of professional training related to the region's science intensive production are the main aims and objectives of Tomsk Polytechnic University pedagogical practices and projects oriented on developing the executive and entrepreneurial thinking based on the use of pedagogical technologies and means of the intelfield and cross-disciplinary integration of science, education and management.

Since the near collapse of the financial institutions in 2008, there has been an intensification of the effects of globalisation with the resultant decline in export revenue resulting in the backtracking of a number of development projects in Kenya (Otuya et al., 2013). Despite its strategic position in the Horn of Africa there exists a significant proportion of people living in marginalised communities with limited access to the political economy. Secondly, the country has been heavily reliant on the imports of fossil fuels, part of which are distributed from Djibouti port through Ethiopia and as a result of this dependence diesel is utilised to power the majority of electricity generators in the country.

Youth Engagement and Participation

To understand and deduce the ability of youth to engage in productive lifestyles, this report will consider a broad picture of youth engagement and participation according to macro (whole countries), mid (sectors/peoples), and micro (specific programs/life situations) levels. Beyond this, more focus will be placed on forms of community participation – in particular, youth entrepreneurship. However, youth participation is a multifaceted concept. It is common to discuss participation as falling within three categories - political, civic, and economic. Relatedly, in the context of community development, participation has often been understood to mean active involvement in decision making and implementation of plans, projects, and policies, and a means to acquire knowledge to make informed decisions. Youth typically are strategic actors within their communities. In analyzing Tostan's experiences in working with youth, it is valuable to consider how they have come to understand their own surroundings as well as the particular expectations other community members have of them (Cislaghi, 2017).

Business-creative or productive entrepreneurial enterprises do not need unwanted or unused external funding. Unfortunately, there is now a perception of youth entrepreneurs in South Africa as young adults engaged in non-useful businesses, which have dominated the township areas and which are more informal businesses (Majola, 2017). The persistence of this perception has led to procrastination, donations, and contributions from external parties concerning youth entrepreneurs. More often, these aids have also led to enterprises not being fully established as the youth lack the initiative to satisfy their needs. Meanwhile, there is a lack of sufficient appropriate businesses, particularly those that sell local goods or services. Too often, standardized aid can be too small or simply do not fit the youth entrepreneurship with actual market potential. Strong borders for young entrepreneurs make their business not adaptable to broad market demand, competitive and possibly stop operating. Furthermore, there is an incorrectly perceived incapacity of entrepreneurship by the youth, whereas only the elderly are regarded as the only considered reliable business people.

Barriers to Participation

This paper presents the findings of the socio-economic impact from the research study concerning university-industry-cooperative partnerships, and the case study of Boyo, a marginalised community in Bali Ngembo Forest, Indonesia. The study investigates how young people of marginalised communities are included in a comprehensive approach of university-industry-cooperative partnership. It highlights particularly how university-industry-cooperative partnerships aim to lift youth (male and female) out of poverty and help them establish small-medium enterprises. Bali Ngembo is characterised as an indigenous, conservative and marginalised community with a low living standard (Fokwang & Langmia, 2011). Additionally, formal education at this level is still very limited; university-industry-NGO cooperation is almost non-existent and entrepreneurship is underdeveloped. Youths rely on a traditional sector dealing with agricultural, forestry and collecting natural resources to get income.

Preparing young people to participate in innovation and fully in the economy is a complex and multifaceted challenge (Mahmudin, 2023). This requires not only the development of entrepreneurial skills but also the provision of conditions of supportive ecosystems at the local, national and global levels. Entrepreneurship should be perceived as a gradual process that needs to be nurtured and allowed to grow. The social life and economic needs of youths from marginalised communities may differ greatly from those of Western researchers. It is precisely that the innovative forms of entrepreneurship training within a university-industry-cooperative partnership platform were not only focused on providing consultancy and services but also in some cases reallocated to small firm enterprises. Promoting entrepreneurship training is also one of a few alternatives to

discourage young people from being engaged in illegal logging. Besides that there is a need to develop a collective approach between schools, university, industries, local governments, and rural communities, sharing common vision, cumulative knowledge, resources and capabilities. So, creating public awareness towards the importance of education and knowledge should also be strengthened.

Strategies for Effective Engagement

Governments, industry and universities need to design strategies for effective engagement for the welfare of the community, by sharing knowledge, skills and resources, solving societal problems and promoting economic growth & development (Sibhensana & Maistry, 2023). Governments in Sub-Saharan African countries highlight that developing partnerships in research, knowledge transfer and human capital is a necessity as a partner for the universities in efforts to grow appropriate sectors of the economy, such as agriculture, renewable energy, health, and manufacturing. Skills development is vital for achieving inclusive and sustainable growth. Enhanced partnerships between industry and universities to boost basic and applied Research & Development, and also established innovation clusters under the leadership of businesses and innovative groups. The Central American nation, Costa Rica, through the sustainable human development strategy, has facilitated partnerships between industry, the government and university.

Impact Assessment

The key objective with this action is to develop an analytical framework to investigate the impact of these partnerships on entrepreneurship training for youth beyond the typical beneficiaries, i.e. those youth brought up in well-connected families or communities with strong financial support systems. The project will be used to investigate and analyse the impacts of these University-Industry-Cooperative Partnerships on youth and young entrepreneurs in marginalised communities, paying close attention to the quality of the outcomes achieved. This will be examined focusing on the innovative aspects of these programmes, thus generating learning content to maximise their chances of success within the wider Design of Development.

For this Action, the focus is on the role of South African Universities linking with the wider Design for Development programme and examining the interaction between the Universities and other implementing partners introduced by Design for Development which these Universities link in to. This supports the assumption in the Results Framework that it is the quality and set-up of UICP (University-Industry-Cooperative Partnerships) which considerably influences the results achieved, more so than the involvement of specific actors. The impact of these University-Industry-Cooperative Partnerships will be qualitatively explored, especially with regards to youth related entrepreneurship training activities. The empirical data will be used to provide a diagnostic to the partnership stakeholders for the approach's continued development and improvement.

This diagnostic is intended to be of practical value in preparing an improved second generation of University-Industry-Cooperative Partnerships as a follow-up to this action. It investigates how both complementary and conflicting issues might determine or hinder the programme's future prospects and aims at optimizing possible synergies. Since it is recognised that the organization of such partnerships is a difficult and long-term task, the focus will be on the learning process, as well as on the constraints and opportunities imposed by the practices and rules of the various partners. This will be useful to better prepare the future UICP in upgrading these conditions.

Measuring Outcomes

The impact of entrepreneurship education in European universities: An intention-based approach analyzed in the Spanish area is presented with the goal of studying the impact of entrepreneurship education on the entrepreneurial intention of students in the Spanish area (Lanero, et al., 2011). Moreover, an intention-based model specifying antecedents to a nascent entrepreneurs' intention is evaluated. With those goals, a quasi-experiment is done involving an E3-designed entrepreneurship course and a comparable course, both which borrowing important elements from other experiences. From the perspective of impact, there is some evidence that the treatment of the sample forms significantly better intention-based models of entrepreneurial behavior than the untreated sample in the post-test stage. On the other hand, the study reveals that perceived feasibility, desirability, and subjective norm directly affect visitors' entrepreneurial intention about their environmental entrepreneurial project. The present research examines the impact of entrepreneurship education on the entrepreneurial intention of students in Science and Engineering versus Business Studies university programs based on an intention-based model specifying antecedents to a nascent entrepreneur's intention. The data were collected through a questionnaire survey based on a set of structural equations modeling techniques. Results reveal that taking entrepreneurship courses at university has a positive effect on students' attitudes towards entrepreneurship. The study also tests the interaction between the level of entrepreneurship knowledge before taking the course and the entrepreneurial intention after completing the course. It is found that the effect of completing entrepreneurship education on these interfaces is stronger for those students who had a low level of entrepreneurship after taking the course.

Longitudinal Studies and Data Analysis

Education about creating businesses is nothing new, yet entrepreneurship programs at all levels are currently spreading rapidly to become an important factor of export and innovation strategies. While the scholarly interest in the field has steadily increased over the last decades, there is a rather small body of empirical research. Even fewer studies are of a longitudinal or quasi-experimental sort. A general finding from the growing body of such studies is that entrepreneurship education most often has a positive impact on start-up intentions (Moberg et al., 2011). In an earlier study, 10 Northwestern European regions learned the foundation for successful entrepreneurship education. Three main ideas were education benefits from ownership and a shared vision; human resource skills are necessary for optimal learning; a need for learning targets and curriculum. A cluster of six regions develops a successful model. All regions enhance awareness due to profound self-reflective actions.

One typically separates between input and output measurements, dependent on whether the evaluation aims at studying tasks done and resources spent, or if the focus is on what has been achieved, what results have been obtained. The methods for measuring these factors can be both qualitative and quantitative. The choice of methods depends on the purpose and nature of the evaluation. Over a planned two-year period, within the frame of MICE(Motivation, Innovation, Competence, and Experience), a model for evaluating entrepreneurship education has been developed. With the aim of achieving compatibility throughout Europe, this model has also been designed to be versatile, that is, suitable for both quantitative surveys and qualitative studies, and adjustable, that is, adaptable to different types of entrepreneurship education at different levels of the educational system. Two types of measurements are seen as data sources for an evaluation: output and environment variables. Output variables describe the nature, scope, and results of entrepreneurship education projects, and environment variables are factors possibly affecting the efficiency and impact of the projects.

Challenges and Limitations

A cooperative is defined as an association of people for the purpose of production, procurement, distribution and/or marketing to enhance economic interests of its members. Scientists in Egypts public institutions of research and higher education are presented with the challenge of enhancing their university-based research activities (Mahgoub et al., 2025). Notwithstanding the combined strengths and resources of Egypts public institutions of IRHE, as single entities they are not seeing significant results. Therefore, this study seeks to provide insights and guidelines for cooperative strategies to promote university-based research activities through analysis of a successful cooperative mechanism that has been implemented by a pioneering University in the management of a science and technology park.

Useful data was gathered through primary and secondary research. The instruments used for primary research purposes included open-ended and closed-end questionnaires, personal interviews and direct observations. Information was collected on individual cooperative activities at the University and scientific amenities undertaken by the University and the Park. The collected data was analysed using both qualitative methods and quantitative techniques. Additionally, quantitative data available on the overall performance of the park was evaluated (Buitendag, 2018).

Resource Constraints

Despite the economic potential of youth-owned businesses, there is limited support and collaboration in this sector due to various reasons such as resource constraints. Despite the potential of many sustainable youth enterprises, its full potential is not unlocked due to the lack of supporting mechanisms. By using a South African case study, public financial institutions are investigated within the university-industry-cooperative partnership model as a point of access for financing for start-ups, owner-operated, micro and small and medium-sized youth enterprises, based in libraries in the township, rural and deep rural areas that face resource constraints for business development. Dynamism, the often marginalised user base of these communities, this type of libraries have untapped value for youth entrepreneurship development and can have a pivotal role in the aforementioned model. This study reveals how such financial support is accessed by way of a variety of conditions; namely, the need to have a (sometime

Cultural and Social Barriers

In the context of the FET colleges, diverse training courses form part of the curriculum and varying degrees of focus are afforded to both technical and entrepreneurial skills training. As such, successful entrepreneurship outcomes are dependent not only on a student's own entrepreneurial propensity, but also on the design and implementation capabilities of the college (Odora & Naong, 2014). The findings of this present study serve to understand the entrepreneurial support environments in two such colleges and in doing so highlight weaknesses and challenges within the curriculum. Recommendations that may be implemented within the colleges, as well as at a broader NQF(National Qualifications Framework) level, are put forward.

Furthermore, the analysis contributes to the understanding of entrepreneurship training in vocational institutes and identifies aspects which can be improved. Of particular salience is the requirement for more structured vocational and entrepreneurial interaction. Youth in South Africa are faced with significant challenges and constraints to self-employment, including limited entrepreneurial skills and knowledge, a lack of start-up capital, difficulties establishing market linkages and a challenging regulatory environment. The findings suggest that these requirements could be better supported if part of a holistic, composed package. Integration between future entrepreneurship outcomes and the design of effective vocational curriculums is undertaken. Analysis is based on the institutional economics theory of vocational training, as well as insights from the South African case context. A great interest exists in entrepreneurship and the creation of more jobs, but the prevailing negative perceptions of high risks associated with business are having a detrimental effect. Paradoxically, this occurs in a country where an entrepreneurial culture is most needed. Economic development is not the only factor determining rates of entrepreneurship but also attitudes and perceptions critically affect the likelihood of establishment of new enterprises. Similarly, a 샜 business environment correlated with achievement in society may also be a major factor impinging on increased entrepreneurship. Research concludes South Africa has been ranked within the bottom third of the examined countries, recording below average index scores for both entrepreneurial attitudes and perceptions. To change these norms it is important that the yardsticks of the economy are reconfigured in order to further progress.

The NQF forms the anchor point, and the current form does not permit for very many closer linkages to be formed between vocational training and businesses. At a broader level, findings then have the potential to explore whether the limitations of the NQF are more pronounced in some macro-sectors than others. Offsetting some of these clear limitations inherent to the NQF, further analysis considers the relationship between college training and the matrix of entrepreneurial needs on the industry side, as well as a more general understanding of employment dynamics at a theoretical level. For the latter, I anchored within the traditional stylized dichotomy of Growth vs. Development Economics. Thereafter, a description and analysis of the institutes and industries sampled is provided.

Policy Implications

Introduction Entrepreneurship has emerged as one of the key area of focus when it comes to employment, self-efficacy and economic prosperity across the globe. It is considered as an engine of growth as it creates employment and reduces unemployment (Lim et al., 2024). It has the potential to increase competition and offer a greater diversity to the consumer. Technological advances and changes in market forces have increased the importance of education in preparing people for successful careers in a changing world. Thus, investment in good quality education and training at all levels is essential. Recognizing the importance of entrepreneurship, many universities offer entrepreneurship training to their students to develop their business aptitude and skills. These skills include decision making, innovativeness, creativity, and business acumen (Oyinlola et al., 2024).

Through entrepreneurship training, universities can strengthen the abilities in their students to lead a business with independence. The cooperation between universities and industries can help in this regard because industries can provide students with valuable knowledge, advice, money, and other resources that entrepreneurs need. It is proven in economically developed countries that university graduates earn more than individuals who are high school or skill holders (Alpaydın & Kültür, 2022). This is only possible when quality education is imparted to students in higher academia across their specialized disciplines as well as in entrepreneurial skills. It is the need of the hour to establish the link between universities, industries, and young educators to overcome rural poverty in Pakistan.

At the time of their admission, the students' prior qualifications and economical status, parents' professions, and residences assures their future predictability in terms of positive or adverse. In today's challenging educational and economic era, in the remote areas of developing countries such as Balochistan, rural poverty has reached an alarming level due to a lack of advancement in different fields of life, especially education (Nasir et al., 2025). The establishment of new industries is negligible, and consequently, unemployment considers the vital factor for maintaining rural poverty. Joblessness and poverty lead to the disconnection of the youth from societal prosperity. Young individuals with numeric strength have the capacity to help overcome rural poverty. But different obstacles such as remoteness, lack of a skilled workforce, and non-availability of resources for entrepreneurship existence and then disappear from a minimum age of 15 to a maximum age of 29. In this regard, some institutions are taking measures to assist in raising educational standards, and some are attempting to develop and promote young people in entrepreneurship.

Recommendations for Policymakers

Policy recommendations emerging from the findings, among other things , highlight the importance that institutional policy relating to entrepreneurship education, and the techniques and methodologies through which it is imparted, are developed in ways which build from and support current entrepreneurial initiative. Moreover,

recommendations for policy are also made in relation to needs to build nested entrepreneurial ecosystems around delivery institutions, and facilitate the development of locally contextualised forms of teaching pedagogy. Importantly, these recommendations focus on the learning opportunities which otherwise marginalized students, both economically and geographically, have access to as they transition from higher education to the world of work.

The capacity of such students to transition successfully into this world depends not only on the ubiquitous availability of start-up capital, but also, more specifically, on recognition that this capital is best applied to the development of businesses which have been strategically designed for success, and on availability of contacts and networks within and beyond to the community to provide these young entrepreneurs with the know-how, advice, and access to market opportunities. As such, similar aspirations might be touted has emerged globally as a result of contentions, centered on social benefit, inclusive growth, and attempts to counterbalance the corporate power and practices of neo-liberal globalization, as to the win-win opportunities for co-operation between universities, economic businesses, and more local community interest groups. There is at least some empirical evidence that some such partnerships have emerged in the under-funded context of recent South African higher education policy (Oyinlola et al., 2024).

Supporting Frameworks for Partnerships

There is extensive evidence that entrepreneurship can assist in mitigation of this disadvantage by creating new job opportunities and introducing innovative practices in the community (Buitendag, 2018). For a sustainable future, it is also possible to intend that curiosity should be explored across all members of society. Current research also emphasises the significance of curiosity as an organisational arbitrator with economic growth implications. For youth in marginalized societies, there is an overall opinion that respect for entrepreneurship, and then choosing entrepreneurship as a profession or as an employment option, may be escalated by their views or better understanding of entrepreneurship. Youth should get a chance to develop these opinions and interest in entrepreneurship in order to explore this idea. Moreover, these values or preferences should also be considered in line with economic conditions, social context, government policy, and religious interpretation. Normally, it is anticipated that youth no longer have a high regard for entrepreneurship as a side business given the current economic condition in their societies, but high regard for entrepreneurship as a job or employment opportunity.

Or it may also be provided that youth have a high regard for Murabahah/rent-based entrepreneurship that has been ayd 郜 by their religious understanding or that the interest of young people in the Murabahah option they engage in. With this in mind, many policies and activities have occurred in recent years to support young people's entrepreneurial growth activities across the world. To offer these young people more opportunities physically, therefore, gives insight and cooperates to help them become more interested in entrepreneurship. To this, many research studies have occurred, particularly aimed at students, on the impact of entrepreneurial lectures on views on entrepreneurship or also entrepreneurial behaviour. The purpose of these activities is to map out methods that can ignite interest in entrepreneurship, including giving a lecture on entrepreneurship. It is expected that there will be a different effect on the views of entrepreneurship, thus encouraging this kind of entrepreneurship in full (Sun & Winston, 2019).

Future Directions

University-Industry-Cooperative-Partnerships (UICPs) are fundamental drivers of innovation, as well as technologies commercialisation and economic development. The aim of UICPs is improved penetration of entrepreneurial values among educational personnel and enhanced empowerment of young entrepreneurs. The benefits include fostering innovation and economic development, job growth and opportunities for graduates, increased engagement between higher education institutions and industry, and the generation of research projects that enhance overall competitiveness.

The rationale of university-industry cooperation is to transform the potential and valuable knowledge generated by universities into commercial products or services, hence reinforcing the social cohesion and the economic tissue. It is the social responsibility of HEIs to design, undertake, monitor, evaluate and improve actions to reach the aim.

This text presents the benefits regarding University-Industry-Cooperative-Partnerships (UICPs), specifically promoting youth employment and fostering the development of youth entrepreneurship. The selected actions are applicable to youth residing in marginalised and fiscalised areas. Section 1 provides an overview regarding the quality of UICPs. Section 2 discusses the benefits of UICPs regarding two strategic approaches: increased cooperation between higher educational institutions with industry, as well as the implementation of joint actions and mechanisms of cooperation to develop synergies that motivate and assist young people to start entrepreneurial activities.

Innovative Approaches to Training

Youth in marginalised communities in developing countries face a high unemployment rate, often suffering from insufficient job skills from low-quality hard endowments, a lack of a well-functioning job market, and low exposure to entrepreneurship competitions. Applying for underpaying jobs or jobs that require low skills is what most of these youth do. Informally, they survive through relying on small businesses, like selling daily items or small repair workshops, and they earn even lower incomes (Asamoah, 2014).

In universities, entrepreneurship modules and programmes are designed and run to benefit students through equipping them with knowledge on how to create a start-up. Although students further develop their personal skills by networking with other motivated students and prominent businesspeople, these modules never train students about other important aspects of entrepreneurship. The innovative product needed to start a high-tech business in a developing country, how to benefit from the local innovative assets, where to seek funding and support, and how to comply with local rules and accomplish the legal procedures. This is where university-industry-governmental partnerships become powerful (Buitendag, 2018).

Despite the different socio-economic contexts, each of them started to face challenges with being successful in the protection, commercialisation, and transfer of their scientific innovation. The vast majority of university-industry collaborative activities in these countries aim to increase country's industry and economic performance. Relevant partners for higher education institutions are the industries within the industry-inspirited institutions' close geographic proximity because they may offer possibilities for creating informal educational and research collaboration. Universities, at the largest extent, can transfer their own innovation into the economy through spin-offs. Thus, they support them by helping to protect the intellectual assets and embed the university's innovation in them during their creation. In discovering new scientific innovations within the unaffected faculty, recent projects and workshops guided by successful alumni or external partners are often indispensable. Science is a field where developed countries still have an unquestionable advantage. Thus, strategies resulting in cooperation on research and development. should be developed.

Sustainability of Partnerships

The sustainability of University-Industry-Cooperative Partnerships (UICPs) was investigated in developing youth entrepreneurship in South Africa's marginalised communities. Given the importance of UICPs in developing and supporting entrepreneurship, this study is intended to determine the extent to which UICP contribution factors are sustainable.

Sustainability is considered, focusing on six dimensions, on the achievability perspective that regarded partnerships as embodiments of a process rather than fixed entities that develop over time. Data were obtained from multiple sources, with partner feedback and institutional case studies verifying the partnership practices. It is a challenge, but a sustainable model of UICP in South Africa can provide some insight into how to determine the combination of factors that yield the greatest potential for sustainability.

Sustainability is the primary goal, signalling a desirable degree of permanence, a durable solution, and, in UICPs that objectives were attainable in the medium or long term. With regard to UICP, it refers to the durability and success of the partnership and to the behaviour and actions that ensure that partners remain committed and active in the UICP. An important correlate of sustainability is the continuing existence and overall stability of both individual UICP and group of UICPs.

4. CONCLUSION

No clear guidelines exist for universities on how to stimulate and support interdisciplinarians. A technology transfer office can, however, be an important facilitator if it has experience in industry collaboration. The following recommendations will assist IEOs to be more effective in the commercialisation of a successful university-industry innovation. Besides the importance of selecting the right industry partner, the right innovator should be selected at the university. A newly appointed innovator should demonstrate entrepreneurial capabilities, commercial interest and industry experience. In such a way possible industry collaborations could be identified more effectively. Industry seminars provide the opportunity for innovators to introduce current research projects and for industry partners to introduce their companies, current projects and technology needs. Furthermore, innovators should participate in industry focused conferences. This gives them the opportunity to broaden their perspectives and connect with potential industry partners. Economic competitive funds are highly effective in fostering university-industry collaborations. For this reason, IEOs should assist the innovators to prepare competitive proposals for funds and approach any newly established industry partner to consider preparing joint applications. The importance of industry ready technology cannot be emphasised enough. It is therefore essential that industry feasibility assessments, IP literature searches and development of technologies to industry partner specifications are addressed timeously (Buitendag, 2018). In such a way, the probability of licensing and start-up company formation will be greatly enhanced.

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