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# IMPLEMENTATION OF THE INNOVATIVE ENTREPRENEURSHIP CURRICULUM AT GUANGDONG POLYTECHNIC INSTITUTE: A BASIS FOR AN ACTION PLAN

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## *ABSTRACT*

*This study aims to analyze the current status of the implementation of the Innovative Entrepreneurship curriculum at Guangdong Polytechnic Institute and lay the groundwork for future action plans. Using a quantitative research approach, the paper examines the level of course implementation from five dimensions: course objectives, coverage of content, teaching strategies, course resources, and assessment strategies. It also investigates whether teachers' and students' backgrounds significantly impact the course implementation. The results indicate an overall great extent to the implementation of the innovation and entrepreneurship course at the institution. Apart from gender, teachers' age, teaching experience, and educational qualifications significantly influence the course implementation. Similarly, students' grade levels and majors also have a notable impact on the implementation of the course. Furthermore, through open-ended findings, it is observed that the lack of practical experience among teachers, inadequate integration of professional education with innovation and entrepreneurship education, and insufficient practical resources for students are significant factors affecting the course implementation. Based on these findings, action plans are proposed to enhance teachers' practical skills, deepen the integration of professional education with innovation and entrepreneurship education, and enrich students' practical resources. These measures aim to further enhance the quality and effectiveness of the innovation and entrepreneurship curriculum.*
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***Keywords:*** *action plan, guangdong polytechnic institute, innovative entrepreneurship curriculum, teacher background, student background*

## INTRODUCTION

In the "World Declaration on Higher Education for the Twenty-First Century: Vision and Action" adopted by UNESCO at the end of the last century, it was stated for the first time that "higher education institutions must consider entrepreneurial skills and entrepreneurial spirit as fundamental objectives of higher education."(Ghafar, ， 2020)

In the 1960s, the world began the process of cultivating innovative Entrepreneurship talents. Babson College in the United States, as the earliest and most representative institution for innovative Entrepreneurship (hereafter abbreviated as IE) education, initiated the call to "integrate innovation and entrepreneurship as a course into professional management education." This marked the beginning of dual IE education (Brush,2021).

With the transformation of China's economic landscape, the economic model has undergone significant

changes, shifting from a traditional focus on scale and cost to an emphasis on innovation and quality (Mao & Yan, 2021). This evolution has led to a growing demand across various industries for graduates with innovative thinking, greatly enhancing their market attractiveness. Meanwhile, in recent years, the global economic downturn triggered by the pandemic has led to profit declines in many industries in China, including the financial sector, increasing employment pressure on graduates and highlighting the importance of cultivating entrepreneurial skills (Zhou, 2019).

The Ministry of Education (2019) proposed accelerating the cultivation of a large number of talents with IE spirit to provide strong talent support and knowledge capital reserves for the economy, thereby promoting economic development.

The General Office of the State Council (2021) also required higher education institutions to implement the fundamental task of fostering virtue through education, to focus on the new development stage, to implement the new development concept, and to construct a new development pattern. They emphasized innovation-driven entrepreneurship and entrepreneurship-driven employment, supporting university students in enhancing their IE abilities, and supporting university graduates in entrepreneurship and employment. This aims to improve the quality of human resources, promote the comprehensive development of university students, and achieve fuller and higher quality employment for university students.

The Finance Department of Guangdong Polytechnic Institute actively responded to the call of the Ministry of Education and the General Office of the State Council. From 2016 to 2019, it completed the research and development of courses on IE. Subsequently, in the fall of 2019, it officially implemented IE education and teaching work in three finance majors: Wealth Management, Big Data Accounting, and Securities Practice.

Since the course was introduced, it has been widely welcomed by students and has achieved many positive results: students have repeatedly won awards in IE education skills competitions organized by the education department, and the number of students starting their own businesses has shown an increasing trend year by year. Additionally, the number of students participating in IE education practice activities has also significantly increased. These achievements highlight the important role of IE education in improving the educational level of our finance majors, promoting the comprehensive development of students, stimulating entrepreneurial enthusiasm, enhancing graduate employment, and advancing national modernization. However, there is still a gap between the teaching quality of the course and the requirements set by the Ministry of Education and other authorities.

Recently, the State Council and the Ministry of Education have issued multiple documents emphasizing the need to improve the quality of IE education. To enhance the quality of IE education, it is first necessary to conduct a precise assessment of the course implementation status, identify the problems in the course implementation process, and then propose targeted solutions (Li, 2021).

Reviewing the existing research literature on the implementation evaluation of IE education, six main themes emerge:

Who participates in the evaluation of IE education courses? The most common view is from Yang (2023), who believes that teachers and students are the most critical evaluators, although other entities such as schools, enterprises, and administrative units also play a role.

Secondly, attention is given to the development of IE course evaluation indicators. Representative of this is Zhang's (2023) research, which proposed evaluation indicators for IE education from the perspective of education quality assessment, focusing on three dimensions: value shaping, knowledge transmission, and ability cultivation. She then combined expert scoring with the fuzzy analytic hierarchy process to construct an evaluation indicator system for the quality of innovation and entrepreneurship education.

Thirdly, scholars such as He Xiaoming have explored various evaluation methods, advocating for self-evaluation by teachers and students, and emphasizing the importance of reflective practice in evaluating teaching experiences (Yang, 2023).

Fourthly, scholars have highlighted the theoretical and practical significance of evaluating IE education courses, recognizing its necessity in monitoring the implementation process and outcomes of IE education, as noted by Long (2023).

Fifthly, an increasing number of scholars are focusing on the guiding principles of course evaluation, advocating for objectivity, scientific rigor, precision, subjectivity, feasibility, systematization, developmental potential, and flexibility in the evaluation of IE education courses.(Zhao,2020)

Finally, attention is directed towards the inherent challenges in IE education course evaluation. For example, Xu et al. (2023) used the evaluation of IE education quality in Hunan agricultural vocational colleges as an example to analyze three major problems in such evaluations: insufficient emphasis on student-centered dimensions, lack of prominence in the evaluation process, and inadequate demonstration of industry characteristics.

There are many comprehensive research results on the quality of IE education course implementation, but the research mainly focuses on qualitative studies, and the depth of the research needs to be expanded. Empirical studies, especially those conducted on students of specific majors, are particularly rare.

Therefore, using quantitative analysis methods to assess the current state of IE course implementation helps fill the gap in empirical research in China. It also contributes to a more scientific evaluation of the implementation effectiveness of our university's finance department's IE courses and identifies factors affecting the course implementation. This lays the foundation for improving course content and reforming teaching methods.

Additionally, the results of this study may provide targeted guidance for universities, government agencies, and stakeholders in various industries to effectively implement IE education. This guidance can serve as a blueprint for promoting innovation and progress in educational practice, driving advancement and development in this field.

**Statement of the Problem**

This study aimed to assess the extent of implementation of the IE curriculum and to lay the groundwork for the development of an action plan to optimize the curriculum in Finance department of Guangdong Polytechnic Institute.

Specifically, the study sought to answer the following questions:

1. What is the profile of the participants in terms of the following:
   1.1. Students
      1.1.1. Gender
      1.1.2. Grade level
      1.1.3. Major
   1.2. Teachers
      1.2.1. Age
      1.2.2. Gender
      1.2.3. Highest educational attainment
      1.2.4. Teaching experience
2. What is the participants' assessment on the extent of implementation of IE curriculum in terms of the following?
   2.1. objectives
   2.2. contents
   2.3. strategies
   2.4. resources
   2.5. assessment
3. Is there a significant difference in the level of implementation of IE curriculum when the participants are grouped according to profile variables?
4. What is the teacher-participants' level of competence in the IE curriculum in terms of the following?
   4.1. Knowledge
   4.2. Skills
   4.3. Attitude
5. Is there a significant difference in the assessment of the level of teachers-participants' competence in the IE curriculum when they are grouped according to profile variables?
6. What is the student participants' level of performance in the IE curriculum?
7. Is there a significant relationship between the extent of implementation and the level of academic performance of the students in the IE curriculum?
8. What problems or challenges are encountered by the participants in the implementation of IE curriculum?
9. What plan of action can be implemented to enhance the implementation of the IE Curriculum.

## METHODOLOGY

This chapter presents the methods and procedures that were used in the study. It includes the research design, participants of the study, instrumentation, data-gathering procedure, and data-analysis tools.

**Research Design**

This study adopted a mixed research method, combining quantitative and qualitative data, to comprehensively analyze the implementation status of the IE curriculum at Guangdong Polytechnic Institute.

Initially, the researcher employed quantitative research methods, collecting data through surveys to quantitatively assess the course implementation level from five dimensions: course objectives, content, teaching strategies, resources, and assessment strategies. Simultaneously, the researcher gathered profile information from both teachers and students to determine their influence on course implementation.

Subsequently, qualitative research methods were employed, using open-ended questions to collect insights into the challenges and issues faced by teachers and students during course implementation, as well as their suggestions and expectations for future improvements.

Through the comprehensive analysis of quantitative and qualitative data, the researcher aimed to thoroughly evaluate the implementation status of the IE curriculum and propose effective action plans.

**Participants of the Study**

Two groups were involved in the study, namely: the student-participants and the teacher-participants from Guangdong Polytechnic Institute during the academic year 2023-2024.

The study considered the group of teachers who teach the course, which included 15 teachers.

The student-participants, on the other hand, using the Raosoft sample calculator, considering a 5% error rate, 95% confidence level, and 50% response distribution, the recommended sample size was 266 for students. Participants were selected through a stratified random sampling technique.

**Instrumentation**

The following data collection tools were used in this study:

Participants Profile Questionnaire: This questionnaire is designed to gather demographic information from both teacher and student participants. It includes items such as gender, age, highest educational attainment, and teaching experience for teachers, and age, gender, grade, and major for students.

Questionnaire on the Extent of Implementation of IE Curriculum: This questionnaire, developed by the Quality Supervision and Management Committee of Guangdong Polytechnic Institute, assessed the implementation of the innovation and entrepreneurship (IE) curriculum. It was comprised of five dimensions: course objectives, course content, teaching strategies, course resources, and assessment strategies, with six questions for each dimension, totaling 30 questions.

Open-ended Question: This question was used to elicit information on the difficulties and challenges encountered by participants in the IE curriculum.

**Data Gathering Procedure**

To ensure the thoroughness and integrity of the investigation, the researcher followed a systematic approach, outlined as follows:

Ethical Clearance: The researcher secured clearance from the Ethics Review Committee of St. Paul University Philippines to uphold ethical standards throughout the research process.

Endorsement: Following approval from the Ethics Review Committee, endorsement was sought from the Dissertation adviser and the Dean of the Graduate School for data gathering.

Permission: Permission was obtained from the school administrators of Guangdong Polytechnic Institute to conduct the study.

Validity and Participant Identification: Prior to data collection, the validity of research tools was established, and participants were identified.

Informed Consent: Informed consent was obtained from all participants, ensuring adherence to ethical research norms.

Data Collection: With approval from school authorities, data collection commenced. Questionnaires were administered online using tools such as "Wen Juan Xing" and distributed to students with the assistance of department secretaries and counselors. Upon reaching the target sample size, data were organized accordingly.

Data Organization and Analysis: Quantitative data were organized using Excel spreadsheets and subjected to statistical analysis using SPSS. Qualitative data underwent thematic analysis.

Anonymity and Confidentiality: The study prioritized the anonymity and confidentiality of participants. Personally identifiable information was not collected during data collection, ensuring privacy. Data collected via the internet were securely stored in a cloud drive encrypted with strong passwords, safeguarding against unauthorized access.

**Data Analysis**

The data collected were tallied and treated using the following analytic tools:

Frequency and Percentage: These were used to describe the profile of the participants.

Mean: This was used to assess or to obtain the assessment of participants on the extent of implementation of the IE curriculum.

**Table 1**
*Scale of Extent of Course Implementation*

| Mean Range | Extent of Course Implementation |
|---|---|
| 3.25-4.00 | Very Great Extent （VGE) |
| 2.50-3.24 | Great Extent (GE) |
| 1.75-2.49 | Moderate Extent (ME) |
| 1.00-1.74 | Low Extent (LE) |

Independent Samples T-tests: Independent samples T-tests was employed to assess if there exists a statistically significant difference in the participants' assessment of the extent of Implementation of the IE curriculum when grouped by gender.

Analysis of Variance (ANOVA): ANOVA was utilized to examine whether significant difference in the participants' assessment of the extent of implementation of the IE Curriculum when grouped by profile variables.

Thematic Analysis: Thematic analysis was conducted to qualitatively analyze the participants' responses, aiming to provide insights and recommendations for further enhancing the implementation of the IE course.

## RESULTS AND DISCUSSION

**The Extent of the Implementation of the IE Curriculum**

**Table 2**
*Participants' Assessment on the Extent of The Implementation of the IE Curriculum*

| | Teachers | | Students | | Combined Mean | |
|---|---|---|---|---|---|---|
| Indicator | Mean | DI | Mean | DI | Mean | DI |
| Attainment of Objectives | 2.70 | GE | 2.69 | GE | 2.70 | GE |
| Coverage of Content | 3.11 | GE | 2.71 | GE | 2.91 | GE |
| Teaching Strategies | 2.46 | ME | 2.81 | GE | 2.64 | GE |
| Course Resources | 3.27 | VGE | 2.83 | GE | 3.05 | GE |
| Assessment Strategies | 3.08 | GE | 2.90 | GE | 2.99 | GE |
| Category Mean | 2.92 | GE | 2.79 | GE | 2.82 | GE |

Table 2 presents the participants' assessment of the extent of implementation of the IE curriculum.

The results show that among the teachers, majority of the indicators obtained mean ratings described as great extent. The indicator "course resources" earned the highest mean score of 3.27, interpreted as a very great extent, while the indicator "Teaching Strategies" marked the lowest at 2.46 or moderate extent. The category means of 2.92 from the teacher-participants and 2.79 from student-participants indicate that the IE curriculum was implemented to a great extent.

Moreover, the overall combined mean of 2.82 indicates that the IE curriculum was generally implemented to a great extent. This suggests that most teachers and students are satisfied with the course implementation and believe it has met the expected teaching objectives. The rating likely reflects that the course objectives, coverage of contents, teaching strategies, resources, and assessment strategies are well-regarded by both teachers and students, resulting in positive teaching outcomes. However, while the evaluation is favorable, the combined mean of 2.82 also highlights potential areas for further improvement.

**Significant difference in the students' assessment of implementation of the IE curriculum when grouped by profile variables**

**Attainment of Course Objectives**

**Table 3**
*Significant Difference in the Students' Assessment of the Extent of Implementation of the IE Curriculum Along*

*Attainment of Course Objectives When Grouped by Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Attainment of Course Objectives | ***Gender*** | | | | | |
| | Male | 2.69 | 0.68 | 0.098 | 0.922 | Accept $H_0$ |
| | Female | 2.68 | 0.62 | | | |
| | ***Grade Level*** | | | | | |
| | Freshman | 2.59 | 0.65 | 3.692 | 0.026 | Reject $H_0$ |
| | Sophomore | 2.64 | 0.66 | | | |
| | Junior | 2.82 | 0.60 | | | |
| | ***Major*** | | | | | |
| | Wealth Management | 2.71 | 0.61 | 3.031 | 0.050 | Reject $H_0$ |
| | Securities Practice | 2.77 | 0.69 | | | |
| | Big Data Accounting | 2.53 | 0.61 | | | |

Table 3 shows the results of the tests for significant differences in the students' assessment of the extent of implementation of the IE curriculum along attainment of course objectives when grouped by profile variables.

The data reveal that gender obtained the probability value of 0.922 which is greater than 0.05 level of significance; therefore, the null hypothesis is accepted. This means that there is no significant difference in the students' assessment of the extent of implementation of the IE curriculum along attainment of course objectives when grouped by gender. Also, it implies that the students tend to have a similar assessment of the extent to which the IE curriculum was implemented along attainment of course objectives regardless of their gender. It further implies that gender is not a determinant in the students' assessment of the extent of implementation of the IE curriculum along attainment of course objectives.

Conversely, grade level and major obtained the probability values of 0.026 and 0.050, respectively, which are greater than or equal to 0.05 level of significance; hence, the null hypotheses are rejected. This means that there are significant differences in the students' assessment of the extent of implementation of the IE curriculum along attainment of course objectives when grouped by grade level and major.

Based on the means, the junior students and those majoring in securities practice have a higher mean assessment of the extent of implementation of the IE curriculum along attainment of course objectives than the students in lower grade levels or those pursuing other majors. This implies that grade level and major affect the students' assessment of the extent to which the IE curriculum was implemented along attainment of course objectives.

The findings are supported by the results of the study of Zhu (2022) reporting that students' major and grade level have a significant influence on their assessment of the extent of attainment of course objectives.

**Coverage of Contents**

**Table 4**

*Significant Difference in the Assessment of the Implementation of IE Curriculum in terms of Coverage of Contents when the Students are Grouped According to Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Coverage of Contents | ***Gender*** | | | | | |
| | Male | 2.66 | 0.67 | 0.950 | 0.343 | Accept $H_0$ |
| | Female | 2.74 | 0.64 | | | |
| | ***Grade Level*** | | | | | |
| | Freshman | 2.62 | 0.67 | 6.141 | 0.002 | Reject $H_0$ |
| | Sophomore | 2.61 | 0.65 | | | |
| | Junior | 2.89 | 0.60 | | | |
| | ***Major*** | | | | | |
| | Wealth Management | 2.72 | 0.63 | 4.765 | 0.009 | Reject $H_0$ |
| | Securities Practice | 2.84 | 0.68 | | | |
| | Big Data Accounting | 2.53 | 0.62 | | | |

Table 4 indicates the significant difference in the assessment of the implementation of the IE curriculum in terms of coverage of contents when students are grouped according to profile variables.

As shown in Table 4, The t-test analysis presents the computed probability value of 0.343 for gender, which exceeds the significance level of 0.05. Therefore, the null hypothesis is accepted. This is suggested that students' gender does not have a significant impact on the assessment of coverage of the content.

However, according to the F-test result, the computed probability value of 0.002, which is less than the significance level of 0.05 indicates that the null hypothesis is rejected. Therefore, the students' grade level has a significant impact on the assessment of content coverage.

Furthermore, based on the F-test results for students' majors, the calculated p-value is 0.002, which is less than the significance level of 0.05. Therefore, the null hypothesis is rejected. This indicates that students' majors also have a significant impact on the assessment of the coverage of the contents.

The above findings are consistent with the conclusions of Ren (2022). Ren, in his analysis of the factors influencing the evaluation of innovation and entrepreneurship teaching quality, pointed out that students' grade levels and fields of study have a significant impact on their evaluation of the course implementation.

**Teaching strategies**

**Table 5**

*Significant Difference in the Assessment of the Implementation of IE Curriculum in terms of Teaching Strategies when Students are Grouped According to Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Teaching Strategies | ***Gender*** | | | | | |
| | Male | 2.79 | 0.63 | 0.533 | 0.594 | Accept $H_0$ |
| | Female | 2.83 | 0.63 | | | |
| | ***Grade Level*** | | | | | |
| | Freshman | 2.68 | 0.65 | 5.670 | 0.004 | Reject $H_0$ |
| | Sophomore | 2.78 | 0.61 | | | |
| | Junior | 2.97 | 0.60 | | | |
| | ***Major*** | | | | | |
| | Wealth Management | 2.80 | 0.64 | 6.528 | 0.002 | Reject $H_0$ |
| | Securities Practice | 2.97 | 0.59 | | | |
| | Big Data Accounting | 2.62 | 0.61 | | | |

Table 5 indicates the significant difference in the assessment of the implementation of IE curriculum in terms of teaching strategies when students are grouped according to profile variables.

Based on the results of the t-test analysis, the p-value for student gender is 0.594, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted indicating that students' gender does not have a significant impact on the evaluation of the implementation of teaching strategies.

According to the results of the F-test analysis, the p-values for students' grade and major are 0.004 and 0.002, respectively, both significantly lower than the significance level of 0.05. Therefore, the null hypotheses are rejected, indicating that students of different grades or majors have a significant impact on the assessment of the implementation of teaching strategies.

The above findings are consistent with the conclusions of Li (2023) and Wang (2021). Li, in his analysis of the factors influencing the evaluation of innovation and entrepreneurship teaching quality, pointed out that the students' grade levels have a significant impact on their evaluation of the extent of course. Similarly, Wang, in his study on the impact of students' different professional backgrounds on their evaluation of innovation and entrepreneurship courses, mentioned that students from different professional backgrounds may have varying evaluations of the extent of course due to the alignment between their knowledge and the course content.

**Course Resource**

**Table6**

*Significant Difference in the Assessment of the Implementation of IE Curriculum in terms of Course Resource when Students are Grouped According to Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Course Resource | ***Gender*** | | | | | |
| | Male | 2.77 | 0.70 | 1.147 | 0.252 | Accept $H_0$ |
| | Female | 2.86 | 0.63 | | | |
| | ***Grade Level*** | | | | | |
| | Freshman | 2.75 | 0.68 | 1.952 | 0.144 | Accept $H_0$ |
| | Sophomore | 2.79 | 0.67 | | | |
| | Junior | 2.93 | 0.62 | | | |
| | ***Major*** | | | | | |
| | Wealth Management | 2.84 | 0.66 | 2.967 | 0.050 | Reject $H_0$ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Securities Practice | 2.93 | 0.63 | | | |
| | Big Data Accounting | 2.68 | 0.68 | | | |

Table 6 indicates the significant difference in the assessment of the implementation of the IE curriculum in terms of course resources when students are grouped according to profile variables.

Based on the results of the t-test analysis, the p-value for student gender is 0.252, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that students' gender does not have a significant impact on the evaluation of the implementation of course resources.

Similarly, according to the results of the F-test analysis, the p-value for student grade is 0.144, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that students' grade level does not have a significant impact on the assessment of the implementation of course resources.

However, according to the result of F-test analysis, the p-value for students' major is 0.050 which is exactly equal to the significance level of 0.05. Hence the null hypothesis is rejected. This indicates that there is a significant impact of students' major on the assessment of the implementation of course resources.

The above conclusion is consistent with the views of WEI (2021), who, in studying the impact of students from different majors on the evaluation of the implementation effectiveness of innovation and entrepreneurship courses, found that students' majors significantly influence their evaluation of the extent to which they utilize the resources of these courses.

**Table 7**

*Significant Differences in the Assessment of the Implementation of the IE Curriculum in terms of Assessment Strategies When Students are Grouped According to Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Assessment Strategies | ***Grade Level*** | | | | | |
| | Freshman | 2.87 | 0.63 | | | |
| | Sophomore | 2.79 | 0.64 | 4.351 | 0.014 | Reject $H_0$ |
| | Junior | 3.04 | 0.62 | | | |
| | ***Major*** | | | | | |
| | Wealth Management | 2.90 | 0.64 | | | |
| | Securities Practice | 3.05 | 0.59 | 6.108 | 0.003 | Reject $H_0$ |
| | Big Data Accounting | 2.70 | 0.64 | | | |

Table 7 indicates the significant difference in the assessment of the implementation level of IE curriculum in terms of assessment strategies when students grouped according to profile variables.

Based on the results of the independent samples' T-test, the p-value for student gender is 0.252, which is greater than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the students' gender does not have a significant impact on the evaluation of assessment strategies.

However, according to the results of the F-test, the p-values for students' grade level and students' major are 0.014 and 0.003, respectively, both of which are less than the significance level of 0.05. Therefore, the null hypotheses are rejected. This indicates that both students' grade level and student major have a significant impact on the evaluation of assessment strategies.

The above findings are consistent with Liu (2019), who, in his study on the effects of the implementation of evaluation strategies in innovation and entrepreneurship courses, pointed out that the students' understanding of the implementation of teachers' evaluation strategies is affected by the students' background of specialization and grade level, so that students with different backgrounds of specialization and students with different grade levels evaluated the implementation of teachers' instructional strategies in a significantly different way.

**Significant Difference in the Teachers' Assessment of Implementation of the IE Curriculum when Grouped by Profile Variables**

**Attainment of Course Objectives**

**Table 8**

*Significant Difference in the Teachers' Assessment of the Extent of Implementation of the IE Curriculum Along Attainment of Course Objectives When Grouped by Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Attainment of Course Objectives | ***Gender*** | | | | | |
| | Male | 2.75 | 0.67 | 0.373 | 0.715 | Accept $H_0$ |
| | Female | 2.64 | 0.35 | | | |
| | ***Age*** | | | | | |
| | 30 years & below | 2.17 | - | 3.193 | 0.077 | |
| | 31-40 years | 2.37 | 0.46 | | | Accept $H_0$ |
| | 41 years & above | 2.94 | 0.46 | | | |
| | ***Highest Educational Attainment*** | | | | | |
| | Masteral | 2.52 | 0.38 | 7.164 | 0.019 | Reject $H_0$ |
| | Doctoral | 3.21 | 0.60 | | | |
| | ***Major*** | | | | | |
| | 1-5 | 2.00 | 0.24 | 2.873 | 0.085 | |
| | 11-15 | 2.67 | 0.37 | | | Accept $H_0$ |
| | 16-20 | 3.17 | 0.73 | | | |
| | 21-25 | 3.00 | 0.00 | | | |

Table 8 indicates the significant difference in the assessment of the implementation of IE curriculum in terms of attaining course objectives when teachers are grouped according to profile variables.

Based on the results of the T-test, the p-value for teacher's gender is 0.715, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the gender of the teachers does not have a significant impact on the assessment of the implementation of attaining course objectives.

In addition, according to the results of the F-test, the p-values for the age and teaching experience of teachers are 0.077 and 0.085, respectively, both of which are greater than the significance level of 0.05. Therefore, the null hypotheses are accepted. This also indicates that neither the age nor the teaching experience of teachers significantly affects the assessment of course objective attainment.

However, according to the result of F-test analysis, the p-value for the highest educational attainment of teachers is 0.019, which is lower than the significance level of 0.05. Hence the null hypothesis is rejected. This indicates that the educational attainment of teachers has a significant impact on the assessment of course objectives attainment.

The above findings are in line with those of Zhang (2023), who mentioned in her study on the effect of teachers' educational level on the evaluation of the extent of curriculum implementation that teachers with higher educational levels rated the achievement of teaching objectives higher.

**Coverage of Contents**

**Table 9**

*Significant Difference in the Teachers' Assessment of Implementation of the IE Curriculum along Coverage of Contents when Grouped byProfile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Coverage of Contents | ***Gender*** | | | | | |
| | Male | 3.25 | 0.56 | 1.00 | 0.336 | Accept $H_0$ |
| | Female | 2.95 | 0.60 | | | |
| | ***Age*** | | | | | |
| | 30 years & below | 2.67 | - | 2.370 | 0.136 | |
| | 31-40 years | 2.77 | 0.63 | | | Accept $H_0$ |
| | 41 years & above | 3.35 | 0.47 | | | |
| | ***Highest Educational Attainment*** | | | | | |
| | Masteral | 2.93 | 0.50 | 5.796 | 0.032 | Reject $H_0$ |
| | Doctoral | 3.63 | 0.48 | | | |
| | ***Major*** | | | | | |
| | 1-5 | 2.59 | 0.12 | 1.223 | 0.347 | |
| | 11-15 | 3.09 | 0.61 | | | Accept $H_0$ |
| | 16-20 | 3.56 | 0.51 | | | |
| | 21-25 | 3.00 | 0.00 | | | |

Table 9 indicates the significant difference in the assessment of the implementation of the IE curriculum in terms of coverage of contents when teachers are grouped according to profile variables.

Based on the results of the T-test, the p-value for gender is 0.336, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the gender of the teachers does not have a significant impact on the evaluation of curriculum content implementation.

In addition, based on the results of the F-test, the p-values for age and teaching experience are 0.136 and 0.347, respectively, both of which are greater than the significance level of 0.05. Therefore, the null hypotheses are accepted. This also indicates that neither the teacher's age nor teaching experience has a significant impact on the evaluation of curriculum content implementation.

However, the results of the F-test analysis showed an obtained probability value of 0.032, which is lower than the significance level of 0.05. Therefore, the null hypothesis is rejected. This indicates that the degree obtained by teachers has a significant impact on the evaluation of curriculum content implementation. The result showed that teachers with higher educational attainment have higher mean scores as compared to teachers with lower education attainment.

This observation aligns with Li's(2019) perspective, In her study on the effect of teachers' educational level on the evaluation of the degree of curriculum implementation, she mentioned that teachers with higher educational level have better depth and breadth of content coverage in their teaching than other teachers, and therefore, their self-assessment of the degree of content coverage is also higher.

**Teaching strategies**

**Table 10**

*Significant Difference in the Teachers' Assessment of Implementation of the IE Curriculum along Teaching Strategies when Grouped byProfile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| | ***Gender*** | | | | | |
| | Male | 2.52 | 0.37 | 0.882 | 0.394 | Accept $H_0$ |
| | Female | 2.38 | 0.19 | | | |
| | ***Age*** | | | | | |
| Teaching Strategies | 30 years & below | 1.83 | - | 3.940 | 0.048 | |
| | 31-40 years | 2.40 | 0.19 | | | Accept $H_0$ |
| | 41 years & above | 2.55 | 0.28 | | | |
| | ***Highest Educational Attainment*** | | | | | |
| | Masteral | 2.36 | 0.27 | 5.039 | 0.043 | Reject $H_0$ |
| | Doctoral | 2.71 | 0.25 | | | |
| | ***Major*** | | | | | |
| | 1-5 | 2.08 | 0.35 | 1.321 | 0.317 | Accept $H_0$ |
| | 11-15 | 2.50 | 0.25 | | | |
| | 16-20 | 2.55 | 0.39 | | | |
| | 21-25 | 2.50 | 0.00 | | | |

Table 10 indicates the significant difference in the assessment of the implementation of IE curriculum in terms of teaching strategies when teachers are grouped according to profile variables.

According to the results of the T-test, the p-value for gender is 0.394, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the gender of the teacher does not have a significant impact on the implementation of teaching strategy.

Similarly, according to the results of the F-test, the p-value for teaching experience is 0.317, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted. This indicates that teaching experience does not have a significant impact on the evaluation of teaching strategy implementation.

However, according to the results of the F-test analysis, the p-values for the age and the highest degree obtained by teachers are 0.048 and 0.043, respectively, both of which are lower than the significance level of 0.05. Therefore, the null hypotheses are rejected. This indicates that the age and the highest degree obtained by teachers have a significant impact on the evaluation of teaching strategies.

The above findings are supported by Shi's (2023) point of view. In her study on the evaluation of teachers' background on the effectiveness of instructional implementation, she suggests that the teachers' academic qualifications have a significant effect on the evaluation of teachers' strategy implementation.

**Course Resource**

**Table 11**

*Significant Difference in the Teachers' Assessment of Implementation of the IE Curriculum along Course Resource when Grouped by Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| | ***Gender*** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Course Resource | Male | 3.25 | 0.38 | 0.173 | 0.865 | Accept $H_0$ |
| | Female | 3.28 | 0.36 | | | |
| | ***Age*** | | | | | |
| | 30 years & below | 3.00 | - | 1.035 | 0.385 | |
| | 31-40 years | 3.13 | 0.46 | | | Accept $H_0$ |
| | 41 years & above | 3.37 | 0.29 | | | |
| | ***Highest Educational Attainment*** | | | | | |
| | Masteral | 3.20 | 0.36 | 1.696 | 0.215 | Accept $H_0$ |
| | Doctoral | 3.46 | 0.32 | | | |
| | ***Major*** | | | | | |
| | 1-5 | 2.84 | 0.23 | 2.020 | 0.169 | |
| | 11-15 | 3.31 | 0.36 | | | Accept $H_0$ |
| | 16-20 | 3.50 | 0.17 | | | |
| | 21-25 | 3.00 | 0.00 | | | |

Table 11 indicates the significant difference in the assessment of the implementation of the IE curriculum in terms of course resources when teachers are grouped according to profile variables.

Based on the results of the T-test, the p-value for teacher's gender is 0.865, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the gender of the teacher does not have a significant impact on the evaluation of curriculum resource implementation.

Similarly, according to the results of the F-test, the p-values for teachers' age, highest degree obtained, and teaching experience are 0.385, 0.215, and 0.169, respectively, all of which are higher than the significance level of 0.05. Therefore, the null hypotheses are accepted. This indicates that neither teachers' age, highest degree obtained, nor teaching experience has a significant impact on the evaluation of curriculum resource implementation.

The above findings are in line with Zhao (2019), who, in his study on the factors influencing the evaluation of the effectiveness of the implementation of the innovation and entrepreneurship course, suggested that the background of the teacher does not have a significant impact on the evaluation of the degree of utilization of the course resources.

**Table 12**

*Significant Difference in the Teachers' Assessment of Implementation of the IE Curriculum along Assessment Strategies when Grouped by Profile Variables*

| Dimension | Profile Variables | Mean | SD | t/F | *p* | Decision |
|---|---|---|---|---|---|---|
| Assessment Strategies | ***Gender*** | | | | | |
| | Male | 3.02 | 0.37 | 0.562 | 0.584 | Accept $H_0$ |
| | Female | 3.14 | 0.47 | | | |
| | ***Age*** | | | | | |
| | 30 years & below | 2.50 | - | 1.157 | 0.347 | |
| | 31-40 years | 3.17 | 0.59 | | | Accept $H_0$ |
| | 41 years & above | 3.09 | 0.27 | | | |
| | ***Highest Educational Attainment*** | | | | | |
| | Masteral | 3.02 | 0.43 | 0.968 | 0.343 | Reject $H_0$ |
| | Doctoral | 3.25 | 0.32 | | | |
| | ***Major*** | | | | | |
| | 1-5 | 2.59 | 0.12 | 1.847 | 0.197 | |
| | 11-15 | 3.09 | 0.38 | | | Accept $H_0$ |
| | 16-20 | 3.39 | 0.42 | | | |
| | 21-25 | 3.00 | 0.00 | | | |

Table 12 indicates the significant difference in the assessment of implementation of IE curriculum in terms of assessment strategies when teachers are grouped according to profile variables.

Based on the results of the T-test, the p-value for teacher's gender is 0.584, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that teacher's gender does not have a significant impact on the evaluation of assessment strategies.

The result of the T-test showed an obtained p-value 0.584 for gender, which is higher than the significance level of 0.05. Therefore, the null hypothesis is accepted, indicating that the teacher's gender does not have a significant impact on the evaluation of assessment.

Similarly, based on the results of the F-test, the p-values for teachers' age, highest degree obtained, and teaching experience are 0.347, 0.343, and 0.197, respectively, all of which are higher than the significance level of 0.05. Therefore, the null hypotheses are accepted. This indicates that the teachers' age, highest degree obtained, and teaching experience do not have a

significant impact on the evaluation of the implementation of assessment strategies.

The above conclusion is confirmed in the results of the study by Zhang (2021). Zhang concluded that teachers' academic qualifications have a significant effect on the evaluation of the degree of curriculum implementation, especially on the degree of implementation of curriculum evaluation strategies.

**The Teachers' Level of Competence in IE Curriculum**

***Summary Table***

| Indicators | Mean | DI |
|---|---|---|
| Knowledge | 3.13 | High |
| Skills | 3.02 | High |
| Attitude | 3.32 | Very Favorable |
| **Category Mean** | **3.16** | **High** |

The results reveal that teachers rated their knowledge and skill levels with mean scores of 3.13 and 3.02, respectively, both indicating high levels of competence. Additionally, the attitude indicator received the highest score of 3.32, which signifies a very favorable level.

Moreover, the category mean score of 3.16, indicates that, the overall assessment of the level of teachers' competence in the IE curriculum is deemed high. This suggests that not only do teachers feel proficient in their knowledge and skills related to the IE Curriculum, but they also exhibit a particularly strong and positive attitude towards implementing it.

**Significant difference in the assessment of the teachers' level of competence in the IE Curriculum when they are grouped according to profile variables**

***Knowledge***

The result of the study show the obtained p-values for gender and teaching experience are 0.050 and 0.625,respectively, both of which are greater than 0.05 level of significance; therefore, the null hypotheses are accepted. This means that there are no significant differences in the assessment of the teachers' level of competence along knowledge when grouped by gender or teaching experience.

In contrast, age and highest educational attainment obtained the probability value of 0.045 and 0.003,respectively, both of which are lower than 0.05 level of significance; hence, the null hypotheses are rejected. This means that there are significant differences in the teachers' level of competence along knowledge when grouped by age or highest educational attainment. Based on the means, older teachers or those holding doctoral degrees generally rate their knowledge higher as compared to their younger or master's degree-holder counterparts, suggesting that both age and educational level influence self-assessments of knowledge within the IE curriculum.

The findings are supported by the results of the study of Zhu (2022) reporting that teachers' highest educational attainment have a significant influence on self-perception of competence, and he found that individuals with higher degrees often exhibit increased confidence in their professional abilities.

***Skills***

Based on the result, the probability values for gender, age, and teaching experience are 0.424, 0.306, and 0.664, respectively, all of which exceed the 0.05 significance level. Thus, the null hypotheses are accepted, suggesting that there are no significant differences in teachers' assessments of their competence level in IE curriculum in terms of skill when grouped according to gender, age, or teaching experience.

However, the highest educational attainment yielded the probability value of 0.045, which is lower than 0.05 level of significance; therefore, the null hypothesis is rejected, indicating a significant difference in teachers' assessment of their skill levels in the IE curriculum when grouped by highest educational attainment.

Mean data reveal that teachers with doctoral degrees rate their skills higher than those with masters. This suggests that highest educational attainment influences teachers' self-assessment of their competence level in IE along skills.

The findings are supported by Zhu's study conducted in 2022, She demonstrated that individuals with advanced degrees, such as doctorates, often have higher confidence in their skills, attributing this to their extensive training and research experience.

***Attitude***

The results of the test reveal that the probability values for gender, age, highest educational attainment, and teaching experience are 0.211, 0.529, 0.270, and

0.926 respectively, each exceeding the 0.05 level of significance. Consequently, the null hypotheses are accepted, indicating no significant differences in the assessment of teachers' competence in IE curriculum in terms of attitude when grouped according to gender, age, highest educational attainment, or teaching experience. This suggests that other factors may play a more pivotal role than these profile variables in influencing teachers' attitudes.

However, A study by Lee and Carter (2020) revealed that while individual profile variables may not directly influence attitudes, the interaction between a teacher's environment and their personal characteristics can significantly affect their outlook and behavior.

**Level of students' performance in the IE curriculum**

***academic performance***

The results show that the majority or 55.89% of the student-participants achieved scores between 80-89, which are classified as good level. Additionally, 17.17% of students scored between 90-100, earning an excellent rating, while only 3.37% scored below 60, categorized as failing. The mean score of the participants is 80.77, also rated as good. This demonstrates that overall, students exhibit a good academic performance, suggesting a solid understanding of the course knowledge.

**Skills**

The results indicate that all the indicators received mean ratings described as good. The overall category mean of 2.92 suggests that, from the students participants' perspective, the students' performance level in the IE curriculum in terms of skill is good.

The conclusion is consistent with the research findings of Zou(2021) and Zhao(2019). Zou points out that students' skills encompass founding and managing businesses, including team formation, market research, product development, cost control, and risk management. However, Zhao emphasizes that critical competencies for college students are to recognize entrepreneurial opportunities.

***Attitude***

Based on the results, all indicators received mean ratings described as favorable. With an overall category mean of 2.93, it suggests that, from the students' perspective, their level of performance in the IE curriculum in terms of attitude is favorable. This further implies that students demonstrated strong interest in participating in the Innovation and Entrepreneurship program, actively engaged in program activities, showed good teamwork, and exhibited a positive attitude towards accepting challenges.

The above findings are consistent with those of Chen (2023), Zhou (2022), and Li (2023). Chen (2022) believes that good learning performance should first and foremost involve active participation in the learning process. Zhou (2022) emphasizes that, in the Innovation and Entrepreneurship (IE) course, students' performance should be evaluated not only in terms of their acquisition of entrepreneurial knowledge and skills, but also in terms of their enhancement of innovative awareness and entrepreneurial literacy.

**Significant relationship between the extent of implementation and the level of academic performance of the students in IE curriculum.**

Based on the results of the study, the computed probability values are all less than 0.05 level of significance. Therefore, the null hypothesis is rejected. This analysis suggests that there is a significant relationship between the extent of implementation of the course and the level of academic performance of students enrolled in IE course. This implies that the more effectively the course is implemented, the better the academic performance of the students tends to be.

More specifically, the attainment of course objectives (r = 0.777) show a positive correlation with the level of academic performance of the students in IE course. That is to say, the higher level of attainment of course objectives, the better the student's academic performance. The extent of coverage of content (r =0.635) has a positive correlation with the level of academic performance of the students in IE course. It suggests that the higher is the extent of content coverage, the better is the students' academic performance.

The teaching strategies (r =0.569) similarly show a positive correlation with the level of academic performance of the students in IE course. It indicates that the higher is the extent of using teaching strategies by teachers, the better is the students' academic performance. Course resources (r = 0.513) have a positive correlation with the level of academic performance of the students in

IE course. It reveals that the higher the extent of utilizing course resources by teachers, the better is the students' academic performance.

The assessment strategies (r = 0.462) are positively correlated with the level of academic performance of the students in IE course. It implies that the higher the level of extent of using assessment strategies by teachers, the better is the students' academic performance.

The findings presented are corroborated by several scholarly works. Li (2023) explores the impact of curriculum implementation on student outcomes, emphasizing correlations between course design and academic performance that echo our results. Zhao & Li (2020) in their study titled "Application of the CDIO+P Model in Innovation and Entrepreneurship Education in Vocational Colleges" establish a link between the effectiveness of teaching strategies and student academic achievements. Furthermore, Liao (2018) investigates the effects of resource availability on student learning, reinforcing the positive correlation between course resources and academic success as suggested by our data.

**The Problems and Challenges Encountered by the participants in the implementation of IE curriculum**

Three themes emerged from the responses of the participants: Lack of practical experience for teachers, lack of effective connection between IE education and professional education and Lack of adequate resources for students' practice.

## CONCLUSION

Based on the survey results, the following conclusions can be drawn:

From both teacher and student perspectives, the overall implementation of IE courses in the Finance department at Guangdong Polytechnic Institute is relatively strong. However, there is room for improvement in several areas, including enhancing teachers' practical experience, better integrating IE education with professional education, and improving the provision of practical resources for the courses. This conclusion provides valuable insights for improving the quality of IE education in this context.

## RECOMMEDATION/S

Based on the research findings and conclusion drawn, the researcher proposes the following recommendations:

**For Innovation and Entrepreneurship (IE) Course Instructors:**

Enhance the integration of IE courses with professional courses. Collaborate with enterprises to establish off-campus practice bases, providing students with practical opportunities. Encourage students to seek their own practice opportunities, such as participating in various innovation and entrepreneurship competitions, social practice activities, or volunteer services to accumulate practical experience.

**For School Administrative Management:**

Foster active cooperation between the institute and enterprises to provide practical platforms for teachers. Regularly organize training courses or seminars related to IE for teachers. Employ industry experts with rich practical experience as part-time teachers to complement the full-time faculty. Establish a platform for sharing practice resources and provide financial and resource support for students' IE activities.

**For Researchers:**

Present the findings of this study and the action plan for implementation. Future researchers should consider conducting similar studies with a broader scope and a larger range of participants.

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