Research on Differentiated Teaching Strategy of Computer Practice Courses in Secondary Vocational Schools

Yuan Peng and Ran Lu

School of Information Science and Engineering, Shandong Normal University, Jinan, China

Abstract: In the teaching of computer related courses in secondary vocational schools, the traditional teaching method of "combination of teaching and practice" still occupies the mainstream position, but the teaching effect of this way is not ideal. The main reason for the above phenomenon is that the traditional teaching mode does not pay attention to the individual differences of students. In order to solve the above problems, this study adopted the form of questionnaire survey. Taking "Photoshop Image Processing" as an example. The course questionnaire was distributed to students, and SPSS was used to conduct variance analysis. It was found that students' knowledge base and interest affected students' learning tendency. Individual differences of students affect teaching efficiency and teaching effect. Finally, we put forward the idea of using differentiated teaching in computer practice courses of secondary vocational schools, demonstrated the reasons for the selection of differentiated teaching, put forward the principle of differentiated teaching, and summed up the differentiation teaching mode of seeking difference, magnifying difference, solving difference, developing difference.

1 INTRODUCTION

The year 2021 is the first year of the 14th Five-Year Plan. It is also a crucial year for building on this momentum to embark on a new journey and march toward the second centenary goal. Opinions on Promoting the High-quality Development of Modern Vocational Education issued on October 12, 2021 points out that a modern vocational education system will be basically completed by 2025, and the attractiveness and training quality of vocational education will be significantly improved (The People's Daily, 2021). In order to improve the quality of vocational education, we should innovate teaching mode, improve teaching method and efficiency.

In the teaching of computer practice courses in secondary vocational schools, the most common teaching method is the combination of traditional teaching methods, such as teaching method, case teaching, etc., and the generation of "combination of teaching and practice" teaching method. This method combines the characteristics of traditional teaching methods and presents some advantages. For example, this method pays attention to operation and teaching cases, and it is also convenient for teachers to complete teaching design before class and teaching organization in class, which has a significant effect on improving teaching efficiency. However, this method also has limitations. First, this method will differ in actual classroom teaching efficiency due to the difference of teachers' organizational ability and students' learning situation. The teaching method is embodied in the teacher's main quality, and the key to the acceptance of this method by most students is the teacher's own language quality. This quality directly determines the level of teaching and teaching efficiency (Li et al., 2021). Second, this method will also lead to the lack of creativity in students' works, and teachers are prone to "over-teaching" in the actual class, showing the situation of single teaching means and lack of students' autonomy (Cheng et al., 2021). Thirdly, students learn the operation completion method of a case effect, while students can rarely make similar cases that can be completed by using the same method. This indicates that students have only learned the operation steps of a case and have not perfected the knowledge transfer of a class of problems. Fourth, this method lacks interaction between teachers, students and students, and the improvement of students' cooperation

ability is limited. "Combination of teaching and practice" emphasizes more on the interaction between students and knowledge in teaching cases, but lacks the spiritual communication and ideological exchange between teachers and students, which makes it impossible for teachers and students to form a democratic communicative teacher-student relationship, and it is difficult for students to truly participate in the classroom as "masters of learning" (Du 2018). In addition, the student-oriented approach is more attractive to some students, who feel that giving them creative space helps them to do well in the course, while the traditional "teaching-practice" approach is not the most suitable for them. Therefore, we need to base on the teaching practice of secondary vocational schools, understand the students' and teachers' views on the curriculum, and on this basis, further select and innovate teaching models and teaching methods.

The author observed and summarized the performance of the students of computer application major in Photoshop Image Processing in a secondary vocational school. Because of the impact of the teaching schedule, the use of "teaching-practice combination" teaching method is the most beneficial to complete the teaching schedule on time and on demand, and it is relatively easy to prepare for class in this way, and it is also easier to organize students to learn in class. However, in the actual teaching, it is found that the consistency of the learning content prepared before class causes students to show psychological resistance to this slightly "standardized" teaching method. Communication with the students under the lesson learned that some degree of learning good students think according to the steps to complete the task assignments in class is very boring, they also can't finish my homework in the process of reflects the uniqueness of their homework (some students say that every classmate to content are the same, makes them unable to get the joy of finish the homework). However, some students with average learning level think that the arrangement of learning content is too tight, so that they can not fully grasp the previous knowledge, the later knowledge will start to learn, which also makes them doubt whether they can learn Photoshop, and then affect their sense of participation in learning. Secondly, from the perspective of the actual teaching effect, we have counted the students' midterm exam scores. Although there are not a few students with high scores, the proportion of students with scores lower than the median is high, so the teaching effect is not ideal. Thirdly, from the perspective of students' daily homework completion, most students can complete more than 60% of the task points of the homework cases, but for some tasks with

high operation difficulty, only some students with good degree can complete them. In addition, in terms of the performance of homework, some students with good grades often complete their homework "independently", and their works are more personalized, which is particularly outstanding compared with most students with average grades (these students tend to imitate the completion effect of demonstration drawings more). Above all, the teaching effect of the main causes of bad lies in the choice of teaching methods of the conflicts and the needs of students, teaching methods are applied to different status of students, the ready state and study interest of students in reverse also choose the teaching method, "speaking practice combination" teaching method is not the practice course of secondary vocational computer optimal solution. The setting of teaching methods should not only rely on the experience of teachers, but also respect the individual differences of students in different learning situations.

The concept of individual differences is understood from the perspective of teaching mode. Teaching is the process of guiding learners to complete teaching objectives, and learners' learning style restricts the time and degree of achieving teaching objectives (Du 2018). Learning style is a stable and unique learning tendency of learners in learning activities. Learning style is a unique behavior pattern of learners in the process of completing teaching tasks. Due to its unique characteristics, teachers rarely pay attention to this problem in traditional teaching that emphasizes "commonness". Learning styles have an important influence on individual learners to complete teaching objectives. Paying attention to the differences in learning styles of learners can not only effectively improve learners' learning efficiency, but also help teachers learn more about how learners acquire knowledge, so as to help students become better learners (Shenoy N et al., 2013 & Sarabi-Asiabar A et al., 2015).

The concept of individual differences is understood from the perspective of teaching methods. The "teaching-practice combination" teaching method integrates the characteristics of traditional teaching methods. Cases are taken as the main line of class, and various tasks are completed step by step through the form of "teacher demonstration, students follow the operation", and finally summarized into a knowledge system. The idea of applying this method to design the teaching process is based on the collective needs of students, and the characteristics of "most" students can be considered in the design. But for with the "most" show differences in terms of "minority", this design not only failed to improve their

study effect, for their participation in classroom learning is also have an impact - is too unified value standards often leads to the lack of unique individuals value, this has to do with the education aim of "for the students". Some new teaching methods emphasize the cultivation of personal ability, the integration of reason and practice, and the construction of activities. The emergence of these methods makes up for the shortcomings of traditional teaching methods, greatly explores the enthusiasm and initiative of students in learning, and plays an important role in improving students' working ability and practical ability (Liu et al., 2019). On the other hand, these methods are based on students' high comprehensive ability and cannot be applied to all students with different learning styles, which may lead to low teaching efficiency. Moreover, the flexible use of these methods also put forward higher requirements for teachers' quality. This also makes us when discussing the teaching method can not be completely negative to the traditional teaching method, also can not be completely positive to the new teaching method. From the perspective of efficiency, only by taking the individual differences of students as the starting point, taking the advantages of traditional teaching methods as the foothold and combining the advantages of advanced teaching methods can we effectively improve teaching efficiency and teaching effect (Jiang 2016).

At present, the relevant research on differentiated teaching mostly focuses on primary and secondary school teaching, focusing on the supplement of previous teaching theories or the specific situation application of different subjects. Differentiated teaching has been widely applied in the practice of education and teaching at all levels. However, in the computer practice courses of secondary vocational schools, the classroom teaching research on the application of differentiated teaching strategies is very rare, and the traditional teaching methods still occupy the main position in most classroom teaching. It has been demonstrated above that the nature of computer practice courses in secondary vocational schools determines that the traditional step-by-step teaching method cannot play a very good effect, and the differences of students' preparation and practical ability in practice also need to be taken into account in the pre-class teaching design. The differentiated teaching strategy focuses on the difference of students' ability, and the teaching method taking into account the difference of students' ability can naturally help students with different ability levels to learn knowledge in the most suitable way and develop their own ability at the same time in computer practice courses of secondary vocational schools. Therefore, it is very important to introduce

differentiated teaching into secondary vocational computer practice courses for improving classroom teaching efficiency and teaching effect.

Therefore, we need to further understand the individual needs of students, find the individual differences of student groups, and work out a teaching program that is really suitable for practical teaching.

2 EXPERIMENTAL DESIGN AND PROCEDURE

Found in the actual teaching, students will study the teaching effect of ultimate for students and the foundation of student's class performance of different showed differences, in order to confirm this idea, this study adopts the method of questionnaire survey, taking a secondary vocational school computer application of professional high school class two, grade 2 students as the research object of the experiment, Take the course Photoshop Image Processing opened in this semester as a case for investigation, and hand out the course questionnaire.

Photoshop Image Processing is one of the compulsory courses for computer majors in secondary vocational schools. Its teaching objective requires students not only to learn the basic operation of Photoshop software, but also to develop the basic "artistic quality" in the process of learning, and to cultivate students' artistic creativity in the process of getting familiar with the operation of software. The teaching goal of this course makes it not only have the characteristic of high proportion of practical teaching content in computer practice courses, but also its influence on the improvement of students' ability, so that the teaching design can not be unified, but should be a complex teaching design that pays attention to the differences of each student. Due to the above reasons, the selection of Photoshop Image Processing as the study of differentiated teaching in the application of computer practice courses in secondary vocational schools has a very profound representative of the course sample.

Before setting up the questionnaire factors, we want to analyze the influence of students' pre-class preparation and their interest in the course on their orientation or opinions in class, such as homework methods, case selection and teaching methods, by means of data analysis. Questionnaire set up nine factors, therefore, whether the nine factors for learning before contact with PS, willingness to work, class practices tendency, interested in whether the PS, tended to case selection, material selection, class

practices tendency, view of teaching methods, teaching approach, each factor under several options. Through the study of the correlation between nine factors to provide strong data support for practical teaching, and put forward some valuable teaching strategies.

A total of 120 questionnaires were collected, of which 114 were valid, with effective recovery of 95%.

SPSS26.0 was used to analyze the obtained data, focusing on the difference and correlation among various dimensions.

This experience first analyzes the influence of the two dependent variables in the questionnaire -- whether they have been exposed to PS before learning and whether they are interested in PS -- on other variables through analysis of variance. The difference between the two variables is known by calculating the significant relationship between this factor and other variables. For the relationship with significance value less than 0.05, in the second part, we made a detailed analysis of the variables showing differences through

contingency table, and analyzed the causes of the phenomenon through the gravity difference of different options. Finally, the nine research factors are connected to analyze the correlation between each factor through correlation analysis, and the reasons for some options that conform to the correlation are summarized.

3 RESULTS

3.1 Analysis of Variance

This part is mainly used to study whether changes in multiple factors will lead to changes in test results. The analysis of this part is divided into two dimensions, which respectively study the influence of different degrees of exposure to Photoshop before learning courses on other factors and the influence of students' different degrees of interest in courses on other factors.

Table 1. Influence of different exposure to Photoshop software before learning the course on other factors.

Factors	F	Significant value
1. Tendency of homework style in class	10.273	0
2. Case selection tendency	8.101	0
3. Material selection tendency	1.199	0.03
4. Views on teaching Methods	0.038	0.99
5. Teaching style tendency	24.173	0

The results were analyzed as shown in the table. The significant values of dependent variables 1, 2, 3 and 5 were less than 0.05, which were significant at the significance level of 0.05. This means that different degrees of exposure to Photoshop before learning

lead to significantly different views on homework methods, case selection tendencies, material selection tendencies and teaching methods.

Table 2. Influence of students' different interest levels on other factors.

Factors	F	Significant value
1. Tendency of homework methods in class	3.85	0.024
2. Case selection tendency	2.979	0.055
3. Material selection tendency	3.341	0.039
4. Homework after class	2.733	0.069
5. Views on teaching methods	4.703	0.011
6. Teaching methods	4.503	0.013

The results were analyzed as shown in the table. The significant values of dependent variables 1, 3, 5 and 6 were less than 0.05, which were significant at the significance level of 0.05. This means that students' different degrees of interest in courses lead to

significant differences in their tendency of in-class homework methods, material selection, after-class homework methods, views on teaching methods and teaching methods.

3.2 Contingency Table Analysis

According to the conclusion of variance analysis, several valuable indicators are selected here to analyze them, hoping to get beneficial experience for practical teaching.

3.2.1 Influence of Different Degrees of Exposure to Photoshop before Learning the Course on Various Indicators

The data in the table below is summarized from the results of the questionnaire.

Table 3. Differences in the tendency of homework methods in class whether they have been exposed to PS before learning

			The tendency of homework methods in class		Sum	F	Significant value
			Step by step according to the requirements of the teaching material	Design independently according to the learning content			
Whether contact with PS before learning	Have learned	Count	7	11	18		
		Proportion	6.10%	9.60%	15.8%		
	Simple application had been done	Count	14	38	52		
		Proportion	12.30%	33.30%	45.6%		
	Have heard of	Count	20	6	26	10.273	0
		Proportion	17.50%	5.30%	22.8%		
	No contact	Count	14	4	18		
		Proportion	12.30%	3.50%	15.8%		
		Sum	55	59	114		
		Proportion	48.20%	51.80%	100%		

According to the data in the table can learn, learning this course, students come into contact with Photoshop software before the class practices tend to be more "according to the independent learning content design", especially to do a simple application of student in the overall proportion reached 33.3%, far higher than the choice of "step by step according to requirements of the teaching material production" option number; However, students who have not learned Photoshop before class are more inclined to make homework step by step according to the requirements of the textbook.

Table 4. Differences in case selection tendency between students exposed to PS before learning

			The tendency of case selection		Sum	F	Significant value
			Use case from the textbook	Use case outside the textbook			
Whether contact with PS before learning	Have learned	Count	7	11	18		
		Proportion	6.10%	9.60%	15.8%		
	Simple application had been done	Count	17	35	52	8.101	0
		Proportion	14.90%	30.70%	45.6%		
	Have heard of	Count	19	7	26		
		Proportion	16.70%	6.10%	22.8%		

No contact	Count	15	3	18	
	Proportion	13.20%	2.60%	15.8%	
	Sum	58	56	114	
	Proportion	50.90%	49.10%	100%	

According to the data in the table, students who have been exposed to Photoshop before learning this course tend to choose cases "using content outside the textbook", especially those who have done simple applications, accounting for 30.7% of the total, while those who have not learned Photoshop before learning this course prefer to use content in the textbook.

Table 5. Whether you have been exposed to the difference of material selection tendency of PS before learning

			The tendency of material selection		Sum	F	Significant value
			Choose their own material	Choose the material chosen by the teacher			
Whether contact with PS before learning	Have learned	Count	15	3	18		
		Proportion	13.20%	2.60%	15.8%		
	Simple application had been done	Count	41	11	52		
		Proportion	36.00%	9.60%	45.6%		
	Have heard of	Count	16	10	26	1.199	0.314
		Proportion	14.00%	8.80%	22.8%		
	No contact	Count	13	5	18		
		Proportion	11.40%	4.40%	15.8%		
		Sum	85	29	114		
		Proportion	74.60%	25.40%	100%		

As for the selection of materials, it can be seen from the data analysis in the table that no matter how basic the software operation is, students tend to choose materials suitable for their own works by themselves. The reason for this phenomenon is not difficult to understand. Choosing the elements required by their own works is the basis for their uniqueness and creativity. Therefore, they are more inclined to choose some fresh materials that have not been done before or are suitable for themselves, and use these new materials to make innovative works.

Table 6. The difference of teaching method tendency caused by exposure to PS before learning

			The tendency of teaching method		Sum	F	Significant value
			Teacher demonstrate, students follow the operation	The teacher points out the task and the students operate independently			
Whether contact with PS before learning	Have learned	Count	5	13	18		
		Proportion	4.40%	11.40%	15.8%		
	Simple application had been done	Count	12	40	52	24.173	0
		Proportion	10.50%	35.10%	45.6%		
		Count	22	4	26		

Have heard of	Proportion	19.30%	3.50%	22.8%
No contact	Count	17	1	18
	Proportion	14.90%	0.90%	15.8%
	Sum	56	58	114
	Proportion	49.10%	50.90%	100%

As can be seen from the data in the table, students with different foundations show two completely different tendencies in teaching methods. For the students who have a foundation before class, they prefer to operate independently. Teachers do tasks for them and they design their own works. For students who have no foundation before class, it is more appropriate for the teacher to guide the demonstration step by step and push them to complete the phased operational tasks.

3.2.2 The Influence of Students' Interest in Courses on Various Indicators

The data from the questionnaire, we summarize the following content.

Table 7. Differences between students' interest in the course and their homework methods in class

			The tendency of homework methods in class		Sum	F	Significant value
			Step by step according to the requirements of the teaching material	Design independently according to the learning content			
Students' interest in the course	Interested	Count	27	24	51		
		Proportion	23.70%	21.10%	44.7%	3.85	0.024
	General	Count	17	31	48		
		Proportion	14.90%	27.20%	42.1%		
	Not interested	Count	11	4	15		
		Proportion	9.60%	3.50%	13.2%		
		Count	55	59	114		
		Proportion	48.20%	51.80%	100%		

According to the data in the table, there is no great difference in the survey results of students' homework methods in class, but the different interests of students in the course lead to the differences in the way students make homework in class. 27.2% of the students with "average" interest in the course are more willing to finish the homework independently designed according to the learning content. The students who are not interested in the course are more likely to follow the requirements of the textbook step by step, accounting for 9.6% of the total. Therefore, to improve the quality of homework by guiding students to enhance their interest in the course plays a very important guiding role in improving the course effect.

Table 8. Differences of students' interest in courses and material selection tendency

			tendency of material selection		Sum	F	Significant value
			Choose their own material	Choose the material chosen by the teacher			
	Interested	Count	43	8	51	3.341	0.039
		Proportion	37.70%	7.00%	44.7%		

Students' interest in the course	General	Count	34	14	48
		Proportion	29.80%	12.30%	42.1%
	Not interested	Count	8	7	15
		Proportion	7.00%	6.10%	13.2%
		Count	85	29	114
		Proportion	74.60%	25.40%	100%

It can be seen from the data in the table that students' interest in courses significantly affects students' tendency to choose materials. When students' interest in courses is "interested" or "average", students are more inclined to choose materials to complete course assignments by themselves, accounting for 37.7% and 29.8% of the total, respectively. However, the students who are not interested in the course have no obvious difference in their choice of materials. Therefore, in practical teaching, teachers should fully give students the environment to choose materials independently, so as to improve students' enthusiasm and autonomy in course learning.

Table 9. Differences between students' interest in courses and the view of teaching methods

			The view of teaching method		Sum	F	Significant value
			Teacher demonstrate, students follow the operation	The teacher points out the task and the students operate independently			
Students' interest in the course	Interested	Count	27	24	51	4.7703	0.011
		Proportion	23.70%	21.10%	44.7%		
	General	Count	25	23	48		
		Proportion	21.90%	20.20%	42.1%		
	Not interested	Count	14	1	15		
		Proportion	12.30%	0.90%	13.2%		
		Count	66	48	114		
		Proportion	57.90%	42.10%	100%		

By analyzing the data in the table, it can be seen that students' interest in courses also affects their opinions on teaching methods. Among the students whose course interest is "interested" and "average", both the way of "teacher demonstrates and students follow the operation" and the way of "teacher points out the task objective and students operate independently" are recognized by some students, showing no obvious difference in these two dimensions. But for students who were not interested in the course, they preferred the traditional teaching method of "teacher demonstrates and student follows", accounting for 12.3 percent of the total, far exceeding the overall proportion of the other option.

Table 10. Differences between students' interest in courses and their tendency of teaching methods

			The tendency of material selection		Sum	F	Significant value
			Teacher demonstrate, students follow the operation	The teacher points out the task and the students operate independently		4.5003	0.013
	Interested	Count	30	21	51		
		Proportion	26.30%	18.40%	44.7%		

Students' interest in the course	General	Count	16	32	48
		Proportion	14.00%	28.10%	42.1%
	Not interested	Count	10	5	15
		Proportion	8.80%	4.40%	13.2%
		Count	56	58	114
		Proportion	49.10%	50.90%	100%

Data can be seen from the table, the interest in the course of "interest" and "not interested" of students, more students tend to "teachers' demonstration, students follow operation", and interest in the course of "general" of the students, but more students chose "teacher pointed out the task, students' operation". Such divergence, while not evident in overall performance, did appear in the results of categorical variables. The two methods have their unique advantages in different teaching environments. According to different situations in practice, the combination of the two methods seems to be the key to improve classroom efficiency.

3.3 Correlation Analysis

Due to the large number of correlation data expressed in this table, some data that are most meaningful to the improvement of actual teaching effect are selected to illustrate.

Table 11. Summary of correlation of various factors

		1.Whether contact with PS before learning	2.Willingness to undertake relevant work	3.The tendency of homework methods in class	4.Students' interest in the course	5. The tendency of case selection	6.The tendency of material selection	7.The tendency of homework methods after class	8.The view of teaching method	9.The tendency of teaching method
1. Whether contact with PS before learning	Pearson correlation	1								
	Sig.									
2. Willingness to undertake relevant work	Pearson correlation	.348**	1							
	Sig.	0								
3. The tendency of homework methods in class	Pearson correlation	-.372**	-.319**	1						
	Sig.	0	0.001							
4. Students' interest in	Pearson correlation	0.053	.534**	-0.035	1					

		1	2	3	4	5	6	7	8	9
the course	Sig.	0.576	0	0.714						
5. The tendency of case selection	Pearson correlation	-.369**	-.366**	.773**	-0.033	1				
	Sig.	0	0	0	0.725					
6. The tendency of material selection	Pearson correlation	0.125	.360**	-0.162	.237*	-0.171	1			
	Sig.	0.183	0	0.086	0.011	0.069				
7. The tendency of homework methods after class	Pearson correlation	-.439**	-.491**	.545**	-0.063	.570**	-.510**	1		
	Sig.	0	0	0	0.503	0	0			
8. the view of teaching method	Pearson correlation	0.028	-.295**	0.112	-.201*	.193*	-.498**	.238*	1	
	Sig.	0.767	0.001	0.234	0.032	0.04	0	0.011		
9. the tendency of teaching method	Pearson correlation	-.553**	-.455**	.561**	0.059	.509**	-.393**	.706**	.198*	1
	Sig.	0	0	0	0.535	0	0	0	0.034	

** At 0.01 level, the correlation was significant.

First of all, students' exposure to PS before class is different, which significantly affects students' choice of homework methods, cases and teaching methods. The data showed that the correlation coefficients of exposure to PS before learning and the tendency of homework mode in class, case selection tendency, after-class homework mode tendency and teaching mode tendency were -0.372, -0.369, -0.439 and -0.553 respectively, and the significance levels were all less than 0.01. There is a strong correlation between the exposure to PS before learning and the above four factors, and all of them are negatively correlated. According to the specific option Settings, in terms of homework, the more students are exposed to PS before class, whether in class or after class, they are more inclined to design homework independently according to the learning content, otherwise, they tend to make homework step by step according to the requirements of textbooks. In terms of case selection, the more exposed students are to PS before class, the more inclined they are to use cases outside textbooks for learning, and vice versa. In terms of teaching methods, the more students are exposed to PS before class, the more likely they are to choose the teaching method of "teachers point out the task objectives and students operate independently"; otherwise, they are more inclined to choose the teaching method of "teachers demonstrate and students follow the operation".

Secondly, the different tendency of students' homework styles in class has a significant influence on the choice of students' cases and teaching styles. The data showed that the correlation coefficients between students' tendency of homework style in class and their tendency of case selection and teaching style were 0.773 and 0.561, respectively, with significance levels less than 0.01. There was a strong correlation between students' tendency of homework style in class and the above two factors, and both were positive. In terms of the selection of teaching cases, the

students who tend to make their homework step by step according to the requirements of the textbook think that using the content in the textbook will get better teaching effect. In terms of the teaching method, they also tend to use the method of "teachers demonstrate and students follow". However, students who tend to design their homework independently according to the learning content in class think that using the content outside the textbook will get better teaching effect in the selection of teaching cases. In terms of teaching methods, they are also more inclined to use the method of "teachers point out the task objectives and students operate independently".

Finally, the different teaching methods have a significant impact on students' choice of homework methods, cases and materials. The data showed that the correlation coefficients of students' teaching method preference to in-class homework method, after-class homework method, case selection tendency and material selection tendency were 0.561, 0.706, 0.509 and -0.393, respectively, with significance levels less than 0.01. There was a strong correlation between students' teaching method preference and the above four factors. It is positively correlated with in-class homework style, after-class homework style and case selection tendency, and negatively correlated with material selection tendency. In terms of teaching methods, students who prefer "teachers demonstrate and students follow" are more inclined to complete their homework according to the requirements of textbooks. In terms of cases, students tend to choose textbooks as teaching cases. In terms of material selection, students are also more inclined to directly use ready-made materials handed out by teachers. Teaching methods, in contrast, tend to "teacher pointed out the task, students' actions" of the students on the practices tend to be in accordance with the independent learning content design job content, tend to choose the textbooks on the case as case teaching, the content of the material selection are also more likely to choose suitable for their work characteristic of the material.

4 DISCUSSION

Through the above data analysis results, we can find that different students often have different demands for course learning. In the above survey, students with higher exposure to Photoshop before class and strong interest in Photoshop prefer tasks that can exert their autonomy. However, students with low exposure to Photoshop before class and low interest in Photoshop tend to choose a "passive" relationship in actual teaching, and they prefer to follow the teacher's ideas step by step. The root causes of the above phenomena all point to the individual differences shown by students, which further leads to the differentiated learning tendencies shown by students.

From the perspective of students, the key to teaching success lies in whether teaching meets the needs of students. Only by paying attention to students' learning needs and interests can we truly "understand your students" (Van Geel M et al.,2019). Students prefer to meet their own learning needs in different ways and forms(Ismajli H et al.,2018), and it has become an issue that must be taken into account in teaching design to formulate different learning plans for groups with different needs.

From the perspective of teaching effect, some scholars have found in their studies that differentiated teaching can effectively solve the problems in mixed-ability classes. It can provide teaching to students at all levels in the class, which makes differentiated teaching effectively improve the overall scores of students(Magableh I S I et al.,2020).

From the perspective of improving students' ability, differentiated teaching with interactive strategies can help students transform from traditional knowledge acquisition to active learning, which is also a process of improving students' comprehensive ability.

From the point of view of the training goal of secondary vocational computer major, the training goal of secondary vocational computer major is to train students to be competent in the information technology of computer professional skills. The training target for employment makes the simulation of the actual working environment and the training of students' practical ability become important indicators throughout the whole teaching process. However, due to students' different employment tendencies and differences in their own abilities, such differences tend to be amplified in actual teaching, and students' learning states and final learning effects appear to be stratified. In order to make every student shape themselves according to the most suitable route, teachers must pay attention to the individual differences of students. Therefore, differentiated teaching is in essence consistent with the training objectives of computer related majors in secondary vocational schools, and has a high degree of adaptation with computer practice courses in secondary vocational schools.

Therefore, in the process of constructing the teaching mode of computer practice courses in secondary vocational schools, we should fully consider the individual differences of students and use the idea

of differentiated teaching to construct the teaching mode.

5 CONCLUSIONS

5.1 Principle of Differentiated Teaching

5.1.1 Unity of Individuality and Generality

Differential teaching is not a complete "individual teaching". Individualized teaching emphasizes the development of students' personality, and everyone has his own learning plan. However, too much emphasis on "individual uniqueness" tends to make the "commonness" of teaching itself disappear in the scattered "individuality". The commonness of teaching plays a crucial role in helping students master knowledge and improving their comprehensive ability. In addition, too much emphasis on "individuality" will often lead to the disunity of teaching objectives, teaching plans and evaluation standards, and the classroom efficiency has not been significantly improved, with relatively large randomness (Hua 2012). Therefore, differentiated teaching is necessary for students, but it must be cautious—it completely depends on how teachers make use of the individual differences of students. How to meet the individual differences of students and unify the needs of the whole class has become the direction that every teacher should pay attention to in teaching design. Differentiation teaching should take "harmony without uniformity" as the basic starting point of teaching design.

5.1.2 Interest is the Root of Difference

Data show that student interest and student autonomy are positively correlated, and they complement each other to improve teaching efficiency and effect. In the actual teaching test, we found that students with high enthusiasm for the course and strong initiative in class achieved better course results and achieved better teaching effects. Therefore, helping students improve their interest in the course is an excellent means to improve the teaching effect.

5.1.3 Use Complexity Factors to Guide Grouping

The important premise of differentiated teaching is "know your students", that is, teaching should adjust the teaching content, process and evaluation process based on students' different interests, preparation and learning style. However, the formulation of teaching programs should not be completely "personalized", but should also reflect "groupization", that is, the relative consistency within groups and the relative differences between groups should be balanced. It is an effective method to solve individual differences through classroom grouping. The key to successful differentiation is not only to group students, but to adapt teaching to the needs of groups with different abilities (Yan, 2021). This requires teachers to distinguish students with similar needs after observing different needs of students, but the complexity level of students is different in different cases (Van Geel M et al.,2019), so it is necessary to determine the complexity factors suitable for the classroom to guide the grouping of students.

5.1.4 Balance of Evaluation Criteria

In practical teaching, because each student has a different degree of knowledge, the construction of knowledge structure is also different, which leads to the difference in the final learning effect. If the standard of educational evaluation is unified and the structure is single, the final result of educational evaluation often lacks rationality and motivation. The value orientation of differential evaluation is neither society-oriented nor individual-oriented. It integrates the two values to ensure the common development of all students and promote the development of each student's personality (Yan 2021). The evaluation mode of differentiated teaching has both standardized common evaluation and differentiated individual evaluation, which is the dialectical integration of "common" and "individual" of educational evaluation.

5.2 Construction of Differentiated Teaching Process

The starting point of the differential teaching model is the difference of students, and the whole process of teaching can be summarized as four processes: seeking difference—magnifying difference—solving difference—developing difference.

5.2.1 Seeking Difference

Measure Learning Style. In practical teaching, what teachers need to pay attention to most is students' learning attitude, learning foundation and thinking level. These three factors affect the level and degree of students' acceptance of new knowledge. Teachers should make corresponding teaching methods to

make up for or expand students' differences through understanding students before class.

For example, Flemming proposed the famous VAK learning style model in 2001, which evaluated learners' learning style from three dimensions of vision, hearing and movement (Kodesia S, 2014). This model is widely spread, and many teachers use this model to understand students' learning style before class. At present, based on the hot artificial intelligence technology, it has gradually become a trend to use algorithms to measure students' learning styles. Using information technology can effectively improve the efficiency of teachers to understand students' learning styles, and it has also become a common behavior in today's teaching.

Optimize the Starting Point of Learning. For some students with insufficient learning level, it is obviously very inefficient to directly learn new knowledge on the premise that they cannot fully master the pre-knowledge before learning the course. However, traditional classrooms tend to ignore this phenomenon, which makes the learning efficiency and effect of some students become worse and worse, and the gap between students becomes wider and wider. Finally, the overall learning effect is not good, and some students also have doubts about their learning ability, and finally lose interest in the course. The occurrence of this phenomenon depends on teachers' understanding of students before class. Teachers' timely remedy after understanding students can effectively improve the efficiency of students' new knowledge learning. The process of "never too late" is the process of optimizing the starting point of learning. This strategy can keep the consistency of learning basis to the greatest extent, reduce the difficulty of differentiated teaching design and improve the teaching efficiency.

5.2.2 Magnifying Difference

Due to the different personality of people, their performance in learning is certainly not the same, therefore, differences in teaching is inevitable. The process of magnifying difference is the process of "learning from each other's strengths and making up for each other's weaknesses" in teaching. The fundamental purpose of magnifying difference is to let each student realize his own strengths and weaknesses.

In concrete implementation, teachers should inform students of the learning objectives of the course before learning new knowledge, and teachers should customize preview tasks for students with different learning styles according to their characteristics. These tasks may be learning new knowledge in the new concepts, new knowledge learning may also be

in the class activities need to use material finishing, etc., the use of students learning style differences, different ability of students to use their strengths in class as much as possible to complete these tasks requires, for use in group work in class. In this process, students in the completion of the task on the basis of understanding new knowledge, discover their own strengths and weaknesses, so as to "foster strengths and circumvent weaknesses".

5.2.3 Solving Difference

In the traditional teaching mode, the teaching content of the course is mainly based on the content in the textbook, which lacks the explanation and analysis of the real work tasks, and ignores the comprehensive, applicable and interdisciplinary characteristics of the original course, which makes the students unable to complete the follow-up large projects due to lack of experience. Project in differentiation of classroom teaching can well solve the problem, use "challenging project" as the main communication teaching, comprehensive training to the students' operation, the students in engineering practice has a more in-depth understanding, students are no longer "steps", but in the process of project to promote the middle school "creation", A method learned can be widely applied to a class of problems, which can solve the problem of knowledge transfer that cannot be solved by traditional teaching methods.

On the concrete implementation of teaching method, the most important thing is to "distinguish" students. "Difference" is set up to meet the personalized needs of students of different study groups, study group division should adopt homogeneous stratified grouping, the flexibility of heterogeneous grouping, put together the different levels of students, the ability of the students together, common to complete the team selected for "project". Such activities can greatly mobilize students' learning enthusiasm and creative desire on the basis of meeting students' needs, and apply their differences to group cooperation activities and participate in knowledge learning activities. In addition, this kind of grouping can effectively exercise students' cooperation ability, students can give full play to their own talents in cooperation, but also subtly accept the excellent ability of other members, improve their own ability.

5.2.4 Developing Difference

The differences of students are not a stumbling block to the teaching effect. The differences of students in the learning process should be paid attention to, and

teachers should realize the positive impact of the differences of students on students and their peers. Therefore, developing the differences of students is also a very important link in differentiated teaching.

The differences are diverse and there is no uniform standard. In the evaluation of differentiated teaching, students' performance differences can be brought into the evaluation system. Using value-added assessment mechanism to evaluate the different levels of students is the effective measure to take care of students individual difference, this evaluation approach makes horizontal contrast between the main body of evaluation from the student change to student individual growth of longitudinal comparison, is a way of evaluation for students themselves, teachers can see from the result of the value-added students the progress of their own knowledge and ability, Students can also be motivated to learn through evaluation results. The pluralism of teaching evaluation requires that the content of teaching evaluation should be oriented to both knowledge mastery and ability improvement, and the evaluation mode should be emphasized both between teachers and students. The value-added evaluation faces the individual differences of each student, and the diversity of evaluation expands this approach. The value-added evaluation based on the diversity principle is the most effective evaluation method for the teaching process with different chemistry situation.

In addition, personalized homework arrangement can also bring a positive impact on the development of students' differences. This kind of homework can improve their enthusiasm for learning, and their own ideas about new knowledge can be reflected in the personalized homework. Teachers set homework topics for students according to their different learning levels and interests, but these homework do not involve specific homework steps and requirements. Personalized homework is no longer a tool to mechanically consolidate knowledge, but an innovative product with personal charm and soul. Under the training of this kind of homework, students can get the training of innovation ability and further develop their differences.

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