REFORM AND EXPLORATION OF AUTOMOBILE DESIGN TEACHING IN HIGHER EDUCATION

HE, J.[1] – AZIZAN@MAHDZIR, H. A.[1*] – HONG, C.[1] – HANG, L.[2]

[1] *College of Arts and Design, University of Technology MARA, Kedah, Malaysia.*

[2] *Department of College of Smart Manufacturing, Zhengzhou University of Economics and Business, Henan, China.*

**Corresponding author*
e-mail: hasnul622[at]uitm.edu.my

(Received 03rd June 2024; revised 18th September 2024; accepted 27th September 224)

Abstract. With the swift evolution of the automobile design industry, driven by technological advancements and shifting consumer preferences, higher education in automobile design faces an urgent need for reform. The current status quo, often focused on traditional teaching methods and outdated curricula, fails to adequately prepare students for the challenges and opportunities of the modern automotive landscape. Hence, a comprehensive teaching reform is paramount to bridge the gap between academia and industry. This reform should aim to align educational objectives with the latest industry trends, emphasizing practical skills, innovative thinking, and adaptability. It involves integrating cutting-edge technologies, fostering interdisciplinary collaboration, and adopting innovative teaching methodologies. By revamping course structures, incorporating project-based learning, and encouraging participation in design competitions, this reform endeavors to nurture graduates who are not just skilled designers but also creative thinkers capable of shaping the future of automobile design. With these transformative measures in place, higher education in automobile design can better equip students with the knowledge, skills, and mindset needed to thrive in an ever-evolving industry, ultimately contributing to the advancement and innovation of automotive design globally.
Keywords: *higher education, automobile design, reform in education, industrial design*

Introduction

Automobile design industry, as a bright pearl in modern industrial system, is increasingly showing its important strategic position. According to the data, in recent years, global automobile production has increased steadily, and consumers' demand for automobiles has also shown diversified and personalized characteristics (Long et al., 2024; Feng et al., 2022; Tucker and Lindsey, 2002). In particular, the rapid development of new energy vehicles and intelligent driving technology has injected new vitality into the automobile design industry, and also put forward higher requirements for the industry. However, in the face of such a booming industry situation, the traditional teaching mode of automobile design in higher education is stretched. According to the survey, at present, automobile design courses in many colleges and universities still remain in the teaching of theoretical knowledge, lacking effective cultivation of students' practical ability and innovative thinking. This has caused many graduates to find it difficult to adapt to the rapid development of the industry quickly after leaving school, and it is even more difficult to stand out in the fierce market competition. The reform and exploration of automobile design teaching in higher education is a systematic project, which needs to start from many aspects to continuously improve the teaching quality and level. I believe that through joint efforts, we will be able to

cultivate more outstanding talents that meet the needs of the industry and contribute to the prosperity and development of the automobile design industry.

The goal and direction of automobile design teaching reform

Strengthen the combination of theory and practice, improve students' practical ability

In the teaching of automobile design, the combination of theory and practice is the key to improve students' comprehensive ability. With the rapid development of automobile industry, the requirements for automobile design talents are getting higher and higher. They need not only solid theoretical knowledge, but also rich practical experience and innovative ability. Therefore, the teaching reform of automobile design in higher education must focus on strengthening the combination of theory and practice in order to improve students' practical ability. Reform the traditional teaching mode and combine theoretical courses with practical links. Traditional teaching methods often emphasize theory over practice, which leads to students' lack of practical opportunities and experience (Gan and Gao, 2023; Gadola et al., 2019; Liao and Li, 2019). Therefore, teaching methods such as project-based teaching and case analysis can be introduced to enable students to learn and master theoretical knowledge in the process of solving practical problems. At the same time, we can also use modern information technology means, such as virtual simulation and 3D printing, to create a more real and intuitive learning environment for students and improve their practical ability and innovation ability. Strengthen practical teaching to provide more practical opportunities and platforms for students. Practice teaching bases can be established, and practical training projects can be carried out in cooperation with enterprises, so that students can deeply understand the process and technical requirements of automobile design in practice. In addition, we can organize design competitions, innovative projects and other activities to stimulate students' innovative spirit and creativity and cultivate their teamwork and communication skills. By strengthening the combination of theory and practice, students' practical ability can be significantly improved. According to the statistical data in recent years, the performance of students majoring in automobile design after the reform is generally better than that of students under the traditional mode. They can use what they have learned more skillfully and flexibly when solving practical problems and put forward more innovative design schemes. At the same time, the employment situation of these students has also improved significantly after graduation, and many enterprises have indicated that they are more willing to recruit automobile design talents with practical experience and innovative ability.

Strengthening the combination of theory and practice is also helpful to improve students' comprehensive quality. In practice, students not only need to use professional knowledge, but also need to have good communication skills, teamwork spirit and problem-solving ability. The cultivation of these abilities is of great significance to students' personal growth and future career development. Strengthening the combination of theory and practice is one of the important goals of automobile design teaching reform. By reforming teaching methods and means, strengthening practical teaching links and other measures, students' practical ability can be effectively improved, and more high-quality automobile design talents can be trained to meet the needs of the automobile industry.

Spay attention to the cultivation of students' innovation thinking and design ability

In higher education, one of the goals and directions of automobile design teaching reform is to pay attention to the cultivation of students' innovative thinking and design ability. With the rapid development of automobile industry and the intensification of market competition, the demand for automobile design talents with innovative thinking and design ability is increasing. Therefore, when training automobile design talents, higher education institutions must pay attention to cultivating students' innovative thinking and design ability to meet the actual needs of the industry. Pay attention to the cultivation of innovative thinking. Innovative thinking is one of the core competitiveness of automobile design talents. In order to cultivate students' innovative thinking, colleges and universities should take various measures. For example, interdisciplinary teaching methods are introduced to integrate automobile design with many disciplines such as machinery, electronics and materials, so as to broaden students' knowledge horizons and stimulate students' innovative thinking. At the same time, design competitions, innovative practice and other activities are carried out to enable students to explore and innovate in practice and improve their ability to solve problems. Strengthen the cultivation of design ability. Design ability is one of the basic qualities of automobile design talents. In order to improve students' design ability, colleges and universities should strengthen practical teaching and provide more practical opportunities. For example, establish a practical teaching base and provide advanced equipment and tools so that students can master the skills and methods of automobile design in practice. At the same time, cooperate with enterprises to carry out internship projects, so that students can deeply understand the design process and requirements of enterprises and enhance the practicality and pertinence of design.

In order to evaluate students' innovative thinking and design ability, colleges and universities should establish a perfect evaluation system. Through course assignments, design projects, graduation thesis and other ways, students' innovative thinking and design ability are comprehensively evaluated. At the same time, the evaluation standards of industry experts and enterprises are introduced to make the evaluation closer to the actual needs and industry standards. According to the data in recent years, the comprehensive quality of students has been significantly improved through the teaching reform of automobile design which pays attention to the cultivation of students' innovative thinking and design ability. For example, in the automobile design major of a university, after the implementation of teaching reform, students' design works have won many successes in various design competitions, and students' innovative ability and design ability have been widely recognized by enterprises and industries. At the same time, the employment rate of graduates has also increased year by year, and the salary level of graduates is generally higher than the average level of the same industry. Paying attention to the cultivation of students' innovative thinking and design ability is an important goal and direction of automobile design teaching reform. By taking various measures, strengthening practical teaching and establishing a perfect evaluation system, students' innovative thinking and design ability can be effectively improved, and more high-quality talents can be trained for the development of automobile industry.

Sto meet the development needs of the automotive industry, optimize the curriculum and teaching content

With the rapid development of automobile industry, automobile design education is also facing unprecedented challenges and opportunities. In order to adapt to the change

of this industry, the teaching of automobile design in higher education must keep pace with the times and deeply optimize the curriculum and teaching content. At present, the automobile industry is experiencing a technological revolution. With the rapid development of new energy vehicles, intelligent driving, car networking and other technologies, car design is no longer limited to the traditional mechanical structure design, but pays more attention to interdisciplinary integration and intelligent innovation. Therefore, automobile design teaching in higher education must keep up with this trend, adjust the teaching content in time, and increase courses related to new energy vehicles and intelligent driving to meet the needs of industry development. In terms of curriculum, we should comprehensively sort out and integrate the existing courses according to the technical development trend of the automobile industry. On the one hand, the traditional automobile design course can be modularized to form multiple levels such as basic module, advanced module and advanced module, so that students can study selectively according to their own interests and career planning. On the other hand, some cutting-edge courses, such as new energy vehicle technology and intelligent driving algorithm, should be added to guide students to pay attention to industry trends and broaden their knowledge horizons. In terms of teaching content, we should pay attention to the combination of theory and practice to strengthen students' practical ability. Some practical project cases can be introduced, so that students can learn and apply what they have learned in the project and improve their practical ability and problem-solving ability. At the same time, cooperation with enterprises should be strengthened, and enterprise experts should be invited to give lectures or give lectures to provide students with more practical opportunities and channels to understand the frontier dynamics of the industry.

According to a survey data on the reform of automobile design education, the optimized curriculum and teaching content have been widely recognized by students. More than 85% students said that the new curriculum is more in line with their learning needs and career planning; At the same time, more than 90% students believe that the optimized teaching content is more practical and cutting-edge, which will help them better adapt to the development needs of the automobile industry (Puliti et al., 2024; Amara, 2023; Chakraborty et al., 2022; Zheng and Ren, 2022). In addition, it should be noted that with the rapid development of the automobile industry, future automobile designers need to have stronger innovation ability and cross-border thinking. Therefore, when optimizing the curriculum and teaching content, we should also pay attention to cultivating students' innovative thinking and design ability, encourage them to try new design concepts and technical means, and inject new vitality into the development of automobile industry. It is one of the important directions of automobile design teaching reform in higher education to adapt to the development needs of automobile industry and optimize the curriculum and teaching content. We should keep up with the development trend of the industry, constantly update and improve the teaching content and methods, train more outstanding automobile designers with innovative and practical abilities, and provide strong talent support for the sustained and healthy development of the automobile industry.

The specific measures of automobile design teaching reform

The introduction of project-based teaching, improve student participation

The core of project-based teaching lies in the selection and design of projects. For the teaching of automobile design, the selection of the project should be closely combined with the actual demand and development trend of the automobile industry to ensure the practicality and foresight of the project. At the same time, the difficulty and complexity of the project should be moderate, which can not only challenge the students' ability, but also not exceed their tolerance. In addition, the design of the project should also focus on cultivating students' teamwork ability and communication skills, so that they can not only improve their professional skills, but also exercise their comprehensive quality in the process of completing the project. In the implementation of project-based teaching, teachers need to play the role of a good guide and coordinator. Teachers need to provide students with clear project objectives and requirements, and guide them how to carry out project research, analyze problems and formulate solutions. At the same time, teachers need to pay close attention to students' project progress and give timely feedback and guidance to ensure the smooth progress of the project. In addition, teachers should actively organize students to exchange and share projects, so that they can learn from each other's experiences and make progress together.

By introducing project-based teaching, we can better combine theory with practice and improve students' practical ability and innovative thinking. At the same time, project-based teaching can also cultivate students' teamwork ability and communication skills, and lay a solid foundation for their future development. Therefore, in the teaching reform of automobile design, we should actively promote project-based teaching, constantly explore and improve its implementation methods and methods, and contribute to training more outstanding automobile design talents. It is worth noting that the implementation of project-based teaching is not an overnight process, but needs to constantly sum up experience, adjust strategies and optimize processes. In practice, we will encounter problems such as project schedule control, uneven student participation, and shortage of teaching resources. In order to solve these problems, we need to keep an open mind, dare to try new teaching methods and means, and be good at learning from the successful experience of other universities or industries, so as to continuously improve the quality and effect of project-based teaching. In addition, project-based teaching also needs to pay attention to the close combination with the industry. Automobile design industry is a constantly developing and changing field, with new technologies and new ideas emerging one after another. Therefore, when designing the project, we should fully consider the actual demand and development trend of the industry to ensure the practicality and foresight of the project. At the same time, industry experts can be invited to participate in the guidance and evaluation of the project, so as to better understand the industry trends and market demand and provide students with more practical opportunities. The successful implementation of project-based teaching needs strong support and cooperation from the school level. Schools can introduce relevant policies to encourage and support teachers to carry out project-based teaching; At the same time, the school can also provide necessary resources and conditions, such as laboratories and practice bases, to provide a strong guarantee for the smooth implementation of project-based teaching.

The use of modern information technology to enrich teaching methods

Modern information technology provides diversified teaching methods for automobile design teaching. Traditional automobile design teaching often depends on textbooks and teachers' explanations, so it is difficult for students to get intuitive

feelings and practical opportunities. The application of modern information technology, such as multimedia teaching, online learning platform and virtual simulation technology, makes the teaching content more vivid and vivid, which is helpful to stimulate students' interest and enthusiasm in learning. For example, through multimedia teaching, teachers can show three-dimensional models and animation demonstrations of automobile design to help students better understand the design principles and structural characteristics; Through the online learning platform, students can obtain learning resources anytime and anywhere, and carry out autonomous learning and inquiry; Through virtual simulation technology, students can simulate the actual design environment, carry out practical operation and experimental verification. Modern information technology contributes to interdisciplinary cooperation and communication in automobile design teaching. Automobile design is a comprehensive subject, involving mechanical engineering, electronic engineering, computer science and other fields. With the support of modern information technology, the cooperation and communication between different disciplines has become more convenient and efficient. Teachers can use the network platform to organize interdisciplinary teaching teams to jointly develop teaching resources and design curriculum projects; Students can also communicate and cooperate with students from other disciplines through the network platform to jointly solve problems in automobile design. This interdisciplinary cooperation and exchange not only helps to broaden students' horizons and knowledge, but also cultivates students' teamwork spirit and innovation ability. Modern information technology also provides abundant teaching resources and cases for automobile design teaching. With the popularity of the Internet and the application of big data technology, massive automobile design resources and cases can be shared and utilized. Teachers can collect relevant design cases, technical documents and so on from the Internet as auxiliary materials for teaching according to teaching needs. Students can also obtain more learning resources and information through the network platform to enrich their knowledge and skills. These rich teaching resources and cases not only help to enhance the pertinence and effectiveness of teaching, but also help students better understand the industry trends and development trends.

The introduction of modern information technology also puts forward higher requirements for automobile design teachers. Teachers need to constantly improve their information literacy and technical ability, and master the application methods and skills of modern information technology in teaching. In addition, teachers need to constantly update their teaching ideas and methods, and actively explore teaching models and strategies suitable for modern information technology. For example, teachers can use modern information technology to carry out personalized teaching and formulate targeted teaching programs according to students' learning characteristics and needs; Modern information technology can also be used for distance teaching and counseling to provide students with more convenient learning services. In the process of enriching teaching methods by using modern information technology, we still need to pay attention to some problems. It is necessary to ensure that the application of modern information technology conforms to the goals and requirements of automobile design teaching and avoid the abuse or misuse of technology. We should pay attention to students' participation and experience, and make full use of the advantages of modern information technology to stimulate students' interest and enthusiasm in learning. It is also necessary to strengthen the guidance and supervision of students to ensure that students can learn correctly and effectively by using modern information technology.

Using modern information technology to enrich teaching methods is one of the important directions of automobile design teaching reform. By introducing modern information technology, we can enrich teaching methods, broaden teaching horizons and improve teaching effect and quality. At the same time, it also requires teachers to constantly improve their information literacy and technical ability, and actively explore teaching models and strategies suitable for modern information technology. I believe that with the joint efforts of both sides, the teaching of automobile design will surely achieve more remarkable results and progress. With the continuous development and innovation of modern information technology, its application in automobile design teaching will be more extensive and deeper. For example, with the continuous progress of artificial intelligence and big data technology, it is foreseeable that automobile design teaching will be more intelligent and personalized in the future. By using these advanced technologies, teachers can better understand students' learning characteristics and needs and make more accurate teaching plans; Students can also obtain learning resources and information more conveniently and realize more efficient learning. In addition, with the popularization and application of virtual reality and augmented reality technology, automobile design teaching will pay more attention to practical operation and experimental verification to provide students with a more real and intuitive learning experience. Continue to pay attention to the latest trends and development trends of modern information technology, and constantly introduce it into automobile design teaching to promote the continuous innovation and development of automobile design teaching. At the same time, it is also necessary to strengthen the cultivation of students' information literacy and technical ability to help them better adapt to the development needs of the future automobile design industry.

To carry out interdisciplinary cooperation to broaden students' horizons

Interdisciplinary cooperation is helpful to broaden students' knowledge field. Automobile design, as a highly comprehensive subject, involves knowledge in mechanical engineering, electronic engineering, material science, computer science and other fields. Traditional automobile design teaching often pays too much attention to the knowledge transfer within the discipline, but ignores the cross-integration with other disciplines. However, in the field of modern automobile design, interdisciplinary has become an inevitable trend. Therefore, the teaching reform of automobile design in higher education should actively promote interdisciplinary cooperation and guide students to contact and learn the knowledge of other related disciplines, so as to broaden their horizons and enhance their comprehensive quality. Interdisciplinary cooperation helps to cultivate students' innovative thinking and problem-solving ability. Automobile design is essentially an innovative process, which requires designers to have rich imagination and creativity. Through interdisciplinary cooperation, students can be exposed to the research methods and ways of thinking of different disciplines, thus stimulating their innovative thinking. At the same time, the communication and collision between different disciplines can also provide students with more ideas and methods to solve problems. This interdisciplinary way of thinking helps students to better deal with complex problems in the field of automobile design and improve their problem-solving ability. Interdisciplinary cooperation is also helpful to improve the practicality and application of automobile design teaching. Traditional automobile design teaching often pays too much attention to theoretical teaching and ignores the importance of practical teaching. However, automobile design is a highly practical

subject, which requires students to master relevant knowledge and skills through practice. Through interdisciplinary cooperation, the school can introduce more practical projects and cases and provide more practical opportunities for students. At the same time, the research results and technical means of other disciplines can also provide new ideas and methods for automobile design teaching, and further enhance the practicality and application of teaching.

However, it is not easy to achieve the goal of interdisciplinary cooperation. Schools need to establish an interdisciplinary curriculum system to organically integrate the knowledge of different disciplines. This requires in-depth reform and innovation of the existing curriculum system, breaking the barriers between disciplines and realizing the intersection and integration of knowledge. Secondly, the school needs to strengthen cooperation and exchanges with other universities, scientific research institutions and enterprises to jointly carry out interdisciplinary research and teaching activities. Through cooperation and exchange, we can share resources and complement each other's advantages, and further promote the development of interdisciplinary cooperation. In the specific implementation process, the school can take the following measures to promote interdisciplinary cooperation: First, establish an interdisciplinary teaching team composed of teachers from different disciplines to jointly undertake the teaching tasks of automobile design courses. This can make full use of the professional advantages of teachers in various disciplines and provide students with more comprehensive and in-depth teaching services. The second is to carry out interdisciplinary research projects, encourage students to participate in interdisciplinary research activities, and cultivate their research ability and innovative thinking. Third, organize interdisciplinary academic exchanges and practical activities, such as holding interdisciplinary seminars and launching interdisciplinary design competitions, so as to provide more opportunities for students to exchange and learn. Through interdisciplinary cooperation, automobile design teaching will be able to provide students with a more comprehensive and in-depth learning experience and cultivate their comprehensive quality and innovation ability. At the same time, it will also help to promote the rapid development and progress of the automobile design industry and make greater contributions to the prosperity and development of society.

The establishment of practical teaching based to provide practical training opportunities

In the specific measures of automobile design teaching reform, it is very important to increase cutting-edge courses and guide students to pay attention to industry trends. With the rapid development of science and technology, the automobile industry is undergoing unprecedented changes. With the rise of new energy vehicles, intelligent networked vehicles, autonomous driving and other technologies, the knowledge system in the field of automobile design is constantly updated and expanded. Therefore, the teaching of automobile design in higher education must keep pace with the times and integrate cutting-edge knowledge into the classroom, so as to cultivate students' ability to adapt to the development needs of the automobile industry in the future. Adding cutting-edge courses is an important measure of automobile design teaching reform. Frontier courses not only cover the latest technological achievements and industry trends, but also guide students to pay attention to the future development trend of automobile design. For example, courses on new energy vehicle design, intelligent networked vehicle technology and automatic driving system can be offered to enable

students to understand and master the latest technologies, design concepts and application scenarios in these fields. At the same time, experts, scholars or business representatives in the industry can be invited to give lectures or lectures to share their practical experience and opinions, so as to help students better understand the current situation and development trend of the industry. On the basis of adding cutting-edge courses, it is also necessary to pay attention to guiding students to pay attention to industry trends. The automobile industry is a rapidly changing field, with new technologies and new models emerging one after another. Therefore, students majoring in automobile design need to keep keen insight at all times and pay attention to the development trends and market demand of the industry. Schools can let students feel the charm and challenges of the automobile design industry by organizing industry visits and practical projects. At the same time, we can also use online platforms or social media to release industry trends and the latest research results in time, and guide students to pay attention to and think about how to apply this knowledge to practice.

In order to better guide students to pay attention to industry trends, interdisciplinary cooperation and exchanges can also be carried out. Automobile design not only involves knowledge of mechanical engineering, material science, electronic engineering and other disciplines, but also needs to be deeply integrated with marketing and user experience. Therefore, schools can cooperate with other related disciplines to jointly set up interdisciplinary course or hold exchange activities, so that students can understand the overall picture and future development of automobile design from a broader perspective. This interdisciplinary cooperation and exchange can not only enrich the teaching content and form, but also cultivate students' comprehensive quality and innovative ability. In the process of adding cutting-edge courses and guiding students to pay attention to industry trends, we should also pay attention to the following points: First, we should pay attention to the combination of theory and practice. Frontier courses should not only impart theoretical knowledge, but also pay attention to practical application. Schools can cooperate with enterprises to establish practice bases or laboratories to provide students with practical opportunities and platforms. At the same time, students can be encouraged to participate in scientific research projects or design competitions, and apply what they have learned to practical projects. Second, we should pay attention to the cultivation of students' innovative thinking and design ability. The automobile industry is in a period of constant innovation and change, and the demand for innovative talents is increasing. Therefore, in the teaching process, students should be encouraged to try and innovate, and their innovative thinking and design ability should be cultivated. Students' enthusiasm for innovation can be stimulated by holding design competitions and organizing creative sharing meetings. Third, we should pay attention to the close integration with the development of the industry. The ultimate goal of automobile design teaching reform is to provide strong talent support for the development of the industry. Therefore, in the teaching process, we should pay close attention to the industry trends and development trends, adjust the teaching content and methods in time, and ensure that the trained talents meet the needs and development direction of the industry.

Increase cutting-edge courses to guide students to pay attention to industry trends

The establishment of practical teaching base is undoubtedly an important step towards a successful career path for students majoring in automobile design. Such a base not only provides students with a real and comprehensive practical environment,

but also a valuable platform for them to put what they have learned into practice and turn theory into practical skills. The facilities and equipment of practice teaching base are very important. In order to enable students to really get in touch with the cutting-edge technology of automobile design, the base should be equipped with modern automobile design laboratories, including advanced computer-aided design software and 3D printing equipment, so that students can use these tools for scheme design and model making. In addition, advanced manufacturing equipment and technology are also indispensable, which enable students to deeply understand the complete process of automobile manufacturing, from material selection, processing and manufacturing to assembly and debugging, and each link allows students to do it themselves and experience it personally. The practice teaching base should set up a design studio to simulate the actual working environment. These studios can simulate the real scene of the automobile design company, including the designer's work area, discussion area and exhibition area, so that students can adapt to the working environment of the enterprise in advance. In this environment, students can participate in all kinds of practical design projects, from demand analysis, to scheme design, model making, to final product evaluation, and participate and practice all the time. Such practical experience will greatly improve students' comprehensive quality and professional ability.

Practice teaching base also needs to pay attention to cooperation with enterprises. Through in-depth cooperation with automobile manufacturing enterprises and design companies, the base can introduce more practical projects and give students the opportunity to participate in the actual research and development and production of enterprises. This cooperation mode can not only improve students' practical ability, but also make them better understand the present situation and development trend of automobile design industry and make full preparations for future career development. During the construction of practice teaching base, management and operation are also very important. The base should establish a perfect management system to ensure the orderly practice teaching. At the same time, the base should also strengthen the construction of teaching staff, attract more teachers with rich practical experience and teaching experience to join, and provide more professional guidance and help for students. In addition, the base should regularly hold various academic exchanges and technical training activities to improve students' academic level and innovation ability.

The practice teaching base also needs to pay attention to the connection and integration of practice teaching and theoretical teaching. In the theoretical teaching stage, teachers should pay attention to guiding students to understand the basic principles and methods of automobile design, and cultivate their innovative thinking and problem-solving ability. In the practical teaching stage, teachers should make full use of the resources and facilities of the practical teaching base, organize students to participate in various practical projects, and let them apply what they have learned to practice, so as to further deepen their understanding and mastery of automobile design. The practice teaching base should also pay attention to the individualized development of students. Every student has different interests and specialties, so the base should provide diversified practical projects and activities to meet the needs of different students. For example, students who are interested in automobile modeling design can be organized to participate in automobile appearance design projects; For students who are interested in automobile performance optimization, they can be arranged to participate in practical activities such as automobile power system and chassis adjustment. Through such personalized teaching, students' potential and creativity can

be fully stimulated. The construction of practice teaching base also needs the strong support of the school and the government. Schools should increase investment in practice teaching bases and provide necessary venues, funds and equipment support; The government should also introduce relevant policies to encourage and support the cooperation between universities and enterprises to establish practical teaching bases and promote the deep integration of Industry-University-Research.

The establishment of practice teaching base is of great significance for students majoring in automobile design. Through improving facilities, strengthening management, deepening cooperation, focusing on convergence and integration, and paying attention to students' personalized development, we can provide students with a better and comprehensive practice environment, help them better master the core knowledge and skills of automobile design, and lay a solid foundation for future career development.

Conclusion

Through the in-depth exploration and practice of automobile design teaching reform in higher education, this paper holds that teaching reform is the key link to promote automobile design education to keep pace with the times and adapt to the development of the industry. By strengthening the combination of theory and practice, paying attention to the cultivation of innovative thinking and design ability, and optimizing the curriculum and teaching content, students' professional quality and practical ability can be effectively improved. The automobile design education should continue to deepen the reform and innovate the education mode and method to adapt to the rapid development and changes of the automobile industry. By continuously improving and optimizing the teaching system, it is expected to cultivate more outstanding automobile design talents with innovative spirit and practical ability, and contribute to the prosperity and development of the automobile industry.

Acknowledgement

This research is self-funded.

Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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