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Students' Satisfaction with the Integration of Industry and Education Teaching Mode of Artificial Intelligence Industry College in a Public Higher Vocational School in Guangxi, China

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Abstract: The objectives of this research were 1) To study the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration. 2) To compare the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration with differences by general information. The research tools are literature analysis, questionnaire survey. Statistical analyses were conducted with statistical methods such as mean, standard deviation, and variance. The results were found that:1. It was found that the results of students' satisfaction with the industry-teaching integration education and teaching model of the College of Artificial Intelligence Industry showed that all four dimensions were at a high level. 2.There is no significant difference in satisfaction by gender. There was variability in satisfaction across different usual places of residence. There is a significant difference in the satisfaction of the dimensions among students with different grades.

Keywords: Students' Satisfaction, Teaching Mode, Integration of industry and education, Teaching methods, Course contents, Student classroom participation, Teacher competence

1. Introduction

In today's society, the integration of vocational education and enterprises is one of the common development directions of vocational education around the world, aiming to strengthen the links between vocational education and industry, and to improve the competitiveness and adaptability of students for employment. The integration of industrial development and education teaching from combination and co-operation is the new requirement of China's recent scientific and technological development and industrial upgrading on the cultivation of technical and skilled personnel (Ma Shuchao & Guo Wenfu, 2018).In 2019, China's Committee for Comprehensively Deepening Reform, in adopting the National Pilot Implementation Programme for Integration of industry and education, selected a number of cities and first-tier enterprises to carry out pilot constructions to allow the integration of industry and education to take place at the practical level. Currently, the modes and practices of industry-industry integration in vocational colleges and universities are different, but all of them are focused on combining education with industry. The ultimate purpose of the deepening of the integration of industry and education is to integrate the ideas and concepts of industrial development and advanced technology and so on into the classroom teaching of higher vocational colleges and universities, so as to achieve the purpose of introducing advanced technology into educational and teaching activities (Su Yanjuan, 2018). Vocational institutions are experiencing leapfrog development as a result of the deepening integration of industry and education.

At present, a number of colleges and universities in Guangxi have set up pilot specialities for the integration of industry and education, and the teachers and students of the institutions, as the main body of the practical operation of the integration of industry and education, and the satisfaction of the students will also have a direct impact on the final effect of the implementation of the integration of industry and education. College Students' Satisfaction is a comparison of the difference between the psychological expectations of college students and the differences after the experience (Yang Lijun & Zhang Xiaoqing, 2016). In order to understand the students' satisfaction under the teaching mode of industry-teaching integration, this paper will take a higher vocational college in Guangxi as an example to conduct a satisfaction survey on the teaching mode of industry-teaching integration for the students of the industry-teaching integration majors in this college. The benefits from the integration of industry and education are measured from the students' perspective by measuring the satisfaction of the main audience (students) of the integration of industry and education.

2. Literature Review

2.1 Student's Satisfaction

In domestic and international academic circles, research on Students' Satisfaction in higher education involves several related theories. The most classical theories include service quality theory, customer satisfaction theory and expectation theory. Customer Satisfaction Theory is the theory underlying this paper's study of Students' Satisfaction, as Students' Satisfaction is influenced by customer satisfaction and was first proposed in the 1960s, with most scholars modelling their definitions of Students' Satisfaction on the concept of customer satisfaction.

Several scholars' interpretations of the meaning of Students' Satisfaction will be listed below:

Oliver, R.L. et al. (1989) argued that: Students' Satisfaction is a subjective assessment of students' preferences for various outcomes and experiences related to education.

Tian Xizhou (2007) believes that college students' satisfaction refers to the general psychological feelings and personal views of college students about their study and life in college, and it has strong individual differences.

Wang Dengshan et al. (2014): "Student satisfaction" refers to a kind of feedback on the education received by students as customers enjoying school education services. Specifically, it refers to the psychological feelings of happiness, pleasure or disappointment that students feel when they compare the benefits of school education services with their own expectations.

Other scholars believe that since customer satisfaction refers to the degree to which consumers are satisfied with the services or products provided by the enterprise (Ma Tao, 2023), then for schools, students as the consumer of education, "Students' Satisfaction" is a kind of feedback from students on the education they receive, and it has a driving force to optimise the teaching and learning, which can provide effective guidance for the education reform, development and policy implementation. It can be an effective guide to the school's education reform, development and policy implementation. The research on Students' Satisfaction in developed countries such as the United Kingdom and the United States has been relatively mature, and Students' Satisfaction measurement has become an important part of education quality assessment practice. In the case of industry-teaching integration teaching mode as an important new teaching mode implemented in higher vocational schools, it is necessary to measure and analyse the satisfaction of students participating in this teaching mode.

2.2 Integration of industry and education

The integration of industry and education means the co-operation and integration of industry and education, and the co-operation between schools and enterprises in joint cultivation of talents, scientific research, and scientific and technological services. The concept of Integration of industry and education first appeared in China's Decision on Accelerating the Development of Modern Vocational Education, issued in 2014, which aims to accelerate the development of modern vocational education, cultivate more skilled personnel, improve the quality of workers and promote economic and social development. It is an educational policy of the State to promote new links between education and industry, talent and innovation, and to realise the joint development of education and enterprises. The integration of industry and education has developed from the past school-enterprise co-operation into a new education concept of the integration and development of education and industry, which is intended to enable students to learn real skills and master real competence by entering into the practice of enterprises to complete the internship exercise of understanding the industrial chain.

2.3 Integration of industry and education Teaching Model

The teaching mode of integration of industry and education pays more attention to serving economic and social development, which is the basic feature and the greatest advantage of modern vocational education. The teaching mode of industry-teaching integration is to let students change from "career" to "people-oriented", and pays more attention to the overall development of human beings. This teaching model establishes and improves a graded vocational education and training system with multiple forms of articulation, multi-channel growth and sustainable development, promotes the coordinated development and integration of vocational and general education, and enables students with different endowments and needs to make multiple choices and diversify their talents. If we want to deepen the development of Integration of industry and education, the teaching mode must be changed from ordinary teaching methods to student-centred teaching methods. We will also create a number of core courses and high-quality teaching materials, strengthen the training of the teaching team, and select practical projects on the basis of merit. The teaching model of industry-teaching integration is student-centred, teacher-led and school- and enterprise-based, expanding the sharing of quality resources and maximising the channels for students to grow and become successful in diverse and multiple ways. Students

receiving vocational education are allowed to pursue further studies as well as employment, and they can also be employed before pursuing further studies.

3. Methodology

3.1 The Population and the Sample Group

The Population

The target population of this study is the 2024 graduates of the Artificial Intelligence Industry-Teaching Integration College of a public higher vocational institution in Guangxi, with a total of 379 students.

The Sample Group

A random sample of 191 graduates from the class of 2024 from the Artificial Intelligence Industry-Teaching Integration College of a public higher vocational institution in Guangxi.

3.2 Research Instruments

Questionnaire

The questionnaire covered two parts:

Part 1: The first part was a single choice of general information for the respondents. The survey items in this section were gender, usual place of residence, grades, and examination methods used to get into the university as a way of understanding the basic profile of the respondents.

Part 2: The second part is a questionnaire distributed to students in the Artificial Intelligence Industry College of a public higher vocational institution in Guangxi. It was divided into four areas: 1) teaching methods 2) course contents 3) student classroom participation 4)teacher competence. A five-level scale was designed to investigate the current status of the interviewed students' satisfaction with the teaching model of industry-teaching integration.

3.3 Data Collection

Questionnaires were distributed to 191 randomly selected graduates from the Artificial Intelligence Industry College of a public higher vocational institution in Guangxi, questionnaires were recovered from the respondents, the recovered questionnaires were screened for invalid questionnaires, invalid questionnaires were excluded, the data collected from valid questionnaires were counted, and the data were inputted into the analyzing software to analyze the data.

3.4 Data Analysis

Statistical analysis and analysis of variance (ANOVA) were performed by analyzing software to derive the specific dimensions of student satisfaction in the College of Artificial Intelligence Industry and to compare the student satisfaction in the four dimensions of teaching methods, course contents, student classroom participation, and teacher competence.

4. Results of Analysis

The researcher distributed questionnaires to 191 graduates and 191 copies were returned with a recovery rate of 100%.

4.1 Analysis of basic personal information of respondents

General information statistics: In the first part of the questionnaire, there were four questions on general information, namely gender, usual place of residence, grade and examination methods, in this study, the researcher analyzed the data using frequency distributions and percentages as shown in Table 4.1, and the questionnaire was as follows:

Tabel 4.1: General information of the response

Items	Category	Frequency	Percentage (%)
Gender	Male	151	79.10
	Female	40	20.90
	Total	191	100
Usual placeof residence	City	52	27.20
	Town	46	24.10
	Countryside	93	48.70
	Total	191	100
Grade	Less than 59 points	5	2.60
	60~70	28	14.70
	71~80	40	20.90
	81~90	62	32.50
	91~100	56	29.30
	Total	191	100
Examination Methods	Independent enrollment	69	36.10
	GaoKao	122	63.90
Total		191	100

According to Tabel 4.1, the researcher analyzed the first part of the data collected from the questionnaire: The results that can be drawn from the general information are: In terms of gender distribution, the majority of the sample is "male", with a proportion of 79.1%, while "female" accounts for 20.9% of the sample. It can be concluded that the gender ratio of students in the studied AI industrial colleges is more imbalanced, with male students constituting the majority of the population, while the number of female students is less. With regard to the distribution of answers to the question "Usual of place residence". The majority of the samples were from "countryside", which accounted for 48.7% of the total, while the second largest proportion was from "city", which accounted for 27.2% of the total, and the smallest proportion was from "town", which accounted for 24.1% of the total. The distribution of answers to the question "Grade" shows that "less than 59 points" is the lowest, accounting for only 2.6% of the total sample. Scores of "60 - 70" accounted for 14.7 % of the total sample. Those scoring "71-80" accounted for 20.9 %. Students scoring "81-90" accounted for 32.5 % of the total number of students in the sample. Students scoring "91-100" accounted for 29.3 % of the total number of students in the sample. Among the "examination methods" for admission to university, 36.1% of the students were admitted to schools through the "Independent enrollment" and 63.9% through the "GaoKao".

4.2 Analysis of the current situation of student's satisfaction

Objective 1: To study the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration.

Graduates who participated in the survey were analyzed in four areas: teaching methods, course contents, student classroom participation, and teacher competence. The researcher used mean and standard deviation for the analysis, and the specific results of the analysis are presented in Tables 4.2-4.6.

Table 4.2 Statistical table for each variable

(n=191)

Items	M	S.D.	interpretation	Ranking
1. Teaching Methods	3.83	1.08	high	2
2. Course contents	3.79	1.09	high	4
3. Student classroom participation	3.80	1.08	high	3
4. Teacher Competence	3.84	1.09	high	1
Total	3.82	1.09	high	

According to the findings in Table 4.2, it was found that the results of students' satisfaction with the education teaching mode of industry-teaching integration in the College of Artificial Intelligence Industry showed that all four variables were at a high level (M=3.82, S.D.=1.09). Based on the results of the study, the satisfaction levels of the four variables were described from the highest to the lowest: The highest ranking of satisfaction was for teacher competence (M=3.84, S.D.=1.09), followed by teaching methods

(M=3.83,S.D.=1.08), the third was for the student classroom participation (M=3.80,S.D.=1.08), and the variable with the lowest level of satisfaction was for the course contents (M=3.79,S.D.=1.09).

Table 4.3 Questions classiffed by variables: Teaching methods

(n=191)

Items	M	S.D.	interpretation	Ranking
1.1 I am satisfied with the informational approach to teaching.	3.81	1.20	High	9
1.2 I am satisfied with the way in which I am taught (teaching activities such as the first six minutes of class) that are geared towards synthesis.	3.83	1.17	High	7
1.3 I am satisfied with teaching methods that are more focused on the learning process.	3.81	1.17	High	8
1.4 I am satisfied with the teaching methods of technical in-house training (project presentation training, etc.) that are targeted for improvement.	3.86	1.19	High	2
1.5 I am satisfied with the hands-on project-based instruction for the purpose of solidifying my skills.	3.88	1.12	High	1
1.6 am satisfied with doing the exercises in class.	3.85	1.15	High	3
1.7 I am satisfied with the pedagogical approach of having group discussions in the classroom.	3.73	1.20	High	10
1.8 I am satisfied with the instructor's teaching method of conducting code-following exercises.	3.83	1.16	High	6
1.9 I am satisfied with the inquiry-based and validation-based group project practices.	3.84	1.13	High	4
1.10 I am satisfied with the digital instruction designed by the instructor based on the objectives and content.	3.84	1.19	High	5
Total	3.83	1.17	High	

According to Table 4.3, the study found that satisfaction with “Teaching Methods” is at a high level (M=3.83, S.D.=1.17). Of these, "I am satisfied with the hands-on project-based instruction for the purpose of solidifying my skills." had the highest level (M=3.88, S .D.=1.12), and the second was "I am satisfied with the teaching methods of technical in-house training (project presentation training, etc.) that are targeted for improvement." (M=3.86, S.D.=1.19). The lowest level was "I am satisfied with the pedagogical approach of having group discussions in the classroom." (M=3.73, S.D.=1.20).

Table 4.4 Questions classiffed by variables: Course contents

（n=191）

Items	M	S.D.	interpretation	Ranking
2.1 I am satisfied with the content of the lectures that combine theory and practice.	3.81	1.20	High	4
2.2 I am satisfied with the curriculum resources and teaching examples used by the teachers in their lessons.	3.80	1.15	High	6
2.3 I am satisfied with the practical examples used in the course which are closely related to the subject matter.	3.80	1.12	High	5
2.4 I am satisfied with the course content that helps to align with corporate technology.	3.74	1.19	High	8
2.5 I am satisfied with the course's arrangement of hands-on content for each knowledge point.	3.83	1.15	High	2
2.6 I am satisfied with the applicability of the course content (not out of touch with the real world and useful for work practice).	3.77	1.17	High	7
2.7 I am satisfied with the logic of the course content.	3.83	1.14	High	1

Items	M	S.D.	interpretation	Ranking
2.8 I am satisfied with the knowledge and skills I gained during the course.	3.81	1.17	High	3
2.9 I am satisfied with the comprehensiveness of the course content.	3.74	1.20	High	9
Total	3.79	1.17	High	

According to the results of the study in Table 4.4, satisfaction with “Course contents” was found to be at a high level (M=3.79, S.D.=1.17). Observing the results of the study, it can be seen that the highest level of satisfaction is " I am satisfied with the logic of the course content." (M=3.83, S.D.=1.14), followed by " I am satisfied with the course's arrangement of hands-on content for each knowledge point."(M=3.83, S.D.=1.15), and these two questions have the same level. According to the results of the study, the questions " I am satisfied with the knowledge and skills I gained during the course." (M=3.81, S.D.=1.17), and " I am satisfied with the content of the lectures that combine theory and practice." (M=3.81, S.D.=1.20) have the same level. " I am satisfied with the practical examples used in the course which are closely related to the subject matter. " (M=3.80, S.D.=1.12) and " I am satisfied with the curriculum resources and teaching examples used by the teachers in their lessons. " (M=3.80,S.D.=1.15) are at the same level. The lowest level of satisfaction was " I am satisfied with the comprehensiveness of the course content." (M=3.74, S.D.=1.20).

Table 4.5 Questions classiffed by variables: Student classroom participation

(n=191)

Items	M	S.D.	interpretation	Ranking
3.1 I am satisfied with the arrangements for conducting pre-class questions on independent previews.	3.81	1.16	High	3
3.2 I am satisfied with the teacher's requirement to participate in group learning discussions in class.	3.75	1.15	High	6
3.3 I am satisfied that teachers require handwritten note-taking in class.	3.74	1.16	High	7
3.4 I am satisfied with the behavior of collecting cell phones before class to ensure concentration in class.	3.85	1.14	High	1
3.5 I'm satisfied with the limited or unlimited topic pre-class presentations that rotate through each class.	3.80	1.15	High	4
3.6 I am satisfied with the enlightening discussions during the course of the class.	3.83	1.16	High	2
3.7 I am satisfied with setting up a practice program that is tournament in nature.	3.80	1.17	High	5
Total	3.80	1.16	High	

According to the results of the study in Table 4.5, it can be seen that the level of satisfaction with " Student classroom participation " is at a high level (M=3.80, S.D.=1.16). The highest level of satisfaction was found in " I am satisfied with the behavior of collecting cell phones before class to ensure concentration in class." (M=3.85, S.D.=1.14), followed by " I am satisfied with the enlightening discussions during the course of the class." (M=3.83, S.D.=1.16), and the lowest level of satisfaction was found in " I am satisfied that teachers require handwritten note-taking in class." (M=3.74, S.D.=1.16).

Table 4.6 Questions classiffed by variables: Teacher Competence

(n=191)

Items	M	S.D.	interpretation	Ranking
4.1 I am satisfied with the teacher's ability to teach (clear and logical hierarchy, sound board writing, and passionate and engaging lectures).	3.88	1.14	High	2
4.2 I am satisfied with the teachers' mastery of instructional equipment (computers, software, teaching platforms).	3.80	1.19	High	10

Items	M	S.D.	interpretation	Ranking
4.3 I am satisfied with the teachers' language skills (vivid and fluent language, moderate speed of speech, standard pronunciation, etc.).	3.87	1.15	High	3
4.4 I am satisfied with the instructor's classroom design (moderate course content and well-proportioned division of key points).	3.84	1.19	High	6
4.5 I am satisfied with the teacher's control of class time (moderate course capacity, no late arrivals, early departures or class delays).	3.83	1.16	High	7
4.6 I am satisfied with the teacher's ability to mobilize the classroom atmosphere (organizing classroom practices, high rate of classroom interaction).	3.81	1.18	High	9
4.7 I am satisfied with the instructor's teaching attitude (positive attitude, well-prepared to teach, and skillful knowledge of the subject matter).	3.90	1.13	High	1
4.8I am satisfied with the teacher's pedagogical rapport (equal communication between teacher and student, attention to individuality differences, timely answers to questions, etc.).	3.84	1.16	High	5
4.9 I am satisfied with the teacher's process of clarifying doubts (highlighting key points, breaking through difficulties, and making appropriate expansion and extension).	3.82	1.16	High	8
4.10 I am satisfied with the teaching effect of the teachers (students have a solid grasp of knowledge, students listen carefully to the lectures, actively answer questions, etc.).	3.84	1.15	High	4
Total	3.84	1.16	High	

According to the data in Table 4.6, the level of satisfaction with " Teacher competence" is at a high level (M=3.84, S.D.=1.16). After observing and comparing the data, it was found that " I am satisfied with the instructor's teaching attitude (positive attitude, well-prepared to teach, and skillful knowledge of the subject matter)." had the highest level of satisfaction (M=3.90, S.D.=1.13), followed by " I am satisfied with the teacher's ability to teach (clear and logical hierarchy, sound board writing, and passionate and engaging lectures)." (M=3.88,S.D.=1.14), and the lowest level of satisfaction was found by " I am satisfied with the teachers' mastery of instructional equipment (computers, software, teaching platforms)." (M=3.80,S.D.=1.19).

Objective 2: To compare the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration with differences by general information.

The graduates who participated in the survey were compared and analyzed in terms of four aspects: gender, place of residence, grades and method of examination. The researcher used ANOVA to analyze the results, which are shown in Tables 4.7-4.10.

Table 4.7 Test for gender differences in satisfaction

Items	Gender	M	S.D.	t	p
1. Teaching Methods	Male	3.80	1.09	-0.666	0.506
	Female	3.93	1.03		
2. Course contents	Male	3.76	1.10	-0.797	0.426
	Female	3.91	1.06		
3. Student classroom participation	Male	3.78	1.10	-0.462	0.644
	Female	3.87	1.01		
4. Teacher Competence	Male	3.81	1.11	-0.787	0.432
	Female	3.97	1.04		
Total	Male	3.79	1.10	-0.671	0.502
	Female	3.92	1.04		

Original Hypothesis: There is no significant difference in the satisfaction level of different genders. Alternative hypothesis: There is a significant difference in the level of satisfaction by gender. Analysis of results: according to the results of the test of homogeneity of variance, if P>0.05, the variance is homogeneous and the original hypothesis can be accepted, if P<0.05, the variance is not homogeneous and the original hypothesis is rejected. According to the results of the study in Table 4.7, it was found that using t-test to examine the differences in satisfaction between genders, gender presented a significant t=-0.671 ,P=0.502 for satisfaction. The results of the analyses for "teaching methods" were t=-0.666, P=0.506, and for "course contents" were t=-0.797, P=0.426, and the results of the analyses of "student classroom participation" were t=-0.426, P=0.644, and the results of the analyses of "teacher Competence" were t=-0.787, P=0.432). It can be concluded that there is no significant difference in satisfaction by gender.

Table 4.8 Comparison of differences in satisfaction across usual places of residence

Dimension	Usual place of residence	n	M	S.D.	F	P	Multiple comparisons
1.Teaching methods	City	52	3.59	1.12	24.325	0.000	Countryside > City, Countryside > Town
	Town	46	3.17	0.91			
	Countryside	93	4.28	0.91			
2.Coursecontents	City	52	3.52	1.16	21.175	0.000	Countryside > City, Countryside > Town
	Town	46	3.19	0.95			
	Countryside	93	4.24	0.93			
3.Student classroom participation	City	52	3.56	1.13	21.732	0.000	Countryside > City, Countryside > Town
	Town	46	3.17	0.91			
	Countryside	93	4.24	0.94			
4.Teacher Competence	City	52	3.59	1.13	22.894	0.000	Countryside > City, Countryside > Town
	Town	46	3.2	0.97			
	Countryside	93	4.3	0.91			
Total	City	52	52	3.57	23.352	0.000	Countryside > City, Countryside > Town
	Town	46	46	3.18			
	Countryside	93	93	4.27			

Note: ANOVA is Welch's t-Test and multiple comparisons are Tamhane's T2.

Table 4.8 shows that the mean values of satisfaction are as follows, countryside has the highest mean satisfaction value of 4.27, followed by city with a total mean of 3.57 and town has the lowest mean satisfaction value of 3.18. Since homogeneity of variance was not met, Welch's t-test was used and the result was F=23.352, p=0.000<0.001, thus yielding a significant difference, and multiple comparisons across usual residence using Tamhane's T2 resulted in Countryside>City and Countryside>Town.

According to table 4.8, the mean value of satisfaction in "Teaching Methods" is 3.59 for city, 3.17 for town and 4.28 for countryside. Since the Homogeneity of Variance was not satisfied, Welch's t-Test was used and the result was F=24.325, P=0.000<0.001, so it was concluded that there was a significant difference in the satisfaction level of "teaching methods" among different usual place of residence. Based on significant differences, multiple comparisons across usual place of residence using Tamhane's T2 yielded countryside > city, and countryside > town.

In "Course contents", the mean satisfaction level is 3.52 for city, 3.19 for town and 4.24 for countryside. Homogeneity Of Variance was not satisfied, and Welch's t-Test was used for the study, and the result was F=21.175, P=0.000<0.001, so it is considered that there is a significant difference in the satisfaction of the "Course contents " between different usual place of residence. Based on significant differences, multiple comparisons across usual place of residence using Tamhane's T2 yielded countryside > city, and countryside > town.

In "Student classroom participation ", the mean satisfaction level was 3.56 in the city, 3.17 in the town and 4.24 in the countryside. Homogeneity Of Variance was not satisfied, and Welch's t-Test was used for the study, and the result was F=21.732, P=0.000<0.001, so it is considered that there is a significant difference in the satisfaction of the "Student classroom participation " between different usual place of residence. Based on

significant differences, multiple comparisons across usual place of residence using Tamhane's T2 yielded countryside > city, and countryside > town.

In "Teacher competence", the average satisfaction rate is 3.59 in the city, 3.20 in the town and 4.30 in the countryside. Homogeneity of Variance was not satisfied, and Welch's t-Test was used for the study, and the result was F=22.894, P=0.000<0.001, so it is considered that there is a significant difference in the satisfaction of the "Teacher competence" between different usual place of residence. Based on significant differences, multiple comparisons across usual place of residence using Tamhane's T2 yielded countryside > city, and countryside > town.

Table 4.9 Comparing differences in satisfaction across grades

Dimension	Grade	n	M	S.D.	F	P	Multiple comparisons
1.Teaching Methods	Less than 59 points	5	3.54	1.35	4.982	0.001	60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90
	60~70	28	3.98	0.91			
	71~80	40	3.30	1.02			
	81~90	62	3.75	1.06			
	91~100	56	4.23	1.04			
2 Course contents	Less than 59 points	5	3.69	1.20	4.776	0.001	60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90
	60~70	28	3.93	0.99			
	71~80	40	3.26	1.06			
	81~90	62	3.72	1.09			
	91~100	56	4.19	1.02			
3 Student classroom participation	Less than 59 points	5	3.54	1.33	6.055	0.000	60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90
	60~70	28	3.91	1.01			
	71~80	40	3.23	1.03			
	81~90	62	3.72	1.06			
	91~100	56	4.26	0.98			
4 Teacher Competence	Less than 59 points	5	3.52	1.35	5.288	0.000	60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90
	60~70	28	3.90	1.07			
	71~80	40	3.32	1.05			
	81~90	62	3.78	1.08			
	91~100	56	4.29	0.97			
total	Less than 59 points	5	3.57	1.30	5.329	0.000	60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90
	60~70	28	3.93	0.98			
	71~80	40	3.28	1.03			
	81~90	62	3.74	1.06			
	91~100	56	4.24	0.99			

According to Table 4.9, there is a significant difference in the satisfaction of the dimensions among the students with different grades. F=5.329, p=0.000<0.005, there was a difference in satisfaction across the range of grades. The mean value of satisfaction was 3.57 for less than 59 points, 3.93 for 60 ~ 70 points, 3.28 for 71 ~ 80 points, 3.74 for 81 ~ 90 points, and 4.24 for 91 ~ 100 points. Multiple comparisons were made using the LSD method, and conclusions were drawn based on significant differences: 60 ~ 70 points > 71 ~ 80 points, 81 ~ 90 points > 71 ~ 80 points, 91 ~ 100 points > 71 ~ 80 points, and 91 ~100 points > 81 ~90 points.

Dimension 1, "Teaching Methods" F=4.982, p=0.001<0.005, indicates that there is a difference in satisfaction across grades. The mean value of satisfaction for Less than 59 points is 3.54, 60~70 is 3.98, 71 ~ 80 is 3.30, 81 ~90 is 3.75 and 91~ 100 is 4.23. Multiple comparisons were carried out using LSD method and based on significant differences it was concluded that 60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90.

Dimension 2, "Course contents" F=4.776, p=0.001<0.005, indicating that there is a difference in satisfaction across grades. The mean of satisfaction for Less than 59 points is 3.69, 60~70 is 3.93, 71~80 is 3.26, 81~90 is 3.72 and 91~100 is 4.19. Multiple comparisons were made using the LSD method, and based on the significant differences it was concluded that 60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90.

Dimension 3, " Student classroom participation " F=6.055, P=0.000<0.005, indicates that there is a difference in satisfaction across grades. The mean value of satisfaction for Less than 59 points is 3.54, 60-70 is

3.91, 71-80 is 3.23, 81-90 is 3.72 and 91-100 is 4.26. Multiple comparisons were carried out using LSD method and based on significant differences it was concluded that 60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90.

Dimension 4, "Teacher Competence" F=5.288, P=0.000<0.005, indicates that there is a difference in satisfaction across grades. Among them, the satisfaction mean of Less than 59 points is 3.52, the satisfaction mean of 60~70 is 3.90, the satisfaction mean of 71~80 is 3.32, the satisfaction mean of 81~90 is 3.78, and the satisfaction mean of 91~100 is 4.29. Multiple comparisons were made using the LSD method. 60~70>71~80, 81~90>71~80, 91~100>71~80, 91~100>81~90.

Table 4.10 Examining Student Satisfaction with Different Examination Methods

Items	Examination Methods	M	S.D.	t	p
1.Teaching Methods	Independent enrollment	4.05	1.06	2.158	0.032
	GaoKao	3.70	1.07		
2.Course contents	Independent enrollment	4.05	1.07	2.460	0.015
	GaoKao	3.65	1.09		
3.Student classroom participation	Independent enrollment	4.06	1.04	2.557	0.011
	GaoKao	3.65	1.08		
4.Teacher Competence	Independent enrollment	4.09	1.05	2.325	0.021
	GaoKao	3.71	1.09		
Total	Independent enrollment	4.06	1.06	2.375	0.020
	GaoKao	3.68	1.08		

According to Table 4.10, there is a significant difference in the satisfaction level of Dimension 1 "Teaching Methods" in terms of examination methods with a t-value of 2.460 and a p-value of 0.015. Specifically, the mean of satisfaction for independent enrollment is 4.05 with a standard deviation of 1.06, and the mean of satisfaction for the GaoKao is 3.70 with a standard deviation of 1.07. Therefore, it can be clearly seen that the satisfaction level of independent enrollment is higher than that of GaoKao, so the difference hypothesis is valid.

There is also a significant difference in the satisfaction of dimension 2 " Course contents " with respect to the examination methods with a t-value of 2.158 and a p-value of 0.015. Specifically, the mean of satisfaction for independent enrollment is 4.05 with a standard deviation of 1.07, and the mean of satisfaction for the GaoKao is 3.65 with a standard deviation of 1.09. So it can be seen that the satisfaction of independent enrollment is higher than that of GaoKao, so the difference hypothesis is valid.

There is also a significant difference in the satisfaction level of dimension 3 " Student classroom participation " in terms of examination methods with a t-value of 2.557 and a p-value of 0.011. Specifically, the mean of satisfaction for independent enrollment is 4.06 with a standard deviation of 1.04, and the mean of satisfaction for GaoKao is 3.65 with a standard deviation of 1.08. Therefore, it can be concluded that the satisfaction level of independent enrollment is higher than that of the GaoKao, so the difference hypothesis is valid.

There is also a significant difference in the satisfaction of dimension 4 "Teacher Competence" in examination methods with a t-value of 2.325 and a p-value of 0.020. According to the data presented, the mean of satisfaction for independent enrollment is 4.06 with a standard deviation of 1.06, and the mean of satisfaction for GaoKao is 3.68 with a standard deviation of 1.08. Therefore, it can be concluded that the satisfaction level of independent enrollment is higher than that of the GaoKao, so the difference hypothesis is valid.

4.3 Results of Data Analysis

Through the analysis of the data from the questionnaire, the researcher found that the current graduates of the Artificial Intelligence Industry College of a public school in Guangxi are generally at a high level of satisfaction with the industry-teaching integration teaching model. By observing the data, it was found that the average value of satisfaction with the course contents was the lowest, indicating that students' satisfaction with the course contents was relatively low. In order to succinctly summarize the results of the data analysis regarding students's satisfaction, the following details are provided:

Teaching methods: Students were least satisfied with the teaching method of having group discussions in the classroom. This suggests that teachers need to use more appropriate teaching methods.

Course contents: Student satisfaction with the comprehensiveness of course content was the lowest. This suggests a need for refinement of course contents.

Student classroom participation: Students were least satisfied with teachers requiring students to handwrite notes in class. This suggests that teachers need to use another method of increasing a student's participation in the classroom.

Teacher competence: Students were least satisfied with teachers' mastery of instructional equipment (computers, software, and instructional platforms). This indicates the need for teachers to upgrade their IT skills.

5. Conclusion

The results of the study found that the students of the Artificial Intelligence Industry College of a public school in Guangxi were generally at a high level of satisfaction with the industry-teaching integration teaching model. The researcher has summarised the findings in two parts as follows:

Research Objective 1: To study the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration.

It was found that the results of students' satisfaction with the industry-teaching integration education and teaching model of the College of Artificial Intelligence Industry showed that all four dimensions were at a high level. The four dimensions were ranked from highest to lowest level of satisfaction according to the results of the study: the highest level of satisfaction was teacher competence, followed by teaching methods, ranked third was students' classroom participation, and the dimension with the lowest level of satisfaction was course content.

Research Objective 2: To compare the student's satisfaction of the Artificial Intelligence Industry College of a higher vocational college in Guangxi with the teaching model of industry-teaching integration with differences by general information.

According to the results of the study, there is no significant difference in satisfaction by gender. There was variability in satisfaction across different usual places of residence, with the highest satisfaction from countryside, followed by those from city, and the lowest satisfaction from town, countryside > city, and countryside > town. There is a significant difference in the satisfaction of the dimensions among students with different grades, 60 ~ 70 points > 71 ~ 80 points, 81 ~ 90 points > 71 ~ 80 points, 91 ~ 100 points > 71 ~ 80 points, and 91 ~ 100 points > 81 ~ 90 points.

Recommendations

Based on the findings, the researcher ranked the results of the four aspects involved in this study from highest to lowest. It was found that the level of teacher competence was the highest, followed by teaching methods, and course contents was the lowest. Recommendations were made based on the problems in each aspect:

Teacher Competence: Deepening the integration of industry and education, and developing suitable professional curricula in cooperation with enterprises. In terms of course contents, the teaching mode of industry-teaching integration has higher requirements for practice, and schools and enterprises need to design and develop common talent training programs and build course contents to carry out cooperative teaching.

Teaching Methods: Teachers' capacity to teach should be continuously improved and their teams should be strengthened. In terms of teacher competence, teachers play a guiding role in the whole teaching process, and the level of teacher competence will directly affect the level of skills learned by students, so if you want to meet the needs of students for professional knowledge and the desire of students to improve their technical skills, you must create an excellent team of teachers.

Student Classroom Participation: Efforts to create a classroom atmosphere that stimulates student classroom participation. In terms of students classroom participation, teachers create a classroom atmosphere with the aim of motivating students and enlivening the classroom atmosphere. This emotional stimulation can increase students' satisfaction with the classroom.

Course Contents: Integration of existing methods and comprehensive improvement of teaching methods. In terms of teaching methods, teachers need to be flexible in choosing teaching methods according to the situation of students, and teachers help each other to improve their teaching methods.

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