

**REGIONAL DEVELOPMENT  
MISSION OF UNIVERSITY  
COLLEGES**

A Case Study of Norway's Telemark  
University College (TUC)

**DANIEL TUTU MANU**



DEPARTMENT OF EDUCATION  
FACULTY OF EDUCATIONAL SCIENCE  
UNIVERSITETET I OSLO

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## **DEDICATION**

This piece of work is dedicated to my brother, Samuel Adjei Manu and my mum, Gladys Manu, who introduced me to the joy of reading from birth, molded and instilled in me an insatiable desire for knowledge, innovation, hard work and creative excellence. I am proud of you.

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# TABLE OF CONTENT

DEDICATION.....	I
ACKNOWLEDGEMENT.....	II
LIST OF TABLES AND FIGURES.....	III
ABBREVIATIONS AND ACRONYMS.....	VII
ABSTRACT.....	VIII
1 INTRODUCTION AND BACKGROUND TO THE STUDY .....	1
1.1 Introduction .....	1
1.2 Background to the study .....	1
1.2 Aims and Scope of the Study .....	4
1.4 Research problem .....	5
1.5 Significance of the study .....	6
1.6 Contents of theses.....	7
2 LITERATURE REVIEW AND ANALYTICAL FRAMEWORK .....	8
2.1 Introduction.....	9
2.2 Defining Regions .....	9
2.3 Regional role of Higher Education Institutions .....	9
2.4 Contribution of Higher Education to Regional Development .....	13
2.4.1 Contribution of Higher Education to regional socio-economic development ..	13
2.4.2 Contribution of Higher Education to regional cultural development .....	14
2.4.3 Contribution of Higher Education to Regional environmental development....	15
2.5. Role of Higher Education in addressing regional human capital needs .....	17
2.6 Contribution of Higher Education to Regional Innovation.....	22
2.7 Challenges of Higher Education in Regional Development.....	24
2.8 Lessons from previous studies on regional development.....	27
2.9 The Analytical Framework and study hypotheses.....	30
3. RESEARCH METHODOLOGY .....	33
3.1 Introduction .....	35
3.2 Research Design .....	35

3.3 Informed Consent.....	36
3.4 Sampling Technique .....	36
3.5 Instrumentation.....	37
3.6 Data Collection .....	37
3.6.1 Interviews .....	38
3.6.1.1 Approval .....	38
3.6.1.2 Confidentiality.....	38
3.6.1.3 Time and Duration.....	38
3.6.1.4 Language.....	39
3.6.1.5 Recording.....	39
3.6.1.6 Challenges.....	39
3.7 Thematic Data Analysis Method.....	39
3.7.1 Transcription.....	40
3.7.2 Data Classification and Interpretation.....	40
3.8 Ethical Issues.....	40
3.9 Challenges and Limitations.....	42
4 STUDY CONTEXT.....	43
4.1 Introduction.....	43
4.2.1 The Norwegian Higher Education System and Policy changes.....	43
4.2.2 2003/2004 Quality Reforms in Norway.....	47
4.3 Mergers in Norwegian Higher Education.....	48
4.4 Traditional Roles of Regional Colleges.....	50
4.5 Dynamics in Norwegian Higher Education.....	51
4.6 The Telemark Region.....	52
4.7 Profile of Telemark University College (TUC).....	54
5 DATA ANALYSIS.....	56
5.1 Introduction.....	56
5.2 Building and Strengthening Human Capital in Telemark.....	56
5.2.1 Recruitment of Students from Telemark.....	56
5.2.2 Localizing the Learning Process.....	57

5.2.3 Programmes Established to Respond to Regional Labour Market Needs.....	58
5.2.4 Promoting Life Long Learning.....	59
5.2.5 Graduate Retention and Employability in the Telemark Region.....	60
5.3 Strengthening the Knowledge and Innovation Capabilities of Tekemark.....	61
5.4 Responding to the Socio-Economic, Cultural and Environmental Challenges of Telemark.....	62
5.5 Bottlenecks Hampering the Regional Role of Telemark University College.....	63
5.5.1 National Factors.....	63
5.5.1.1 Inadequate Funding of Regional Engagement Activities.....	63
5.5.1.2 Unclear Policies at National and Regional Levels.....	64
5.5.1.3 Lack of Time and Resources.....	65
5.5.2 Regional Factors.....	65
5.5.2.1 Lack of Readiness of Industries to Absorb University Knowledge and Graduates...66	
5.5.2.2 Lack of Support from Regional Authorities.....	66
5.5.3 Institutional Factors.....	66
5.5.3.1 Lack of Internal Incentive Structures.....	67
5.5.3.2 Academic Culture.....	67
6. DISCUSSION AND RECOMMENDATIONS.....	68
6.1 Introduction.....	68
6.2 Role of TUC in Strengthening the Human Capital of Telemark.....	68
6.3 Role of TUC in Strengthening the Knowledge and Innovative Capabilities of Telemark.....	70
6.4 Socio-Economic, Cultural and Environmental Challenges Facing Telemark.....	71
6.5 Internal and External Bottlenecks Hampering TUC from more actively contributing to Regional Development.....	72
6.6 Implications of the Study.....	74
6.6.1 Implications for the Norwegian Government and Regional Authorities.....	74
6.6.2 Implications for Telemark University College.....	75
6.6.3 Future Studies.....	75
REFERENCES.....	77

APPENDICES.....	86
APPENDICE A: An Introductory letter from University of Oslo.....	86
APPENDICE B: Authorization letter from Telemark University College.....	90
APPENDICE C: Interview guide.....	91

# ABBREVIATIONS AND ACRONYMS

EU	European Union
HEIs	Higher Education Institutions
NOKUT	Norwegian Agency for Quality Assurance in Education
OECD	Organization for Economic Co-operation and Development
SMEs	Small and Medium Enterprises
TUC	Telemark University College
UNESCO	United Nations Educational Scientific and Cultural Organization



## **ABSTRACT**

There are several features that are regarded as drivers of regional development. Regional development in this sense refers to the economic and social advancements of a specific geographical location. One of the major drivers or engines of regional development is higher education. Firstly, higher education contributes to human capital development. One of the major goals of education is the impartment of knowledge, skills and attitudes to learners. Secondly, higher education is also known to be a driver of social development. Finally, higher education creates environmental awareness. In order to foster regional development, there is a need for higher education institutions to form close collaborations with firms, industries and other stakeholders in their surrounding communities and regions.

This study sought to investigate how Telemark University College (TUC) was engaging in the regional development of Telemark, Norway. To do so, the study specifically investigated four issues: (i) human capital development; (ii) strengthening knowledge and innovation capabilities; (iii) responding to socio-economic, cultural and environmental challenges; and (iv) internal and external bottlenecks constraining the regional role of TUC.

The study employed the use of a qualitative research strategy, using case study principles. The data was elicited from three sources: interviews with respondents, analysis of documents and the internet. Individual semi-structured interviews were conducted with 13 respondents from TUC, comprising deans, senior administrators, senior researchers, external actors and students. The data collected during the interviews, documents and the internet were subsequently analysed under each study question within the context of the literature review and the analytical framework adapted from a previous OECD (2007a) study.

The results suggest that there is a high expectation from Norway's national higher education policy and regional authorities for TUC to engage in regional development of the Telemark region. Similarly, TUC's institutional policies seem to depict its own role in regional development as a producer of human resource for regional and national development, as well as a provider of community services.

The findings further suggest that TUC is becoming relevant through its predominant teaching and limited research functions, which work together to form a third role or community service. However, there is weak collaboration between TUC and firms and industries within the Telemark region.

# **CHAPTER ONE: BACKGROUND AND INTRODUCTION**

## **1.1 BACKGROUND TO THE STUDY**

In today's knowledge economy, there is a widely held view that higher education plays an important role and has become an indispensable tool in the economic development of countries as well as regions. The World Bank (2002) emphasizes the fact that the accumulation and application of knowledge have become major factors in economic development, as knowledge is increasingly being placed at the core of a country's competitive advantage. Hence, countries without a minimum level of scientific and technological capacity will lag behind in areas such as life expectancy, health, sanitation, nutrition and infant mortality.

According to Damsgaard et al. (2009) the European Union (EU) recognizes higher education to play an essential role in the attainment of the objectives of the Lisbon Strategy of development across Europe. It is against the background that higher education institutions (HEIs) after Humboldt in the 19<sup>th</sup> century were traditionally tasked with teaching and research, which resulted in knowledge production and dissemination. In this vein Clark (1983) refers to the functions of teaching and research as the main technologies through which knowledge is transmitted. Thus, HEIs which form the core of knowledge production and diffusion are recognized as important actors and key instruments in the development of their respective countries and administrative regions.

The demand and expectations for HEIs to contribute more in developing their host regions cannot be overemphasized. In this vein, Clark (2004:1) observes that

“during the last quarter of the twentieth century universities around the world found themselves under increasing pressure to change the way they operate. Alert universities gradually recognized that they had to respond to proliferating new demands for government, industry and societal groups, while maintaining and improving their traditional

fields of research, teaching and student learning that became more complicated with every passing year”.

In a similar line of thinking, Arbo and Benneworth (2007:9) note that HEIs are not only supposed to perform their core functions of education and research but are also expected to “play an active role in the development of their economic, social and cultural surroundings”. Simply put, HEIs are assigned with a regional responsibility. What can therefore be argued from the above statements is that the notion of HEIs making active contributions to regional development is a topic that has garnered much attention in recent times.

For instance, in Norway, the last few decades have witnessed a wide array of reforms affecting regionally embedded institutions such as university colleges. In 1994, there was a reorganization of the non-university higher education sector: 98 vocationally oriented colleges (comprising teacher training, engineering, health education, social work and regional colleges and various other institutions offering specialist teaching programmes) were merged into 26 state colleges. The purpose of this reorganization was to strengthen the quality of HEIs’ administrative functions, effectiveness and efficiency (Kyvik, 2002). It can be observed that enhancing the responsiveness of HEIs to their regions was a key purpose of the merger. For effectiveness and efficiency to be realized, HEIs need to develop close relationships with their surrounding communities and regions.

The evolution of the traditional roles of HEIs from education and research to the adoption of the third role (also called community service or regional engagement) (Holland, 2001) makes it imperative for HEIs to form close collaborations with firms, industries and other stakeholders in order to foster regional development. According to Linden et. al (2008), the World Bank which works closely with the Organization for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) acknowledges the instrumentality of HEIs in regional development. Linden,et. al. (ibid) further note that the World Bank recommends close partnerships between HEIs and regional industries. However, for this to be achievable there must be active collaboration between HEIs and regional industries, with the government being the underpinning factor. Thus, the triple helix model of the

university, industry and government relations (Etzkowitz and Leydesdorff, 1999; Etzkowitz, 2001) is a key factor in the attainment of regional development.

In tandem with this, Lindqvist et al. (2012) observe that, in addition to education and research, there has been a general increase in the demand for HEIs to become involved in external collaboration. The authors further assert that most Nordic countries have introduced formal obligations for HEIs to engage in external collaboration to dispense knowledge, enhance the social impact of scientific and cultural activities, encourage the commercialization of research, and enhance the quality of education and research.

However, findings from an analysis performed by Sotarauta et al.(2006) for OECD on higher education and regional development paint Norway as a country whose higher education sector and regional stakeholders were not working together for national development. These findings were based on a review performed in the Trøndelag region (central Norway) that considered the prevailing and historic trend of the education sector in relation to regional development. The researchers found that the research and development progress in Norwegian institutions was modest compared to that in leading OECD countries; they recommend improvement coupled with increased engagement with regional authorities and industries. Thus, the study by Sotarauta et al. (2006) recommends a number of changes aimed at improving the relationship between Norway's regional stakeholders and HEIs. Top of the recommendations is the need to classify the key responsibilities of both sides in fostering development.

“The translation of visions into concrete actions implies a reinforced dialogue and strong commitment from all regional actors, as well as a collective strategic and implementation capacity, better co-ordinated co-operation between the higher education institutions, and a set of support mechanisms, such as industrial liaison offices, a science park and an elaborate city development plan (space for industry, office space, etc.). There is also a need for a ‘grander’ vision for the future” (Sotarauta et al., 2006:8).

Despite these declarations that knowledge has become a core factor for economic development and the increasing demand for HEIs to participate in more regional development, little has been

done to investigate to what extent the university colleges of Norway have been actively responding to the needs and demands of various regional actors.

This study aims to investigate one such institution; Telemark University College (TUC) whose major responsibility is to foster development in its region, to see whether this institution was actively responding to the needs of regional actors. TUC is a public institution with multiple campuses headquartered in Porsgrunn under the Ministry of Education, Research and Church Affairs. It was founded in August 1994 and rapidly rose to become a nationally recognized institution of higher learning. TUC is currently the fourth largest among 25 similar institutions in Norway. It enrolls more than 6,500 students taking various courses offered at its different campuses.

## **1.2 AIMS AND SCOPE OF THE STUDY**

First and foremost, the principal aim of this study is to investigate qualitatively whether the establishment of TUC in the Telemark region has indeed promoted regional development. This allows some conclusions and recommendations to be outlined or documented for future research.

Secondly, to attain this principal aim, the study thus aims to develop a deep insight into the nature of the courses offered by TUC and their significance in attaining regional development within the contemporary Telemark region. It intended to provide a clear understanding of the relevance of the knowledge obtained by students with reference to the needs of the region.

For the region to experience noteworthy development as a result of TUC's presence, the aims and objectives of the university college need to be in agreement with the region's human capital needs. Based on this notion, this study's results provide a deep insight into the real strategic goals of the institution alongside its performance in terms of the graduates produced. An analysis of the region's requirements in terms of human capital needs and other needs was performed as part of this study.

Finally, the study assessed the learning procedures in the institution, with the aim of gathering useful knowledge regarding the contribution of its graduates to regional development. A

comparison is also made between the main objectives of the university administration, those of the students and those of both internal and external stakeholders.

### **1.3 RESEARCH PROBLEM**

Few researchers (e.g. Arbo and Eskelinen, 2003; Pinheiro, 2012; Sotarauta et al., 2006) have investigated the roles that HEIs play in economic development in Norway. However, regional development encapsulates both the economic and social advancement of a specific geographical location. In harmony with this, the OECD (2007a) advocates for a broader conceptualization of regional development beyond only economic aspects. Thus, previous studies have not explored to what extent university colleges in Norway have been actively responding to the needs and expectations of wider society in terms of regional development. The scarcity of research in this regard necessitated the need for this current study, in order to gain a better understanding of how regional university colleges are actively responding to and engaging in regional development.

The objective of the research was anchored on four key research questions. The answers to the research questions highlight the ability of TUC to play a role in the development of the Telemark region. The main research questions represent several other possible unanswered queries arising from the research topic. They are:

- In what ways is TUC promoting the human capital developmental needs of the Telemark region?
- What role does TUC play in strengthening the knowledge and innovation capabilities of the Telemark region?
- How is TUC responding to the major socio-economic, cultural and environmental challenges facing the Telemark region?
- What are the internal and external bottlenecks hampering TUC from more actively contributing to regional development?

#### **1.4 SIGNIFICANCE OF THE STUDY**

This extensive study on the instrumentality of TUC in steering regional development was fundamentally inspired by the need to determine the extent to which institutions of higher learning help in transforming society. TUC provides a perfect case study for examining an institution's ability to spur development in its immediate region. This is mainly because TUC is the only adequately established public institution of higher learning in the Telemark region. This places the university college in a unique position where the entire region depends on it as the main source of human intellectual capital. Thus, the development of the region in terms of the knowledge and innovativeness of scholars also principally depends on the performance of the institution.

TUC is the main institution of higher learning in the region. Additionally, its campuses are spread across the region, which in itself is an interesting organizational design aimed at enhancing local responsiveness. Therefore, TUC's performance in terms of regional development remains relatively measurable. The research activity gave the researcher an opportunity to make a comparison between the existing literature and the real situation on the ground. The results can provide a reliable point of reference for the students in the different faculties in their quest to understand the usefulness of their education in the region.

The research findings can be used by students in the future for learning purposes and also for providing guidance to future researchers. This thesis shall be made available to the administration of TUC so that the recommendations may be directly of help to the institution. In addition, public and private corporations based in Telemark can use the published document to understand the role played by the institution in regional development. The research findings may also be used by regional and national authorities to lay development roadmaps. Thus, policy makers could use the findings of this study to understand (and eventually develop best practices on) the role of regional colleges in Norway in the development of their host regions. This will go a long way in contributing to the development of future policy frameworks.

The study also attempted to unravel the challenges that face TUC in securing its desired position in the educational sector. Thus, this thesis also provides information on the challenges arising



from the broader macro environment, the micro environment of Telemark and those arising internally in the university college.

## **1.5 CONTENTS OF THE THESIS**

This thesis is structured into six chapters. Chapter one presents the background to the study, the aims and scope of the study, the research problem and the significance of the study. Chapter two presents the analytical framework of the study and the literature review on higher education and regional development. Chapter three discusses the study methodology. Chapter four presents relevant background (contextual) information about the Norwegian higher education sector, the Telemark region and TUC. Chapter five presents and analysis the empirical data of the study. Finally, chapter six provides the discussion, implications and recommendations.

# **CHAPTER TWO: LITERATURE REVIEW AND ANALYTICAL FRAMEWORK**

## **2.1 INTRODUCTION**

Higher education is playing an increasingly important role in human, economic and social development. Escrigas (2008) explains that although the contribution of HEIs is vital, it is also fluid, dynamic and complex. HEIs have various capabilities and scopes and have direct and indirect effects on the processes of development through research, services and teaching. In addition, according to Thomson (2008), HEIs operate within contexts that are diverse, where they have copious roles and face a number of challenges. For example, a university based in an urban setting in China will look very different from one that is based in a rural setting in Ghana because of the requirements of their contrasting contexts (ibid). Although HEIs face many challenges in providing adequate and high-quality education in pursuit of particular goals, higher education is characterized by promising improvements that increase the quality, impact and effectiveness of these institutions' role in development as well as social change (ibid).

In the discussion of the role that HEIs play in regional development, most studies (e.g. Obanya, 2002) do not confine the term 'development' to macroeconomic forces of growth. Although this is very central, studies on higher education and development also focus on improving collective and individual human conditions, increasing equality, increasing choices and participation, improving standards of living and wellbeing, and improving consideration for the environment and sustainability (ibid). According to Obanya (ibid), development is not a goal to be aimed at or achieved but rather is a constant process of improvement that is greatly influenced by education, services and research by creating positive change in individuals, the people around them, their communities and the institutions, as well as in the structures that support them. Faure (1972) explains that higher education is about empowerment and increasing quality of life, through which individuals can continue to develop their skills and knowledge, adding that (higher)education is about learning to know, learning to do, learning to be and learning to live together.

This literature review discusses: regional role of HEIs, the role of higher education in addressing human capital needs; its contribution to socio-economic, cultural and environmental development; the lessons learnt from previous studies of regional development; and the challenges that HEIs face in attaining regional development. Nonetheless before we do that, a definition of region is certainly warranted.

## **2.2 DEFINING REGIONS**

Region, as a social science concept, needs clarification. According to Asheim (2006), a region can be defined as an administrative area. Thus, Telemark County can be defined as the Telemark region. A regional actor is an actor who is located in a specific region. The concept does not give details about the different actors in a region, such as the public sector, industry and civil society or the relationships between them. Industry comprises small and big companies, old and new companies, and companies in knowledge-intensive businesses and companies with less dependence on a well-educated workforce. It also consists of companies that produce industrial products, abstract knowledge or inputs to the production of other companies. Due to the diversity of the concept, region as used here refers to a specific area (such as the Telemark region), and a regional actor is an actor located in a region (Pinheiro, 2012).

Synthesizing the above theories, and for the purpose of the research questions posed above in accordance with the analytical framework, much of the literature presented below is drawn from the university engagement tradition.

## **2.3 REGIONAL ROLE OF HEIS**

In relation to the previous literature on the regional role of HEIs, two dominant approaches can be identified. These are the literature on triple helix model of university, industry and government relations (Etzkowitz and Leydesdorff, 1999; Etzkowitz, 2001) and the literature on university engagement (Chatterton and Goddard, 2000; Holland, 2001; Gunasekara, 2004a) classify these roles into generative and developmental roles. In regard to the generative role, universities are key drivers or engines (Castells, 1993) of economic development through academic entrepreneurial activities that overlap with traditional roles of industry and government

in regional innovation processes. These processes encompass a variety of boundary-spanning, knowledge-capitalization mechanisms, such as the establishment of incubators, firms, science parks and university research centres, as well as participation in the governance of firms. In terms of the developmental role, universities adapt their traditional roles in teaching and research to better support regional knowledge needs.

Debates and discussions in relation to the perspectives and roles of HEIs in regional development have raised issues, as regional development differs based on the way a region is defined (Garlick, 2005). As universities and colleges are located in different regions, they are influenced by different sets of regional actors and agencies. Garlick (2005) argues that the roles that HEIs have to play in regional development depend on globalization and the setting of the region in regard to economic development. Institutions located in regions that exhibit signs of economic development can become key assets and stimulants to economic development (Chatterton and Goddard, 2000).

Historically, the regional role of the HEI has been to provide individuals with the right set of skills and knowledge to embark on entrepreneurial careers and thus become job creators, which can have a significantly positive impact on regional economies (Lindqvist et al., 2012). HEIs have played a major role in nation building and in supporting a wide range of national institutions through the participation of academic staff in numerous public bodies. Nevertheless, as the institutions that regulate economic movements have become more regionalized, universities and colleges, through their resource base of people, skills and knowledge, are increasingly playing a vital role in regional networking and institutional capacity development (ibid). According to Lindqvist et al. (ibid), employees, either in formal or informal situations, can seemingly act as regional animators through representing an institution to outside bodies ranging from school governing panels and local authorities to local cultural bodies and development agencies. HEIs also operate as mediators in the regional economy by presenting, for instance, remarks and analysis for the media. Hence, they provide an indirect contribution to the social and cultural basis of effective democratic governance and, eventually, economic achievements in the course of the activities of self-directed academics (Chatterton and Goddard, 2000).

Chatterton and Goddard (ibid) state that the contribution of HEIs to addressing regional requirements is affected by factors that result from the relationship between geographic magnitudes from the global to the local, as well as from the historical background of the higher education institution and its region. Drucker and Goldstein (2007) argue that as HEIs are characterized by functions that are multi-faceted, they affect local economies in a number of ways. Prior research has established that, besides their direct impact on economic development, higher education institutions have eight distinct roles or outputs in modern research. The regional roles comprise knowledge creation, human capital creation, existing knowledge transmission, technological innovation, capital investment, regional leadership, knowledge infrastructure production and regional settings influence (Goldstein et al., 1995; Drucker and Goldstein, 2007).

According to Arbo (2005), the literature on HEIs and their role in regional development seems to concentrate on four basic subjects: the centrality of a university; the university's significance and purpose; the university's role and function; and the university's innovation plan and modes of governance. Arbo (ibid) notes that HEIs have always had an influence on their regions by producing well-trained and educated human capital and initiating research and innovations that are drivers of growth and regional development. Although the role of community outreach has often been perceived as an added task in some developed countries, most of the developing countries view community outreach as a fundamental task of HEIs. As such, it is usually integrated into the research and teaching functions of education institutions. Arbo (ibid) argues that many HEIs currently have a number of new outreach functions that include interfaces and initiatives such as science parks, career centres, research parks, business centres, incubation parks, distance-learning centres, entrepreneurship centres, regional service centres, partnership agreements and regional development strategies, all of which reflect the roles of the institutions in regional development. Arbo (ibid) emphasizes that very few other institutions are as deeply involved with their regions as HEIs are.

According to Lindqvist et al. (2012), one way that universities and colleges promote regional development, firm formation and university–government–industry interaction is through business incubators. Incubators were conceived from the convergence of public and private sector interests that sought to systematize the transition from invention to the commercialization

of innovative technology. University incubators offer a combination of mentoring and financing to newly established, innovative and high-technology firms. Their formation is improved by being organized as educational processes that have both formal and informal aspects. As such, incubators facilitate community development and international exchange, thereby contributing to regional development (Etzkowitz and Dzisah, 2008).

Lindqvist et al. (2012) further identify universities as contributors to the development of regions through entrepreneurship. These authors explain that entrepreneurial universities interact with innovative actors from the public and private sectors, thereby promoting regional growth.

Huggins and Johnston (2009) provide an analysis of the contribution of HEIs to the economic development and innovation of regions. These authors base their argument on two distinct categories: competitive and uncompetitive regions. They conclude that competitive regions are depicted as having the capability to catch the attention of and sustain firms with steady or increasing market shares in economic developments while at the same time sustaining standards of living for those involved. Uncompetitive regions, on the other hand, are defined by lower growth levels in terms of indicators such as output per capita and employment levels, as well as knowledge-based indicators such as innovation. The role of HEIs in this context is to increase the competitiveness of a region through innovation.

Chatterton and Goddard (2000) point out that HEIs can also contribute to regional development by participating in the drafting of regional action plans and agendas. To be precise, in each of the key themes contained in a regional development programme, it is likely that active institutional participation is a requirement.

Another role of HEIs is that they have a major impact on the operation of the regional labour market (ibid). Taking into account HEIs' relationships with employers at the regional level, Chatterton and Goddard (ibid) argue that it is important for HEIs to consider themselves as being positioned at the lead of an education supply chain that generates educated and skilled individuals for the region. These authors point out that this is, however, not the case in reality; unlike a business situated in a supply chain position, HEIs often commit relatively small amounts of resources to marketing their products (graduates) or to reacting to market requirement

indicators. These authors attribute the lack of marketing partly to funding administrations that reward production but not sale to the poorly developed devices to tackle the marketing role outside career services.

It can be argued that the regional role of HEIs is dependent to a large extent on the host context. Thus, the establishment of regional colleges in Norway in the 1970s was an instrument for regional development efforts. Norwegian regional policy traditionally located public institutions and industry in small cities and towns in Norway. Location of this kind for institutions and industries was the reason for serious conflict and competition between regions and municipalities. In line with the above statement, the Norwegian government realized the high potential of higher education institutions to contribute to regional development and has thus set up regional colleges in mostly peripheral regions.

## **2.4 CONTRIBUTION OF HIGHER EDUCATION TO REGIONAL DEVELOPMENT**

### ***2.4.1 Contribution of higher education to regional socio-economic development***

The relationship between the education level of a nation's labour force and its economic development has already been well established. Zumeta and Stephen (1996) explain that workers who are more educated earn substantially more than those with lower levels of education, even when accounting for other factors that are associated with education and earnings. The authors cite a report on the contribution of higher education to economic growth in the United States. The study reported found that higher education contributed 14% of the country's total growth between 1919 and 1982, while advances in knowledge (which is strongly associated with higher education) accounted for 24% of the realized growth. Zumeta and Stephen (ibid) point out that one of the ways through which HEIs contribute to economic growth is through research and the development of technological equipment, as well as through the provision of expertise. They argue that the research- and technology-driven connection between academic institutions and industry is important to economic development, particularly if academic research is of maximum value to the industry sector and is rapidly used to improve processes, services and products. The authors argue that most HEIs, especially those in developed countries, are now linked to industry and work with industry to increase efficiency through innovation.

#### ***2.4.2 Contribution of higher education to regional cultural development***

The goal of education, according to Sharma (2004), is to civilize individuals that are born to this world every minute. If it is not able to bring about noticeable changes in a learner, then education is worthless. Sharma (ibid) argues that education is regarded as the most powerful tool in bringing about change in humans. Education acculturates a person; at the same time, it transmits, develops and preserves the culture of society. Education and culture are complementary, supplementary and mutually interdependent in all their activities and aspects. Hence, the relationship between the two is inseparable (ibid).

According to Sharma (ibid), the relationship between culture and education is demonstrated by the fact that one of the major objectives of education is to have an impact on the student's cultural heritage. Education is expected to teach the students of a particular region or country about the world and how to look at it, as well as how to do things according to the acceptable ways of doing things in their own country (ibid). By doing so, education contributes to the development and preservation of culture. According to Sharma (ibid), the influence of education in cultural development can be understood by reviewing its effects on culture, which are:

- The preservation of culture;
- The transmission of culture from one generation (teachers) to another (students);
- The development of culture (modifies culture through research to bring about desirable changes);
- The continuity of culture by encouraging students to interact with other cultures so that they can develop tolerance and acceptance;
- The development of personality through presenting diverse patterns of behaviour, thinking and items of cultural value so that students are mentally, socially, emotionally and physically developed;
- Removing cultural lag;
- Attaining unity, and;
- Correcting cultural ills, among others.



According to Zwiers (2007), higher education contributes to the cultivation and inculcation of social and moral values in students, as well as in the surrounding communities. As such, HEIs play an essential role in social and cultural preservation or transformation.

Thomson (2008) notes that early articulations of this concept are drawn from *Newman's Idea of a University*, and there are several interpretations of this view. One such view is that proposed by Putnam (2002) in relation to social capital and civic community, in which civil society involves the government and other sectors in a constructive manner in order to facilitate their functioning.

According to Delanty (2008), higher education also plays a key role in the cultivation of democratic values and international citizenship. The common argument is that higher education should create graduates who are socially responsible and aware and who are capable of leading a community or a country towards success and prosperity.

#### ***2.4.3 Contribution of higher education to regional environmental development***

According to Jacobson et al. (2006), education is a key tool for sustainable development. They argue that one of the goals of the United Nations is to utilize education as a way of integrating the principles of sustainable development with human perspectives and values to create a sustainable society. However, very few studies have attempted to investigate the contribution of education to environmental development, as most people view education as an alloyed good. It is observed that studies on the link between HEIs and environmental development have cited research and teaching as the main ways through which HEIs contribute to environmental development.

A study conducted by UNESCO (2005) identified that limiting emissions of greenhouse gases, the innovation of gadgets to harvest and use green energy, and the innovation of efficient technologies that use less energy are just a few ways of the ways in which HEIs have contributed to environmental development. Another study conducted by Howe (2009) states that environmental education seeks to provide students with the opportunity to gain knowledge of, sensitivity towards and awareness of the environment. This can be done through experiencing problems related to the environment, which will help individuals to obtain the skills, positive

attitudes, values and motivation required to identify and solve environmental issues. This is another way in which HEIs contribute to environmental development through teaching.

At the regional level, the OECD (2007a) advocates for a broader regional development conception that embraces community development, welfare, social inclusion and cohesion, sustainability, and cultural vitality, thereby recognizing the fact that social, cultural and environmental developments have demonstrable economic and intrinsic gains. The OECD (ibid) stresses that these factors underpin community health, community welfare, social cohesion and sustainable development.

HEIs seek to transform community environments through collaborating with mainstream public or private service providers (such as providers of healthcare, social care, and private or public research) to benefit the community (OECD, 2005). Thus, the potential benefits to the community from such collaborations improve the cultural and socio-economic wellbeing of the people.

Chatterton and Goddard (2000) also observed a number of trends that are converging to increase the service function of HEIs. Among these is the growing realization of the global nature of problems such as poverty, economic development and environmental degradation. This realization has created a number of interconnected local responses, and HEIs are well positioned to interpret these international (social and environmental) issues on a local scale.

Puukka and Marmolejo (2008) assert that HEIs have placed strong emphasis on health services and welfare and that these areas show an ample demonstration of HEIs' activities in their regions. This may include the full operation of hospitals and medical networks, complementing or replacing health services provided by the government and private vendors, offering low-cost medical and dental services, and the establishment of student brigades, etc.

The OECD (2007b) study highlights a number of examples in which HEIs have responded to the challenge of demographic change in their respective regions. For instance, the Jyväskylä University of Applied Sciences (Finland) is working with a wide range of stakeholders to bring the long-term unemployed back into work.

## **2.5 ROLE OF HIGHER EDUCATION IN ADDRESSING REGIONAL HUMAN CAPITAL NEEDS**

Abel and Deitz (2011) state that social scientists have long predicted that advanced levels of human capital and individuals' knowledge and expertise have an impact on an economy's success. According to these authors, regions with advanced levels of human capital are perceived to have greater amounts of economic activity and fast economic development, and these regions' employees are likely to be more productive and have higher earnings. Hence, building regional human capital is an increasingly vital element of local economic development strategies. As a result, HEIs have an important role to play in addressing human capital needs. In a study conducted by Abijabe (2013), he cites Armstrong (2006) and explains that the human capital of an organization comprises the human factors (knowledge, skills and expertise) that give the organization its unique character. The human components of the organization are those that are able to learn, change, innovate and provide ideas. If properly motivated, these components can ensure the long-term survival of a given region.

It seems from the study of Abijabe (2013) that building the necessary human capital for the realization of sustainable development requires both a new ideology of living and innovative advancement to education. Therefore, sustainable development should be a regular part of the programmes and curricula of educational schemes at all levels. As pointed out by Pidlisnyuk (2010), education is a means of training human resources to optimize productivity by encouraging the spread of technology and cultural conditions favourable to social and economic change. Universities and colleges play an important role in strengthening human capital by means of putting in place certain standards of education that promote ideas, innovation and the acceptance of modern technology, with the side effect of realizing sustainable development. According to Abel and Deitz (2011), accustomed approaches that play a significant role in the economic activities contributed by colleges and universities often centre on direct employment or expenditure outcomes. On the other hand, the likely influence of colleges and universities exists beyond these standard effects for a significant reason. HEIs can lend a hand in strengthening the knowledge and skills or human capital of a region: an essential element of a region's economic success.

Abel and Deitz (2011) state that human capital comprises a wide range of knowledge and skills. They also state that college or university education represents a significant part of human capital development. They point out that recent research suggests that a region's colleges and universities can develop local human capital levels in two considerable ways. First, if new graduates stay in the local area, they directly increase the region's human capital supply. Nevertheless, skilled people are exceedingly mobile and may not remain in the regions where they earned their degrees (Abel and Deitz, 2011). Secondly, the knowledge facilitated by colleges and universities through research can play a vital role in raising the human capital in a region by assisting local businesses in creating employment opportunities with advanced human capital needs. As physical proximity has a considerable impact on the spread of knowledge and the sharing of ideas, academic research activities can make a noticeable contribution as a form of local promotion that is fixed to the region (Abel and Deitz, 2011). Therefore, an increase in human capital happens regardless of whether organizations employ local graduates or import them from other regions.

Pidlisnyuk (2010) point out that education is a mechanism for strengthening human resources to optimize productivity by encouraging technical innovation and enhancing cultural conditions that attract social and economic change. The main aim is to exploit all forms of capital (including human capital) to achieve quick, impartial economic development, with the eradication of the development's impact on its surroundings. Strengthening human capital, that is, the acquisition of people with the right skills, knowledge, competencies, mental states, mindsets and motivation, remains the most common long-term strategy in the pursuit of sustainable growth. Pidlisnyuk (ibid) argue that this is the only approach that can equip individuals in this regard while reducing the negative impacts of regional development on the environment and safeguarding the world for future generations. With this in mind, a significant factor in strengthening human capital is reinforcing the role of education (particularly multidisciplinary education on sustainable development) and conducting training of diversified groups of stakeholders, including scholars and specialists (ibid). Melnychuk et al. (2003) also note that HEIs are essential in promoting sustainable development and improving the capacity of people to address environmental and development matters.

Based on the link between the human capital in a region and the region's level of economic performance, producing skilled graduates is one of the approaches that higher education institutions use to increase regional human capital. A recent study conducted by Abel and Gabe (2011) established a fundamental link between human capital and local economic activity. These authors established that a 1% increase in the number of people with college degrees in a given region leads to a 2% increase in general economic activity in that particular region. The authors also state that other studies have revealed that regions with higher levels of human capital tend to have higher earnings, more innovation, rapid population and employment growth, and greater prospects for reinvention. Regarding the impact of human capital on a region's economic performance, it is critical to note that the presence of colleges and universities explains the large differences in human capital levels across metropolitan areas. Consequently, Abel and Gabe (2011) points out that building human capital for sustainable development requires the transformation of the educational system mainly at the university level, as universities are the main generators of human capital in their respective locations. Universities generate human capital for lower levels of the educational system, as well as for non-educational organizations. As a result, universities have a very significant role to play in the endorsement and implementation of sustainable development.

The literature reveals diverse ways by which HEIs can play a key role in the development of human capital in their regions. (OECD, 2007b; Puukka and Marmolejo, 2008) For instance, they can attract talent to the region and help to retain and develop it. They can also widen access to higher education, especially from remote areas, for communities with a low tradition of participation in higher education and among non-traditional learners who wish to combine work and study. Additionally, they can improve the balance between the labour market and supply through supporting new enterprises in their curricula, creating improved labour market intelligence and enhancing links with local employers. The OECD (2007b) notes that most countries have aimed to support their regional innovation systems by supporting technology research, technology transfers and business-related competitiveness; however, human capital development, localizing the learning process and upgrading regional base skills have attracted less attention. Nonetheless, the transfer of knowledge to students and graduates (which is subsequently absorbed into the regional economy) is one of the most effective means of

knowledge transfer and has great potential to transform regional economies. Thus, HEIs play a vital role in transforming regional economies by developing the skills of students and graduates within the region.

Lindqvist et al. (2012) reveal that Royal Institute of Technology (KTH) in Sweden has played an important role in developing human capital in Stockholm by increasing the recruitment of students from the region and by providing qualified labour to local employers. As an example, between 2004 and 2008, KTH University recruited 78% of students for Bachelor's and Master's levels from Stockholm.

In classifying the nature of the roles of HEIs in human capital formation into either developmental or generative roles, Gunasekara (2004a) reveals that the University of Western Sidney in Australia performs a developmental role in human capital formation. This is evident in the university's distinctive contribution to student recruitment and graduate retention and in the alignment of a number of education programmes to regional needs. In the study, it was found that regional issues shaped the delivery of health education programmes through work placements in hospitals, health centres and elderly care facilities, as well as co-teaching undertaken by university staff and senior hospital staff. In a similar vein, education programmes were grounded in the development needs of the region, through links with the public education sector. However, the study found that little attention was being paid to the development of education programmes that addressed specific regional industry needs, notably the needs of small and medium scale enterprises (SMEs). There was also little evidence of a systematic assessment of regional skill gaps and the development of programmes to address these gaps.

Higher education institutions (HEIs) develop the skill base of a region if/when they develop strategies to ensure graduate employability and retention in the region. In this regard, Chatterton and Goddard (2000) state that the level of graduate retention in a region reflects the interplay of different several factors, such as the ability of the university to offer skills training and courses that reflects the needs of the regional economy; the robustness, diversity and size of the regional economy; and the pull factor of 'core' regions. They further assert that HEIs can pursue more regionally focused programmes that can facilitate the retention of graduates in their regions. Whether a HEI can have a significant impact on the regional labour market or not depends to

some extent on whether the knowledge developed among its students is applicable in the region. Thus, HEIs have a responsibility to develop knowledge that can be applied in their regions. In line with this, the OECD (2007a) observes that a labour market mismatch can often be attributed to factors such as lack of labour intelligence; knowledge gaps between HEIs / graduates and regional employers; inadequate cooperation between HEIs and employers; and inadequate support for new enterprises. Hence, it is important that HEIs create strong links with employers and the labour markets in their respective regions.

The OECD (2007b) affirms that HEIs can also localize the learning process by drawing upon the specific characteristics of a region to aid teaching and learning. Locally based teaching is an effective way of exposing the region to the work of the institution and the skills and talents of its students. Furthermore, HEIs can also improve the regional skill base through distance education and lifelong learning. The OECD (2007a) points out that changing skill requirement in working life are causing lifelong learning and skill upgrading to become increasingly important.

HEIs have undertaken a number of regional initiatives to respond to external calls for them to make active contributions to regional development. In this vein, Boucher et al. (2003) found that graduates were offered better opportunities to find employment in either the private sector as employees or as entrepreneurs after the University of Twente (the Netherlands) introduced the Entrepreneurial Education Programme in 1994, which has the aim of boosting the regional relevancy of its programmes. Similarly, staff and students at the University of Limerick (Ireland) are encouraged to participate in exchanges of knowledge with local businesses through the Co-operative Education Programme, which enhances students' vocational skills by introducing off-campus work experience into the academic programme (ibid). The prime focus of such programmes is to strengthen the links between the university and the local labour market so as to create greater opportunities for students to stay in the regions upon completion of their studies. However, there is still a strong migratory pull from peripheral regions to core regions. It is therefore argued that, despite the efforts of universities, the push factors in peripheral regions may be rather difficult to overcome.

## 2.6 CONTRIBUTION OF HIGHER EDUCATION TO REGIONAL INNOVATION

Studies on the role played by HEIs in regional development have viewed HEIs as sources of academic knowledge (first role), as providers of academic education (second role) and as regional system builders (third role) (Benneworth et al., 2009). In tandem with this, Chatterton and Goddard (2000) affirm that research within HEIs, especially the university sector, has traditionally focused on the creation of basic knowledge for the national/international academic community and has neglected the application of established knowledge for the local/regional community. However, it has been observed that although strategies and activities differ across institutions and regions, universities are becoming important actors in regional innovation systems (Lindquist et al., 2012). Thus, HEIs and universities are therefore seen as active players inside of the regional innovation systems that contribute to the generation of knowledge.

Lester (2005:7) defines innovation to mean “the ability to conceive, develop, and/or produce new products and services, to deploy new production processes, and improve on those that already exist” According to Lester (ibid), there is increasing worldwide recognition of the links between innovation, productivity and prosperity. Thus, it can be argued that the innovation process, which begins with research and then development, leads to production and commercialization. He further argues that the university’s role in local innovation processes depends on what kind of industrial transformation is occurring in the regional economy. He therefore classifies industrial transformation processes into four typologies, as presented below. According to Lester (ibid), all these transformations have their respective roles for higher education institutions.

- ***Type I: Indigenous creation of a new industry.*** This involves the development of a new industry that has no technological antecedent in the regional economy. This approach is popular among both research-intensive universities and regional development agencies. It requires new venture capital and considerable investment into the commercialization of research results and ideas. An example is the development of the wireless industry in the Helsinki region.

In the context of the present study, universities can initiate type I transitions by providing various kinds of support for new business formation, offering proactive technology



licensing programmes and policies and engaging in efforts to broker ties between academic researchers and local entrepreneurs. Individuals at the university may also play important roles in establishing an identity for the new industry, convening conferences and workshops, initiating standard-setting activities, and generally acting as industry ‘evangelists’ by drawing attention to the existence of local concentrations of related activities and by painting a picture of future impact and growth potential.

- ***Type II: Transplantation from elsewhere.*** This transformation is allied with type 1 but involves the importation of a new industry to the region from elsewhere. An example is the arrival of major oil exploration, production and service companies in Stavanger (Norway) and Aberdeen (Scotland) following the initial discoveries of oil resources in the North Sea, which in turn provided the basis for the development of significant oil and gas industry agglomerations in the two locations.

Relevant university activities include responding to the local manpower needs of relocating firms, especially by developing new, customized curricula and continuing-education programmes. Universities may also provide technical assistance to local suppliers and subcontractors.

- ***Type III: Diversification into technologically related industries.*** Under this typology, the core technologies of declining industries are redeployed to provide a basis for the emergence of new industries.

An important role for the university is to cultivate technological links between disconnected actors, for example by establishing on-campus forums for the discussion of new applications of local industrial technologies. Another key role of the university is to help build the identity of the new industry locally.

- ***Type IV: Upgrading existing industries.*** In this approach, the transition entails the introduction of new production technologies or the enhancement of production and services. For example, through the revitalization of the industrial machinery sector in Tampere, Finland, the integration of electronics, control and communication technologies into traditional mechanical engineering product systems helped a group of local

manufacturers to achieve global competitiveness in the highly specialized machinery markets serving the forestry, paper and transportation industries.

Local universities contribute to technical problem solving through contract research and faculty consulting; developing industry-relevant degrees and continuing-education programmes; creating student internships and faculty placement opportunities in the local industry; convening foresight exercises and user–supplier forums on campus to discuss the future development of the industry; and participating in global best practice evaluation activities with local industrial practitioners.

Based on the above classification, Lester (ibid) argues that different industrial transformations or pathways require universities to play different roles. Hence, from this perspective, the ‘one-size-fits-all’ approach to economic development pursued by so many universities (which focuses on patenting, licensing and new business formation) should be replaced with a more comprehensive, differentiated view of the university’s role in regional innovation. He therefore suggests that universities need stronger awareness of the pathways along which local industries are developing and the innovation processes that are associated with those pathways. Universities need to align their own contributions with what is actually happening in their local economies.

## **2.7 CHALLENGES OF HIGHER EDUCATION IN REGIONAL DEVELOPMENT**

In spite of the high expectations and demand from wider society for HEIs to contribute more towards regional development, there is wide variation in the outcomes of the roles performed by HEIs. The literature unveils that the role of HEIs is constrained by three types of factors: institutional factors, regional factors and national factors.

According to Thomson (2008), for HEIs, there are many challenges that reduce their ability to conduct research, teach, and formulate and implement service projects. Similarly, it has been identified that a number of problems are due to HEIs being under-resourced (inadequate facilities and materials), overcrowded and under-funded (Chapman and Austin, 2002). According to the World Bank (2002), it is difficult for most HEIs, particularly those in developing countries, to get adequate and stable funding. The conditions imposed by some sources of funding sometimes

inhibit the freedom and ability of HEIs to reform in significant ways, causing a weak faculty mainly because the staff members require secondary sources of income due to low pay, have poor teacher training and have job security issues (Chapman and Austin, 2002). The HEI itself may have a weak infrastructure and poor institutional management, as many HEIs have been found to lack the resources required to maintain an efficient and effective administrative body. Finally, HEIs may have a lack of flexibility, as some HEIs are based on out-dated methods of instruction or are elitist.

The OECD (2007a) identifies that the way that HEIs are funded influences their attitudes towards regional engagement activities. The OECD expresses that, in centralized systems, the core funding of public HEIs is generally based on certain criteria that neglect regional engagement. In the absence of incentives, HEIs, particularly research-intensive universities, are more willing to give priority to their national and international roles. Thus, for HEIs to be fully engaged in the development of their regions, national governments ought to factor the regional development activities of universities into university funding schemes. Nonetheless, Gunasekara (2006) contends that there is little incentive from governments for universities to support regional development, although governments do encourage universities to support the development of their regions. According to Gunasekara (ibid), within the Australian context, there are limited regional sources of funding to support engagement activities by academics. The national funding scheme is based on excellence and specific national priorities, thereby creating little incentive for HEIs to participate in regional work.

Arbo and Benneworth (2007) state that the degree to which HEIs are able to perform their regional roles depends on circumstances such as the characteristics of the institutions, the regions in which they are located and national policy frameworks. Similarly, Boucher et al. (2003) note that the synergy between these factors can either foster or impede the contribution of universities to the development of their regions.

The literature reveals that, at the regional level, the ability of the economy or the regional labour market to absorb graduates into the region is crucial to the retention of graduates in the region. If the labour market is vibrant, then there is a high probability that graduates will be absorbed into the labour market. However, the reverse could be true: if the labour market is not vibrant enough,

there could be migratory pull to other regions. In this respect, Feldman (1994) suggests that the ability of a region to retain graduates from the local university is based on the demand for the graduates' services, especially in terms of the employment opportunities in the area. She further explains that local opportunities are a function of the types and occupational structures of the industries located in the area. Nonetheless, it has also been pointed out that the ability of the regional economy to absorb graduates also depends to a large extent on the degree of alignment between the university and the regional economy in terms of the programmes offered by the university. Put succinctly, the capacity of the regional economy to retain graduates from the university will go a long way towards contributing to the successful accomplishment of the regional role of the university.

At the institutional level, the literature highlights the notion that factors such as internal incentive structures and criteria for promotion influence the engagement activities of HEIs. Several studies have revealed that internal incentive structures and criteria for promotion do not put great emphasis on regional engagement activities. For example, according to Gunasekara (2004b), in Australia, interviews with managers and academic staff revealed that a key obstacle to embedding a focus on regional and community engagement was the university's promotion policy, which was not perceived as placing high value on regional engagement. Rather, the key criteria for promotion focused on teaching and the production of refereed research publications, with community service seen as a desirable requirement but not critical in decision making. Similarly, in his study of Nelson Mandela Metropolitan University (NMMU) in South Africa, Pinheiro (2010) found that NMMU's internal reward structures follow traditional public-funding models based on student and research outputs. Nonetheless, he notes that the new central administration is in the process of devising a new incentive system/policy, whereby engagement is expected to be included for the first time. However, he expresses that "given the financial stringency in which both the government and the university find themselves, it is not likely that substantial amounts of resources would be allocated to incentivise academics to further engage with, and directly contribute towards, economic development at the local/regional and/or national level(s)" (ibid:6). In this vein, there is the high possibility that the engagement activities of the university are not given a high priority. In harmony with this, Gunasekara (2006:157) states: "if regional engagement is to become embedded in institutional cultures, it is important

that the reward systems recognize the importance of this direction”. To a large extent, this will motivate academics to involve themselves in activities of a regional nature.

Another factor as revealed in the literature is the attitudes of academic staff towards engaging in activities of a regional nature. The recognition that engagement in regional activities is a legitimate role of HEIs is not fully approved by all. In line with this, Gunasekara (ibid:159) states that some academic policies on regional engagement represent a curious development that creates a dissonance between the institutions’ different constructed role identities, adding that these identities (“founded upon norms of independent enquiry and membership of worldwide academic commons”) are potentially challenged by the prospect of regional work. Moreover, case studies from the regions in the OECD study suggest that there has been, and continues to be, resistance in the academic community to regional engagement because it is assumed that it may limit national and international engagement (Puukka and Marmolejo, 2008). Hence, within the higher education institutions themselves, there are some academics and other internal actors who resist engagement in regional activities.

## **2.8 LESSONS FROM PREVIOUS STUDIES ON REGIONAL DEVELOPMENT**

Several lessons from the existing literature could be used by HEIs to contribute more effectively to regional development. According to the Task Force on Higher Education and Society (2000), HEIs must first deal with internal constraints for them to be effective. This report argues that an institution must have good organization as well as good governance to function properly. They identify teacher training, democratic and visible management structures, and job satisfaction as essential elements that play a role in ensuring the stability of an institution. These elements also determine how the institution is managed.

According to Thomson (2008), external constraints (particularly the rapid changes brought about by globalization) need to be taken into consideration by HEIs. Globalization has created knowledge-based economies and specialized workforces; however, at the same time, it has also brought about rapid changes in societies and technology (Task Force on Higher Education and Society, 2000). Higher education has therefore been redefined as a lifelong process that requires not just readjustments but also restructuring and reforms based on new requirements.

According to Obanya (2002), the content of education in terms of what is taught and how it is delivered is perhaps the most vital issue. It is necessary to have a balance between tangible and intangible skills if knowledge-based economies are to achieve the changes they seek. Tangible skills include trades, specific knowledge, intangible lifelong-learning skills and abilities such as critical inquiry, creativity, participation, entrepreneurship, and other interpersonal and relational values. There are many possible tangible skills that universities and vocational/technical schools can teach students (ibid). The context and market exigencies determine which skills or trades are most in demand. In addition to providing vocational training, HEIs must also train their students in performing essential simple tasks, such as CV writing.

Thomson (2008) argues that intangible skills such as creativity, entrepreneurship and critical inquiry are all important aspects of higher education for which experimental and alternative learning plays a key role. Taylor and Fransman (2004) argue that there is a need for a more general education whereby students learn to learn and are able to apply the knowledge acquired in different situations. These authors call for the inclusion of:

- Methodological learning;
- Interdisciplinary education;
- Educational approaches that foster appropriate skills as well as values in students so that graduates become more interactive and productive members of society;
- Empowerment;
- Participation and transformation so that students gain confidence and social resources to enable them to take control over different situations using intangible skills;
- Teaching of local, indigenous knowledge and ways of learning;
- Entrepreneurial training, as learning the values, ethics and skills of entrepreneurship is important not only to students but also for the purposes of regional economic development; and
- International education so that students are aware of the world and how they can function within it.

Thomson (2008) also emphasizes the importance of the local relevancy of what is being taught by HEIs, as well as the importance of long-term strategic planning. Teaching and research are

relevant not only to students but also to surrounding communities, and they should have long-term strategic goals (ibid).

In addition, there is also a need for higher education diversification and the reformation of existing institutions. According to the Task Force on Higher Education and Society (2000), the differentiation of HEIs can be horizontal (which refers to the development of new, specialized types of HEIs, such as vocational institutions that use alternative methods of instruction like distance learning) or vertical (which refers to increasing the type of degrees offered at HEIs). The report argues that this increases flexibility in regard to length of study and study time (including weekend, night and part-time studies), hence providing greater access to higher education. Alternative education is also identified as an important way of exploring new ways of thinking, new forms of education and new forms of knowledge (Thomson, 2008).

Furthermore, interactions, partnerships and networking between HEIs and other organizations have two related but very important functions:

- They ensure that information, knowledge research and other possible solutions to new problems are disseminated; and
- They facilitate collaboration between organizations, experts and local citizens on national, regional and international levels on specific projects in research, education and development (ibid).

According to Thomson (ibid), HEIs should engage with other HEIs, governments, the community, NGOs and businesses for them to contribute to socio-economic, cultural and environmental development effectively.

The final lesson is on the quality of education. Thompson (ibid) explains that quality and purpose in education are directly linked to multi-dimensional concepts. The Task Force on Higher Education and Society (2000) argues that, for an HEI to ensure quality assurance, clarity and accountability, it must develop and provide succinct and clear visions of the institution for the future, including scope, core values and a mission statement. Pyle and Forrant (2002) examined the trade-off between private and public universities and established the following: while private universities usually have more freedom to explore various options in teaching, service and

research, it is the case that public universities remain the larger part of a developmental scheme. However, Obanya (2002) explains that this does not necessarily mean that public institutions of higher learning are more successful in promoting development; rather, it implies that private universities can appear disconnected from others if communication and interaction between them does not exist with a certain given context. According to Obanya (ibid), quality also refers to the social responsibilities of an institution. To this end, an HEI should be exceptional and consistent, have a purpose, offer good value for money and involve transformation.

## **2.9 THE ANALYTICAL FRAMEWORK AND STUDY HYPOTHESES**

As the predominant purpose of this study was to investigate qualitatively whether the establishment of TUC in the Telemark region has indeed promoted regional development, it was imperative to employ a framework or tools for analysing data. This study therefore adapted the analytical framework utilized by the OECD (2007a).

The analytical framework employed by the OECD (2007a) has received a fair amount of criticism from scholars within the realm of higher education. For example, Pinheiro et al. (2012) contend that the model conceals the tensions and problems both within universities and between universities and their regions. Nonetheless, when it comes to adapting a framework to suit a particular study, the Department for Communities and Local Government (2009:5) emphasizes that:

“Those undertaking evaluations may use the framework as a starting point/structure within which they can map out the questions that are relevant to their specific evaluation. This may involve tailoring the framework and its constituent questions to the specific initiative or project that is being evaluated, or simply selecting relevant questions from the framework... Evaluators will need to consider which methods are appropriate and feasible for their particular study”.

First and foremost, adapting the OECD framework for the study was based on the rationale that the framework emphasizes that the regional role of HEIs should be integrated into the core functions of HEIs, rather than detached from them.



Secondly, the framework provides a broad conceptualization of the notion of regional development. Puukka and Marmolejo (2008) argue that regional development is often thought of only in economic terms with a focus on technologically based development, thereby drawing on a narrow concept of innovation. Thus the conceptualization of regional development should encompass human capital, social, cultural and environmental development, with consideration for the fact that the regional role of HEIs is not merely due to the contribution of research to regional innovation.

Moreover, the framework suited the purpose of the study and the research questions under investigation.

### ***ADAPTING THE ANALYTICAL FRAMEWORK***

This study adapted the analytical framework utilized in the OECD (2007a) study: Higher education and regions – Globally competitive and locally engaged. The present study aimed to investigate the following:

- The contribution of research to regional innovation;
- The role of teaching and learning in the development of human capital; and
- Higher education institutions contribution to social, cultural and environmental development;

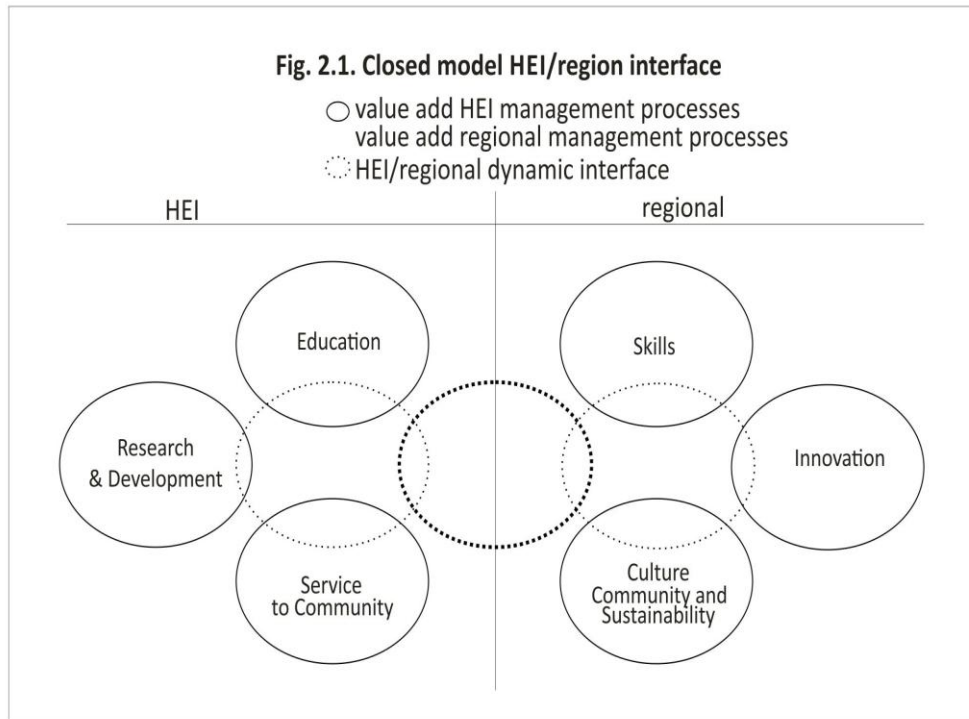
An examination of the framework employed in the OECD (2007a:22) study shows how regional engagements of HEIs are conceptualized into three aspects, namely:

- Knowledge creation in the region through research and subsequent exploitation through technology transfer (intellectual property rights, spin-off companies, consultancy, etc.);
- Human capital formation and knowledge transfer (localizing the learning process through work-based learning, graduate employment in the region, continuing education, professional development and lifelong learning); and
- Cultural and community development contributing to the milieu, social cohesion and sustainable development, on which innovation in the region depends.

Among other things, the study challenges HEIs to evaluate critically how effective they are in contributing to the development of their host regions, based on the aforementioned conceptualizations.

The analytical framework in the OECD study (2007a) adopts a closed model of the interface between the region and HEIs, with the assumption that the activities of HEIs are limited to their regions, which is not the case in reality. The framework is depicted below:

**Figure 1**



Source: Adapted from Goddard and Chatterton (2003)

On the left side of the framework, the three identified traditional roles of HEIs – teaching, research and service functions – are depicted. On the other hand, the right side encapsulates the three key aspects to regional development – skills, innovation and cultural and community cohesion (including environmental sustainability). The focus here is on the processes that link

together all of the components in the HEIs and the region into a learning system (Chatterton and Goddard, 2000). Chatterton and Goddard (ibid) explain that the challenge within individual institutions is to link the teaching, research and community service roles by internal mechanisms (funding, incentives and rewards, staff development, communication, etc.) that make these activities more responsive to regional development. Thus, these connections refer to the value-added management processes. Additionally, the challenge within the region is to engage HEIs in the numerous facets of the development process (such as skills enhancement, technological development, innovation and cultural awareness) and to link them with intra-institutional mechanisms in HEI – region value-added management processes.

In order for HEIs to perform their regional roles, the OECD (2007a:11) postulates that “they must engage with others in their regions, provide opportunities for lifelong learning and contribute to the development of knowledge-intensive jobs which will enable graduates to find local employment and remain in their communities”. Thus, the services of HEIs should go beyond providing education and undertaking research. The authors further explain that this has ramifications for all aspects of these institutions’ activities (teaching, research and services to the community) and for the policy and regulatory frameworks in which they operate. Premised on this insight, the OECD framework is informed by the argument that if the regional mandate of HEIs can be adequately achieved, their predominant activities can be connected to regional development needs.

## **STUDY HYPOTHESES**

The following four hypotheses were developed based on the analytical framework of the OECD (2007a) study and the literature review:

### ***Hypothesis 1:***

TUC is likely to make a significant contribution to regional development if/when their teaching functions are connected to development in line with the skill needs of their immediate regions.

### ***Hypothesis 2:***

TUC is likely to make adequate contribution to regional development if/when their research functions have a strong focus on enhancing the innovation capabilities of the Telemark regions.

***Hypothesis 3:***

TUC is likely to make adequate contributions to regional development if/when their service functions are connected to the social and environmental development of their immediate regions.

***Hypothesis 4:***

The role of TUC in regional development is shaped by institutional characteristics, regional characteristics and national regulatory frameworks.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 INTRODUCTION**

This chapter provides an overview of the research design and methodology used for this study. It begins with a presentation of the research design of the study, followed by the fieldwork process, detailing the process of gaining informed consent, the sampling method and the research instruments used. As this study was qualitative due to the explorative nature of the research questions and the focus on the perspectives of informants within the research community, semi-structured interviews were employed in this research. Secondary sources of data were also used. The chapter concludes by presenting how the data were transcribed and analysed; it also outlines the limitations associated with the research process.

### **3.2 RESEARCH DESIGN**

A research methodology can be classified as qualitative, quantitative or a combination of both. A qualitative method was chosen in this study to investigate how TUC was responding and engaging in regional development. A case study was therefore employed in this study. The case study approach entails conducting detailed and intensive analysis of a single case (Bryman, 2008:52). Drucker and Goldstein (2007) also corroborate the selection of a single case by suggesting that single-case studies generally provide the most complete picture of the activities of a particular university. Additionally, Matthews and Ross (2010:128) note that a case study design enables a research project to be “explored in detail and great depth”, whether the subject of the case is a person, organization or situation. However, the case study approach has its weaknesses. According to Bell (2005), focusing on a single case can make it difficult to cross-check information. She further points out that there are the dangers of the distortion of information and selective reporting.

In order to minimize the weaknesses of this approach, the data were collected using semi-structured interviews with administrators in TUC, document analysis and the use of the internet. As observed by Denzin and Lincoln (2000), the use of multiple sources increases confidence in the data interpretation, helps to confirm the validity of the study processes and reduces the bias that may arise from using a single method.

### **3.3 INFORMED CONSENT**

Informed consent is seen as an essential aspect of the process of undertaking research. It is a way of ensuring that the research participants understand what they are agreeing to participate in and the potential implications of the research for them. This is ensured when the researcher provides the participants with pertinent and adequate information about the research in order for them to decide whether or not to participate (Matthews and Ross, 2010). It also avails the researcher the opportunity to justify the need for such a study. Mathew and Ross (ibid) argue that informed consent allows participants to participate freely in research with the knowledge that they can withdraw from the study at any time.

Kvale and Brinkmann (2009) opine that informed consent can be in the form of written or oral consent. Regarding written consent, a participant is presented with a written document containing all the relevant information about the research, what the researcher intends to achieve and the implications of the research for the participant. Oral consent, on the other hand, involves the researcher providing the participant with verbal information for the purposes of obtaining their consent, and the person in return verbally consents to take part in the research.

In this study, the researcher sought the informed consent of the participants both through written and oral forms by first sending them the introductory letter from University of Oslo and a brief introduction of my topic to enable the respondents to freely consent to or decline to participate in the study. Regarding the recording of the interviews informed consent was as well sought first before recordings were done.

### **3.4 SAMPLING TECHNIQUE**

This study employed the use of purposive sampling. Matthews and Ross (2010) state that purposive sampling involves choosing informants and cases based on characteristics and experiences that relate directly to the research questions or field of interest. Manning (2000) corroborates this observation by affirming that the aim of purposive sampling is to enable the researcher to gather a multitude of viewpoints on the issue being studied. Nonetheless, it has been identified that purposive sampling has weaknesses. For instance, according to O'Leary

(2004) unintentional bias and non-representativeness are two main weaknesses associated with purposive sampling.

Against the background of the overall objective and nature of the research questions to be investigated, the researcher needed to select respondents strategically from selected units within TUC. This needed to be done so that relevant information could be gathered on how the university college is responding to the skill needs of the Telemark region, promoting regional innovation, and contributing to social and environmental development. To achieve this, the researcher needed to collect data from various faculties and departments. Hence, the researcher drew respondents from the university's central administration, deans, senior administrators and senior researchers of the various faculties (Arts and Sciences; Art, Folk Culture and Teacher Education; Health and Social Studies; and Technology) and regional actors. In total, seven internal respondents were recruited from across these faculties for the study. In order to triangulate the information obtained from the internal respondents, it was imperative to obtain information from external respondents. Thus, this study made use of the views and opinions of external actors and by extension, external respondents thereby enriching the data elicited.

### **3.5 INSTRUMENTATION**

This study made use of several data collection instruments to extract and record information. The study largely employed interviews. Interviews are research instruments whereby oral questions are directed to the interviewees with the aim of collecting data for use in the research. Therefore, specific interviews were designed to elicit data on (i) the national and regional expectations of TUC; (ii) TUC's recruitment policies; (iii) TUC's links with firms and industries; and (iv) TUC's primary activities. In addition, online literature and relevant online information was accessed. Respondents and other authorities were also contacted via phone for more information or clarification on the issues emerging from the interviews or from the online documents.

### **3.6 DATA COLLECTION**

Yin (2009:101-102), reveals six sources of data for case studies: documents, archival records, interviews, direct observation, participant-observation and physical artefacts. Matthews and Ross (2010) assert that a combination of these different data collection methods enables the researcher

to get a holistic picture of the subject matter under consideration. In this regard, this section discusses in detail how the data collection instruments described above were applied in this study.

### ***3.6.1 INTERVIEWS***

According to Bryman (2008), in semi-structured interviews, the researcher has a series of questions or fairly specific topics to be covered but has a great deal of leeway in how to present them. Semi-structured interviews were used in this study, which enabled the researcher to (i) observe the non-verbal behaviour of the respondents; (ii) to be flexible in the interview approach; and (iii) to control the direction of questioning and the length of the interview.

#### ***3.6.1.1 APPROVAL***

Before the researcher's visit to Telemark for the interviews, an introduction letter from the University of Oslo and a brief description of the study (detailing the study's purpose and objectives) were sent to the registrar of TUC. The registrar gave permission for the researcher to conduct the interviews in TUC and also asked the respondents to cooperate. Following this, appointments were scheduled with individual respondents and each respondent was provided with an interview schedule.

#### ***3.6.1.2 CONFIDENTIALITY***

Assuring confidentiality is important to ensure that information is freely given. The respondents were informed that the TUC case study was simply an academic undertaking and that their personal information would be kept confidential.

#### ***3.6.1.3 TIME AND DURATION***

The interviews were held in the offices of the respective respondents during work hours. Each interview lasted for one hour on average.

#### ***3.6.1.4 LANGUAGE***

Although Norwegian is the official language used at TUC, both the study and interviews were conducted in English for the ease of communication between the researcher and the respondents.



### **3.6.1.5 RECORDING**

With the consent of the respondents, all the interviews were recorded with a digital recording device.

### **3.6.1.6 CHALLENGES**

The interviews were challenging due to the respondents sometimes struggling to express themselves in English because of their familiarity with the use of Norwegian as a medium of communication.

## **3.7 THEMATIC DATA ANALYSIS METHOD**

Data analysis in qualitative research is a continuous process. Thus, in this study, the data analysis was done throughout the research process. Mathews and Ross (2010) define data analysis as the process of describing and interpreting data in relation to the research questions under consideration. According to Patton (2002:432), qualitative data analysis involves the process of reducing the “volume of raw information, sifting trivia from significance, identifying significant patterns, and constructing a framework for communicating the essence of what the data reveal”. Thus, the researcher attempts to bring meaning and understanding to the data that has been collected from the field.

For the purpose of this study, thematic analysis was used to analyse and interpret the data. Thematic analysis is one of the most common approaches used to analyse qualitative data. According to Mathews and Ross (2010: 373), thematic analysis is “the process of working with raw data to identify and interpret key ideas or themes”. It also includes examining the data to identify the relationships within the data in order to address the specific research questions (ibid).

In the present study, thematic analysis helped the researcher to examine the perspectives of the interview respondents and also helped to address the specific research questions and subject matter under consideration.

### ***3.7.1 TRANSCRIPTION***

Transcription refers to the process of transforming oral language into a written form (Kvale and Brinkmann, 2009). Heritage (1984, as cited in Bryman, 2008) argues that transcribing audio recordings avails the researcher the opportunity to examine the accounts of informants thoroughly. It also enables data to be scrutinized by other researchers. However, Bryman (2008) highlights that, in spite of the usefulness of transcribing interview recordings, it is a difficult process that consumes a lot of time.

According to Bryman (ibid:451) the reason why qualitative researchers record and transcribe interviews is that their emphasis is on “not just what people say but also in the way that they say it”. It also prevents the tendency to gloss over salient issues during the interview process.

### ***3.7.2 DATA CLASSIFICATION AND INTERPRETATION***

The transcribed material and the online documents were later classified into themes and subthemes. Bryman (ibid: 554) asserts that classification helps to construct an index of central themes and subthemes, which are then represented in a matrix that closely resembles a Statistical Package for Social Sciences (SPSS) spreadsheet with its display of cases and variables. This study employed the use of the following broad analytical themes: building and strengthening human capital; strengthening knowledge and regional innovation capabilities; social, cultural and environmental development; and internal and external bottlenecks to the HEI’s regional development role. The overall research objectives and the research questions formed the basis of these broad categorizations. Subsequently, all these broad themes were further narrowed down into respective subthemes.

After performing thorough data categorization, the researcher made simple computations and explored several data presentation methods. Finally, interpretations and conclusions were drawn.

## **3.8 ETHICAL ISSUES**

According to Russell (2000:22) “the biggest problem in conducting a science of human behavior is not in selecting the right sample size or making the right measurement. It’s doing those things ethically”. Notwithstanding this challenge, every research activity needs to adhere to research

ethics. In this respect, Bryman (2008:113) contends that ethical issues cannot be ignored, as they relate directly to the integrity of a piece of research and of the disciplines involved. Similarly, Silverman (2000) also postulates that because qualitative research inevitably involves contact with human subjects in the field, ethical problems are not usually far away. He explains that although ethics may vary across disciplines and national boundaries, there are a number of general principles on which most researchers would agree. Prominent among these are:

- Voluntary participation and the right to withdraw;
- The protection of research participants;
- Conducting an assessment of potential benefits and risks to participants; and
- Not doing harm.

Thus, considering the important part that compliance to research ethics plays in any research endeavour, the researcher complied with ethical principles through the following steps:

- The data collection process was initiated only after the research proposal had been approved by the faculty of education (the University of Oslo) and after permission to carry out such a study at TUC had been granted by TUC's administration;
- The researcher sought the consent of all the respondents involved in the study and ensured they were willing to participate; and
- For every digitally recorded interview, the researcher obtained permission from the respondents before the use of the recording device. The interviewees had every right to decline being recorded.

Apart from the secondary data collected from textbooks and previous research, all the other data were provided by the respondents. The researcher therefore handled the respondents' data with due care. The questions were framed so that they were not likely to offend the respondents and so that adequate information could be gathered. The researcher was very careful when interviewing the respondents. Finally, the researcher assured all the respondents that the information collected would be treated with utmost confidentiality

### **3.9 CHALLENGES AND LIMITATIONS**

The first limitation of the study is that TUC comprises four campus sites. However, the researcher was unable to visit all four campuses. The sampling method for this research was purposive, therefore making it difficult to generalize the findings of this research beyond its population.

Also, it was difficult to find key respondents at TUC who could enrich the data. The respondents informed their colleagues that they had already given the information required, so there was no need to give the researcher their perspectives on some issues already responded to. This made it difficult to triangulate the information gathered.

Similarly, it was not easy to get access to and schedule interview appointments with external stakeholders in the Telemark region, whose perspectives were deemed crucial to enriching this study.

Moreover, the study had a limited sample size – only formal leaders – and does not really reveal what is going on at the departmental level.

Furthermore, the study was qualitative in nature – so a survey would have reached a much larger audience

Additionally, it was difficult for the researcher to get information in English from the documents and the interviews, as the respondents found it very difficult to express themselves clearly in English.

## **CHAPTER FOUR: STUDY CONTEXT**

### **4.1 INTRODUCTION**

This chapter provides information on the study context, including: the background, policy changes, mergers, reforms and dynamics of Norwegian higher education; the traditional roles of regional colleges; the regional role of higher education institutions; the Telemark region; the socio-economic and cultural aspirations of the Telemark region; and finally TUC. This information is given to provide the contextual environment in which the study was carried out so that the findings can be viewed with consideration for the study context.

#### **4.2.1 THE NORWEGIAN HIGHER EDUCATION SYSTEM AND POLICY CHANGES**

Higher education in Norway comprises eight universities (all state operated), nine specialized institutions at the university level (three of which are private) and 21 university colleges. The university colleges and universities are the two largest parts of the system. The university colleges educate 47% of all higher education students, while the universities educate about a third of these students (Clark et al., 2006). Self-accreditation rights are the main difference between the existing types of HEIs. While universities can offer study programmes at all levels without external accreditation, university colleges on the other hand must apply for accreditation of study programmes at the Master's and PhD levels from the Norwegian Agency for Quality Assurance in Education (NOKUT) (Ministry of Education and Research).

The specialized institutions at the university level consist of schools of economics and administration, theology, architecture and design, veterinary science, sport science, and music (Ministry of Education and Research).

Moreover, there are 25 private HEIs that receive public funding for all or some of their programmes (Ministry of Education and Research). The private HEIs are mostly small and provide courses within specific academic fields, mainly at lower degree levels. Only a small number of the private higher education institutions provide course programmes for higher degrees with considerable research activity. The largest fields within private higher education are economics and business administration, ICT, theology, healthcare and teacher training. In the

private sector, the Norwegian School of Management (BI) is the largest HEI, with its student body accounting for almost half of all students in Norwegian private colleges (NOKUT, 2003, cited in Opheim, 2004).

The Norwegian higher education system uses a research-based teaching method. This means that all teachers are required to do extensive research on the courses they teach. However, the new reforms have increased the workloads of the teachers and thus the hours dedicated to research have been significantly reduced (Clark et al., 2009). Research is important in learning as it provides teachers with in-depth knowledge of the courses they teach, enabling them to disseminate this knowledge to their students. Action needs to be taken to reduce the workloads of teachers so that they can deliver all-round learning experiences to students without working to tight deadlines.

Students are given a predefined length of time to complete their studies in tertiary institutions; if they fail to adhere to these timeframes, their student loans are not converted into grants (Clark et al., 2009). This is intended to encourage students to take their studies seriously and to graduate faster. However, most Norwegian students enrol into tertiary institutions at an advanced age. This is because the Norwegian system dictates that they begin their studies at a later age compared to students in other nations (Fägerlind and Strömqvist, 2004). As a result, many students already have social, professional and family burdens. These older students are not able to balance their studies and personal obligations due to the heavy workloads imposed on them by their teachers. Eventually, they end up losing most of their money by paying loans instead of student grants.

The Research Council of Norway is also a crucial player in Norwegian higher education policy changes. Its main responsibility is funding the research conducted by the tertiary institutions. It is also tasked with ensuring the smooth adoption of new policies into the university curricula. This can be seen in the establishment of centres of excellence and in the research conducted to determine the feasibility of some of the programmes offered by HEIs.

HEIs in Norway do not charge tuition fees on the regular programmes that they offer. However, students are sometimes charged for open- and distance-learning programmes. This policy has

negative impacts because some prospective students are geographically marginalized and others cannot afford to pay the fees charged. Such students are thus forced to abandon the whole idea of getting a university education. Evaluation of this policy should be carried out to make sure that everybody has equal access to tertiary institutions regardless of the mode of learning.

It is also important to note that there are other bodies that play a part in policy making, but their effect is not significant. These are the Norwegian Association of Students, the National Union of Students in Norway and the Norwegian Association for Research Workers.

Norway has a well-defined network of universities and colleges funded by the national government. This network focuses on broadening the level and academic content of tertiary programmes (Clark et al., 2009). It also enhances social unity in that all the institutions cooperate with one another. However, small institutions feel left out of this network, as their contributions are seen as insignificant (ibid). This could be averted by introducing research partnerships to include the smaller colleges and to increase the quality of education offered by them.

The Quality Reform legislation, established in 2003, aimed to review the quality of Norwegian higher education in line with the Bologna Process (Fägerlind and Strömqvist, 2004). Several policies were made to address the issues in higher education, and they involved making changes to the way that tertiary institutions were being governed and funded. They also focused on the quality of learning, the awarding of degrees and the worldwide reputations of the institutions (Clark et al., 2009).

The policy of merging HEIs was a major milestone in changing the profile of the Norwegian education sector. In 1994, the high number of vocational and regional colleges was reduced to 26 university colleges through mergers (Fägerlind and Strömqvist, 2004). According to Kyvik (2002) these mergers were forced by the government. There is a second round of mergers now involving also the universities and triggered by the change dynamics in Norwegian higher education. (Kyvik and Stensaker, 2013)

There is a clear policy to internationalize Norwegian higher education. The Norwegian Centre for International Co-operation was established in January 2004 with the purpose of governing international academic affairs and enhancing the image of Norway as a research and education destination (Fägerlind and Strömqvist, 2004). This policy allows institutions to enrol foreign students and thus benefit from the subsequent financial gains; it also aims to increase cooperation with foreign tertiary institutions. The network established through cooperation has allowed inter-university exchanges of both teachers and students to take place. This exposes local students and teachers to foreign (and sometimes better) teaching methods. Student exchanges also offer a chance for local and international students to interact and compare ideas on study topics.

HEIs are required by the national government to submit their strategic development plans detailing how they will achieve these objectives based on the resources allocated to them and the funding received from external sources, such as collaborations with industries. They are also required to create effective follow-up measures to ensure the objectives are met. This ensures that there is accountability on behalf of the administrations of the institutions (Fägerlind and Strömqvist, 2004).

Until 1994, Norway had only four universities but over 100 colleges spread across the country. One of the main objectives of the recent reforms in tertiary education was to bring together and reduce the number of small colleges. This was intended to reduce costs in the administrative and financial running of these institutions.

In 2003, a major reform called the Quality Reform took place across the entire Norwegian higher education system. This reform focused on several changes in tertiary institutions. It allowed increased independence in the way such institutions could be run, giving them the power to choose which programmes they want to offer in their curricula. It also put in place a 3-2-3 system, whereby a student has to undergo three years of higher education for a Bachelor's, two years for a Master's and three years for a PhD (NIFU STEP, 2005). This is in accordance with the Bologna Process, as Norway follows the Bologna system of higher education. This change was intended to reduce the time needed to complete a degree course and to simplify the degree system.



The Norwegian government set up a countrywide network known as Network Norway in 1994, linking all universities and colleges. This aimed to encourage research collaboration and specialization in certain programmes. For example, in 1995, Oslo College was tasked with the responsibility of offering media-related courses such as journalism and information science (NIFU STEP, 2005). The initiative also focused on reducing the number of institutions countrywide, as it was common to find institutions in the same location offering similar programmes.

The new Act for University and Higher Education in Norway has also introduced more rights and benefits for students. Students can now sit an exam without having to attend any lectures, provided they are qualified enough to be enrolled in the institution. In the case of professional studies like nursing that require full participation of students throughout the entire course, attendance can be made compulsory by inculcating it into the local curriculum and ensuring there is a substantial reason for doing so. The Quality Reform also suggested new methods of student counselling and evaluations, with the intention of addressing the high drop-out rate and the late completion of studies. It also brought forward a new plan concerning monetary aid to students, designed with the sole aim of encouraging students to finish school in their early youth.

The Competence Reform introduced in university colleges allowed relatively older students (averaging 25 years old) to enrol onto degree courses of their choice based on their formal and informal achievements in their field of specialization. This influx of older students meant that the average age of students in tertiary institutions increased.

#### **4.2.2 2003/2004 QUALITY REFORMS IN NORWAY**

The establishment of NOKUT has changed the perspective on quality issues in relation to tertiary education. NOKUT is tasked with setting quality assurance criteria for institutions, accrediting degree programmes and recognizing outstanding institutions through charters (Clark et al., 2009). If an institution does not meet the minimum requirements for accreditation into a higher status or if one of its programmes does not meet the criteria, NOKUT has to set up clear follow-up measures. NOKUT is still incapacitated in that there is no readily available data that can be used to assess the overall quality and performance of all institutions in the country. Student

performance is also evaluated through nationwide assessments of the skills gained by graduates (Fägerlind and Strömqvist, 2004).

NOKUT has an overall responsibility for approving the courses offered by various institutions. All courses offered in vocational colleges must last between six months and two years. Providers of these courses are eligible to request government funding but this is not granted automatically: currently, only colleges run by counties are given government support.

Apart from NOKUT, additional accrediting schemes have been developed. HEIs are now able to acquire privileges that allow them to self-accredit their own programmes based on their status (Kyvik and Stensaker, 2013). For example, a university can establish its own programmes up to doctorate level. However, private institutions must apply for institutional accreditation for them to obtain such rights. This type of accreditation has no timeframe, so it is entirely in the hands of the institution to apply for a higher status.

Students often carry out evaluations of their teachers to determine the quality and ease with which knowledge is passed on to them by teaching staff. However, reports obtained from these evaluations rarely see the light of day, as they are not featured in annual meetings of stakeholders of the education sector. The system does not give room for comparison of these reports on a national level and thus their usefulness is called into question.

Competition between private and public universities has increased because private universities can now set up their own academic programmes much faster than they could in the 1990s, when they had to wait for up to two years to receive programme accreditation. Both private and public institutions are now under the same body and thus there is a level playing field for them to compete both locally and internationally.

#### **4.3 MERGERS IN NORWEGIAN HIGHER EDUCATION**

Many institutions of higher learning have become involved in partnerships with other such institutions through mergers. This phenomenon is common globally, with major universities and colleges being actively involved in merging with smaller institutions of tertiary education. This section focuses on the recent increase in mergers in Norway and the driving force behind these mergers.

The key trigger for mergers in Norwegian higher education was the 2008 Stjernø Commission report suggesting mergers between regional providers as a means of tackling system overcapacity, inefficiencies and of restraining the willingness by most colleges to become universities – which the quality reform made possible upon certain key criteria.

The majority of Norwegian tertiary institutions are state owned. This means that they receive government funding for educational and research purposes. For this reason, the national government, to a certain extent, is directly involved in the merging process. This is especially true in terms of determining which institutions should merge and why (Kyvik, 2008). Several factors are taken into consideration before any merger can proceed. These factors include, but are not limited to, the need to address various limitations brought about by institutional fragmentation, the quality of learning in institutions and the financial constraints facing most tertiary education institutions.

Commissions appointed by the government are responsible for formulating policies that govern the higher education sector. These commissions consist of all stakeholders in the sector and the policies made are presented to the Ministry of Education and Research (Kyvik and Stensaker, 2013). The ministry can decide to adopt policies as they are or develop them further to fit the education system better. Sometimes, the decision to merge can be made at an institutional level. This means that there is freedom of choice whether to merge or not. Some institutions merge to increase their geographical presence and to benefit from the financial gains from increased student enrolments, rather than for the intended purpose of improving the quality of education on offer. Other institutions aim to reduce competition by having many satellite campuses acquired through mergers.

The Mjøs Committee formed in 2000, produced recommendations for colleges and various specialized institutions of higher learning to be categorized as universities but with a lesser scope in their programmes. It decided various requirements that would be needed for an institution to acquire university status (Kyvik and Stensaker, 2013), for instance offering Master's programmes in five disciplines and a PhD programme in more than four areas. However, in later years, accreditation of such status has become entirely under the remit of NOKUT and needs final approval by the government.

It is observed that mergers in Norwegian HEIs have succeeded in their intended purposes, while others have failed in achieving the desired changes. This is because some institutions rush the process and do not allocate enough time to critical thinking during the pre-merger stage. This results in the institutions setting very high objectives and goals to be achieved through the merger. They end up achieving very little because the merger is rushed without considering the resources at hand and how they will be shared and utilized by the merging institutions.

There are different reasons why such mergers succeed or fail. Structural explanations (like the number of institutions involved, the sizes of the merging institutions and the geographical separation between the institutions) are important factors to consider when evaluating the performance of mergers. Mergers between more than two institutions are considered more complex and harder to achieve efficiently, as a lot of consultation will need to be done whenever a decision needs to be made. When a small institution merges with a larger institution, the latter mostly ends up taking over the former. In the case of the merger between TUC, Vestfold University College and Buskerud University College, TUC ended up dominating the merger negotiations. It was thus decided that TUC should be upgraded to a university of its own, as it was the largest of the institutions.

In 2007, when the University of Agder was established, TUC began talks with the university to form a union that would lead to a college located in Telemark bearing a university status. However, these negotiations have been inconclusive to date due to the long distance between the two institutions and the lack of any significant academic benefits to be brought about by the merger.

#### **4.4 TRADITIONAL ROLES OF REGIONAL COLLEGES**

Regional colleges in Norway are either unitary institutions offering only occupational education or binary institutions offering both academic programmes and occupational studies (Kyvik, 2008). There was an erosion of the binary divide in Norwegian HE as most colleges want to become fully fledged universities in the near future – this is also why TUC is interested in merging with Agder. (OECD, 2005)

Most colleges were created through the merging of smaller and specialized vocational centres. These colleges continue to be highly vocational and may sometimes be confused with trade schools. Regional colleges do not offer any extensive academic programmes and the general idea is that graduates will go directly into employment, rather than joining universities to further their studies (Kyvik and Stensaker, 2013). However, some colleges invest in partnerships with universities and are able to offer degree programmes of those universities at their own campuses (Kyvik, 2008). Students in such colleges also have the option of starting a programme in the college for a maximum of two years then joining a higher institution (such as a university) to complete their degree programme.

Evening and weekend classes are also offered by some regional colleges. This offers a chance for employed adults to upgrade their training and to learn new skills relating to their professions (Kyvik, 2008). Some companies also enrol their workers into some of these colleges, where they undergo customized training based on work requirements and specifications. This enhances the quality of the country's workforce, resulting in high-quality goods and services.

In some cases, regional colleges set up community-based programmes for adults with low literacy levels. Special programmes for people who have been out of employment for long periods, known as refresher courses, are also offered by regional colleges. For example, mothers who have been on maternity leave can attend a few classes to be reminded of their job expectations and any new developments in their professions. These colleges are also viewed as a means of alleviating the social, cultural and economic statuses of local communities (Kyvik, 2008).

#### **4.5 DYNAMICS IN NORWEGIAN HIGHER EDUCATION**

The tertiary education landscape in Norway is characterized by regional colleges aspiring to be accredited as university colleges and university colleges aspiring to be accredited as universities. This trend started in 2002, when the revised University and Colleges Act came into effect. This gave small colleges the chance to become accredited as university colleges by the Norwegian Agency for Quality Assurance in Education. Any college that passes the accreditation process

and conforms to the necessary standards is able to acquire university college status (Kyvik and Lepori, 2010).

The number of universities in Norway has doubled in the last decade from four to eight. There has also been a big increase in the number of other tertiary institutions across the country. Many institutions are striving to acquire a higher status, especially through mergers with smaller or larger institutions. This means that the number of institutions offering Bachelor's and Master's programmes has also increased, as there are new providers in the sector. All these changes in the sector are positive in that there are now more programmes being taught at a higher level.

The diversity of courses offered within institutions has increased but the diversity of courses among different institutions has reduced, as similar programmes are being offered in almost all accredited institutions. The fact that many institutions have achieved a higher status means that competition among them has also increased, with each aiming to produce highly qualified graduates ready to compete in the job market. However, some institutions may concentrate on offering too many specialized disciplines in order to attract more students and may thus end up producing inadequately qualified graduates.

In 2008, a report by the Stjerno Committee gave recommendations concerning the future landscape of Norwegian HEIs. Some of these include increasing the number of universities from eight to ten universities with several campuses nationwide and decline of 18-24 year olds across the country after 2015, as alluded to earlier – key driver for merging.

In terms of future directions, the regulations governing how institutions acquire titles could be removed, allowing all institutions to be called universities. On the other hand, these regulations could be tightened, making it harder for an institution to achieve university status.

#### **4.6 THE TELEMARK REGION**

Telemark is one of the 19 counties found in Norway. Telemark is located in Southeast Norway and extends from Hardangervidda to the Skagerrak coast. Telemark County covers an area of approximately 15,315 square kilometres. According to the 2009 census, the county has slightly more than 250,000 inhabitants. The county has 18 municipalities and five districts: Grenland, Vest-Telemark, Midt-Telemark, Ost-Telemark and Vest-Mar.

The infrastructure of the region is well developed. This county is well served by railways and is known to have well-established heavy industries. The people living in this region practise mining, lumbering, farming, fishing and forestry. The region also has a hydroelectric power station. There are several educational institutions in this county, one of which is TUC.

The Telemark region, like all other regions, aspires to increase its attractiveness as a tourist destination and place to live and to achieve growth and development in business by refining the distinctive resources of Telemark canal and its landscape. This is evident in the development plan of the region, as the 18 municipalities are increasingly working on projects that will contribute to the development of creative and sustainable cities, towns and villages. More specifically, the region wishes to enhance development by becoming an attractive place for business through supporting existing businesses, supporting neighbouring municipalities and being attractive for competence.

The region aspires to become an attractive place to live by stimulating housing developments, providing a sustainable transport system, providing safe and stable travel on county roads, developing regional land use, creating social meeting places and centres, developing better communication, helping with job growth and taking care of immigrants.

**Figure 2: The Telemark region in relation to other regions of Norway**



Source: Oslo Region European Office, 2005

**Figure 3: The Telemark region and the location of TUC**



Source: Handbook of TUC

#### **4.7 PROFILE OF TUC**

TUC was established on 1 August 1994 as a result of the merger (mid90's) between various professional high schools. It is an institution of higher learning that is located in Southeast Norway. It is a public organization that is funded by the government, regional authorities and other funding organizations. The institution has three main pillars that define its vision. It seeks to offer affordable education, support research and aid in the dissemination of knowledge for the good of greater society.

Currently, the institution has over 6,500 students and 600 employees. The college has four campuses in Norway. These campuses are based in Notodden, which has a population of 12,359<sup>1</sup>; Porsgrunn, which has a population of 88,860<sup>2</sup>; Rauland, which has a population of 1,656<sup>3</sup>; and Bo, which has a population of 2,696<sup>4</sup>. TUC presently runs four campuses.

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<sup>1</sup> <http://en.wikipedia.org/wiki/Notodden> (Accessed 20/12/2013)



**Table 1: TUC's faculties and respective student numbers**

<b>FACULTY</b>	<b>STUDENTS</b>
Bo	1,500
Notodden	1,650
Porsgrunn	2,300
Rauland	1050

Source: Telemark University College, n.d.

TUC's central administration is based in Porsgrunn, which houses the majority of the students and staff and is also where the Faculty of Health and Social Studies and the Faculty of Technology are located. The Faculty of Art, Folk Culture and Teacher Education is located in Notodden, while the Faculty of Arts and Sciences is located in Bo.

TUC is the fourth largest of the 25 university colleges in Norway. TUC offers Bachelor's, Master's and PhD education. In 2012, five students graduated with PhD degrees (Norwegian Social Science Data Services, 2014a), and TUC produced 155 scientific publications (Norwegian Social Science Data Services, 2014b). TUC has the ambition of becoming a university by merging with the University of Adger. TUC attempted to merge with another institution in the Oslo region but was rejected.

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<sup>2</sup> <http://en.wikipedia.org/wiki/Porsgrunn/Skien> (Accessed 20/12/2013)

<sup>3</sup> <http://en.wikipedia.org/wiki/Rauland> (Accessed 20/12/2013)

<sup>4</sup> <http://en.wikipedia.org/wiki/Midt-Telemark> (Accessed 20/12/2013)

# **CHAPTER FIVE: DATA ANALYSIS**

## **5.1 INTRODUCTION**

This chapter presents the analysis of the study findings in reference to each individual study question. Section 5.2 explores the role of TUC in addressing the human capital needs of the Telemark region. Section 5.3 covers the role of TUC in strengthening the knowledge and innovation capabilities of the Telemark region. Section 5.4 focuses on the major socio-economic, cultural and environmental challenges facing the Telemark region. Finally, section 5.5 addresses the internal and external bottlenecks hampering TUC from contributing more actively to regional development.

## **5.2 BUILDING AND STRENGTHENING HUMAN CAPITAL IN TELEMARK**

The first research question was: ‘In what ways is TUC promoting the human capital developmental needs of the Telemark region?’ The purpose of this question was to investigate TUC’s programmes and strategies that have been developed to assist in building and strengthening the human capital of the Telemark region. To address this question, data elicited from the interviews with respondents from TUC’s central administration, deans of the faculties and heads of departments together with the data from the internet were analysed.

### ***5.2.1 RECRUITMENT OF STUDENTS FROM TELEMARK***

In any regional university or college, the recruitment process usually focuses more on the local region (Puukka and Marmolejo, 2008). In a university college like TUC, where the regional agenda is given more priority, the recruitment process should be organized in such a manner that the region will have a larger pool of students compared to other regions.

Student recruitment is one of the factors given emphasis in the interviews. When respondents from the central administration were queried on TUC’s policy towards promoting the recruitment of students from the Telemark region, they indicated that there is a uniform policy across all the faculties in place. In regard to admission, the respondents claimed that applicants to TUC come from Norway, elsewhere in Europe, Asia, Africa and indeed all over the world. Nonetheless, the

general university policy is that applicants from the Telemark, Buskerud and Vestfold regions are given first priority. The next priority is given to applicants from the rest of the country, followed by international applicants. Nonetheless, the interviews brought to the fore some discrepancies in the application of the institutional policy towards general student recruitment across the faculties. Student recruitment appears more pronounced in some faculties than others. For instance, the respondent from the Faculty of Art, Folk Culture and Teacher Education expressed that:

“The policy of general student recruitment cuts across all faculties in TUC, but it is more pronounced in some faculties than others because of national and regional needs.”

In explanation of the above statement, the respondent indicated that as his faculty has the greatest national and regional need for pre-school teachers, school teachers and continued teacher education, it targets different age ranges and categories of students when recruiting, deviating from the general institutional policy of student recruitment. Thus, there is no strict application of the general institutional policy regarding student recruitment.

### ***5.2.2 LOCALIZING THE LEARNING PROCESS***

For many years, higher education has been charged with the responsibility of moulding globally accepted learners. This has been replaced by the current trend of localizing higher education. This trend follows the belief that teaching and learning processes in higher education institutions should be drafted in such a way that they will develop individuals who can work in the region (Puukka and Marmolejo, 2008). HEIs become relevant to their regions and surrounding communities when they draw on the unique characteristics of their surroundings in their programmes to aid teaching and learning.

When the respondents were asked how TUC draws on regional characteristics to aid teaching and learning and how the learning process of TUC has been localized, the respondents mentioned the adaptation of the curricula. This adaptation is intended to integrate students into their communities. A respondent from the central administration commented on the localization of the learning process as follows:

“As a university college, we offer what is relevant to national and societal needs. The government thinks of the national needs above regional needs, and hence we also tailor our programmes to align with national needs.”

The respondent from the Faculty of Art, Folk Culture and Teacher Education indicated that:

“The government designs the programmes to meet national needs so that a student trained at TUC should be able to teach in any part of Norway. Thus, as far as the faculty is concerned, we do not draw on regional characteristics to design our teaching and learning programmes.”

A cursory look at the programmes offered by TUC seems to confirm that the programmes are not oriented towards the region. They are instead designed to meet national and international requirements.

### ***5.2.3 PROGRAMMES ESTABLISHED TO ADDRESS REGIONAL LABOUR MARKET NEEDS***

According to Puukka and Marmolejo (2008), education has a major impact on the labour market. They point out that higher education has a very close connection with the labour market. Higher education is responsible for maintaining a balance between the supply and demand for labour. The role of higher education is to refine the skills of learners to ensure that they are able to participate productively in economic development. This creates a larger pool of labour, which results in greater production capacity.

Based on this notion, the relevance of higher education programmes to the needs of society has been and still is an important consideration of various higher education stakeholders and has been debated around the globe. The issue of whether existing curricula do not provide graduates with the knowledge and skills needed in modern society is still contested. In order to attain regional development, HEIs also need to respond to the needs of the regional labour market through the provision of relevant courses and programmes.

The interviews with the respondents from the central administration, the Faculty of Technology and the Faculty of Health and Social Studies reveal that TUC was adapting existing programmes in order to respond to regional labour market needs. For example:

“We have career and training days where we meet with representatives from businesses, recruiters and others in the Telemark region and have close interactions with them to find out their needs in order to design our programmes to meet their needs.”

A respondent from the Faculty of Technology also expressed that:

“The engineering programme offered by our faculty is in high demand from the energy firms in the Telemark region. Most of the firms even seek to employ our students who are yet to complete their courses in order to fill job vacancies. Thus, we are in constant communication with them and tailor programmes to their needs.”

One respondent from the Faculty of Health and Social Studies expressed similar thoughts:

“We discern the needs of the labour market from career and training days where we interact with business leaders and job recruiters to know their current needs, and we adapt our programmes to meet the needs of employers.”

The above responses indicate that the respondents recognized that the transaction of skills and competencies between university colleges, local entrepreneurs and the broader community goes a long way towards enhancing productivity.

#### ***5.2.4 PROMOTING LIFELONG LEARNING***

According to Skutnabb-Kangas (2009), learning is a lifelong process. He comments that it begins in the womb and ends in the tomb. One of the major goals of TUC is to promote the dissemination of knowledge to all the people in the Telemark region. This section looks at TUC’s contribution to promoting lifelong learning and continued professional development and training. Furthermore, it looks into how this lifelong-learning initiative promotes and enhances a

regional system of education, as well as how the initiative has broadened educational provision to a wider audience both within local society and beyond.

The respondents were asked whether TUC has instituted lifelong-learning programmes that target groups who wish to combine work with schooling and how these are organized in the university. The respondents indicated that TUC has instituted lifelong-learning programmes that cater for non-traditional students. TUC has a unit that organizes professional programmes for non-traditional students. Below is a response from a respondent from the central administration:

“Not all the faculties have a unit that promotes lifelong learning. Lifelong learning is promoted in the Faculty of Art, Folk Culture and Teacher Education, which offers teacher education, and also in the Faculty of Arts and Sciences, which promotes education for non-traditional students in nursing and electricity programmes.”

A respondent from the Faculty of Arts and Sciences also expressed that:

“We have a unit that caters for lifelong learning and supplementary education for non-traditional students and those who wish to take refresher courses in teaching and nursing.”

The respondents further revealed that through e-learning, the establishment of additional campuses and offering short courses, TUC has increased the availability and accessibility of higher education to the wider community and further afield, even allowing international students to access higher education from their various countries. This goes a long way to reducing the pressure that the demand for higher education often places on existing structures.

#### ***5.2.5 GRADUATE RETENTION AND EMPLOYABILITY IN THE TELEMARKE REGION***

One of the goals of TUC is the creation of potential in the region’s labour force. This section concerns itself with how students are locally integrated into the Telemark region. Of prime interest here is the expectation that TUC and employers within the region involve students and graduates either directly or indirectly through internships, employment opportunities, business start-ups, voluntary activities etc. This notion is viewed in relation to the relevancy of the courses and programmes offered by TUC.

When the respondents from the central administration were asked about whether TUC uses any strategies and initiatives to promote graduate retention and employability in the Telemark region, they indicated that there was no specialized unit to serve this purpose. They opined that, in consultation with the local government (Telemark County Council), TUC intends to roll out a training programme that will ensure that students are retained in the region. When asked whether there were any statistics on the employment of past students in the region, one of the respondents commented:

“We do not have available records on the employment of our graduates in the region as most of the students are employed by firms outside the region... Our career day programme is where firms and employers meet with our students and offer them opportunities outside of the region. Although our Faculty of Technology sometimes does collect records on student employment, this is not systematic.”

Regarding enhancing the capacity of students to be more enterprising, the respondents indicated that TUC has programmes in place that educate students on being self-employed. In these programmes, students come together to develop business proposals.

### **5.3 STRENGTHENING THE KNOWLEDGE AND INNOVATION CAPABILITIES OF TELEMARK**

One role of HEIs is to transform the economy of a region through the development of knowledge and innovation capabilities. Through research, an HEI develops new bodies of knowledge. This knowledge is transmitted to society through learners. Higher education is used to change the economic thinking of citizens. Through higher education, citizens come to depend more on knowledge than industrial or agricultural capabilities (Lindqvist et al., 2012).

One of the major goals of higher education in OECD countries is the creation of innovation-led growth in regions. According to Puukka and Marmolejo (2008), this has the goal of increasing the productivity of the regions. By opening up all its regions to economic productivity, it is much easier for a country to attain the desired economic status. Through higher education, learners are given an opportunity to develop their scope of knowledge and their capabilities. Learners in

higher education institutions are given the knowledge required for them to develop marketable skills.

In reference to how the research activities of TUC are linked to strengthening the knowledge and innovation capabilities of the Telemark region, below is a response from one of the interviewees from the central administration:

“We are not focused on research. As we are predominantly engaged in education, most of the staff are engaged in teaching, so there is limited research carried out at TUC by students for their academic work. The research is not conducted with the region in mind. TUC cooperates with research institutes like Tel-Tek and Telemarkforskning”

However, the official publication figures suggest otherwise, and that the number of publications and points is on the rise in recent years indicating that research is high. For instance, there were 149.9 publication points in 2013 (vs. 81, 7 in 2010) and close to 200 publications in 2013 (vs. +/- 90 publications in 2010) (Norwegian Social Science Data Services, 2014b)

#### **5.4 RESPONDING TO THE SOCIO-ECONOMIC, CULTURAL AND ENVIRONMENTAL CHALLENGES OF TELEMAR**

Another goal of higher education in OECD countries is to promote cultural and community development (Puukka and Marmolejo, 2008). There are several ways in which higher education can achieve this goal. To begin with, it brings people together. This increases cultural integration and ethnic trust. Another tool that can be used to enhance social coexistence is technology. Technology can bring people from all walks of life together. It has been regarded as one of the most common social agents in society today. This approach has been adopted in many Western countries. In Iceland, for example, universities have incorporated ICT into their economic systems. (Lindqvist et al., 2012). With the resulting increase in social networking, human interaction has been enhanced to a high degree.

The respondents were asked questions relating to the input of higher education (particularly TUC's activities) into the socio-economic, cultural and environmental of the Telemark region. A respondent from the central administration commented:



“We do not undertake research for the socio-economic, cultural and environmental development of the Telemark region because, as a university college, we do not engage in mainstream research – only a few of our academics are involved in research for academic purposes.”

A respondent from the Faculty of Technology corroborated this view by expressing that:

“Promoting the socio-economic, cultural and environmental development of the Telemark region is carried out through teaching.”

## **5.5 BOTTLENECKS HAMPERING THE REGIONAL ROLE OF TUC**

There are several challenges that prevent higher education institutions from achieving their goals. These are mostly environmental factors. In OECD countries, there are several forces that prevent the attainment of education goals (Puukka and Marmolejo, 2008). These include factors related to the political environment, cultural factors, legal/policy issues, financial challenges and technological challenges. These factors can be further categorized as national, regional and institutional factors. This section focuses on the sorts of bottlenecks that the respondents perceived to be hampering the successful accomplishment of the regional role of TUC.

### ***5.5.1 NATIONAL FACTORS***

National factors relate to the national government. In OECD countries, the national government is charged with the responsibility of formulating and implementing educational policies (Puukka and Marmolejo, 2008). Any hindrance to the process becomes a challenge to the attainment of educational goals. There are several national-level challenges that hinder the achievement of educational goals. These include inadequate financing, a lack of clear policies and a lack of adequate resources.

#### ***5.5.1.1 INADEQUATE FUNDING OF REGIONAL ENGAGEMENT ACTIVITIES***

As a public non-profit institution, TUC faces several challenges related to financing. It relies on government funding and grants from donors. When these organizations fail to deliver finances in

a timely manner, this hinders the smooth running of TUC. This directly affects its engagement in regional activities.

Inadequate funding from the government and other regional stakeholders was one key factor that the respondents highlighted as hampering TUC in meeting its regional development obligations. The respondents from the central administration indicated that, as a public HEI, TUC receives funding from both the national government and other regional stakeholders. However, the amount of funding TUC receives does not enable the institution to fully engage in regional development activities. For instance, TUC received a gift of NOK10 million from Telemark County Council to help meet regional development goals and for TUC to attain full university status. However, the respondents indicated that this was not adequate to meet the regional development expectations and full university status. It is apparent that regional development has not been fully integrated within the internal activities of TUC but is an expectation from external actors. Thus, although external actors have high expectations for TUC to engage in regional development, TUC's efforts in this regard have not met these expectations. The respondents also observed that there is a lack of proper local government structures and that TUC's leadership are not very creative in finding new means to engage in regional development. Thus, it is apparent that TUC's leadership is not being proactive towards engaging in regional development.

Another respondent opined that:

“The county council has no direct responsibility for financing regional development activities at the university college, and this may be seen as an obstacle.”

Thus, although the county council has a direct responsibility for governing the university college, it has no direct financial responsibility. This can hamper the funds needed for regional engagement activities.

#### ***5.5.1.2 UNCLEAR NATIONAL AND REGIONAL POLICIES***

Policy issues are another type of challenge faced by the TUC administration in steering the institution towards the achievement of its goals. In order for an institution of this type to achieve its vision, there must be clear policies formulated to guide its activities. These should be made at

the regional and national levels. In an interview with a respondent from the central administration of TUC, it was stated that:

“There are no clear rules or policies that guide TUC in its national and regional agendas. The policy framework that has been formulated so far is somehow scanty and needs review.”

The respondents also indicated that if TUC were to attain full university status, it would be better equipped professionally to contribute to regional development. This has been the goal of some regional colleges.

### ***5.5.1.3 LACK OF TIME AND RESOURCES***

Another challenge faced by TUC is inadequate time and resources. This mostly relates to human resources. Most of the academic staff members do not have the time to engage in regional development activities. Material resources are also constrained to some extent. In an interview with a former director of the institution, the researcher found that:

“Often the main obstacle turns out to be the lack of time and other resources among the academic staff for this (regional engagement) kind of activity. It also goes without saying that not all subjects are equally relevant for regional development research”

### ***5.5.2 REGIONAL FACTORS***

In addition to the national factors, there are some regional factors that prevent higher education institutions from achieving their missions. In OECD countries, regional challenges include poor cooperation from regional industries and a lack of financial support from the regional government (Puukka and Marmolejo, 2008). The industries in the region should be part and parcel of the institution. They should collaborate with the institution to ensure that graduates are well prepared. Furthermore, regional authorities should offer financial support to the institution to enhance regional development.

The respondents were asked to indicate the key factors in the Telemark region that they perceived to be the obstacles to TUC engaging in regional development. The responses are outlined in the following sections.

#### ***5.5.2.1 LACK OF READINESS OF INDUSTRIES TO ABSORB UNIVERSITY KNOWLEDGE AND GRADUATES***

As discovered in this research, the local industries are unwilling to cooperate with TUC in training students. The industries also do not give priority to those who have been educated locally when recruiting. The respondents indicated that even where the knowledge will benefit the firms and industries within the region, there is hesitancy on the part of some of the firms and industries to hire students upon completion of their study programmes. This has prevented TUC from achieving its vision of creating manpower for regional development. An interview with a member of the central administration revealed that:

“We face a lot of challenges as far as the absorption of our learners into the regional industries is concerned.”

#### ***5.5.2.2 LACK OF SUPPORT FROM REGIONAL AUTHORITIES***

It is apparent from the data gathered through the interviews with the respondents from the central administration that the regional authorities of the Telemark region have no specific role or policy focus in terms of financing the regional development activities of TUC. In the interview, a member of the central administration commented that:

“We also do not receive adequate financial support from the regional government. This has really affected our outcomes.”

#### ***5.5.3 INSTITUTIONAL FACTORS***

Aside from the external bottlenecks, there are several internal challenges that can prevent an HEI from enhancing regional development. Many higher education institutions in OECD countries face the challenge of inadequate motivation within the university to engage in regional activities,

whereby both the learners and the university staff members are not fully motivated to develop the region (Puukka and Marmolejo, 2008).

#### ***5.5.3.1 LACK OF INTERNAL INCENTIVE STRUCTURES***

According to this research, TUC does not have a system for motivating learners or staff to be part of the regional development agenda. This has hindered the inclusion of these people directly in the running of the affairs of Telemark region. This has limited the input of TUC into the development of the region. An interview with one university administrator unveiled that:

“Currently, TUC does not have a clear motivation channel for the students and academic staff to be engaged in regional matters. However, the TUC administration is planning on a way forward to ensure that incentives are given.”

#### ***5.5.3.2 ACADEMIC CULTURE***

The last observation that the researcher arrived at was concerning the unwillingness of academics to engage in regional development activities. Most of them felt that they were national figures and could not simply involve themselves in regional activities. This belief increased their involvement in national activities but limited their involvement in regional activities. In an interview with some students, the following response was provided:

“At times, we feel that we should engage in the national agenda. One feels that involvement in regional activities limits the scope of activities.”

## **CHAPTER SIX: DISCUSSION AND RECOMMENDATIONS**

### **6.1 INTRODUCTION**

This chapter discusses the findings from the empirical study of TUC's engagement in regional development in Telemark, with the purpose of providing answers to the four research questions in line with the overall research focus of the study, as well as providing future recommendations. Section 6.2 addresses the role of TUC in the development of human capital in Telemark. Section 6.3 covers the role of TUC in strengthening and building the innovation capabilities of Telemark. Section 6.4 focuses on how TUC is addressing the socio-economic, cultural and economic challenges facing the Telemark region. Finally, section 6.5 focuses on the internal and external bottlenecks hampering TUC from more actively contributing to regional development.

### **6.2 ROLE OF TUC IN STRENGTHENING THE HUMAN CAPITAL OF TELEMAR**

The study results illuminate several issues. Overall, the findings of the study indicate that, in an effort to connect its teaching function to the development of human capital in Telemark, TUC has established a number of programmes, strategies and initiatives.

It is advocated in the literature review that human capital accumulation is an important determinant of individuals' earning capacities and employment prospects and hence plays an important role in determining the level and distribution of income in society (Blondål et al., 2002). If students from a region gain access to higher education, they will be equipped with the requisite skills, competencies and knowledge to make them productive within the region. As seen from the literature review, this notion aligns itself with several efforts of HEIs to recruit students from their host regions (Gunasekara, 2004; Goddard et al., 2003).

Nonetheless, the mere recruitment of students from local regions does not equate to stimulating and promoting regional development. Student retention in the region after the completion of their programmes of study, the employability of students after the completion of their studies, the tailoring of academic programmes to meet the needs and challenges of the regional economy, and whether the regional economy can absorb graduates are seen as critical factors that stimulate regional development. Thus, the OECD (2007a) postulates that transferring knowledge to

students and thereafter into the regional economy is one of the most effective means of knowledge transfer and has great potential to transform regional economies.

The study has revealed that TUC has not adequately adapted its teaching programs and curricula structures to the needs of the local economy that integrate students into local communities. There is some evidence suggesting that this has resulted in not facilitating their retention in the local communities. Moreover, with the exception of the nursing and engineering programmes that have a close link with industries and firms within the region, there is a lack of job opportunities in these communities for students and graduates of other programmes. In view of the findings of the literature review, student retention and employability in Telemark could be enhanced by ensuring a match between programmes and industrial opportunities. In the absence of such a match, unless students are empowered to create their own jobs, efforts to integrate students into the local communities during their studies are not likely to yield any fruitful outcomes.

As revealed earlier, TUC conducts no assessment of the labour market needs of the Telemark region; with the exception of the nursing and engineering programmes there is an absence of specific programmes tailored to the business and industrial needs of the region, as well as weak cooperation between TUC and employers within the region. These findings indicate that there is a labour market mismatch between TUC and the Telemark region. In this vein, the OECD (2007a:153) states that “labour market mismatch can often be attributed to lack of labour intelligence and knowledge gaps between HEIs/graduates and regional employers; inadequate co-operation between HEIs and employers; inadequate support for new enterprises; and the extent to which knowledge developed can be applied within the region”.

Regarding the programmes that are perceived to meet regional labour market needs, the engineering and nursing programmes can be singled out. This is a reflection of the views and opinions of the internal respondents, as firms and organizations within the region readily offer internships and employment opportunities to graduates from such programmes because they fit with their lines of operation. Meanwhile, the employment opportunities for graduates from other programmes are limited within the region. Thus, there is a need for the links between the University College and locally based industries/businesses to be strengthened so as to offer more

opportunities to graduates from other programmes. The importance of this cannot be underestimated.

In harmony with this, Boucher et al. (2003) state that the number of regional stakeholders and institutions that articulate regional needs is likely to shape the regional roles of HEIs. They further assert that, in smaller and less central (peripheral) regions, universities often represent a unique repository of knowledge, largely because of the lack of other institutions rendering similar services (such as governmental research laboratories, social science research centres, and businesses with research and development departments). As TUC represents a repository of knowledge in a smaller and less central region, coupled with stakeholders' expectations, there is a high expectation for TUC to respond to the regional needs of Telemark.

### **6.3 ROLE OF TUC IN STRENGTHENING THE KNOWLEDGE AND INNOVATION CAPABILITIES OF TELEMAR**

The study results highlight several issues. As discussed in the literature review, HEIs contribute to local innovation processes in a variety of ways. It was indicated that a university's role in regional innovation processes depends on the kind of industrial transformation that is occurring in the local economy (Lester, 2005). Hence, there is the need for a replacement of the 'one-size-fits-all' approach to economic development (which advocates patenting, licensing and new business formation) with a more comprehensive and differentiated view of a university's role in regional innovation. Thus, Lester (ibid) argues that universities need stronger awareness of the pathways along which local industries are developing, together with the innovation processes that are associated with those pathways. Universities should align their own contributions with what is actually happening in their local economies.

In chapter two, it was shown that universities contribute to technical problem solving through developing industry-relevant degrees and continuing-education programmes, engaging in contract research and faculty consulting and creating student internships, among other ways.

The study has revealed that TUC has been engaging with firms and industries in the Telemark region to a limited degree. It appears that TUC has not developed strong relationships with local firms and businesses that could lead to the transaction of knowledge. This could be explained



that the region's absorptive capacity – high-tech firms, etc, seems to be rather low as well and this constrains TUC's regional role, e.g. as regards partnerships and technology transfers..

Chatterton and Goddard (2000) emphasize that the most effective technology and knowledge transfer mechanism between HEIs and the external environment is through the institutional teaching function and mobility of university graduates. When staff and students integrate themselves into their environments through outreach activities, placements and through the design of teaching curricula, the HEI stands a greater chance of building the innovative capabilities of regions. Thus, HEIs introduce innovative practices through outreach programmes. However, this mechanism of introducing innovative practices is lacking in the case of TUC, as there is an absence of evidence that it engages in outreach programmes.

Moreover, on the issue of research, the literature review highlighted a number of mechanisms through which university research activities are transferred from HEIs to the industrial sector and the wider community through single entry points (such as regional development offices, spin-off companies, research centres, incubator units, advice and training service provision, science parks and mechanisms to exploit intellectual property rights) (ibid). However, the empirical data from this study give little evidence of the above mechanisms in the case of TUC. Instead, the study results show that TUC occasionally disseminates knowledge and technology through one-to-one consultations with local business and firms.

On the issue of research, the study results show that TUC has a weak basic and applied research base and also has not made adequate progress in linking its research activities to the needs of local businesses and industries.

#### **6.4 SOCIO-ECONOMIC, CULTURAL AND ENVIRONMENTAL CHALLENGES FACING TELEMAR**

Higher education institutions (HEIs) seek to transform community environments through collaborating with mainstream public or private service providers (such as providers of healthcare, social care and collaborative research) to benefit the community (OECD, 2005). Thus, the potential benefits to the community from such collaborations improve the cultural and socio-economic wellbeing of the people.

Additionally, as discussed in the literature review, Chatterton and Goddard (2000) highlight a number of converging trends such as the increasing awareness of the global nature of problems like environmental degradation, poverty and economic development that are increasing the service functions of HEIs. This increased awareness has created a number of interconnected local responses, and HEIs are well positioned to interpret these global issues on a local scale.

However, the empirical data from this study suggest that TUC is not well positioned either through teaching or through research to improve the socio-economic, cultural and environmental challenges facing the Telemark region. Judging from the responses of the interviews, it is logical to question whether TUC has a strong regional focus or not. The government, regional authorities in Telemark together with the management of TUC could steer TUC to develop programmes with stronger alignment with regional needs. Thus this partnership would yield a common goal for all stakeholders.

## **6.5 INTERNAL AND EXTERNAL BOTTLENECKS HAMPERING TUC FROM MORE ACTIVELY CONTRIBUTING TO REGIONAL DEVELOPMENT**

The study results reveal a number of issues. The empirical data have brought to the fore a number of internal and external bottlenecks that respondents perceive to be hampering the regional role of TUC. These perceived bottlenecks include national, regional and institutional barriers. The literature review revealed that the regional roles of HEIs can be constrained or shaped by the characteristics of the institutions, the regions of location and national policy frameworks (Boucher et al., 2003; Arbo and Benneworth, 2007). Hence, the empirical findings of the study are supported by the literature review.

Although national, regional and local authorities alike expect TUC to engage in the regional development of Telemark, the respondents revealed that TUC does not receive adequate financial and policy support from national and regional authorities. This therefore makes it difficult for TUC to engage in regional development activities and meet regional development expectations.

The results of this study seem to mirror the findings of other studies. For instance, Gunasekara (2006) reveals that, within the Australian context, although national governments are encouraging universities to support the development of their regions, there is little incentive for them to do this. The Australian national funding scheme is based on excellence and specific national priorities. In the case of South Africa, internal reward structures follow traditional public-funding modes based on student numbers and research outputs (Pinheiro, 2010). Although various national governments offer funding support to HEIs based on diverse criteria, the level of funding is usually not sufficient to allow the HEIs to fully meet regional development objectives.

On the issue of the employability and retention of graduates in a region, the literature review highlighted two key factors. The ability of the regional economy to absorb graduates (which to a large extent is dependent on the degree of alignment between the university's programmes and the regional economy) was identified as one key factor. The other factor, as highlighted by Feldman (1994), is the demand for the graduates' services, especially in terms of the employment opportunities in the area. These opportunities are a function of the types and occupational structures of industries located in the area. The connection between these two factors is that a vibrant regional economy is more likely to stimulate stronger alignment of the activities of HEIs to that of the regional economy. The reverse situation could be true: the fragile a regional economy is, the less likely it is that HEIs will align their activities to the regional economy.

From the policy angle, there is a high expectation from national and regional authorities for TUC to engage in regional development. However, the empirical data from this study indicate that the university college is detached from the Telemark region, as it does not focus on the region in its teaching and research programmes. Regarding the role of regional authorities, the study found that aside from financial commitments, the regional authorities have no specific role to play in the regional development activities of TUC. This gives rise to the conclusion that the regional role of TUC has not received adequate policy support from the regional authorities.

From the institutional perspective, a number of factors (such as a lack of specific internal incentive structures to motivate academics; the requirement for promotion for academics not perceived to be carrying much weight on engagement activities; and the lack of commitment on

the part of some academics to participate in activities of a regional nature) were identified as bottlenecks to HEIs playing more active generative roles, as per Gunasekara (2006) or engine of local economy (Castells 1993), knowledge hub (Pinheiro 2012), etc regional roles. It was observed in the literature review chapter that for regional engagement to become embedded in institutional cultures, it is important that reward systems recognize the importance of this (Gunasekara, 2006; OECD, 2007; Pinheiro, 2010). As observed in the literature review, other studies identified these factors as constraining the regional roles of universities in several settings. A notable example is that of a peri-urban university in Australia, in which the key criteria for promotion for academics centred on teaching and the production of refereed research publications, with community service participation seen as a desirable requirement but not critical in decision making (Gunasekara, 2004b).

The findings of this study indicate that TUC does not participate in community services and hence the criteria for promotion do not take such services into account. The unwillingness on the part of some of the academics to engage in activities of a regional nature could be attributed to the absence of incentive schemes to motivate them towards this end. However, genuine willingness or culture ethos to engage in community services could also motivate academics to participate in community service.

## **6.6 IMPLICATIONS OF THIS STUDY**

This study has implications for strengthening the role of TUC in regional development in the Telemark region. The study has unveiled information that may be used in a number of ways and at various levels that is by various stakeholders.

### ***6.6.1 IMPLICATIONS FOR THE NORWEGIAN GOVERNMENT AND REGIONAL AUTHORITIES***

As observed by the OECD (2007b), although national higher education legislation may have an explicit requirement for regional engagement activities, factors such as limited autonomy to decide on the programmes offered and a lack of incentives or funding streams to support regional engagement activities hinder HEIs in playing their expected roles, thereby leaving little room for responsiveness. It is therefore recommended that attaining regional development requires better

collaboration between different organizations, bringing together governmental departments, HEIs and industries, among others, hence the triple helix model of the university, government and industry. (Etzkowitz and Leydesdorff, 1999; Etzkowitz, 2001)

Another constraining factor unveiled by the OECD (2007b) is that, at the regional level, HEIs are often not part of the design and implementation of regional strategies. This therefore hinders their role as key instruments in attaining regional development.

Thus, the Norwegian government and the regional authorities should be aware of the role of TUC in regional development as depicted by national policies. It should be aware that the existing national policy environment does not provide strong incentives for TUC to transform itself into a driver or engine of regional development. Instead, the existing national policies on higher education seem to restrict TUC to playing a mainly traditional role through teaching and research in regional development. This indicates the need for the government to reform national policies.

#### ***6.6.2 IMPLICATIONS FOR TELEMARK UNIVERSITY COLLEGE (TUC)***

As observed by the OECD (2007b), attaining regional development is also dependent on the role and strategies that a particular HEI adopts, notwithstanding the importance of the framework conditions created by national and regional governments. Thus, the argument that TUC is expected to be a driver or engine (Castells,1993) for regional development is uncontested. However, it is imperative to question whether TUC is aware of its role in attaining regional development through the third role or community engagement.

The findings of this study could be used as the starting point for TUC to consider how playing the third role could lead to attaining regional development. As described by its institutional policy, TUC should be conscious of its role in regional development. Hence, TUC's leadership should align the institution's strategies to this end. Moreover, it is equally imperative that TUC becomes aware of how national policies shape its role in regional development.

#### ***6.6.3 FUTURE STUDIES***

This study has revealed important issues surrounding the role of TUC in regional development. Based on the findings, the following recommendations are offered in regard to future research:

- (i) Future studies could investigate how the third role or community engagement is conceived by TUC;
- (ii) Future studies could extend this study by using more university colleges as case studies within the Norwegian context; and
- (iii) Future studies could investigate the perceptions of society towards TUC's engagement in regional development.

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<http://dbh.nsd.uib.no/pub/?rapport=antall&aar=2012&niva=1&insttype=3&instkode=&avdkode=&seksjonskode>

<http://dbh.nsd.uib.no/statistikk/rapport.action?visningId=32>

*University staff respondents (Academics & Administrators)*

**History Mission and Functions**

1. What is the history and rationale for establishing TUC?
2. What role do national and regional actors expect the university to play in regional development?
3. Who are the university's core regional stakeholders and what are their expectations of the university?
4. How has TUC historically engaged with regional actors?
5. How do governmental and regional policies support the university to attain regional development?
6. What specific role if any do regional authorities play in the regional engagement activities of TUC?
7. What factors at the national level (policy frameworks and instruments) are enablers or obstacles to the university towards achieving regional development?
8. What factors at the regional level (policy, actors, incentives, etc) are enablers or obstacles to the university towards achieving regional development?
9. What factors at the sub-unit (faculty, institute, etc) level are enablers or obstacles to the university towards achieving regional development?
10. What institutional (university-wide) factors are enablers or obstacles to the university towards achieving regional development?

**The Telemark Region**

1.1 What are the key firms and public sectors (schools, hospitals or municipalities) in the Telemark region?

1.2 How does TUC link up with these key firms and public sectors in the region?



### ***Student Recruitment***

1. What is TUC's policy regarding student recruitment and how has this changed (if at all) over the years?
2. Is TUC promoting student recruitment from the local region? If so, how and why? Are there any set goals or objectives either across the university or specific fields?

### ***Employability of graduates***

1. To what extent is labour market information gathered to monitor the flow of graduates into the labour market (local, regional, national and or international) where do graduates go after completing their studies?
2. Are there any specific initiatives or practice to support graduate enterprise in an effort to retain graduates in the locality/or region? (eg. student internship)
3. Are there any specific programs aimed at enhancing the capacity of students to be more enterprising (eg.opening their own business)? If so, which ones? If not, why so?

### **Primary Activities**

#### ***Localizing the learning Process***

1. To what extent do the programmes offered at TUC meet local and regional needs? (Provide some examples)
2. How does TUC draw upon the specific characteristics of the local community or region to aid teaching and learning?
3. How are postgraduate activities organized to reflect local or regional needs?

#### ***Promoting lifelong learning, continuing professional training***

1. How is lifelong learning and continuing education promoted throughout the region?
2. Has TUC establish specialized units (central or sub-unit level) to extend professional education to those without higher education in the region? If so, how has the experience been so far? If not, why not (eg.lack of incentives)

### ***Research contribution***

1. How does TUC organize research to meet the needs of the local region?
2. Are there any mechanisms to acknowledge and reward locally or regionally-based research (ie. it addresses relevance? If so, what are they and how has the experience been so far?
3. Does the university facilitate the transfer of locally generated knowledge to local firms, the public sector and the community?

### **Linkages with firms & industries**

1. Which national and regional policies exist to encourage co-operative research between university and industry or the exchange of research staff between them?
2. Which university policies exist to encourage co-operative research between university and industry or the exchange of research staff between them?
3. In retrospect, how would you characterize TUC's level of engagement with regional actors across the public and private sectors in the last decade or so? Do they trust one another?

### **Outreach Programs**

1. Are there any mechanisms to reward regionally-based outreach activities at TUC? If so, what are they?
2. Does TUC provide community access facilities and expertise support for services such as welfare advisory, healthcare in the region?
3. What units within TUC provide research for services such as welfare advisory, healthcare in the region?
4. Does TUC provide incentives for services such as welfare advisory, healthcare in the region?
5. What other initiatives does TUC engage in to promote social and environmental development of the region?
6. What other initiatives do units within TUC engage in to promote social and environmental development of the region?

### **Student Respondents**

#### ***Research contribution***

1. What kind of research do you participate in at the university?
2. How does the university stimulate entrepreneurship, internships or incubation programs for its students through research?

***Contribution of Teaching and learning to labour market and skills***

1. How do the programmes offered meet local and regional needs?
2. Which learning programmes within TUC enhance the capacity of students to be enterprising?
3. How easily acceptable are TUC university graduates in the world of work and how do they cope with the world of work (as an aspect of quality transfer of knowledge and skills)



**Høgskolen i Telemark**  
FoU-seksjonen

Daniel Tutu Manu

Deres ref:

Vår ref: 2014/376

Dato: 25.02.2014

**Authorisation for data collection**

We hereby grant Mr. Daniel Tutu Manu the authority to conduct interviews with all deans, head of faculties and all those he deems important to interview at TUC.

Mr. Manu is a second year Master of Philosophy student from the University of Oslo writing his master theses on; University Colleges and Regional Development, the case of Telemark University College.

He started his interview with us from June, 2013.

Please accord him all the necessary assistance he needs in order to obtain the data he requires.

Thank you.

Yours Sincerely,

Pål Augestad  
Vice-Rector for Research and Development

---

<b>Postadresse</b>	<b>Besøksadresse</b>	<b>Kontakt</b>	<b>Saksbehandler</b>
Postboks 203		Telefon 35026200	kontorsjef Mette Kammen
3901 Porsgrunn		Telefaks	35575036
		Internett <a href="http://www.hit.no">www.hit.no</a>	<a href="mailto:mette.kammen@hit.no">mette.kammen@hit.no</a>

To whom it may concern

Date: 27.05.2013  
Your ref.:  
Our ref.: kristi.barcus@ped.uio.no

**ASSISTANCE IN THE CONDUCTION OF FIELD WORK**

This is to confirm that **Daniel Tutu Manu**, is a second year student in the Master of Philosophy in Higher Education programme at the Department of Educational Research and InterMedia at the University of Oslo, Norway.

In the second year our students are required to write a Master thesis of 50 to 80 pages. This researched based thesis includes field-work that may incorporate interviews with educational practitioners and decision-makers, class-room observation and documentary analysis. The type of data gathered should of course be discussed with the relevant authorities. It is our hope that the work produced by the student will not only benefit him in his academic career but also be of use in the future.

Daniel Tutu Manu will be conducting data collection at Telemark University College. We kindly ask you to give him all possible assistance during his field-work.

Please do not hesitate to contact me if you have any questions regarding this master programme or this student.

Best regards,



Kristi Barcus  
Senior Executive Officer  
Department of Educational Research and InterMedia  
University of Oslo  
tel.: +47 22 85 53 56



UNIVERSITY OF OSLO  
Department of Education  
Box 1092 Blindern  
N-0317 Oslo



**Department of Educational Research and InterMedia**  
Postal addr.: PO Box 1092, Blindern, 0317 Oslo  
Visiting addr.: Sem Sælands vei 7 Helga Engshus, 5. etasje

Phone: (+47) 22 84 44 75  
Telefax: (+47) 22 85 42 50  
postmottak@uv.uio.no  
www.uv.uio.no  
Org. no.: 971 035 854