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ARTICLE

A Review on Physical, Online and Hybrid Teaching and Learning Pedagogy for Fashion Design Courses in China

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ABSTRACT

In undergraduate fashion design education, the main focus is on clothing design, fashion brand garments, and design trends, especially on how to create and market these designs. Higher vocational education emphasizes developing design skills and methods, transforming design processes, and managing clothing production. In China, the first undergraduate major in fashion design started in 1983 at Suzhou Silk Institute of Technology, which used to be linked to the Ministry of Textile Industry. The mode of teaching and learning delivery of fashion design courses just like other courses, started with face-to-face teaching in physical classroom and practical training classes. However, due to fast development in educational technology and movement restriction during COVID-19 pandemic, the fashion design education is adapting the innovative learning management system and revolutionized into online and hybrid delivery of teaching and learning content. In this review, fashion design courses in China education system will be elaborated and comparison of physical, online, and hybrid delivery of fashion design course will be discussed.

1. Introduction to Fashion Design in China

Fashion in clothing shows people's desire for a better life. The first undergraduate major in fashion design started in 1983 at Suzhou Silk Institute of Technology, which used to be linked to the Ministry of Textile Industry. This was about 37 years ago, even though fashion design courses had been offered in art colleges since the 1980s. Over the past 37 years, fashion design majors have grown a lot, becoming one of the most popular design majors (Chhabra, 2019).

In undergraduate fashion design education, the main focus is on clothing design, fashion brand garments, and design trends, especially on how to create and market these designs. Higher vocational education emphasizes developing design skills and methods, transforming design processes, and managing clothing production. Secondary vocational education concentrates on teaching specific job skills and production processes. Continuing education focuses on vocational training to improve job performance. All these educational approaches together make up the landscape of Chinese fashion design education (Entwistle, 2015).

The fashion design major faces many issues and confusions. In the past, colleges often combined basic art and garment-making classes, teaching future designers like artists. This led to unclear goals and similar teaching standards. Traditional art colleges have criticized craft education and the practical mindset of craftsmen, focusing

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too much on two-dimensional visual representation and creativity while ignoring three-dimensional modeling. As a result, many designers who frequent luxury fashion stores and create visual designs have been sent to clothing companies. Fashion design students often still can't create patterns well even after four years of study. They don't fully understand the entire design process, including sketches, prototypes, finished products, brand marketing, and achieving design goals. Some colleges and institutions might also lack the necessary textile material disciplines (Grose & Fletcher, 2012).

A significant number of fashion design students still lack fundamental knowledge about the composition, design, and functionality of clothing fabrics, as well as an understanding of the physical characteristics of textile fabrics. This deficiency leaves many designers ill-equipped to navigate the intricate market and hinders their ability to comprehend and explore the field of ergonomics. Many schools and organizations neglect to include the concept of the "false seam" relationship and the design connection of white cloth modelling in their craft education curriculum. Many designers may have a blind spot in this area. The distortion of artistic assessments and public perception about innovative and functional clothing has led to a continuous production of artworks that do not align with market demands, all under the pretext of showcasing uniqueness. (Li et al, 2023). For fashion design majors who want to meet market demand, it is important to effectively comprehend scientific and logical instructional content without losing their individuality.

The fashion design major typically imparts core concepts, processes, and problem-solving techniques to students as a foundational level of talent development. The essential information and skills of fashion designers can be acquired through school and training. However, the development of non-intellectual qualities requires a gradual accumulation over time, as well as experience in real-life situations and the market (Lim, 2021). The college studies stage only provides the structure for this process of becoming less rigid. Fashion design is a category of design that integrates engineering technology and aesthetics. It primarily addresses the relationship between objects. On the other hand, general design, while also addressing the relationship between objects, places particular emphasis on the relationship between objects and people. It focuses on visual modelling, shape layout, surface decoration, and colour matching of the product, while also considering the psychological and physiological effects of the product on people. (Li et al, 2023). There is a longstanding tradition of fashion designers and tailors passing down their skills and knowledge across generations. While modern industrial designers differ from them, they still have certain common requirements, which can potentially cause confusion. At the advanced stages of personalization and proofing, fashion designers usually build ensembles manually. Consequently, fashion designers consistently collaborate with the basic garment structure design and are responsible for the entire product, encompassing not only the artistic and aesthetic elements of clothes. Nevertheless, in the context of large-scale production, contemporary design standards surpass those of conventional craftsmanship. It is inconceivable to employ a designer who lacks understanding of contemporary clothes manufacturing technology. The designer's personal brilliance and style can only be freely represented in mass-produced products if they are not bound by technical processes and have a deep understanding of manufacturing technological procedures (Ma et al., 2022).

The field of fashion design, which combines elements of engineering technology and art, has gained significant attention due to its emphasis on practical, hands-on skills, setting it apart from other design disciplines. The primary objective of technical design is to resolve the interconnection between various components. Once the connection between things has been resolved, it is crucial to examine the correlation between objects and individuals, focusing on aspects such as style design, colour coordination, design trends, consumer psychology, and other factors that influence the creation of clothing products. Due to the inherent connection between fashion designers and tailors, fashion designers often have to carry out sophisticated alterations and quality assurance on their own. Consequently, the design of clothes includes both style and structure, and it is responsible for the creation of product pieces rather than only the aesthetic features of fashion art. In order to align with the unique requirements of clothing companies and society, each college should incorporate its own distinctive features and expansions into its educational process. This will enable the college to identify its own teaching positioning, build its own teaching status, and effectively respond to the dynamic and evolving market demands (Murzyn-Kupisz & Hołuj, 2021).

2. Fashion Design Course in Vocational Colleges in China

The pedagogical framework and instructional approaches employed in vocational institutions throughout China for fashion design education demonstrate distinct attributes that encompass a fusion of theoretical acumen, artistic ingenuity, and technical proficiencies. The duration of a fashion design program in vocational colleges in China typically ranges from two to three years, contingent

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upon the level of degree pursued (Qian et al., 2022). The curriculum encompasses a combination of theoretical components, such as the historical aspects of fashion, fashion trends, textile science, color theory, and design principles, alongside practical components like pattern drafting, garment construction, fashion illustration, and the development of a design portfolio (Lim, 2021).

The teaching approaches conventionally utilized in vocational colleges place significant emphasis on in-person instruction, as it is crucial for the acquisition of practical skills. According to Murzyn-Kupisz and Holuj (2021), the pragmatic aspects of fashion design necessitate direct supervision from instructors and prompt feedback, both of which are efficiently facilitated in traditional classroom settings. Students participate in a variety of educational activities, including studio-based learning, workshops, and live demonstrations, which afford them the opportunity to observe, practice, and refine their technical proficiencies.

Furthermore, the inclusion of industry visits, internships, and partnerships with fashion brands are essential elements of the educational experience inside these academic institutions. According to Qian et al. (2022), these opportunities enable students to acquire firsthand knowledge of the fashion business, apply their theoretical knowledge in practical settings, and cultivate their professional connections.

Nevertheless, the emergence of digital technologies has prompted several vocational colleges to include online elements into their instructional practices. For example, the utilization of Learning Management Systems (LMS) enables the dissemination of course materials, administration of online exams, and facilitation of interactions between students, teachers, and peers. However, there is considerable variation in the degree and efficacy of technology integration among different educational institutions, and it is predominantly ancillary to the primary instructional approaches (Haleem, et al., 2022).

The combination of hands-on learning in traditional classroom settings alongside exposure to the industry significantly contributes to the development of a comprehensive skill set in aspiring fashion designers. Moreover, understanding digital technologies as complementary aids rather than substitutes underscores the value of maintaining a balanced instructional approach, ensuring students benefit from a diverse range of learning methods and resources.

3. Online Teaching and Learning Approaches

3.1 Overview of Online Teaching and Learning

Online education, or e-learning, is becoming a vital part of educational institutions worldwide. It utilizes internet-based technology to provide instructional content and support learning processes, presenting a feasible alternative to conventional classroom education. The inception of online education may be attributed to the development of computer-assisted learning programs in the 1960s. However, it gained significant momentum with the advent of the internet in the 1990s and the following proliferation of digital technology (Allen & Seaman, 2017).

The discipline of online teaching and learning, often known as e-learning, entails the utilization of digital platforms to promote education, typically with the aid of internet access (Moore, Dickson-Deane, & Galyen, 2011). The advent of e-learning has brought about a significant transformation in the realm of education, offering considerable advantages but also posing distinctive obstacles.

The proliferation of colleges providing online courses and degree programs has experienced a significant surge, suggesting a rapid expansion of online education. Enrolment in distant education courses at degree-granting postsecondary institutions has continually increased over the past decade, according to the National Centre for Education Statistics (NCES). Millions of students have been utilizing online learning. The flexibility and accessibility of online education have made it a popular option for various student demographics, such as working professionals, parents, and international students.

Online education can be categorized into various kinds, each possessing distinct characteristics and uses. Firstly, online learning can take place in the form of 'Fully Online Courses'. These courses are exclusively conducted through online platforms, without any face-to-face elements. Students can utilize digital media to retrieve lectures, assignments, and engage in discussions. Massive Open Online Courses (MOOCs), such as those provided by Coursera and edX, facilitate global access to courses offered by prestigious universities (Hollands & Tirthali, 2014).

'Blended or Hybrid Courses' combine online and in-person instruction to optimize the advantages of both methods. Students have the option to physically attend certain classes while completing other parts of their coursework through online means. This approach aims to establish a well-rounded educational experience by enhancing adaptability while still preserving the advantages of direct interaction (Garrison & Vaughan, 2012).

'Synchronous Learning' is an additional form of online learning. Synchronous online learning entails real-time interaction between students and instructors through video conferencing platforms such as Zoom, Microsoft Teams, or Google Meet. This framework replicates the real-time nature of a traditional classroom, facilitating interactive

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discussions, collaborative assignments, and prompt evaluation (Hrastinski, 2008).

Alternatively, there is the concept of 'asynchronous learning'. Asynchronous online learning allows students to independently access course materials, participate in discussions, and fulfil assignments at their preferred speed. This format provides added versatility, enabling a range of timetables and learning preferences. Asynchronous courses are commonly administered through learning management systems (LMS) such as Blackboard, Canvas, and Moodle (Means et al., 2014).

Online education encompasses a diverse range of teaching methods and strategies that are tailored to certain learning contexts and objectives. The constructivist approach, integration of multimedia, evaluation and feedback, and learning analytics are widely employed strategies in online learning. Online education often employs constructivist methods that emphasize active learning, where students develop knowledge through interactions with content, peers, and instructors. Constructivist learning is commonly supported through online platforms such as discussion forums, collaborative projects, and problem-based learning activities (Anderson, 2008). In addition, the integration of multimedia elements such as films, animations, podcasts, and interactive simulations enhances the learning process by catering to different learning preferences and simplifying complex subjects. Mayer (2009) found that the use of multimedia elements can enhance both the level of interest and the level of efficacy in learning. Online education employs diverse evaluation techniques, including quizzes, assignments, peer assessments, and automated feedback systems. These technologies provide prompt feedback, enabling students to monitor their progress and pinpoint areas for improvement (Gikandi et al., 2011). By using learning analytics, educators are able to actively track and assess student involvement and achievement in real-time. Utilizing data-driven insights can assist in the development of instructional design, identification of students at risk, and customization of learning experiences to enhance results (Siemens, 2013).

The efficacy of online education is greatly dependent on the supporting technological infrastructure. In order to achieve effectiveness, the utilization of a learning management system (LMS), communication tools, and, notably, content generation and delivery systems is important. Learning Management Systems (LMS) like as Blackboard, Canvas, and Moodle serve as centralized platforms for managing courses, distributing information, facilitating communication, and conducting evaluations. The teachers and students can discuss and participate with course subjects in a well-structured environment (Watson and Watson, 2007). Email, discussion boards, video conferencing, and instant messaging are communication methods that facilitate interaction between students and teachers. Efficient communication is crucial for maintaining involvement and aiding in digital learning settings (Hrastinski, 2008). Regarding the creation and dissemination of content, software solutions such as video recording tools, screen capture software, and interactive whiteboards are employed to enhance the calibre and availability of online course materials. These tools enable instructors to create interactive and captivating learning experiences (Mayer, 2009).

There are numerous advantages associated with online learning. First and foremost, it offers considerable freedom in the process of acquiring knowledge. Online learning provides students with the flexibility to study at their own preferred pace and convenience, hence enhancing accessibility to education for individuals who are managing personal or professional obligations (Kebritchi, Lipschuetz, & Santiague, 2017). In addition, the internet's extensive reach surpasses geographical boundaries, allowing students from any area to access a wide range of information (Ally, 2004). One notable aspect of online learning is its capacity to facilitate individualized learning trajectories. According to Johnson et al. (2016), online platforms present a unique chance to cater to the individual learner's preferred style and pace, a challenge that is often encountered in traditional classroom settings.

Nevertheless, the implementation of e-learning is not devoid of obstacles. The importance of self-discipline in the context of online learning cannot be overstated. According to Artino (2007), the lack of a well-organized setting and direct supervision, which are typical of conventional classrooms, necessitates that students effectively regulate their time and refrain from engaging in procrastination or being distracted. Moreover, the substantial reliance on technology gives rise to a distinct set of challenges. According to Bacow et al. (2012), the seamless progression of learning can be impeded by various challenges, including software incompatibility, internet connectivity issues, and hardware failures. In conclusion, the lack of in-person connection within the virtual learning setting has the potential to impact the depth of the educational experience and may result in learners experiencing feelings of isolation (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2011).

Hence, the advent of online teaching and learning has significantly revolutionized the educational landscape, offering the advantages of enhanced flexibility, accessibility, and individualization. However, it is crucial to acknowledge the accompanying obstacles, like the requirement for

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self-regulation, technical complexities, and limited social engagement, which should not be disregarded.

Online learning's capacity to offer flexibility corresponds well with the requirements of contemporary, fluid lifestyles. Nevertheless, the recognition of the importance of self-discipline and the acknowledgment of obstacles such as technological difficulties reflect an understanding of the practical challenges encountered within online learning environments.

3.2 Online Teaching and Learning in Fashion Design Education

The integration of online pedagogy and e-learning in fashion design curricula has gained considerable importance, particularly in light of the rapid progress in digital technology. According to Santiago et al. (2021), this platform provides students with opportunity to expand their learning outside the confines of the conventional classroom. It enables them to delve into and establish connections with global fashion trends and resources.

The essential components for achieving success in online instruction and education within the realm of fashion design encompass interactive and captivating educational materials, well-defined and organized learning routes, and unwavering assistance and evaluation systems. Digital platforms have the capability to facilitate the dissemination of interactive resources, including video courses, design templates, and digital libraries. According to Alammary, Sheard, and Carbone (2014), virtual classrooms offer organized channels for educational progression, while discussion forums and online gatherings serve as effective means for fostering assistance and receiving input.

The optimal approaches for facilitating online instruction and learning in fashion design courses encompass the seamless amalgamation of theoretical concepts and practical applications, facilitated by the utilization of digital resources. Instructors have the option to utilize video demonstrations as a means of instructing students on diverse design processes, while students can employ digital portfolios to effectively record and exhibit their work. Furthermore, it is possible to organize real-time webinars or workshops to facilitate conversations, critiques, and group projects, so fostering collaborative learning and community development (Clark & Mayer, 2016).

Online platforms serve as a conduit to access global trends and resources. It corresponds well with the modern characteristics of the fashion industry, which are notably shaped by international influences. Moreover, the focus on interactive resources and collaborative learning facilitated by digital platforms underscores the evolution of education, rendering it more immersive and pertinent to the digital era.

The integration of online teaching and learning in fashion design education has revolutionized conventional pedagogical methods, opening up fresh avenues for creativity, cooperation, and skills enhancement. The education of fashion design mainly depends on technical tools and platforms that provide online learning.

Virtual design software, such as Adobe Illustrator and CorelDRAW, enables students to create and modify digital drawings, patterns, and prototypes. These technologies simulate real-world design processes, enabling students to explore new ideas and enhance their technical skills (Kazlacheva et al., 2018). Software for 3D modelling, such as CLO 3D and Marvelous Designer, simplifies the process of creating virtual prototypes of apparel. According to Wang and Hu (2023), students can enhance their understanding of garment structure and aesthetics by examining designs in three dimensions, adjusting fit and proportions, and exploring material attributes. VR and AR technology offer immersive learning experiences by simulating design environments and allowing students to interact with virtual garments in a lifelike context. These technologies facilitate experiential learning by enabling students to visually perceive spatial connections and investigate design concepts in a dynamic manner (Shaby, N. & Vedder-Weiss, D. 2021). Google Workspace (formerly known as G Suite), Microsoft Teams, and Slack offer both real-time and delayed collaboration options for students and teachers. These platforms provide instantaneous communication, sharing of documents, and collaborative administration of projects in virtual settings, fostering teamwork and collective invention (Hrastinski, 2008).

LMS platforms like Moodle, Canvas, and Blackboard function as centralized hubs for delivering course information, managing assignments, and facilitating discussions. Learning administration Systems (LMSs) encompass the integration of multimedia, assessment tools, and grade administration. These features enable a range of instructional approaches in online fashion design courses (Watson & Watson, 2007). Virtual classroom technologies such as Zoom, Adobe Connect, and BigBlueButton enable professors to conduct live, interactive sessions where they can provide lectures, demonstrations, and critiques. In China, platforms vary. China's main digital platforms for teaching and learning are Superstar (Chaoxing), Tencent Meeting, and Wechat. They provide comparable functionalities to Moodle or Zoom, fulfilling all the prerequisites for online instruction and education. These platforms incorporate video conferencing, screen sharing, and chat features, thus replicating the classroom environment in an online context (Hrastinski, 2008).

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3.3 Case Study in Online Fashion Design Education

A case study is discussed here to gain a deeper understanding of the effective tactics employed in fashion design, specifically in the context of online learning. The referenced case is "Online Teaching Practices for the 'Fundamentals of Colour' Course at the School of Textiles and Fashion" by Yang (2022).

The "Fundamentals of Colour" course, which is a mandatory elective in the Fashion Design and Engineering curriculum as part of the "Excellent Engineer Education Training Plan," faced significant challenges amid the COVID-19 pandemic. The objective of the course is to provide students with a strong basis in colour theory, colour design thinking, and creativity, in order to enhance their understanding of aesthetics and develop their practical abilities. Due to the shift to online education, the course had to modify itself to comply with educational requirements while still guaranteeing student interest and learning outcomes.

In order to optimize the delivery of the course online, three platforms were utilized: WeChat Course Groups, Learning Pass, and Tencent Meetings. The course encompassed a diverse range of instructional techniques, such as online check-ins, assignment reports, individual critiques, theoretical education, and practical demonstrations. The purpose of this multimodal approach was to replicate the interactive and tactile nature of traditional face-to-face sessions (Yen et al., 2018).

The educators recommended utilizing a diverse range of educational resources across several platforms to enhance students' creative capabilities. They utilized Tencent Meeting and WeChat to share high-calibre MOOC courses from Chinese institutions, Vogue trend reports, and other pertinent stuff. This strategy aims to provide students with a wide range of reference resources to enhance their work. In order to enhance the appeal of online classes, lecturers recorded fashion shows such as the Gaia Legend Brand Fashion Show and Victoria's Secret Fashion Show. The recordings were analysed in class, focusing on aspects such as colour composition, thematic aesthetics, fabric choices, and garment characteristics. This approach effectively alleviated the tedium of conventional online lectures by integrating visual and auditory interactions, enabling students to actively engage in discussions and analyses. Several students encountered scarcity of resources, such as watercolour paints and paper, as a result of pandemic-related limitations. The lecturers supported and facilitated these students in utilizing digital software such as Adobe Photoshop and Procreate to creation their artworks. This technique not only resolved the pressing material constraints, but also enhanced students' competence with digital design tools, fostering a spirit of self-discovery and flexibility.

The online pedagogical strategies employed for the "Fundamentals of Colour" course yielded some favourable outcomes. Students demonstrated substantial improvement in their abilities to assess beauty and their capacity for originality. The diverse range of instructional methods and the integration of technological resources led to a holistic educational encounter that closely resembled conventional face-to-face instruction (Smith & Basham, 2014).

In order to enhance the quality of teaching, the instructors distributed questionnaires to evaluate the students' comprehension of the course material. These comments will contribute to the development and refinement of future course updates and adjustments. Nevertheless, certain limitations of online training were recognized. Students expressed a predilection for face-to-face interaction, particularly for hands-on activities like drawing and blending colours, which are challenging to replicate effectively in an online setting.

This case study exemplifies the capacity of online teaching approaches to deliver efficient and captivating education in the field of fashion design. Teachers can overcome the constraints of remote education by utilizing several platforms, enhancing sensory engagement, and implementing flexible strategies.

4. Face-to-Face Teaching and Learning Approaches

Face-to-face teaching and learning pertain to the conventional pedagogical methodology in which educators and learners occupy a common physical environment for the dissemination and assimilation of educational material (Bates, 2015). This approach facilitates real-time and immediate interactions between educators and learners, as well as among the learners themselves.

In the realm of fashion design education inside vocational colleges, the significance of in-person instruction and knowledge acquisition is particularly pronounced. According to Saghafi et al. (2019), the acquisition of practical skills like pattern drawing, fabric cutting, sewing, and draping is often more effectively supported in a physical classroom or studio setting due to the need for hands-on teaching and fast feedback. In addition, conventional educational settings facilitate a heightened level of engagement, as students are afforded the opportunity to engage directly with textiles, equipment, and mannequins, so fostering a more comprehensive comprehension of tactile attributes, dimensions, and garment suitability (Woo,

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et al., 2022).

Practical skills and experiential learning are stressed in fashion design school, making hands-on learning a crucial component. Fashion design is a sensory and visual field that necessitates students to possess a profound comprehension of fabric textures, colours, and garment production techniques. Engaging in practical tasks like sewing, draping, and pattern creation equips students with essential skills that cannot be fully replicated by theoretical instruction alone.

Students in a traditional classroom setting are provided with necessary equipment and materials that are crucial for their education. Well-equipped fashion design studios typically contain sewing machines, cutting tables, mannequins, and a variety of materials (Smith, 2013). The physical presence of these materials enables students to engage in experimentation, make errors, and learn via the process of trial and error, leading to a more comprehensive comprehension of the art.

In addition, practical training in fashion design cultivates creativity and ingenuity. Students who engage directly with materials are more likely to experiment with new techniques and challenge conventional design practices (Kolb, 1984). The effectiveness of this immersive learning approach is enhanced by the prompt feedback and guidance provided by teachers, which helps students navigate complex design difficulties and fosters creative thinking.

Although hands-on learning offers advantages, it also presents specific challenges. It requires a significant amount of resources, which means that substantial investments in equipment and supplies are necessary. Moreover, the effectiveness of experiential learning greatly depends on the instructor's ability to offer personalized attention and assistance to every student, a task that can be difficult in high class sizes (Darling-Hammond et al., 2009). Moreover, during times of crisis, such as the COVID-19 pandemic, the feasibility of hands-on learning is put at risk, highlighting the importance of hybrid methodologies that integrate the benefits of in-person and virtual learning.

Face-to-face learning has numerous advantages, particularly in practical school contexts like fashion design. An important benefit is the immediate and direct engagement between educators and learners. This connection facilitates instantaneous feedback and customized guidance, both of which are crucial for cultivating practical expertise and fostering ingenuity (Horn & Staker, 2014). Within the confines of a classroom setting, students have the ability to easily seek clarification on complex concepts and promptly obtain aid, so enhancing their understanding and retention of the course content.

In addition, in-person instruction cultivates a cooperative educational setting where students can engage in collective assignments, dialogues, and evaluations by their peers. Collaborative experiences are crucial for fashion design students as they mirror the collaborative nature of the fashion industry, which necessitates teamwork and effective communication (Auster & Wylie, 2006). In addition, the structured setting of a traditional classroom can help maintain order and concentration by minimizing potential distractions that may arise in an online learning setting.

The benefits of in-person instruction and education encompass prompt and direct feedback, interpersonal communication, and heightened levels of involvement. According to Mandinach (2005), students have the ability to promptly address uncertainties and receive individualized feedback, perhaps resulting in enhanced comprehension and accelerated acquisition of skills. According to Dillenbourg (1999), engaging in social interactions such as group work, talks, and debates not only enhances one's communication abilities but also fosters a more profound comprehension of the subject matter. Furthermore, the presence of both the teacher and students in a physical setting frequently results in increased levels of engagement and motivation (Grey & DiLoreto, 2016).

Nevertheless, conventional in-person instruction does have its drawbacks. The necessity of in-person attendance in classrooms can provide logistical difficulties for certain students, thereby constraining the adaptability of the educational experience (Bates, 2015). In addition, it is worth noting that conventional educational settings frequently employ a uniform instructional methodology that may not adequately accommodate the diverse learning speeds and preferences of individual students (Johnson, et al., 2015). Traditional classroom learning can also be less adaptable than online learning, posing challenges for students with additional commitments, such as part-time employment or family duties. In addition, in situations such as the COVID-19 pandemic, it may not always be feasible to conduct face-to-face training due to the need for social distancing and the requirement for remote learning solutions (Ferdig et al., 2020). Geographical and resource limitations might also restrict the availability of physical classrooms, thereby impeding educational opportunities for students in rural or poor areas.

Face-to-face and hands-on learning approaches are essential elements of fashion design education, offering clear benefits for the development of practical skills and the fostering of creativity. Although these methods have certain limits, particularly in terms of adaptability and availability, they are nonetheless crucial elements of a

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comprehensive educational strategy in fashion design. In-person instruction in cultivating practical skills within fashion design is important. The tactile experiences offered by a physical classroom hold unique value, particularly in handling fabrics and design elements. Moreover, the emphasis on direct feedback, interpersonal communication, and heightened engagement mirrors the observations made in traditional learning environments.

5. Hybrid Teaching and Learning Approaches

5.1 Overview of Hybrid Teaching and Learning Approaches

Hybrid teaching and learning, which is sometimes referred to as blended learning, is an instructional approach that integrates conventional in-person teaching with online learning activities. The objective is to leverage the advantages offered by both teaching modalities (Bonk & Graham, 2012). According to Means et al. (2014), the learning environment offered by this system is characterized by its adaptability to accommodate the unique learning preferences and needs of individual students. Additionally, it manages to retain certain advantages associated with face-to-face interaction.

Hybrid learning encompasses several educational approaches that blend traditional classroom instruction with digital tools and online resources. Hybrid learning incorporates face-to-face lectures, online coursework, digital tests, and interactive multimedia technologies as crucial elements. This method allows students to engage with course material through a combination of organized in-person classes and independent online activities (Garrison & Vaughan, 2012).

Face-to-face meetings are commonly employed in a hybrid model to facilitate tasks that necessitate direct involvement, such as presentations, practical exercises, and real-time guidance from instructors. The online components of the course may consist of video lectures, discussion forums, tests, and assignments that students have the flexibility to complete at their preferred speed. This flexibility is particularly advantageous for accommodating diverse learning preferences and timetables (Picciano, 2009).

The integration of hybrid teaching and learning has proven to yield numerous advantages. Hybrid learning presents prospects for the development of skills in a flexible manner. For example, students have the opportunity to review online lessons or demos at their own preferred speed, thereby enhancing their comprehension of intricate fashion design procedures. The aforementioned attribute proves to be advantageous in the acquisition of complex proficiencies, such as pattern drafting or garment manufacturing, which frequently necessitate iterative exercises and examination (Woo et al., 2022).

Furthermore, hybrid learning has the potential to cultivate a learning environment that is both individualized and inclusive. According to Woo et al. (2022), online platforms provide a wide range of resources that facilitate student learning by accommodating their unique learning styles. One possible benefit for visual learners is the utilization of video demonstrations, whilst auditory learners may derive advantages from audio descriptions or debates. In addition, hybrid learning has the capacity to accommodate students with diverse skill levels and knowledge, thereby facilitating differentiated education, a characteristic that is frequently difficult to execute inside conventional classroom settings (Watson, 2008).

Finally, hybrid learning has the potential to enhance student involvement and foster cooperation. According to Garrison and Kanuka (2004), online platforms have the potential to enhance peer-to-peer interactions and promote collaborative projects, hence cultivating a feeling of community among learners. Simultaneously, the in-person aspect of hybrid learning facilitates direct contacts and feedback, hence augmenting student motivation and engagement (Dziuban, Hartman, & Moskal, 2004).

Although hybrid learning offers advantages, it also presents certain challenges. A major worry is the digital divide, which refers to the unequal access to necessary technology and internet connectivity among students. This disparity has the potential to restrict the effectiveness of online elements for certain pupils (Picciano, 2009). Moreover, the efficacy of hybrid learning relies heavily on the successful incorporation of both online and in-person elements. In order to establish a seamless and cohesive learning environment, educators must possess expertise in both instructional design and educational administration. This requires ongoing professional development and assistance for educators (Garrison & Vaughan 2012). Another challenge lies in the increasing demand for pupils to possess strong self-regulation and time management skills. Given increased autonomy in managing their learning schedules, students are required to exhibit discipline and initiative in arranging their assignments, a task that may prove difficult for certain individuals (Means et al., 2013).

Hybrid teaching and learning approaches effectively combine the advantages of face-to-face and online training, making them a practical foundation for contemporary education. Despite the challenges that need to be addressed, hybrid learning offers significant advantages in terms of adaptability, student involvement, and optimized classroom utilization, making it an appealing approach for diverse educational settings.

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5.2 Hybrid Teaching and Learning in Fashion Design Courses

Within the realm of Fashion design education, the implementation of a hybrid learning strategy presents an opportunity for students to delve into the theoretical dimensions of fashion design. This entails the exploration of several facets, like color theory, fashion history, and fabric kinds, through the utilization of online multimedia information. According to Al-Qahtani and Higgins (2013), individuals have the ability to acquire knowledge at their own preferred speed and revisit the material whenever necessary, hence facilitating a customized learning encounter.

The potential of hybrid learning in fashion design education is highly compelling. The opportunity to delve into theoretical aspects through online multimedia resources resonates with the demand for personalized learning experiences. This flexibility allows students to revisit materials at their own pace, contributing significantly to comprehension and the retention of knowledge.

The tactile and applied elements of Fashion design, encompassing activities such as sewing and pattern making, can effectively be imparted through in-person instruction, enabling students to receive prompt guidance from their professors and facilitating dynamic and cooperative learning encounters. This method not only enhances the academic achievement and overall contentment of students but also equips them with the necessary skills to navigate the digital components of the contemporary fashion industry (Cleveland-Innes & Wilton, 2018).

Extensive empirical data exists that substantiates the advantages of hybrid learning across diverse domains, as it effectively accommodates diverse learning styles, fosters heightened student engagement, and improves overall learning results (Lim, Morris, & Kupritz, 2007). Furthermore, this particular technique offers students the chance to cultivate their digital literacy, which is an essential competency in contemporary society, particularly within the Fashion design sector, where technology assumes an increasingly significant position (Lantz-Andersson, Lundin, & Selwyn, 2018).

The in-person aspect of hybrid learning enables teachers and students to engage in direct communication, which plays a crucial role in elucidating intricate ideas, resolving specific inquiries, and fostering active participation through dynamic debates (Boelens et al., 2017). In the context of a Fashion Design course, in-person instruction may be employed to elucidate the various methodologies involved in pattern drafting or draping. According to Horn and Staker (2015), in-person communication facilitates prompt feedback, hence augmenting students' comprehension and proficiency growth.

In contrast, the online component of hybrid learning provides students with the advantage of flexibility and convenience, enabling them to engage in self-paced learning. Online tools, such as video tutorials, digital libraries, and interactive quizzes, have the potential to enhance the learning experience by accommodating diverse learning styles. Within the realm of Fashion Design, digital resources have the capacity to present visual representations of various methodologies, furnish sources of inspiration for design concepts, and enable virtual collaborations on design endeavors (Bucăţa & Baboș, 2023).

The efficacy of hybrid learning is contingent upon a meticulous equilibrium and amalgamation of the two instructional modalities. Hybrid learning environments that achieve success are characterized by the provision of explicit rules for online activities, the alignment of online and face-to-face components with corresponding learning objectives, and the establishment of consistent communication channels between educators and students.

An additional crucial element of hybrid learning is to the utilization of technological tools and resources. Learning Management Systems (LMS), such as Moodle and Blackboard, provide the capability to effectively manage and structure online educational materials, monitor students' academic advancement, and foster interactive online discourse (Alammary, Sheard, & Carbone, 2014). Additionally, Learning Management Systems (LMS) offer platforms that facilitate the dissemination of video tutorials, photos, and articles, which serve to enhance the acquisition of diverse fashion design skills. For example, video demonstrations have the capacity to offer sequential instructions on the process of creating patterns or assembling clothes, enabling students to review and emulate the procedures at their preferred speed. As a benefit towards students, the availability of diverse resources through LMS would enhance skill development in fashion design.

The utilization of emerging technologies, like as virtual reality and augmented reality, presents promising prospects for the replication of real-life encounters. This has the potential to yield significant advantages, particularly within vocational education domains like Fashion Design (Xing et al., 2023). In the realm of fashion design, the utilization of virtual reality (VR) technology offers students the opportunity to virtually immerse themselves in fashion studios or observe production procedures. This immersive experience serves to augment their comprehension of industry methods. Augmented reality (AR), in contrast, has the capability to superimpose digital information onto the physical environment, enabling students

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to engage with digital content in real-time. The utilization of this technique might prove to be really advantageous in showcasing the manner in which materials are draped or in facilitating the visualization of design alterations (Bacca et al., 2018).

Furthermore, the Chinese government has enacted various policies aimed at fostering the utilization of information and communication technologies (ICT) within the realm of education. One notable example is the "Ten Year Development Plan for ICT in Education 2011-2020". The implementation of these programs has led to a notable improvement in the digital literacy skills of both students and educators. This enhanced digital literacy can effectively support the integration and utilization of sophisticated technologies in hybrid learning environments.

When formulating a hybrid teaching and learning module for Fashion design courses in vocational institutions in Guangdong, it is imperative to carefully consider the following issues. Hence, the primary objective of this study is to investigate and analyze the aforementioned elements, thereby making a valuable contribution to the existing body of knowledge in the field of hybrid learning within vocational education, with a specific focus on the domain of Fashion design education.

5.3 Case Study in Hybrid Fashion Design Education

One of the practices of hybrid teaching and learning in design course is the course "Men's Clothing Pattern Making and Techniques" in Wuxi Institute of Arts and Technology. Wuxi Institute of Arts and Technology implemented a hybrid teaching model for its course on Men's Clothing Pattern Making and Techniques. This approach combined online and face-to-face methods to maximize student engagement and learning outcomes.

a. Pre-Class Online Preparation:

Tasks and resources were made available on the internet before the class sessions. This allowed students to effectively utilize these resources for independent study, ensuring they were ready for in-person activities. Providing students with early access to learning materials enabled them to get a deeper understanding of the content, leading to increased engagement and effectiveness in face-to-face sessions.

b. In-Class Hybrid Activities:

Throughout the course, a technology-driven instructional platform was utilized to facilitate interactive activities including attendance verification, rapid response sessions, voting, and conversations. These exercises significantly enhanced student involvement and excitement. The instructors responded to the students' questions before class and emphasized the key concepts and challenging aspects of the course.

In addition, software technologies such as CAD and 3D virtual simulation were employed to illustrate the procedure of transforming 2D designs into 3D garments. The inclusion of this practical component was essential for students to comprehend the intricacies involved in the process of garment production. Students engaged in practical exercises and actively contributed to group discussions in order to fulfill classroom tasks. The participation of industry professionals, whether through online platforms or in face-to-face interactions, provided crucial guidance that aligned with established corporate standards. As students modified and enhanced their designs, educators offered ongoing support in refining their work.

c. Post-Class Online Enhancement:

Following the conclusion of the class, students expanded and altered their assignments prior to publishing them onto the course site. The post-class step was crucial in solidifying their comprehension and addressing any lingering inquiries. The course design included several accumulation approaches, such as homework assessments, online conversations, and project exercises. These exercises enhanced the students' fundamental knowledge, provided prompt feedback on issues, and facilitated the development of their professional abilities.

The hybrid technique, encompassing both online and offline education before, during, and after class, afforded students enhanced learning flexibility. This comprehensive approach not only enhanced their practical and theoretical understanding, but also fostered a more captivating and dynamic teaching setting.

The hybrid model, which blended online and offline teaching before, during, and after class, offered students greater flexibility in their learning. This comprehensive approach not only bolstered their practical and theoretical understanding but also fostered a more engaging and dynamic educational experience.

d. Outcomes

The implementation of a hybrid teaching style at Wuxi Institute of Arts and Technology for the Men's Clothing Pattern Making and Techniques course yielded significant outcomes. The use of interactive tools and diverse instructional styles greatly enhanced student engagement. Utilizing online platforms for pre-class preparation and post-class tasks, along with in-class interactive activities, effectively maintained student engagement throughout the learning process. Furthermore, the improvement in learning outcomes was directly correlated with the students' exceptional mastery of both theoretical understanding and practical implementation. The systematic and multifaceted approach facilitated students' comprehension of intricate

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topics and their successful application in practical situations. Ultimately, the graduates exhibited a higher level of readiness for the fashion industry. The course's focus on practical skills, together with the utilization of CAD and 3D virtual simulation tools, as well as real-world insights from industry professionals, equipped students with technical expertise and the ability to think creatively in their future careers. This hybrid technique, comprising both online and offline components, not only enhanced the educational experience but also ensured that students were adequately equipped for the demands of the fashion industry.

6. Comparative Analysis of Online, Face-to-Face, and Hybrid Approaches

Based on the literature review above, a comparison of online, face-to-face, and hybrid teaching and learning approaches is shown in the table below.

Table 1. Comparative Analysis of Online, Face-to-Face, and Hybrid Approaches.

Aspect	Online Learning	Face-to-Face Learning	Hybrid Learning
Flexibility	High	Low	Medium
Access to Resources	Vast, multimedia	Limited to physical resources	Balanced
Interaction	Limited, virtual	Immediate, personal	Balanced
Self-Discipline Requirement	High	Medium	High
Hands-On Practice	Limited	Extensive	Balanced
Engagement	Variable	High	Medium
Inclusivity	High	Variable	High
Technical Dependence	High	Low	Medium

Online learning utilizes digital technologies to remotely provide instructional content. This approach offers students unparalleled flexibility, enabling them to conveniently access resources and complete work at their own preferred speed. The asynchronous structure of many online courses enables them to accommodate a wide range of schedules, hence increasing accessibility to education for non-traditional students such as working professionals and individuals with family responsibilities (Allen & Seaman, 2013).

An important benefit of online learning is the vast array of resources and multimedia technologies that are accessible. Means et al. (2014) found that including interactive content, such as video lectures, simulations, and discussion forums, can enhance student engagement and cater to diverse learning preferences. In addition, online learning can foster a more inclusive atmosphere by allowing for anonymity, which in turn promotes participation from students who may feel less self-assured in traditional classroom settings (Picciano, 2009).

Nevertheless, online learning has notable constraints. Several students may experience a sense of isolation and diminished motivation as a result of insufficient in-person communication. Moreover, the effectiveness of online learning is heavily reliant on students' self-discipline and time management skills, which can pose challenges for individuals who face difficulties in these aspects (Hrastinski, 2008). Moreover, the presence of technical challenges and the unequal availability of digital devices and internet connectivity could potentially exacerbate educational inequalities (Van Dijk, 2006).

Face-to-face learning, characterized by direct interaction between instructors and students in a physical classroom, remains a vital element of traditional education. This approach is advantageous because to its prompt feedback and customized instruction, both of which are crucial for cultivating practical abilities and fostering analytical reasoning (Auster & Wylie, 2006). An organized educational setting, such as a classroom, can enhance concentration and scholastic performance.

Practical learning is essential in vocational education, particularly in fields like fashion design. Traditional in-person education allows for hands-on tasks such as sewing, draping, and pattern development, which are challenging to replicate through online methods. The haptic and optical aspects of these skills are most effectively imparted through hands-on engagement and immediate guidance (Smith, 2013).

While face-to-face learning has certain benefits, it is mostly constrained by its lack of flexibility. Students having additional commitments or residing in remote areas may encounter challenges due to inflexible schedule and geographical constraints. Moreover, in situations like the COVID-19 pandemic, traditional in-person education is not feasible, requiring the implementation of other methods (Ferdig et al., 2020).

Hybrid learning, sometimes referred to as blended learning, merges the advantages of online and face-to-face

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learning. This strategy integrates digital tools and online resources with traditional classroom education to create a learning environment that is more flexible and captivating (Horn & Staker, 2014).

The main advantage of hybrid learning is its capacity for adaptation. It merges the ease of online learning with the benefits of in-person interaction. This approach enables educators to optimize classroom time by prioritizing interactive and practical exercises, while routine lectures and evaluations can be conducted online (Garrison & Vaughan, 2008). Hybrid learning caters to various learning styles by providing alternate methods for students to engage with the content.

Nevertheless, hybrid learning presents its own unique challenges. Successful implementation requires careful planning and organization to ensure that online and in-person elements are mixed properly. This approach requires a strong proficiency in digital skills from both students and instructors, and disparities in technology availability can still pose challenges (Picciano, 2009). In addition, it may be challenging to keep students engaged and motivated in a mixed learning model, which may need the use of innovative teaching strategies (Means et al., 2013).

Every educational approach, be it online, in-person, or hybrid, possesses distinct advantages and constraints. Online learning offers flexibility and a wide range of materials, but it lacks face-to-face interaction and demands significant self-discipline. Traditional classroom instruction offers immediate feedback and practical involvement, both of which are crucial for specialized subjects like fashion design. However, it may be limited in terms of adaptability. Hybrid learning combines the benefits of many teaching methods, creating a well-rounded and flexible approach to education. However, it requires proper integration and access to technology. Gaining a comprehensive understanding of these distinctions can aid educators in formulating efficient pedagogical methods that leverage the advantages of each approach to fulfill the diverse needs of pupils.

Conclusion

In summary, the integration of online learning and hybrid teaching models has significantly transformed the landscape of education, particularly in specialized fields such as fashion design. Online learning offers unparalleled flexibility and access to a vast array of resources, making education more accessible to diverse populations. However, it also presents challenges such as the need for strong self-discipline, potential feelings of isolation, and technical issues. Face-to-face learning remains essential for its immediate feedback and hands-on practice, especially crucial in vocational education. Yet, it lacks the flexibility required by many modern learners. The hybrid approach, combining online and face-to-face methods, appears to offer a balanced solution, leveraging the strengths of both to enhance learning outcomes. Ultimately, the choice of educational approach should consider the specific needs and contexts of learners and the subject matter. As education continues to evolve with technological advancements, the insights gained from hybrid models can inform the development of more effective and inclusive teaching strategies, catering to the diverse requirements of contemporary education.

Author Contributions

Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

Data sharing not applicable as this is a review article.

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