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University Internationalisation and Institutional Effectiveness in Shandong Province, China: A Quantitative Study

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ABSTRACT: Universities can improve collaboration, construct buildings, and provide greater opportunities for students to study abroad because of the growing internationalization of post-secondary education. It is possible that the connection between a university's international focus and the outcome of the university would vary according to the university's ability to implement appropriate policies. This study explores the relationship between University Globalisation Level (UGL) and three variables that represent university performance: academic, infrastructure, and "international student exchange (ISE) performance, in the case of higher education institutions in Shandong Province, China. A total of 300 participants were invited to complete a survey. Data analysis included examining means and standard deviations, assessing the reliability of survey items, performing a correlation analysis, conducting an ordinary least squares (OLS) regression analysis, and performing a mediation analysis. UGL had a positive relationship with the three performance dimensions. Mediation analyses indicated positive relationships through Policy Implementation Effectiveness (PIE). Results indicated partial mediation in the case of the sample under study. The results do not represent the case for cause, nor do they reflect objective performance of the sample cases. The study aims to assess the relationships, and in the process, provide evidence of relations that may exist, using applicable, measurable variables and representative samples.

1. INTRODUCTION

1.1. Background of the Study

Higher education has changed due to international collaboration in teaching and research, and movement of students and scholars across national borders. In turn, higher education has impacted on how universities define their strategies and organizational plans. As such, engagement at the international level is critical in shaping higher education.

The internationalization of higher education involves a combination of strategies adopted by universities to engage and respond to global changes, including the integration of international and interdisciplinary perspectives in academic programs, and internationalization of administrative and other support services. Xu (2023) noted that in the context of Chinese higher education, internationalization encompasses a range of economic, political and cultural strategies. Hence, international engagement in higher education should be analyzed based on local/national contexts and circumstances, and not based on absolute and generic standards.

The development of higher education in China has been influenced by series of reforms, especially after 1978. Xiong et al. (2022) examined these reforms and internationalization of Chinese higher education, and analyzed their achieved and unachieved results. Their findings suggest the importance of integrating policy and institutional strategies in higher education.

Li and Xue (2022) examine policy developments and implementation issues related to the internationalization of higher education in China. Their research provides insights for analyzing how the Chinese government and education authorities structure and manage the internationalization of Chinese higher education. The difference between policy intents and institutional implementation is important because without adequate financial and human resources, partnerships and internationalization will not necessarily improve institutional performance.

Through partnerships, universities may improve their academic performance, research, and learning by means of joint and/or replacement programs, and initiatives. Universities may be motivated to improve their learning and research facilities, and services by means of international partnerships.

However, universities have differing capacity for prioritizing and implementing international policies. Some partnering arrangements may not be aligned with the overarching strategic orientation of the university and therefore may not always be beneficial. These strategies may improve various aspects of university efficacy. For example, partnership arrangements may facilitate the construction of infrastructure for international research and learning and the improvement of policies for international student and academic exchange.

In this study, University Globalisation Level (UGL) is treated as a 'structuring' variable, and Policy Implementation Effectiveness (PIE) is treated as an 'explaining' variable. Based on the literature and the empirical evidence, it is proposed that University Globalisation may be directly and/or indirectly associated with various university efficacy policies and practices by means of implementing policies and strategies. PIE may also be indirectly associated with efficacy practices and policies through the infrastructure development and interrelated outcomes of academic performance and international student exchange policies and practices.

Situated in the context of Shandong Province, the purpose of this framework is to explore how universities within the same province may differ with regards to internationalization at various levels (for example, engagement and practice) and institutional outcomes.

1.2. Problem Statement

International collaborations and engagement have the potential to enhance a university's capabilities and impact. Expanding university internationalization may help close the gap in achievement and student mobility. However, having international partnerships, strategies and agreements does not in itself indicate positive impacts or improvement in a university's performance.

Most problematic is the relationship between a university's internationalization and its performance. For instance, a university may undertake a number of international collaborations, but it doesn't mean that the university will improve its scholarly performance. Similarly, lack of improvement and capacity in the university's engagement may create a barrier to development of university services.

There are other problems relating to institutional strategies in that, although an institution may frame its goals and desired outcomes, achieving these depends upon the other operational activities and strategies in place. There is a need to consider the other strategies, mechanisms and policies in place in order to fully comprehend and interpret the level of globalization in a university.

This research attempts to solve the mentioned issues by developing a relationship between University Globalisation Level, Policy Implementation Effectiveness, and University Efficacy in three parts. University Efficacy has not yet been operationalised; therefore, this research tries to address this lack of theory. This research helps identify the efficacy of international work in higher education in improving teaching and learning, and other outcome areas, as well as international student mobility in Shandong Province.

1.3. Research Gap

There is scant research on how international collaboration in higher education impacts policy development and implantation. Research on the internationalisation of higher education in China has addressed international collaboration in higher education and its historical development as well as contemporary transformations in higher education. (Li & Xue, 2022; Xiong et al., 2022; Xu, 2023).

In view of the above research, this study aims to define three research gaps.

First, the research focuses on multiple areas of global engagement; however, for global engagement to be of use to an institution, it must impact other areas such as teaching and learning, research, or infrastructure, including the efficient functioning of study abroad and other mobility programs.

Second, it is important to consider the role of policy implementation in global engagement. A conceptual framework that focuses on global engagement and University Efficacy may not address the mechanisms of action or organisational processes through which benefits are achieved.

Third, while evaluating the outcomes of academic performance, infrastructure development and international student exchange, the three dimensions should be adequately conceptualized.

Academic and research outcomes of performance relate to the development of institutional facilities and systems. Establishment of international student exchange programs is different from the international mobility of students and scholars. Each of the three concepts described above, requires specific, adequate and appropriate indicators.

The authors of the study wish to acknowledge and extend appreciation to researchers in the field of higher education internationalisation for their interesting and insightful comments on the study.

The authors of the study hope the findings of the study presented in this article will help promote further research in this area. The study does not suggest that past and previous research has neglected the internationalisation of higher education, the focus of this research, in conjunction with other research.

1.4. Aim of the Study

The aim of this study is to analyze quantitatively the relations among University Globalisation Level, Policy Implementation Effectiveness and the three levels of university efficacy in Shandong province of China.

1.5. Research Objectives

The study has five objectives:

1. Conceptualise University Globalisation Level in higher education institutions of Shandong province of China.
2. Analyse the role of Policy Implementation Effectiveness in the relationship of globalisation and university performance.
3. Define and assess the relations between University Globalisation Level and college performance, Capital investment and other research and developmental activities, and International Student Exchange.
4. Assess the relationships between the variables and determine the nature of the associations supported by the data.
5. Access the relationships and assess the level of confidence supported by the research questionnaires.

1.6. Research Questions

The study seeks to answer the following research questions:

RQ1: What is the meaning of University Globalisation Level in Shandong province of China in the context of university efficacy?

RQ2: In what ways does Policy Implementation Effectiveness influence University Globalisation Level and university efficacy?

RQ3: In what ways does University Globalisation Level affect academic performance, Capital investment and International Student Exchange?

RQ4: What is the role of Policy Implementation Effectiveness in globalisation and university performance?

RQ5: What are the direct and indirect influences of the variables assessed in the study supported by the research questionnaires?

1.7. Significance of the Study

The study is anticipated to have theoretical, methodological and practical importance.

Theoretical significance: By illustrating the relationship between international engagement and institutional outcomes, the framework describes a way to consider how internationalization affects universities, avoiding the assumption that internationalization has a uniform effect.

The framework provides two alternate ways to understand internationalization, relating university internationalization to global engagement through relationships among Level of University Globalization (LUG), Policy Implementation Effectiveness (PIE), and University Efficacy. To advance understanding of the framework, the author applied a range of quantitative methods, including descriptive and measurement-related statistics, as well as correlation and regression analysis.

Practical significance: The framework helps policymakers and university administrators examine international engagement beyond the number of international partnerships and agreements, and helps policymakers and administrators think about international engagement and partnerships in the context of the implementation and outcomes.

Regional significance: The author focused on a single region of China, helping to identify universities with similar international focus and engagement for further comparison.

Presumably, with further critique and research, the framework and related research will improve.

2. LITERATURE-BASED APPROACH AND CONCEPTUAL DEVELOPMENT

2.1. Approach to Conceptual Framework Development

A conceptual framework and quantitative analysis of a questionnaire completed by 300 respondents are combined in this research. The conceptual framework identifies the relationships of University Globalisation Level (UGL) and Policy Implementation Effectiveness (PIE) with three aspects of university performance, viz. academic performance, and infrastructure and international student exchange.

A literature review forms the basis of developing a conceptual framework by identifying relationships and developing ideas for further research. An integrative review of the literature may also be constructive in developing knowledge. In this context, it may be constructive to define the goal of the review, analyze the literature, and integrate the knowledge in the field to advance understanding.

The relationships identified in the literature are qualified by the questions posed in the questionnaire. The relationships are tested statistically. The focus of the quantitative analysis is to understand the relationships between UGL and the outcomes by directly or indirectly (through the mediator PIE) facilitating global engagement. The validity and reliability of the sampling technique and the core and ancillary assumptions are key to drawing informed conclusions.

2.2. Scope and Identification of Relevant Literature

A conceptual framework integrates understanding from the interrelated areas of globalisation and internationalisation of higher education; higher education policy of China; implementation of policy; academic performance of institutions; and international student exchange and collaborative development of international higher education.

The author primarily relies on literature published in English. Where relevant, literature published in other languages (including Chinese) is included to provide definitions or describe research methods.

2.2.1. Global Higher Education and Internationalisation

This section addresses international higher education, including universities' involvement in international networks, study abroad, and cross-border research. This section of the literature differentiates internationalisation strategies from other global trends influencing higher education.

In the case of China, Liu (2021) notes internationalization of higher education is interpreted differently at the national level and at the institutional level. Because internationalization of higher education in China is largely state-directed, this study needs to consider how the higher education internationalization of Chinese universities fits within the larger framework of University Globalisation.

2.2.2. Policy Implementation in Higher Education

Internationalisation strategies provide a framework for designing and organizing international collaboration and for implementing policies promoting student mobility. However, to achieve these goals, a combination of structural and strategic institutional planning is necessary.

Jin et al. (2020) focused on the barriers to implementing an internationalisation plan within a research university in China. Their study provides a context relevant case for this study concerning the disparity of universities' stated and real commitments to internationalisation.

This literature is pertinent to the construct of Policy Implementation Effectiveness. Within this study, it reflects the extent to which universities have operationally and integrally implemented relevant policy directives.

2.2.3. Higher Education Reform and Institutional Development in China

This area analyzes the interaction of higher education policy and reform, institutional change and improvements and their influence on educational outcomes in China. Xiong et al (2022) provide an analysis of different phases of higher education reforms from 1978 and provide valuable insights on the process of policymaking, implementation and achievement of outcomes. This study adds a critical dimension in understanding the need for concurrent analysis of varying policies and reforms, as well as the processes of institutional improvement and support thereof.

This literature provides the context to analyze and integrate university internationalization and university changes towards globalization within the framework of the wider policies and reforms. Furthermore, this literature illustrates the pitfalls of merging university reforms with internationalization.

2.2.4. Academic Performance and Infrastructure Development

The fourth area also focuses on institutional outcomes, particularly the outcomes of academic performance, and the outcome of the development of the university's infrastructure. The development of the university's infrastructure includes research infrastructure and services, and learning and digital infrastructure.

These different outcomes should be analyzed and assessed separately. Improving university infrastructure does not always positively impact academic performance, and vice versa.

2.2.5. International Student Exchange Programmes

The final area of study was the international exchange of students and the policies and frameworks related to these student exchanges. The focal point of this literature was the formalization of international partnerships and the subsequent establishment of exchange programs.

Relevant factors include the continuity of study programmes, the participation of incoming and outgoing students, the recognition of credits, the preparation and support of students. Knowledge of these factors shows that the existence of exchange agreements does not mean that international student mobility has been effectively organized.

This study analyzes international student exchange programs as a dimension of university efficacy rather than as an indicator of all universities' internationalization efforts.

2.3. Principles Guiding the Conceptual Synthesis

Three principles underpin the development of the conceptual framework.

Construct clarity: Each construct must be explained and must contribute to the overall logic of the framework. The level of university globalization is defined by the extent of the university's connections to international higher education. Policy implementation refers to the transforming of a will into an act.

Theoretical coherence: The framework must describe logic in a way that is justified by the literature. The framework is not to assume that the efficacy of a university by virtue of its internationalization efforts will result in positive outcomes; rather it is to describe institutional circumstances where such effects may be expected.

Outcome differentiation: International student exchange programs and other university initiatives must be defined in an adequate manner and measured in an acceptable fashion in scientific research.

These three principles assist in connecting the main elements of the research, to include the problem, the framework and the rationale for the acceptance and rejection of the research hypothesis.

2.4. Analytical Structure of the Conceptual Framework

The conceptual synthesis includes an independent variable and a proposed mediator and the three variable dimensions of the outcome, as described in the original framework.

Construct or outcome	Central analytical question	Role in the framework
University Globalisation Level	To what extent does the university engage with international academic and organisational activities?	Independent construct
Policy Implementation Effectiveness	How effectively are internationalisation commitments translated into institutional practices?	Mediating construct
Academic Performance	How may global engagement relate to academic and research outcomes?	Dependent outcome 1
Infrastructure Development	How may global engagement relate to institutional facilities and systems?	Dependent outcome 2
International Student Exchange Programmes	How may global engagement relate to the development and implementation of student mobility?	Dependent outcome 3

In the framework, University Globalisation Level (UGL) is related directly to the outcomes and may also be associated with the outcomes through the mediation of Policy Implementation Effectiveness (PIE). The direct relationship with the mediator enables relationships with outcomes that are otherwise unrelated. Engaging globally may be reflected in the performance of the university (academic and infrastructural) and in international student exchange.

The distinction is more theoretical than applied. Mediation does not necessarily mean that the mediator has to be entirely spelled out. Future studies should consider different mediation structures and examine partial mediation in more detail.

3. CONCEPTUAL FOUNDATIONS OF GLOBAL HIGHER EDUCATION AND UNIVERSITY EFFICACY

3.1. Global Higher Education and University Globalisation Level

Today, universities can interact across borders and build international partnerships in academic, research, and educational areas in multiple ways (e.g., collaborations, exchanges, visits, and joint activities). These relationships create bridgeheads and enable universities to extend their academic reach beyond their national contexts. Internationalisation should be addressed at various levels of a university. For example, Hossain et al. (2022) analyzed six emerging economy countries and found that each context exhibited a specific internationalisation model. Furthermore, Boka and Jahn (2019) examined five cross-border higher education collaboration models from an internationalisation perspective and argued that distinct academic, cultural, and social theories help to explain the international higher education collaboration models.

As noted by Xu (2023), when discussing internationalisation of higher education in China, multiple theories such as sociology, economy, and politics, as well as East-West cultural differences, come into play. Based on this analysis, internationalisation should be studied in relation to the national situation and the context of higher education.

This paper defines University Globalisation Level (UGL) as a university's engagement with the international in the domain of academy, research, and practice. This definition reflects the author's thinking for the current framework of the paper.

3.1.1. International Academic Collaboration

Collaboration in an academic context refers to joint work undertaken with scholars from different institutions, be it through research, guest lectures, publications, etc. International academic collaboration provides opportunities for knowledge exchange. Knight (2004) considers international collaboration and partnerships, and international joint projects and initiatives, as some of the key strategies through which an institution can internationalize its activities.

While partnership agreements form the basis of international collaboration, in the absence of concrete collaboration, their impact remains limited. Jin et al. (2020) refer to the challenges of implementing internationalization strategies within a Chinese University as being largely attributable to variation in the understanding of internationalization among the university administration. Thus, it is important for UGL to assess the extent to which international collaboration has been meaningfully undertaken, as opposed to the raw number of collaborative agreements.

3.1.2. Internationalisation of Teaching and Curriculum

Internationalization of teaching and learning encompasses infusion of international and intercultural perspectives and contents into learning. Knight (2004) places teaching and learning as one of the important approaches of internationalization of higher education institutions.

In the case of the research framework, internationalization of teaching and learning may include opening up curricula to include international dimensions, and giving learners opportunities to engage with various professional and cultural dimensions.

3.1.3. International Research Engagement

Activities such as collaborative research and publishing with scholars from other countries and participation in transnational research and other scholarly networks are important strategies through which higher education institutions engage internationally (Knight, 2004).

International research activity and academic performance of institutions are different concepts. The first concept refers to engagement of a university with the world outside. The second refers to the attainment of a university in the field of academic endeavor. It is important to identify these concepts to avoid measuring performance of a university with respect to engaging with the world outside with one of the metrics used for assessing attainment.

3.1.4. International Student and Staff Mobility

Student and staff mobility refer to movement across national or institutional borders for study, research, teaching and/or work-related purposes. International mobility is one type of international engagement. However, it is important to distinguish mobility from the arrangements that are made and the results that are achieved.

The effects of the duration and timing of student credit mobility on academic performance was studied by Granja and Visentin (2024). Their study underscores the need to consider the attributes of international mobility and to not generally assume that all types of international experiences are equal in their implications on academic performance. It is important to recognize that mobility of students may influence academic performance and upon accomplishment of an exchange agreement, the University has achieved another outcome.

3.1.5. Institutional Integration of Global Engagement

International activities must be integrated with the institutional core. Knight (2004) notes that while analyzing internationalization one must consider the internal processes of the institution, and the external factors of the country and sector.

In the case at hand, institutional integration means the incorporation of international activities and engagement in the institutional plans, policies and strategies. Jin et al. (2020) notes how the existence of differences between plans and the perceptions of plan implementers can cause problems at the operational level.

3.2. Policy Implementation Effectiveness

3.2.1. Concept and Definition

Policy implementation focuses on transforming policy statements to workable actions and formats. Universities develop their own policies for internationalization to pursue goals related to faculty and staff collaboration and research; student and academic staff mobility, curriculum and program development, international partnerships and collaborations, and internationalization of campuses. The degree of internationalization achieved by universities is, to some extent, the result of the policies and strategies universities formulate and the means by which they are translated into workable programs and formats.

Jin et al. (2020) studied the implementation of internationalization policies and strategies in a Chinese research university. Diverse views among staff members with regard to internationalization enforced a gap between the plans and policies of the university and their implementation. Gaps between policies and strategies, and their implementation provided justification for inclusion of implementation in the framework.

In this study, Policy Implementation Effectiveness (PIE) is defined as the extent to which university policies and strategies on internationalization, global engagement and other related policies are implemented as integrated and aligned programs of work. PIE connects the University's Global Leadership (UGL) with the three dimensions of university efficacy. This connection is consistent with Knight's (2004) argument on internationalization as a university strategy, and the means through which the strategy is executed. The connection itself, is a hypothesis which needs to be tested.

3.2.2. Strategic Alignment

Maintaining consistency between international engagements and university-wide plans is referred to as strategic alignment. Knight (2004) highlights how different university strategies could be instrumental in directing internationalization. Jin et al. (2020) argue that if different university stakeholders interpret internationalization in diverging ways, plans are impeded by a lack of coordination.

In this context, the extent to which university internationalization activities and strategies respond to the institutions' top-priority, long-term goals and aspirations is considered strategic alignment. This has been proposed as an added dimension of PIE (global competition and inward looking trends), and deserves further study to evaluate its measurement.

3.2.3. Resource Allocation

The literature suggests the successful implementation of internationalization initiatives is dependent on the internal resources and support of the university (Knight, 2004; Internationalization among selected HEIs in the ASEAN region, 2019).

It is important to separate the allocation of resources from the development of infrastructure. As used herein, the term PIE refers to the planning and use of an university's resources to implement its commitments on internationalization. Infrastructure development, on the other hand, is about the improvement of the institutional structures and facilities of the university. This will help eliminate construct redundancy in the proposed framework.

3.2.4. Organisational Coordination

Different academic and administrative units of a university (e.g., Schools, faculties, colleges, academic and research departments, offices, centers, and institutes, as well as leadership, and management) are involved in different aspects of internationalization. However, their coordination determines the extent to which institutional strategies and plans are turned into practical activities.

Findings of Jin et al. (2020) showed how the lack of a common understanding between academic and administrative staff of a university in Shandong Province of China constrained the implementation of internationalization strategies. Although their findings should not be extrapolated to other universities in Shandong Province, their study emphasizes the importance of a shared understanding and organizational collaboration.

3.2.5. Monitoring and Continuous Improvement

This concerns assessment of the degree to which activities have been implemented, identification of operational bottlenecks and refinement of activities of the institution. A university may have established international linkages and adequate policies, but may be unable to sustain such linkages or to implement its strategies in its internationalization efforts. The case of a university may illustrate challenges of implementation with respect to translating its strategies into practical policies.

The authors consider the above-mentioned concepts and approaches as avenues for improvement of the construct.

3.3. University Efficacy as a Multidimensional Construct

In this study, the emphasis is on university effectiveness, mainly because other dimensions of institutional effectiveness in the higher education sector, including efficiency, are complex and debatable. Institutional effectiveness in higher education is intricate because universities are organized to achieve multiple objectives.

Nkata (2006) considers multiple dimensions of university effectiveness, including goal-orientation, productivity, adaptability and responsiveness. Such considerations clarify that university effectiveness can be represented by multiple indicators.

The framework assesses university efficacy along three separate outcome dimensions, namely academic performance, the development of institutional infrastructure, and international student exchange. This framework is in line with the broader principle that a higher education institution should be evaluated using diverse and adequate performance indicators (Lindsay, 1982; Nkata, 2006).

3.4. Academic Performance

The first of the three outcome dimensions is academic performance. Here academic and research performance at the institutional level is in focus, and not academic performance at the level of the individual student.

Internationalization of higher education typically leads to international research and/or academic collaborations, and to international scholars' exchange. For higher education institutions, international collaborations and research activities are among the most important means of achieving internationalization (Knight, 2004). Not all international activities and collaborations of an institution imply improvement of the institution's academic performance.

Improving university infrastructural and networking capacities have led some scholars to believe that globalization of higher education improves research performance of universities (Granja and Visentin, 2024). While this may be the case, researchers should make clearer and narrower statements regarding the cause and effect relation of university globalization and performance.

3.5. Infrastructure Development

Improving the university infrastructure to facilitate and support international collaborative research and other international activities is the second dimension of the outcome under focus.

International collaborations may create a need for digital, research, and student and staff services across different time zones. Universities may develop a range of activities, programs, and services beyond those involving staff and student mobility. These may include partnerships and cooperation with other universities, and joint programs and research. Nevertheless, internal capacity and organizational will to implement these initiatives may be limiting factors (Internationalization among selected HEIs in the ASEAN region, 2019).

3.6. International Student Exchange Programmes

Exchanges facilitate student mobility and enable students to study at partner universities. Programs of this nature enable students to develop awareness and understanding of the pedagogies, as well as cultural and social variations, that exist among people in different parts of the world.

Knight (2004) notes student mobility and international partnerships are some of the dominant internationalization strategies and trends in the higher education sector. However, there are cases where universities have signed international agreements but have not adequately implemented the programs covered in the agreements.

Research (Granja and Visentin, 2024) shows length and duration of student mobility has significant impact on academic performance. Research does not, however, explain the institutional reasons and strategies for student mobility in the case of universities in Shandong province, China.

3.7. Relationship Between the Core Constructs

The previous discussion provides an academic justification for the development of the conceptual framework. UGL represents the width and extent of international activities undertaken by a university, and PIE represents the internal processes of a

university to achieve its internationalization goals. The other dimensions represent the different aspects of university effectiveness.

The direct relationships are grounded in the importance of international collaboration and research, higher education institution strategies, and the international mobility of students for the internationalisation of higher education (Knight, 2004; Xu, 2023). The literature does not support the assumption that all forms of internationalisation of higher education would improve all possible institutional outcomes.

The role of PIE as a mediator is supported by the research that emphasises the challenges of difference in University members' understanding and coordination as obstacles to the implementation of internationalisation plans (Jin et al., 2020). Therefore, how higher education institutions attain their internationalisation goals would impact the realisation of engagement in international activities and the outcomes.

The theoretical implication of the framework is the proposal of six relationships, out of which, three are direct relationships of UGL with the outcome variables and the other three are indirect relationships through PIE. These relationships are potential relationships, which are proposed to bridge a theoretical gap in the literature and require empirical verification. The following section describes and illustrates the relationships and provides a conceptual framework for verification by other researchers.

4. CONCEPTUAL FRAMEWORK AND THEORETICAL PROPOSITIONS

4.1. Introduction

The conceptual framework in this paper connects the internationalisation of universities, particularly in Shandong Province, China, and universities' overall performance. It uses the distinction between international engagements as a field of activity of the university and the strategies and means by which the university transforms such engagements into various forms of outcome. Internationalisation, as Knight (2004) views it, encompasses the strategies, policies and the academic engagements of the university. Jin et al. (2020) discuss some of the barriers, including organisational barriers, to the full implementation of internationalisation strategies and plans of universities in China. The ideas expressed by the two authors enable an assessment of the extent to which universities internationalise their activities and the adequacy of policies and strategies to internationalise universities.

4.2. Structure of the Conceptual Framework

The University Globalisation Level (UGL) and the Effectiveness of Policy Implementation (PIE) are the two main constructs of this framework. UGL demonstrates how far a university has internationalised its activities and PIE represents the extent to which the university has been successful in implementing the policies to facilitate internationalisation. The three remaining constructs are the results of university efficacy (Lindsay, 1982). The extent to which a university has internationalised its activities and research engagement is reflected by the three results of efficacy. UGL is theorised to have positive effects on all three results.

Policy Implementation Effectiveness (PIE) represents a combination of various factors related to the implementation of policies including, among other things, alignment, resource allocation and organizational and operational factors. Internationalization is one of the key elements of the policy implementation framework. However, it can also be a barrier to the effective implementation of policies by a university. For example, Jin et al. (2020) noted that part of the challenges faced in internationalization could be due to varying levels of globalization and the barriers induced by perceivable differences among stakeholders concerning the interpretation and implementation of policies across international boundaries. Therefore, this study assumes that PIE mediates the relationships between University Globalization Level (UGL) and the three outcomes, and allows for the existence of other relationships beyond the consideration of this mediation framework.

4.3. Proposed Relationships Between the Constructs

The framework assumes that University Globalisation Level (UGL) has a positive effect on academic performance and on the development of the university's infrastructure and on international student exchange. Opportunities for institutional development may come from engagement in collaborative international research and from other forms of international engagement. However, the degree to which opportunities are converted to outcomes depends on the effectiveness of the policies and strategies implemented by the university (Knight, 2004; Jin et al., 2020).

Academic performance and research performance may be enhanced through international academic collaborations and international research collaborations. Therefore, this study posits:

P1: University Globalisation Level (UGL) is positively associated with academic performance.

In order to achieve the positive impacts of internationalization on academic performance, a university must properly align its strategies, policies and resources (Jin et al., 2020). Thus:

P2: Policy Implementation Effectiveness (PIE) mediates the relationship between University Globalisation Level (UGL) and academic performance.

It is expected that positive impacts of internationalization may be felt in research and infrastructure, and in engagement with international partners. However, there are implementation barriers, and hence, not all opportunities may be converted to desired outcomes.

P3: University Globalisation Level (UGL) is positively associated with research and infrastructure developments.

Implementing strategies, policies and resources to engage internationally may positively impact a university's research and infrastructure (Knight, 2004; Jin et al., 2020). Thus:

P4: Policy Implementation Effectiveness (PIE) mediates the relationship between University Globalisation Level (UGL) and research and infrastructure development.

International agreements may support student exchange. However, the active operation of international exchange programs involves both the academic and the administrative branch of a University (Knight, 2004).

P5: UGL is positively related to the initiation and operation of international student exchange programs.

The combination of the effective implementation of policies with the support of the coordination, administration, and student service structures of a University can accelerate the functioning of international partnerships to the level of operational international exchange programs (Jin et al., 2020).

P6: It is assumed that PIE mediates the relation between UGL and international student exchange programs.

4.4. Conceptual Framework Diagram

This monochromatic figure shows the framework that is described below in text.

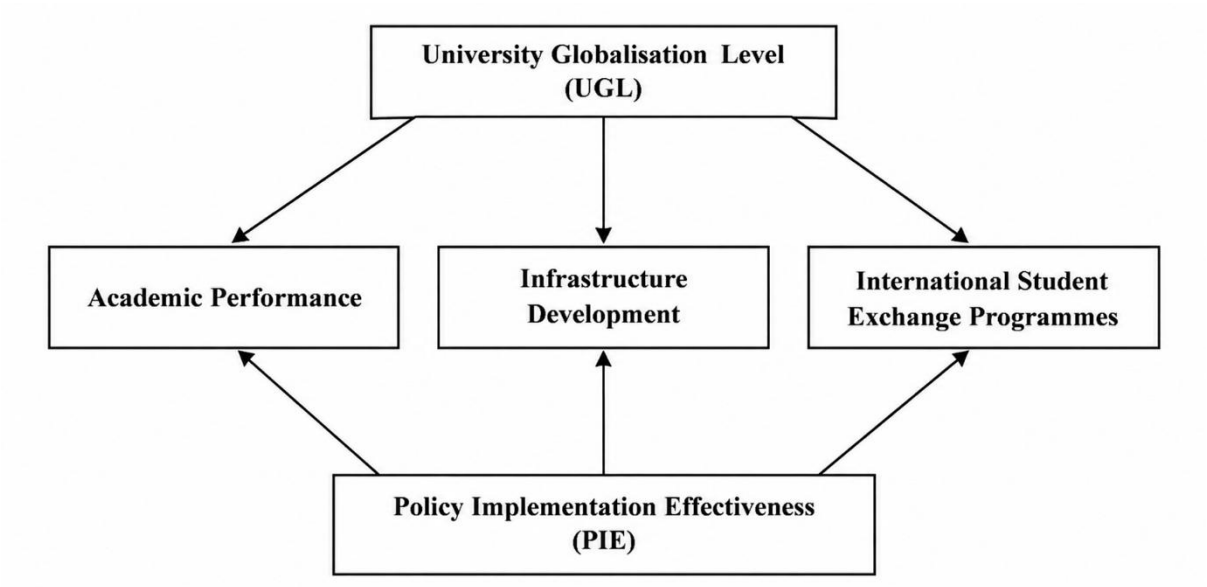


Figure 1. Proposed conceptual framework linking university globalisation, policy implementation effectiveness, and university efficacy outcomes.

Note. Each of the outcomes is shown to be related to UGL in one of three different ways. Relationships shown in the figure are direct. The figure shows PIE in relation to UGL and the outcomes. The placement and order of the elements indicate direct relationships, and the other elements of the figure are schematic and simplified.

4.5. Theoretical Contribution of the Framework

The framework provides a different way of looking at things. UGL refers to various aspects and forms of internationalization of a university including partnerships, student and staff exchange, research, and teaching (Knight, 2004). PIE refers to the other side of the equation, that is, the implementation and transformation of the strategies and policies of internationalization to achieve the desired effects (Jin et al., 2020).

Within the context of university efficacy, the framework also describes three other aspects, that is, academic performance, the built environment, and international student exchange. The focus of the framework is assessment, that is, the ability of an institution to achieve the desired effects in various fields of its activities and sphere of operations (Lindsay, 1982).

The six propositions reflect three direct connections between UGL and the outcomes, as well as three mediation connections via PIE. Therefore, these propositions describe the context-related model for evaluating university performance in Shandong. These propositions must, however, be assessed and verified statistically.

5. RELATIONSHIPS AMONG THE PROPOSED CONSTRUCTS AND IMPLICATIONS FOR HIGHER EDUCATION INSTITUTIONS

UGL is assumed to relate to the performance of higher education systems and to higher education infrastructure and to international student exchange programs. To what extent international collaboration and student mobility promote the development of an institution and affect the overall performance of the institution depends on the effective implementation of policies (Knight, 2004; Jin et al., 2020).

There may be positive effects of UGL on university performance through collaboration and exchange of research information, and also on the development of research-related curricula. Engaging internationally does not necessarily lead to improved performance, and to what extent engagement supports the performance of an institution depends on the extent to which the engagement is integrated into the institution's academic mission (Knight, 2004).

UGL may support and improve the performance of higher education institutions through the development of the necessary research infrastructure and internationalization of the student support system. The improvements achieved depend on the institutional strategy and capacity.

The same applies to international cooperation for the development of exchange programs for students and researchers. Effective and specific administrative arrangements and student support enhance the likelihood of achieving the desired outcomes in this regard (Knight, 2004).

It is proposed that UGL influences the three outcomes via the mediation of PIE. Other components of university strategy and organisational processes may influence internationalisation and add value in the framework. The barriers to the implementation of international strategies in higher education in China highlight the importance of considering the processes in university organisation (Jin et al., 2020). The framework allows for partial mediation.

As far as universities in Shandong Province are concerned, the framework points to the necessity of coordinating university internationalisation policy with the university's academic and research priorities, the current state of the university's infrastructure, and opportunities for international student mobility. Evaluating university internationalisation policy ought to be based on achievements rather than on the number of new policy agreements.

In addition, the framework is innovative in that it places University Effectiveness in three separate domains, and also in that it separates Global Engagement from Effectiveness. It warrants consideration of proposed direct and indirect associations. Testing the model in other university settings is also warranted. In the absence of comparable universities, the model can help to consider indicators and appropriate methods to assess University Internationalisation strategies. (Lindsay, 1982).

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6. RESEARCH METHODOLOGY AND DATA ANALYSIS

6.1. Research Design

To analyze the university efficacy and university globalization levels in Shandong Province, the research team designed a quantitative research framework. In this framework, University Globalization Level (UGL) served as the independent variable, and Policy Implementation Effectiveness (PIE) served as the mediating variable. The dependent variables in this framework included academics and research, infrastructure development, and international student exchange.

In this research framework, the analysis of the UGL and PIE variables and their relationships with the dependent variables was done through PIE.

The dataset used in the analysis comprised of 300 cases and 22 variables, each of which represented an element on one of the five constructs, and respondent/case-level variables.

6.2. Research Model and Propositions

The research model presumed that through various mechanisms, such as international curricular and research activities and mobility of students, international engagement was related to the above mentioned institutional outcomes. The models further presumes that internationalisation policies would shape the role of the aforementioned activities in realizing the goals of the policies (Jin et al. 2020; Knight 2004).

The hypotheses advanced for testing in the model were:

- **P1**. UGL was positively related to academic performance.
- **P2**: PIE explained the relationship between UGL and academic performance.
- **P3**: UGL was related to the building of infrastructure.
- **P4**: PIE explained the relationship between UGL and infrastructure development.
- **P5**: UGL was related to student exchange programs.
- **P6**: PIE explained the relationship between UGL and student exchange programs.

The relationships between UGL and the three outcomes were analyzed using regression. The other three relationships were analyzed using mediation, with PIE included along with UGL, as predictors, of the outcomes.

6.3. Operationalisation of Variables

Five fundamental variables were operationally defined using multiple-item scales. Each item was scaled using a 5-point Likert scale, with scores ranging from 1 (disagree) to 5 (agree). The average of the items comprising the variable was calculated to derive the variable score.

University Globalisation Level (UGL)	5	International collaboration, curriculum internationalisation, research engagement, mobility, and institutional integration
Policy Implementation Effectiveness (PIE)	5	Strategic alignment, resource allocation, organisational coordination, operational execution, and monitoring
Academic Performance (AP)	4	Perceived institutional academic and research outcomes
Infrastructure Development (ID)	4	Perceived development of physical and digital infrastructure
International Student Exchange Programmes (ISEP)	4	Development and implementation of student exchange programmes

The multidimensional nature of University Effectiveness was incorporated through the constructs of academic and research performance, University infrastructure and facilities and International Student Exchange Programme.

The reliability estimates reported below are assessed based on the standards established for instrument development. The studies did not demonstrate that the measures assessed the extent to which the University achieved the defined institutional goals.

6.4. Data Preparation and Analytical Procedures

We examined the dataset to understand the structure and variable coding, and ensure completeness. Five construct scores were calculated by taking the arithmetic mean of the corresponding item scores. Descriptive statistics such as means and standard deviation were computed to understand the distribution of each construct.

Ee calculated Cronbach's alpha to measure the internal consistency of the constructs. We used Pearson correlation analysis to measure the strength and evaluate the nature of the linear relationships among the constructs. Ordinary least squares (OLS) regression was performed to evaluate the relationship between UGL and the other constructs.

Next, we performed mediation analysis, to evaluate the relationship between UGL and each of the other constructs. First, we evaluated the relationship between UGL and each of the other constructs. Second, we regressed each of the other constructs on UGL and PIE (if applicable). We defined the indirect effect as the product of the PIE and the other construct coefficient (if applicable).

6.5. Descriptive Statistics

We performed descriptive analysis on 300 samples. The mean of each construct ranged from 2.915 (UGL) to 3.012 (PIE). The standard deviation for each construct ranged from 0.924 to 0.999.

Table 6.1. Descriptive statistics of the principal constructs

Construct	N	Mean	SD	Minimum	Maximum
UGL	300	2.915	0.924	1	5
PIE	300	3.012	0.96	1	5
Academic Performance	300	2.947	0.998	1	5
Infrastructure Development	300	2.963	0.999	1	5
International Student Exchange Programmes	300	2.953	0.985	1	5

The mean scores were relatively similar. PIE scored the highest mean (3.012), followed by International Student Exchange Programs (2.953), Infrastructure Development (2.963), and Academic Performance (2.947) and UGL (2.915).

6.6. Reliability Analysis

The estimates of Cronbach's alpha for the different items associated with each of the constructs ranged from 0.787 to 0.832.

Table 6.2. Internal consistency of the construct scales

Construct	Number of items	Cronbach's alpha
UGL	5	0.799
PIE	5	0.832
Academic Performance	4	0.787
Infrastructure Development	4	0.807
International Student Exchange Programmes	4	0.809

The calculated alpha values showed the dataset had mostly consistent responses. PIE had the highest alpha value at 0.832, and academic performance had the lowest at 0.78. The results showed the item sets were adequate to represent the analytical framework being evaluated.

Just having an acceptable degree of internal consistency does not mean the items are valid or adequate for the assessed respondents, or that they do not contain redundancies. Those aspects have to be evaluated through appropriate and sufficiently diverse empirical evidence and an assessment strategy that aligns with the underlying constructs being evaluated.

6.7. Correlation Analysis

This section presents correlations of the five component scores. UGL had positive correlations with PIE (r = 0.394), academic performance (r = 0.253), infrastructure development (r = 0.445), and the international student exchange programs (r = 0.470).

Table 6.3. Correlation matrix of the principal constructs

Construct	UGL	PIE	Academic Performance	Infrastructure Development	Student Exchange
UGL	1	0.39	0.253	0.445	0.47
PIE	0.39	1	0.364	0.441	0.398
Academic Performance	0.25	0.36	1	0.276	0.251
Infrastructure Development	0.45	0.44	0.276	1	0.271
International Student Exchange Programmes	0.47	0.4	0.251	0.271	1

UGL had positive relationships with each of the three outcomes. The strongest relationship was with the international student exchange programs (r = 0.470), followed by relationships with the infrastructure development (r = 0.445) and academic performance (r = 0.253). UGL was also positively related to PIE (r = 0.394).

From a correlations standpoint, the relationships reflected the ideas stated in the conceptual framework. It is worth noting that correlations generally do not reflect causality. Therefore, to gain additional insight, mediation and regression analysis were carried out.

6.8. Regression Analysis of Direct Relationships

This section provides OLS regression analyses to assess the relationship between UGL and the outcomes of interest. With respect to each outcome, UGL was evaluated to determine its impact and/or relationship.

Table 6.4. Regression estimates for the direct relationships

Dependent variable	UGL coefficient (B)	p-value	R^2	Interpretation
Academic Performance	0.273	less than .001	0.064	Positive association
Infrastructure Development	0.481	less than .001	0.198	Positive association
International Student Exchange Programmes	0.502	less than .001	0.221	Positive association

6.8.1. UGL and Academic Performance

UGL had a positive effect on academic performance (B = 0.273), ($p < 0.001$). The model estimated that approximately 6.4% of the variation in academic performance was accounted for by UGL. Positive coefficients suggested that higher UGL values were reflected in higher academic performance values in the sample.

The limited R^2 value suggested that UGL, by itself, accounted for only a minor portion of the variation in academic performance. Other, unmeasured, aspects of the university environment may also be relevant to improving academic performance.

6.8.2. UGL and Infrastructure Development

Higher UGL correlated positively with infrastructure development (B = 0.481), p < .001). The model accounted for the variance as R2 = 0.198.

The coefficient was larger compared to the corresponding coefficient for academic performance, and in the dataset, UGL was related to infrastructure development. Improving UGL would likely result in positive improvement for infrastructure development.

6.8.3. UGL and International Student Exchange Programmes

Higher UGL also correlated positively with International student exchange programs (B = 0.502), p < .001. The model accounted for the variance as R2 = 0.221.

This model had the highest R2 among the three models looking at the direct effects, thereby, justifying the inclusion of UGL in the model. It was shown that UGL contributed more to variance in the exchange program compared to the other two cases. This was in line with P5 in the illustrative case analysis.

6.9. Mediation Analysis

The purpose of the mediation analysis was to evaluate if the case (PIE) explained part of the relationship between the case (UGL) and each of the outcomes. The first of the series of models estimates the UGL and case relationship. In the subsequent models, both UGL and the case are projected in relation to each of the outcomes.

Results of the regression of the case (PIE) by UGL indicated a positive relationship (B = 0.409, p < 0.001) and a positive association (R2 = 0.155) in the case of UGL in the sample.

6.9.1. Mediation of the Relationship Between UGL and Academic Performance

With regard to UGL, academic performance and PIE, all three variables had a positive relationship with each other. The relationship coefficient of PIE with academic performance was 0.357 ($p \leq 0.001$). With respect to UGL and academic performance, the relationship coefficient was 0.127 ($p \leq 0.042$) which was lower than the coefficient UGL and academic performance relationship (R5) where UGL had a positive relationship with academic performance with a coefficient of 0.273 ($p \leq 0.001$).

The positive relationship between UGL, PIE and academic performance implied that the relationship between UGL and academic performance was mediated by PIE. The indirect effect of UGL with academic performance through PIE was estimated to be 0.146. The 95% confidence bootstrap interval was [0.087, 0.215] and thus excluded the value of zero, indicating that the effect was significant.

The results indicated a partial mediation pattern. The indirect effect of PIE was positive, while the direct effect of UGL was positive and significant at the 0.05 level. Therefore, P2 was supported.

6.9.2. Mediation of the Relationship Between UGL and Infrastructure Development

The effects of PIE and UGL were estimated while controlling for the other variable. PIE was positively associated with infrastructure development, with a coefficient of 0.272, significant at the 0.001 level. UGL had a similar positively associated effect on infrastructure development with a coefficient of 0.369, also significant at the 0.001 level.

The indirect effect of PIE was estimated to be 0.111, with a bootstrapped 95% confidence interval of [0.064, 0.175]. As the lower bound of the interval was greater than zero, the indirect effect was positive and zero was not plausible in the dataset.

The effect of UGL decreased from 0.481 to 0.369 after including PIE in the model and was positively signed. This pattern of partial mediation was supported by the illustrative analysis and P4.

6.9.3. Mediation of the Relationship Between UGL and International Student Exchange Programmes

In the same way, the effect of PIE on international student exchange programmes was estimated while controlling for UGL. PIE was positively associated with exchange programme scores, with a coefficient of 0.259, significant at the 0.001 level. While, UGL was positively associated with exchange programme scores with a coefficient of 0.396, also significant at the 0.001 level.

The indirect effect of PIE was estimated to be 0.106, with a bootstrapped 95% confidence interval of [0.056, 0.158]. As the lower bound of the interval was greater than zero, the indirect effect was positively signed and zero was not plausible in the dataset.

The UGL coefficient decreased from 0.502 to 0.396, but remained statistically significant after the inclusion of PIE. This was in-line with expectations from the illustrative model and supported Proposition 6.

Table 6.5. Summary of mediation analysis

Outcome	Total effect B	Direct effect B	PIE-to-outcome B	Indirect effect	Bootstrap 95% CI
Academic Performance	0.273	0.127	0.357	0.146	[0.087, 0.215]
Infrastructure Development	0.481	0.369	0.272	0.111	[0.064, 0.175]
International Student Exchange Programmes	0.502	0.396	0.259	0.106	[0.056, 0.158]

6.10. Evaluation of the Research Propositions

Results from the analysis were compared to the research propositions.

Table 6.6. Summary of proposition assessment

Proposition	Relationship	Analytical result	Assessment within the dataset
P1	UGL → Academic Performance	(B = 0.273), (p < .001)	Supported
P2	UGL → PIE → Academic Performance	Indirect effect = 0.146; CI excludes zero	Supported
P3	UGL → Infrastructure Development	(B = 0.481), (p < .001)	Supported
P4	UGL → PIE → Infrastructure Development	Indirect effect = 0.111; CI excludes zero	Supported
P5	UGL → International Student Exchange Programmes	(B = 0.502), (p < .001)	Supported
P6	UGL → PIE → International Student Exchange Programmes	Indirect effect = 0.106; CI excludes zero	Supported

The results of the analysis were consistent with the research propositions. In the case of direct relationships, results showed positive relationships that were statistically significant. Indirect relationships were mediate by the construct of interest, and the confidence intervals of the estimations obtained from bootstrap sampling were statistically significant. Positive direct UGL coefficients in the mediation analysis suggested partial mediation.

The results were obtained from the research sample employed in this study. They do not necessary indicate that the propositions are true for universities in Shandong Province. To validate the propositions, an independent and representative sample of universities in the Province is required.

The research instruments and corresponding scores were analyzed from diverse perspectives, including direct and mediate effects, multiple regressions, correlations and mediation. Cronbach's alpha was between 0.787 and 0.832, and scores ranged from 2.915 to 3.012. UGL was positively associated with all three outcomes in the direct effect models.

Results of mediation analysis showed that positive effects of UGL on academic performance and the university infrastructure were mediated by PIE, and that PIE positively mediated the relationship between UGL and the International Student Exchange. All of the direct UGL coefficients in the models were positive.

7. DISCUSSION

7.1. Overview of the Analytical Findings

The study assessed the suggested relationships among University Globalisation Level (UGL), Policy Implementation Effectiveness (PIE) and the three factions of university efficacy, namely academic performance, infrastructure, and the international student exchange. The results of the analysis depicted direct positive relationships with all the factions. The relationships remained direct and positive even after including PIE in the models.

In the analysis, direct positive relationships among UGL and the three factions of university efficacy were observed. Among the factions, direct positive relationship with international student exchange was observed to be greater than relationships with academic performance and infrastructure development. Among the relationships operated through PIE, all three were observed to be positive. The results depicted that university-level global engagement may be related to university performance. Also, the implementation process may be the reason for the relationship.

The findings are based on the questionnaire completed by 300 respondents. These findings do not necessarily apply to all universities in Shandong province. The results of the analysis depicted positive relationship among variables in the sample. It is essential to mention that the results of the analysis do not determine the variables of interest to be cause and effect for one another.

7.2. University Globalisation and Academic Performance

According to the direct-effect model, UGL was related to academic performance in a positive manner ($B = 0.273$) and the result was statistically significant ($p < 0.001$). However, this model explained only 6.4% of the variation in academic performance. Therefore, globalisation is not likely to explain the full range of factors that affect the performance of the university in question.

There is the potential for university engagement in international research and education to lead to the internationalisation of the university's academic activities. According to Knight (2004), this is one of the key elements of the internationalisation of higher education. Although engagement in international activities is important for universities, this alone does not necessarily lead to improvement in academic performance. The outcome depends on how the university integrates international activities in its core functions.

The indirect effect of PIE was positive and significant (0.146) in the bootstrap 95% confidence interval (0.087, 0.215). The effect of UGL declined from 0.273 to 0.127 after considering the effect of PIE. In the sample, this supported partial mediation.

The results of the study are largely consistent with previous research on internationalisation of Chinese universities (Jin et al., 2020). It is, however, important to note that the results do not establish any causal relationship between the effects of UGL and academic performance of the universities.

7.3. University Globalisation and Infrastructure Development

From the direct effect model, a positive relationship was found between UGL and infrastructure development ($B=0.481$), $p<0.001$), explaining 19.8% of the variance. The relationship was stronger compared to the relationship found between UGL and academic performance.

A possible explanation to this result is that when an institution engages globally, it also engages with a range of institutional requirements to develop and/or strengthen its digital and research infrastructure, and communications to support international engagement. Establishing international partnerships is, however, not a guarantee that the aforementioned requirements are in place.

In the mediation analysis, the effect was found to be 0.111, with a 95% confidence interval of 0.064 and 0.175. The effect of UGL was reduced to 0.369 from 0.481, after considering the effect of PIE.

This result supports the role of PIE, and implies that the conceptual framework should, in addition to global engagement of the University, include the requirements, processes, and enabling policies to actualise the engagement. It is important that future research, measuring the enabling and/or requirements frameworks of the University to engage globally, also includes an assessment of actual international infrastructure development to avoid redundancy in measures.

7.4. University Globalisation and International Student Exchange Programmes

Among the three outcome models, the direct-effect model for international student exchange programs showed the highest degree of association (B = 0.502), ($p < .001$) and explained 22.1% of the variance (R^2). It supports the expectation that university globalisation is closely allied to planning and implementing international student exchange programs.

Establishing international student exchange programs requires the engagement of various international offices. When exploring universities' internationalisation, some authors hold that international student mobility should be considered in conjunction with other forms of internationalisation, while it is relevant to differentiate between the will and the deed of the university.

Although, there were evidence in the sample indicating that PIE helped to better understand exchange program development, the high correlation between the two constructs signaled that the UGL-PIE relation may represent a case of almost perfect mediation.

The findings suggest that the combined consideration of processes (will and deed) of university global engagement should be considered in parallel when analyzing exchange program development.

7.5. The Mediating Role of Policy Implementation Effectiveness

In the case of the dataset, PIE and UGL were found to be positively associated (B = 0.409), $p < .001$). The inclusion of PIE in the three outcome models, led to a reduction in the corresponding direct UGL coefficients. However, the estimated indirect effects in the models remained positive, with the confidence intervals of the effects excluding zero.

From the results, we can see the proposed mediation structure. From the results, it can be seen how the model can be used to break down the overall relationship between engagement in global activities and a given outcome, and the relationship associated with the proposed mediating variable. However, identifying statistical mediation does not, in itself, prove the presence of a causal relationship.

It is logical to consider PIE as a mediating variable, given the nature of implementation of policies and internationalization strategies of higher education institutions. From the literature, there is evidence to support that differing definitions of internationalization can result in fragmentation during the implementation process. Based on the literature, researchers may be justified to study the implementation process, rather than assume that the internationalization of an institution is automatic.

In order to fully study PIE, future research should conceptually and empirically differentiate PIE from academic and research-related activities, and from other international/cross-border higher education cooperation and exchange activities. Prior research should be conducted on possible confounding variables, and to verify the validity of research instruments, before researcher make causal inferences.

7.6. Interpretation Across the Three Outcome Dimensions

The models estimated the direct effect of the variable on the three outcomes. The effect on academic performance was 0.064, effect on infrastructure development was 0.198, and the effect on International Student Exchange was 0.221.

The framework also assumes that a university's performance in relation to globalization, on various levels, is multidimensional. Therefore, specifying a single, universal, globalization index that explains a university's performance adequacy in all dimensions is not likely. The strength of the framework lies in providing a common means to conceptualize different university performance dimensions. The freedom provided by the framework enables examination of various university performance dimensions in a relative sense. This relative sense is consistent with the view that performance of an institution needs to be benchmarked against the specific end-goals and performance indicators (Lindsay, 1982).

8. THEORETICAL AND PRACTICAL IMPLICATIONS

8.1. Theoretical Implications

Global engagement and internationalisation of higher education are often used interchangeably. The proposed framework recognises that internationalisation constitutes an institutional process including teaching and research activities, and structured interaction with the external environment (Knight, 2004).

First, the framework moves beyond the literature that treats UGL as a unidimensional construct. Accordingly, the framework analyses engagement in terms of international collaboration and engagement in education and research.

Second, the framework postulates PIE as a mediating factor. This implies that in the context of a university's international engagement activities, it is the internal processes, strategies and structures that ultimately define the nature and extent of the impacts of internationalisation (Jin et al., 2020).

Third, the framework posits university efficacy as the outcome of the three core functions of higher education: Teaching and Learning (T&L), Research, and Knowledge Transfer (R&I). This allows consideration of other relationships that might exist between university structures and processes and engagement in student exchange and academic performance.

The analysis evaluates direct and indirect relationships using the stated framework and questionnaire data. Estimates indicate presence of relationships in the sample analyzed. These estimates should not be interpretted to prove cause and effect relationships. The interpretation of these estimates depends on the measurement quality and sampling, and the assumptions made in the regressions and mediation analyses.

8.2. Practical Implications for University Management

8.2.1. Strategic Alignment

Internationalization strategies formulated at the University level may be evaluated using this framework. University leadership is positioned to evaluate if the international strategies being implemented by the University respond to University academic and institutional priorities and longer term goals. The same rationale may be applied to evaluate if international agreements and collaboration meet academic and institutional priorities.

8.2.2. Policy Implementation

The results support the proposal that PIE plays an integral role in the process, and the framework may assist management in evaluating other processes where connectivity and integration of academic and administrative units is required and may include resource allocation and review of implementation processes.

8.2.3. Academic and Research Development

The model suggests that institutions should identify the extent of their academic contribution to international engagement by considering sustainable research collaboration and the development of internationalized degree and research programs, and consider how international engagement and activities impact their scholarly and research activities.

8.2.4. Infrastructure Planning

The model notes that investments in infrastructure should be determined by the strategic priorities of the institution. As such, the framework can be used to evaluate an institution's integration of internationalization in their teaching, research and knowledge-transfer activities.

8.2.5. International Student Exchange

The model suggests that barriers to the implementation of study mobility programs can be identified when an institutional exchange partnership is distinguished from an international partnership.

These suggestions are examples of areas where impact may be assessed rather than evidence of impact in Shandong.

9. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

9.1. Limitations

The dimensions of university performance represented in the framework include academic performance, the quality of university infrastructure and services, and university international student exchange programs. There may be other important university performance dimensions. The impacts of the relations described in the framework may vary by university due to differences in university characteristics and contexts including financial situation, leadership, disciplinary profile, and research profile. Different policy conditions and the varied internationalization strategies of universities may result in inequitable application of the framework across universities in Shandong Province. Lastly, causal relationships can not be drawn based on the information available in the framework.

9.2. Future Research Directions

It will be beneficial to conduct research that measures the core components of the framework. Long-term research may provide information regarding the evolution of university performance. Further research may investigate the proposed framework in various contexts and regions to gain a fuller understanding of the phenomenon. Research may also analyze the views of universities regarding university performance. It may be beneficial to combine the perceptions of university management with other documentary evidence to assess university performance.

10. CONCLUSION

The conceptual framework developed in the study helped analyze the University Globalisation Level, Policy Implementation Effectiveness and three areas of university efficacy comprising academic and research performance, level and nature of university infrastructure, and the International Student Exchange Programme.

Using 300 research questionnaires, descriptive statistics and a battery of other analyses including correlation and regression were conducted. Further, the mediation analysis was performed to understand the study hypotheses. It was established that all the study variables are inter-related and influenced the other in the analyzed sample. Results, however, do not establish or prove cause and effect relationship and be assessed keeping in view the limits of the studied sample.

This study attempted to analyze the relationship between University Globalisation level, Policy Implementation Effectiveness and the three areas of university efficacy, to wit: academic performance; university infrastructure and the International Student Exchange Programme. Three hundred research questionnaires were used to collect data, which after been analyzed, established relationship between University Globalisation" level and the three areas of university efficacy and Policy Implementation Effectiveness in the sampled universities. Again, research does not prove cause and effect relationships and should be assessed vis-à-vis the scope of the studied sample. Other validated tools and instruments of research may be used to prove the cause and effect relationships. Research of this nature is, however, encouraged.

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