

REVOLUTIONIZING SOCIAL ENTERPRISE

Revolutionizing Social Enterprise in Education: The UniFash Pilot Project - Innovative Approach to Digital Learning, Craft Preservation, and Workforce Inclusion

Development and Implementation of a Revolutionary Digital E-Learning Platform to Revitalize Lost Essential Practical Fashion Skills in the Fashion Industry Sector in Europe

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Abstract:

In an era of technological advancement, the fashion industry faces transformative pressures, especially in Germany, known for its high-quality craftsmanship in clothing. A critical issue is the shortage of skilled labor, particularly in bespoke tailoring, where garments are custom-made to an individual's specifications. This shortage not only threatens the quality of German fashion but also highlights a gap between academic curricula and the industry's practical needs. The decline of vocational schools, once pillars of craft training, exacerbates this issue, risking the loss of essential skills and pushing the industry towards outsourcing.

Addressing these challenges, this paper proposes the integration of digital fashion production training into Higher Education design curricula. UniFash, a digital learning platform, emerges as a solution, aiming to democratize the study of custom-made tailoring through digital and asynchronous methods. This initiative seeks to bridge the educational gap, targeting the shortage of skilled professionals and ensuring the sustained excellence of the German fashion industry. Initially, the pilot study was tested for the German market, but following its successful implementation, it is now being offered on the international market in English. This expansion aims to meet the global

demand for skilled fashion professionals and extend the reach of innovative educational solutions beyond national boundaries.

The study combines a review of academic literature, expert interviews, and student participation to analyze the German fashion market and educational landscape. Employing a mixed-methods approach, it gathers data through documentary research, interviews, and an online survey, complemented by action research involving test students in the UniFash pilot program. This methodology provides insights into the effectiveness of the program and the broader challenges facing the industry.

Findings reveal significant obstacles, such as the skilled labor shortage and the lack of practical fashion courses in higher education. This research provides significant insights into the inclusion of digital fashion production courses in higher fashion education in Germany, showcasing UniFash as a pioneering model for cultivating craftsmanship and augmenting the competitiveness of the industry. Furthermore, it suggests that this model can effectively address the global skills shortage in craftsmanship, demonstrating a scalable and impactful approach not just limited to Germany but applicable worldwide. The courses of the pilot project have been synchronized in English and will also be available in Arabic in the future. The successful outcomes of the pilot project outlined in this paper, along with the thriving career trajectories of the participants after the one-year research program, underscore the model's potential to revolutionize fashion education and industry practices on a global scale (Peitzmeier, 2023).

Keywords: Skill Shortage, Fashion Education, E-Learning

INTRODUCTION

Significance of the Study

In an era dominated by the relentless march of digital technology, the fashion industry, steeped in tradition and craftsmanship, stands on the precipice of profound change. This paper proposes an innovative response to a critical issue plaguing German fashion production: the acute shortage of skilled professionals, a problem that persists in spite of the nation's storied heritage in design and manufacturing excellence.

The German fashion industry, with its hallmark of precision and quality, currently confronts a troubling decline in practical manufacturing skills within its fashion schools and universities (Leidinger, 2022). This decline not only threatens to diminish the country's rich tradition in fashion but also challenges its global market position.

This manuscript aims to directly address this issue by investigating the capacity of digital e-learning training courses to enhance the competencies of Germany's future fashion professionals, thereby increasing their competitiveness and reducing the skills shortage.

In the context of German crafts, there is a significant discrepancy between the availability of apprenticeship positions and the demand from the younger workforce. Despite the availability of approximately 30,000 training positions with promising career prospects, as reported by the German Confederation of Skilled Crafts, young people are increasingly drawn to academic careers, presenting challenges to the craft sector (Leidinger, 2022). Maas, an expert in generational research, has identified a shift in the expectations of young professionals who favor a proactive and appreciative corporate culture (Leidinger, 2022). This shift underscores the need to re-evaluate and make traditional craft apprenticeships more appealing. In the fashion industry, the shortage of qualified professionals is acutely felt in technical areas such as bespoke tailoring, a craft that relies on the individual measurements of clients to produce custom-fitted garments (Almond, 2011). The gap between the required skills and the competencies of graduates highlights the imperative for universities and companies to find innovative ways to better integrate practical craft training with academic learning. There are approximately 1,300,000 Germans employed in the fashion industry. In 2019, the sector contributed approximately 66 billion euros to GDP - and is thus compared to GDP at other nations in German economic sectors, this is a significant factor. Nonetheless, there is a lack of political and social acceptance of fashion as a significant economic and social factor. The German clothing and footwear production output recorded a 91% decreasing gross added value between 1980 and 2020 (adjusted for

inflation) and a 55% return in textile production. German fashion industry criticized by experts because their excellent worldwide reputation is not recognized enough.

The industry experts partially explain this fact by the industry focusing on the segment of functional clothing back then. Function predominates over creativity (Fashion Council Germany, 2021). Addressing the educational shortfall, this paper examines the state of German fashion industry and education.

The decline in skilled labor and the reduction in textile production highlight the industry's vulnerability to global trends and the urgent need for a renewed focus on craftsmanship and practical skills (Hartmann, 2020; Stamm et al., 2019; Wortmann, 2005; Gözet & Wilts, 2022). The dearth of political and social recognition of the fashion industry's economic and cultural significance stands as a barrier to growth and innovation (German Fashion Council, 2021). Further complicating this landscape is the absence of avant-garde designers and international figureheads within Germany, a gap that is critically explored by Garel (2023) and Adjei-Appoh et al. (2022). In the academic realm, the German education system struggles to balance practical training with digital competencies (Gale, 2011; Wannemacher & Kleimann, 2004). In Germany, practical fashion production schools are in decline, further exacerbating the skills gap (Preuss, 2017). Contrastingly, France (Esmod), Italy (Marangoni), and Japan (Bunka) emphasize practical skills and craftsmanship, supported by robust societal, cultural, and governmental recognition (Yezhova et al., 2018). This study is rooted in the aim to reconcile existing academic frameworks with the dynamic requisites of the contemporary fashion industry. Through a comprehensive evaluation of a digital fashion production program's viability, this research advocates for a paradigm shift to nurture a new generation of fashion entrepreneurs adept at creating bespoke clothing lines and ateliers.

This study adopts a mixed-methods approach, incorporating both qualitative and quantitative techniques. It involves documentary research, interviews with experts in fashion education and the industry, and an online survey for broader data collection. Additionally, the research employs action research via the UniFash pilot program, involving three test students to evaluate its effectiveness.

This includes frequent interactions with the participants, course feedback, and extended data gathering. Preliminary findings from the UniFash pilot indicate strong student satisfaction and the facilitation of self-employment prospects.

After a year-long pilot of the digitally focused craft curriculum, the test students presented their tailor-made collections at Paris Fashion Week 2024, showcasing their work to an international audience of experts. Notably, these students possessed no prior knowledge or experience in the field before commencing the course. While the primary focus is on the German educational system, the implications of this paper reach beyond national boundaries, suggesting a wider relevance for international fashion education. Drawing from the insights of four distinguished experts and the experiences of a dedicated group of test students, this research presents a comprehensive review of pertinent literature and a thorough methodology description. The findings underscore the effectiveness and transformative potential of the UniFash pilot program (Peitzmeier, 2023).

In summation, the outcomes of this research not only highlight the pressing need for innovation within higher education in response to industry demands but also demonstrate the significant impact of digital e-learning platforms like UniFash. Such advancements are essential to preserve the invaluable tradition of craftsmanship through contemporary pedagogical strategies, ensuring the sustained development and competitive edge of the German fashion industry in the global arena.

The findings from this study reveal a complex picture of the German fashion industry and higher education, highlighting significant challenges and emerging trends. The literature and data collected suggest a critical need for the fashion industry to adapt to contemporary technological advancements and for education systems to incorporate digital methods that can address the current skill shortage. The UniFash pilot program, as a case study within this research, has demonstrated promising results in enhancing student engagement and satisfaction, pointing to the potential for broader implementation of digital fashion production courses within German higher education (Peitzmeier, 2023).

METHODS

This study is characterized as a social and educational research, and the current chapter provides a comprehensive framework for approaching, planning, conducting, validating, and evaluating such research.

Social and educational research refers to studies that address social and educational phenomena in our society. Social research expresses human engagement and value in at least two ways. Research can be utilized to enhance our understanding of social and cultural conditions. The utilization of this approach allows for the resolution of potential social inconsistencies and the examination of the outcomes associated with institutional structures (Popkewity, 1978). This social educational research relates to the question of how digital e-learning education courses in fashion production might fit into the German higher education system by systematically collecting and analysing data on students and Elite experts opinions, and attitudes towards online courses. This research is a form of prescriptive research, which means that its goal is to develop recommendations for action or prescriptions for solving a problem. Additionally, this research aims to solve societal, industrial, and educational problems and recommend solutions. In contrast to descriptive research, this type of research focuses on how things ought to be or how they could be improved (Van der Voordt, 2020).

Additionally, this research is value-oriented and relates to the question, *how could digital e-learning training courses in fashion production skills fit into German higher education?* This focuses on the values and beliefs of students, lecturers and industry experts and leaders in higher education.

The term ‘value-oriented’ typically refers to a research approach or methodology that is focused on identifying and assessing the inherent value or worth of a particular concept, product, or phenomenon. This may involve analysing various factors that contribute to its value, such as economic, social, cultural, or environmental considerations, and weighing the potential benefits and drawbacks associated with it. The goal of value-oriented research is to arrive at a comprehensive and nuanced understanding of the object under study, with a view to informing decision-making, policy development, or

other practical applications. This value-related research explores the value of specific objects or phenomena, such as the value of digital online courses or the value of digital courses in higher education. Traditional methods of assessing impact typically prioritize instrumental values, while the Value-Based Approach places greater emphasis on the goal values of an organization, project, or sector. In other words, this approach focuses on the range of qualities that these entities strive to attain (Klamer et al., 2016).

Exploratory case studies can be used to formulate hypotheses which can then be evaluated as part of more in-depth research such as surveys, experiments, or observational studies. (Cohen, Manion and Morrison 2018). The research conducted here exhibits an exploratory nature, primarily characterized by the in-depth investigation into the integration of digital e-learning education courses in the field of fashion production within the German higher education system. This research uses a mixed-methods approach, combining qualitative and quantitative research methods (Cohen et al., 2018). Documentary research, elite interviews with leading fashion higher education and fashion industry experts, and an online survey are used to collect data. The researcher focuses on the collection and analysis of non-numerical data, such as interviews and a survey with partly open-ended survey questions to gain deeper insights into the attitudes, opinions, and of individuals. A hybrid approach that combines both qualitative and quantitative methodologies was adopted to glean insightful findings. The survey conducted among three test students included closed-ended questions employing a five-point Likert scale, along with modestly applied statistical analyses. Additionally, it featured open-ended questions that were subjected to thematic and pattern analysis techniques. As a result, this research can be characterized as an amalgamation of qualitative and quantitative research methods. In the context of latent variable measurement, researchers typically employ manifest variables assessed through rating scales or rubrics. The primary objective of a rating scale is to elicit responses that possess both inclusive and exclusive qualities. Among the commonly utilized rating scales, the Likert scale enjoys broad recognition for its simplicity and reliability as a scaling technique, facilitating the straightforward measurement and comprehension of respondents' perceptions (Tanujaya, Prahmana & Mumu, 2022).

In this educational research, the interpretive results pertain to the quality assessments of the educational experiences of the pilot project UniFash by the test students, focusing on individual perceptions. The interpretive quality assessment of the pilot project UniFash is based on the subjective attitudes of the test students. Interpretive responses are common in qualitative research, interviews, open-ended survey questions, and discussions where individuals provide their own interpretations and viewpoints based on their experiences, beliefs, and understanding of the subject matter. Interpretive responses involve the analysis of existing data and information. It goes beyond the mere facts and draws a deeper context from the existing data. It will explore, among other things, the perspectives of the test students, leaders in higher education and the fashion industry to understand what their needs and requirements are and what benefits digital courses can offer. These responses aim to capture the context and meaning of the existing data and potentially offer new insights or insights that go beyond the mere facts (Knoblauch et al., 2018).

Elite interviews

There is a lack of academic literature and of professional sources on the current state of the fashion industry in Germany and information on how to counteract the shortage of skilled workers through targeted digital training. Therefore, it was necessary to collect information from other sources, mainly from expert interviews. For this purpose, fashion industry experts from the tailoring and cutting trade, German fashion companies and management positions in higher education were interviewed. Therefore, qualitative interviews were conducted with representatives of the most important stakeholders: representatives of policymaker's makers responsible for the current standards, representatives of higher education institutions dealing with the practice of fashion design curricula, and representatives of chambers of crafts dealing with legal education measures after the academic component in Germany. The data collected in these 'elite' interviews partly complemented the written sources and partly filled gaps in the sources. The identification and interpretation of information gathered from these written sources and from the interviewees was made possible by the author's insider status: she personally knows the local culture and the various levels of fashion education and has

worked as a designer and a fashion instructor. Expert interviews were a precious source of information because there is a lack of academic and professional literature on the current situation of the fashion industry in Germany. They also brought their insights on the crucial need for skilled workers through targeted digital training. In a similar vein, using expert interviews, the author investigated the lacking information from the academic literature on practical fashion training modules offered at German universities, as well as its problematic return to the curriculum and its necessity (Peitzmeier, 2023).

The necessity and benefits of a digital practical education program in the fashion trade, such as the UniFash pilot program developed here in the research, as well as the possibilities for its integration in higher education were also extensively discussed and analysed in these expert interviews. When a researcher has the backing of a key expert, it may be simpler to gain access to a larger network of experts. In addition to the direct benefits, it is evident that expert interviews provide additional benefits (Bogner et al., 2009).

The sampling process for this research started with the identification of the following two major stakeholders of the German Fashion Industry and German Higher Fashion Education

1. Academia – recognized, accredited higher education providers of academic programs preparing future practitioners in the field of fashion design. In Germany, these are the fashion design schools offering accredited master or bachelor programs.
2. Professional bodies – organizations dealing with various issues related to fashion professions, including fashion production and professional development.

Table 1. Description of Elite Experts

Industry Expert Candidate A	Position: the candidate works as a specialist in product development technology as well as quality assurance and production of international well-known companies. He is self-employed as designer with his own fashion atelier.
Industry Expert Candidate B	Position: the candidate is employed at a well-known men's clothing manufacturer in Germany, where she manages a department and works as a garment technician in the administrative inventory control system. The business produces menswear of an exceptionally high standard.
Higher Education Expert Candidate C	Position: the candidate serves as the head of the faculty of a private university, in addition to acting as the local faculty representative. He is responsible for overseeing matters related to professors, planning processes, personnel, examination boards, and ensuring the smooth operation of teaching activities.
Higher Education Expert Candidate D	Position: the candidate is the Campus Director of a private German design university. Her responsibilities encompass managing Faculty and staff, developing strategic plans for the campus, as well as overseeing budget and financial management.

Action Research

The author did not have any comparisons with other practical fashion curricula in the digital e-learning field at universities. No digital e-learning program has yet been developed in Germany and Europe that specializes in academic practical fashion course content in Made to Measure, i.e., cutting technique, sewing technique and collection design at the same time. Therefore, there are no comparisons in the academic field.

A digital e-learning pilot program had to be developed within this research, and then tested for suitability and effectiveness by Action Research of test students. This action research methodology will be discussed in this chapter which will focus on the context of the pilot program and its components.

Through the close participation and collaboration of three model students from different age groups and educational levels based on skills in fashion production, this Action Research took place. They studied and evaluated the UniFash pilot program and its complete beginner, advanced, course and fast-track course over a period of 6 -12 months. Nevertheless, the entire testing process spanned a total period of one year. The entire testing and evaluation process started from March 2022 and continued until March 2023. These results were used in the research process and to adapt the developed pilot program to the market needs of higher education institutions. The evaluation of the Fast Track course took 2 months, while the evaluation course of the Beginner and Advanced courses of this pilot project UniFash last 6 months, as these courses consist of multiple course modules. All course and module contents are aligned with the academic module contents of fashion design colleges and clothing apprenticeships, focusing on the principles and techniques of pattern making and garment production. These contents have been developed based on this foundation and meticulously refined within an e-learning course, led by a researcher with extensive international experience as a fashion education expert, in collaboration with professional bespoke master tailors (Peitzmeier, 2023).

The aim of Action Research is to identify problems in practice and to develop and implement solutions together with the people involved. The aim is to understand both the problems and the solutions by collecting data from practice and thereby achieve changes and improvements in practice (Cohen et al., 2018).

Table 2: Description of Test Students

Test Student Number 1	Female test student number 1 from Germany received the course for beginners; the duration of the test phase was 6 months.
Test Student Number 2	Female test student number 2 from Germany received the advanced course, the duration of the test phase was 6 months.
Test Student Number 3	Male test student number 3 from Germany received the fast-track course beginner, the duration of the test phase was 2 months.

The selection criteria for the trial student for the action research and pilot project

The selection of participants and the ongoing incorporation of their input are crucial methodological procedures that must be taken to assess the efficacy of the digital education program and modify it so that it better meets the requirements of the people who are taking part in the study. Participants in this preliminary research came from Germany to explore the applicability and efficiency of the digital education program across a variety of educational systems. It was essential to have a participant pool that was representative of a wide range of backgrounds and experiences. During the research, the information was available in German as well in English. This was done to ensure that participants could successfully complete the course modules. In addition, participants of various ages, educational levels, and educational goals were chosen to illustrate the adaptability of the digital education program. This was done so that the diversity of the program could be shown. This made it feasible to identify the potential obstacles and demands of distinct target groups and to customize the program accordingly to meet the individual requirements of each of those target groups.

To generate significant results and ensure that the digital education program was relevant and effective for a wide range of persons with a variety of backgrounds and goals, it was essential that a targeted selection of participants from this diverse group be made, and that those participants then be included in the study (Peitzmeier, 2023).

Each of the three trial students was enrolled in distinct courses comprising specific course modules. Female student 1, hailing from Germany, participated in a beginner-level course with a testing duration of 6 months. Her individual objective for engaging in the program was to establish her own bespoke fashion atelier and become self-employed in the field. Female student 2, also from Germany, undertook an advanced course spanning 6 months. Her intention was to initiate a secondary business in fashion design, focusing on tailoring and patternmaking alongside her primary employment. In parallel, German male student 3 enrolled in a fashion drawing course conducted in the German language. The test phase for this course spanned 2 months. His personal aspiration revolved around advancing his practical drawing skills in preparation for his future pursuit of fashion design studies.

In Germany, there has been a persistent shortage of skilled workers in the fashion trade, with a particular emphasis on the tailoring sector. A potential underlying cause for this scarcity could be the inadequate inclusion of practical craft modules in university and college curricula. This insufficiency has spurred the development of the UniFash pilot program, aiming to address the skills deficit. However, the lack of hands-on training opportunities poses a challenge to the training and development of skilled fashion tailors. The need to bridge this gap and provide practical training solutions within the educational framework emerges as a pressing problem in this context. This problem has been recognized and has led to the development of the pilot program UniFash. The aim of UniFash is to provide students with basic custom-made fashion tailoring skills. The program consists of digital courses that are structurally divided into Beginner and Advanced courses. Depending on the experience level of the student, the appropriate courses can be selected. The courses are designed so that participants can learn the content independently without the presence of a teacher or professor.

For this purpose, the courses have been provided with digital illustrations that clearly show the content of the courses. The full program lasts at least one year but can be completed at different speeds depending on prior experience. After completing the program, participants have moderate to advance skills in fashion tailoring and can apply it in practice.

The UniFash pilot program has the potential to reduce the skills shortage in the fashion craft sector by facilitating access to practical craft modules and improving the training of skilled workers in fashion tailoring. This could lead to positive long-term effects on the economy and education in Germany (Peitzmeier, 2023).

Online Survey

An online survey was created to evaluate the individual courses and their module contents. The online survey included questions to assess the didactics, such as the rhetoric and comprehensibility of the modules, audio and video quality, evaluation of the PDF presentations, and the purpose of the training.

Additionally, questions of ranking were asked about the technical infrastructure, the level of difficulty, the effectiveness of the feedback sessions, and the likelihood of recommendation. The survey administered to a sample of three test students comprised structured closed-ended questions employing a five-point Likert scale, supplemented by a restrained application of statistical analyses. Furthermore, the survey incorporated open-ended questions designed to elicit detailed feedback on enhancement suggestions and to evaluate the quality of course content and teaching methodologies. Accordingly, this investigation may be delineated as a fusion of qualitative and quantitative research paradigms.

The researcher engaged in close collaboration with participants, who comprised the test students of the UniFash pilot project. Various data collection methods were employed, such as interviews and weekly review sessions involving course students of the test participants during the testing phase. Subsequent course evaluations after course completion encompassed improvement suggestions and feedback. Stakeholders were primarily interviewed about the necessity and feasibility of the pilot project, with less emphasis on individual course modules (Peitzmeier, 2023).

The students had the opportunity to communicate regularly with the researcher over a period of 2 – 12 months about their progress and possible questions and suggestions regarding the content and didactics of the program. Henceforth, in this data collection process, not only was cross-sectional data collection utilized, but longitudinal data collection analyses were also conducted. Specific questions about the content were written down in a table and the answers were posted in a forum, among other things, in the section of today's questions for following students. Comments on technical details or didactic changes from the students were directly incorporated into the development of the course. Weekly feedback sessions for the trial students were provided to incorporate it into the course development process.

A short overview of the survey is presented in the next chapter Data presentation. The student number 1 evaluated the Beginner Course, which lasted six months; female student number 2 evaluated the Advanced Course, which also lasted six months.

Male student number 3 evaluated the Fast-Track Course in Fashion Illustration, which lasted for two months. A hybrid approach that combines both qualitative and quantitative methodologies was adopted to glean insightful findings (Peitzmeier, 2023).

Description of the implementation process

This research uses the infrastructure of the training centre to deliver online course modules for fashion production skills training. First, a training platform was selected through which our courses can be streamed online, and which is connected to our website. An IT professional thoroughly tested and optimized the platform to ensure smooth operation. Further details of the IT infrastructure you will find at UniFash Online Campus at www.unifash.eu (Unifash, 2024).

The courses were divided into two categories: Beginner and Advanced courses (Unifash, 2024). Each course covers specific technical skills needed in the fashion industry, such as cutting and tailoring. The course structure has been meticulously tailored, drawing inspiration from the practical course modules commonly found in fashion design universities or vocational schools specializing in fashion production technology.

This adaptation was undertaken to ensure the utmost relevance and applicability of the training content. The researcher, who boasts over 20 years of senior managerial experience within international fashion design institutes, played a pivotal role in the development process. Leveraging her extensive expertise, she has previously conceptualized and fine-tuned multiple programs, subjecting them to rigorous testing for accreditation. This substantial background enabled her to adeptly adapt the course structure and modules to align seamlessly with the objectives of the pilot project.

The online platform was developed to offer bilingual courses and meet the needs of both German and English-speaking students. However, during the testing phase of this doctoral thesis, only the German version of UniFash programs was tested.

Following the development phase, the program was also successfully made available to an international English-speaking audience, achieving a level of success comparable to what is further detailed in this manuscript. This will grant a wider reach and access to quality fashion production education for an international audience. The content of the courses has been carefully created, considering both theoretical knowledge and practical applications. Students have access to learning materials such as video tutorials and supplementary resources such as detailed course PDF presentations and sample cuts to print. The participants need a stable internet connection, a printer and a laptop or computer. A student forum has also been set up where students can regularly ask questions about different courses if they are unclear or have suggestions for improvement. A UniFash Helpdesk Centre was also set up so that students could make a personal online appointment for questions or technical assistance. This combination of learning methods provides students with a comprehensive education in the required fashion production skills (UniFash, 2024).

Data presentation of the Pilot Project UniFash

Pilot projects are a commonly employed strategy in policy, management, and higher education to test and adapt innovations within real-world contexts. They offer valuable insights into how innovations interact with their environments, serving as steppingstones for societal change by facilitating social and policy learning.

In the realm of higher education, pilot initiatives enable the testing and evaluation of new educational methods, programs, and technologies on a limited scale before broader implementation. This approach helps identify potential challenges, gather evidence-based data, involve stakeholders, encourage innovation, and research, and inform scaling decisions.

Vreugdenhil et al. (2012) highlight pilot projects as tools to navigate the complexities of socio-ecological systems, enhance communication, and allocate resources effectively. This pilot project will enable students from diverse cultural, social, and educational backgrounds to embark on their own fashion design careers specializing in fashion handicraft and bespoke production in a short period of time. Ultimately, this initiative aims to contribute to economic growth and provide accessibility and adaptability to students from various backgrounds.

The aim of this pilot project is to prepare graduates in German higher education to get the practical skills set to successfully start their own studios and launch their own customized model lines as entrepreneurs. Integrating this concept into the curriculum will provide students with an additional career opportunity while meeting the need for skilled professionals in fashion production.

Interpretation and presentation of the pilot data and results

The interpretation and presentation of the pilot data and results provide insights into the findings obtained from the evaluation process (Peitzmeier, 2023). The pilot data collected through the online survey and supplementary Word documents were analysed to gain a comprehensive understanding of the course evaluations. This qualitative and quantitative approach was employed to extract meaningful insights.

The survey of three test students encompassed both closed-ended questions utilizing a five-point Likert scale, accompanied by limited statistical analyses. Moreover, it incorporated open-ended questions, for which thematic and pattern analysis techniques were employed. Consequently, this research can be categorized as a blend of qualitative and quantitative methodologies.

The responses from the online survey were subjected using statistical techniques, such as means and frequencies, to summarize the participants' ratings and rankings. These measures provided an overview of the overall satisfaction levels and identified any patterns or trends across different courses (Peitzmeier, 2023).

Presentation of the results

The results of the pilot evaluation were presented in a clear and organized manner to facilitate comprehension and highlight the most important findings. The presentation included the following components:

Demographic profile

To provide context for the findings, a summary of the participants' demographic information was included. This summary encompassed details such as age, educational background based on the experience level in fashion production skills, and the purpose of their participation in the UniFash educational training program.

Ranking analysis

The participants' rankings for various areas of the courses were assessed and presented. Items with the highest and lowest rankings were selected, and any significant discrepancies between the courses were noted.

Themes and feedback from the qualitative analysis

The qualitative analysis revealed several primary themes and patterns that were presented to provide a comprehensive understanding of the participants' perspectives.

Direct excerpts or paraphrased comments from the participants were utilized to illustrate these themes and offer valuable insights into their viewpoints. By including their feedback, the presentation aimed to provide a rich and nuanced understanding of the participants' experiences and opinions. Specific comments and recommendations for course enhancements were summarized based on the qualitative study.

These suggestions were organized into categories based on common themes or areas of concern. The pilot evaluation's limitations and issues were acknowledged and discussed. This included aspects like sample size, representativeness, and potential biases in data collection. Based on the test student's response regarding the organization's satisfaction, it can be assumed that the technical infrastructure, registration through the established customer service help desk, and software operation posed no issues for the Beginner Course (Peitzmeier, 2023).

Evaluation of the action research

The evaluation of the UniFash Pilot Project highlights its effectiveness in providing comprehensive and accessible digital fashion education. The pilot project employed a meticulous evaluation approach to gauge the satisfaction, learning progress, and feedback of participants across various course modules. This evaluation unveils the alignment of the project's objectives with the integration of digital fashion skills into a bachelor's program at a university. Throughout the evaluation, several critical aspects are evident. Participants consistently rated the didactics and comprehensibility of the course modules as excellent or outstanding. This indicates that the instructional design and teaching methods employed were effective in conveying the content to learners of different skill levels. Such positive feedback is vital for integrating these courses into a university program, where clear and understandable teaching is crucial for students' success (Peitzmeier, 2023).

The evaluation consistently praises the coherence of the course modules and their alignment with the participants' skill levels. This aspect is essential in a university curriculum, where courses need to build upon one another logically, ensuring students' progressive learning and skill development. Participants' assessment of audio and video quality varied from good to excellent. Some minor suggestions were made for improvement, which emphasizes the importance of maintaining high-quality production values to enhance the learning experience. This is particularly crucial when considering the integration of digital content into a university setting, where professional standards are expected. The additional feedback and support provided by the course instructors were frequently rated as excellent.

This highlights the value of personalized guidance and assistance in the learning process. In a university program, having instructors who are actively engaged with students and can provide timely feedback is a significant advantage. The quality and effectiveness of the PDF course materials were generally considered excellent. Clear and well-structured course materials are essential in a university curriculum, as they serve as valuable references and study aids for students. The open-ended feedback provided by participants led to valuable suggestions for improvement, including additional practice projects, clarifications on terminology, and enhancements to course materials. This highlights the responsiveness of the UniFash Pilot Project to learners' needs, a quality that is highly desirable in any educational setting (Peitzmeier, 2023).

Overall, evaluation of all three test students showcases the potential integration of the UniFash Pilot Project into a bachelor's program at a university. The positive feedback, high-quality content, and responsive approach to improvement align well with the goals of higher education institutions to provide students with practical and industry-relevant skills. The project's adaptability to different skill levels, its incorporation of modern technology and teaching methods, and its focus on improving learners' outcomes make it a strong candidate for integration into a university curriculum. By bridging the gap between theoretical knowledge and practical skills, the UniFash pilot project can contribute to the holistic education of fashion design students and prepare them for successful careers in the industry. In conclusion, the insights gleaned from interviews with industry experts highlight their concerns regarding the diminishing manual skills and training opportunities for aspiring fashion professionals, particularly in the field of tailoring. The shortage of proficient tailors and the absence of comprehensive trade education pose a substantial threat to the preservation of this traditional craft. (Peitzmeier 2023)

On the other hand, higher education experts acknowledged that while their universities had incorporated practical components into some courses, the emphasis on craft elements had diminished, largely due to a prevailing trend towards management-focused education. Additionally, spatial constraints and limited infrastructure hindered efforts to enhance craft-based education.

However, it is worth noting that all expert interviewees expressed support for the integration of craft skills into e-learning programs like UniFash. This underscores the potential of UniFash in addressing the spatial limitations and fostering internationalization, thereby contributing to the preservation and evolution of craft skills in the fashion industry (Peitzmeier, 2023).

FINDINGS:

The starting point of this research was to address the shortage by a digital skills training incorporated into the bachelor fashion curriculum. Additionally, it highlighted the lack of detailed and industry-oriented practical fashion content in universities due to a shortage of skilled personnel and insufficient infrastructure. Academic literature, industry professionals and the higher fashion education representative's views were presented to support this problem. The author of this paper refers to the main question of this thesis: *How could digital e-learning training courses in fashion production skills fit into German higher education?*

Due to the lack of academic and professional literature on the current state of the fashion industry in Germany and how to counteract the shortage of skilled workers through targeted digital training, information was gathered from expert interviews. In a similar vein, using expert interviews, the information that is lacking from the academic literature on practical fashion training modules offered at German universities, as well as their problematic return to the curriculum and its necessity, was investigated. The necessity and benefits of a digital practical education program in fashion production skills were investigated (Peitzmeier, 2023).

Key findings about the actual state of the German fashion industry

The global fashion industry encounters a multitude of challenges in the global market, including intense rivalry, price fluctuations, demand shifts, and technological complexities. The practice of outsourcing production to countries with lower wage rates has emerged as a prevalent strategy, resulting in a notable decrease in domestic manufacturing activities. According to academic literature, the German fashion industry holds considerable importance due to its prominent role as a leading provider of fashion

brands and a significant sales market. The fashion industry in Germany makes a substantial economic contribution to the country's gross domestic product (GDP) and employment landscape. This entity functions as a significant source of income generation and provides prospects for employment. Nevertheless, there exists a dearth of political and social recognition regarding the significance of fashion as a crucial economic and cultural resource (Peitzmeier, 2023).

It also emerged from the study that the German fashion industry is currently facing an absence of skilled labour, specifically within craft businesses. The decrease in the number of apprenticeships is a contributing factor to the shortage of skilled labour in the industry. The German fashion industry exhibits a lack of established avant-garde design practices, coupled with a noticeable decline in the level of craftsmanship. Proficiency in practical fashion and bespoke tailoring abilities, including advanced pattern making and sewing techniques, holds significant importance for avant-garde designers (Peitzmeier, 2023).

The findings from the elite interviews underscore the significance of German production in the fashion industry.

Despite the prevailing trend of outsourcing, the experts emphasize the value of manufacturing in Germany due to its skilled workforce, advanced specialized equipment, and commitment to sustainable practices. One major challenge highlighted in the interviews is the decline in apprenticeships and formal training programs for custom fashion tailoring. The lack of effort in acquiring necessary skills and the closure of training facilities pose a threat to the industry's ability to maintain skilled tailors and uphold the quality of production. In summary, the findings stress the importance of preserving craft skills, enhancing apprenticeship opportunities, and exploring innovative approaches such as e-learning to ensure the long-term sustainability and competitiveness of the German fashion industry. The potential benefits of reshoring and localized production are also recognized as effective means to address supply chain challenges and meet evolving consumer demands (Peitzmeier, 2023).

Key findings regarding the state of higher fashion education in Germany

The conducted interviews with decision-makers in higher fashion education and industry professionals gain insights and address questions regarding the decline in craft skills, the decrease in skilled custom fashion tailoring among today's youth, and the root causes of these issues. The findings from academic literature suggest that fashion education is a lucrative field that attracts students who perceive it as a lifestyle choice. National economic policies and the need for design education contribute to the expansion of fashion education, particularly in developing countries. However, the text highlights the 21st century challenges in developing contemporary curricula for fashion education that incorporate new skills and training required by the industry. There is a lack of practical fashion courses, including bespoke tailoring and pattern making at German Fashion Universities. German higher education is characterized by a substantial number of state-funded universities, primarily attracting most students. In the realm of fashion education, Germany offers diverse programs, both state-recognized and privately accredited. Different institutions emphasize practical skills to varying degrees, with some offering comprehensive hands-on modules while others lack advanced craftsmanship training (Peitzmeier, 2023).

Online courses in practical fashion skills are limited across the institutions studied. Overall, the integration of advanced practical fashion skills varies, despite a consistent emphasis on foundational design principles and theoretical understanding. In Germany, the analysis reveals a decline in fashion education institutions, including the closure of Esmod campuses in Munich and Berlin, as well as the Bekleidungsfachschule in Aschaffenburg. The study emphasizes the lack of bespoke tailoring, pattern making, and practical fashion design courses, particularly as e-learning programs that could be integrated in higher education. This finding underscores the need for innovative approaches such as the UniFash pilot program, which aims to make expert craftsmanship accessible online and preserve traditional skills in the digital age (Peitzmeier, 2023).

The conducted interviews with experts and decision-makers in higher fashion education offered valuable insights into the current landscape of fashion education in Germany and the potential for integrating practical craft skills through online courses. The

interviewed individuals, referred to as interviewee C and interviewee D, provided valuable perspectives on the competency of graduate students in the fashion field. Interviewee C expressed confidence in the proficiency of their university's graduates for careers as designers. The coursework at their institution focuses on practical projects, collaboration with real-world partners, and the development of project management and teamwork skills. Similarly, interviewee D affirmed that their students possess the necessary skills and depth of knowledge for the workforce. Both interviewees highlighted the inadequate incorporation of design craft elements in the academic programs offered by German universities. Interviewee C emphasized that the absence of well-established craft skills in the curriculum might result in students lacking motivation and a clear understanding of potential career prospects in craftsmanship. Interviewee D cited physical space limitations and high costs as barriers preventing their educational establishment from offering a fashion design degree. This underscores the need for alternative approaches, including online education (Peitzmeier, 2023). Regarding the potential integration of the UniFash pilot program and online courses, both interviewees expressed optimism about its benefits for fashion education. In conclusion, the interviews shed light on the strengths and challenges of fashion education in Germany, highlighting the potential of online courses to bridge gaps in practical craft skills and meet the demands of a rapidly evolving educational landscape (Peitzmeier, 2023).

Significant key findings from the pilot project: what role could the pilot project UniFash play for higher fashion education?

The evaluation findings indicate that participants expressed high levels of satisfaction with the courses, finding them beneficial and well-planned. The didactics and comprehensibility of the course modules were consistently rated as excellent, indicating effective teaching methods and clear instruction. The courses were perceived as coherent, with a well-adjusted difficulty level that matched participants' skill levels. The audio quality was generally rated as good, with occasional fluctuations, and suggestions were made for improvements such as clearer visuals and segmenting lengthy videos. The provided PDF course materials were generally of high quality, but participants

suggested enhancements such as capitalization of units of measurement, inclusion of scientific literature references, and comprehensive inventory lists. Participants highly appreciated the additional feedback and support from the lecturers, finding it helpful and inspiring. They also provided specific suggestions for improvements, including more practice projects, additional coloured examples, explanations of advanced terminology, and better organization of pattern printing. The evaluation also acknowledged limitations such as sample size, representativeness, and potential biases in data collection. Overall, the findings indicate a positive reception of the courses, with participants valuing the quality of instruction, materials, and support while also providing valuable insights for enhancing the course content and delivery (Peitzmeier, 2023).

DISCUSSION AND CONCLUSIONS

The UniFash pilot project marks a revolutionary shift in higher fashion education, not only in Germany but also worldwide, adeptly tackling current challenges such as the skills gap, while simultaneously introducing flexibility and enhanced practical skills through a digital education model. Upon completion of the UniFash pilot project, the Chamber of Commerce and Industry wrote a report on UniFash's vision to counteract the shortage of skilled professionals and assist the crafts sector with digitalization at https://www.wuerzburg.ihk.de/news/?tx_news_pi1%5Bnews%5D=8107&cHash=4cf83d9b882a3d87e3b6dcb86f78d86c (Industrie und Handelskammer Würzburg, 2023).

This initiative possesses the potential to not only enhance German higher education institutions and the industry by providing a more comprehensive education and thereby reducing the skills shortage but also to position them as leaders in global fashion education. The success story of the test students, who, after completing their pilot study, underwent a one-year Fashion Design training, has garnered widespread attention. This group includes German test students as well as international students who joined the 1-year digital training academy. After a year of online training with UniFash, they presented their collections to an international audience at the Paris Fashion Show.

This achievement also caught the attention of international media, including the BBC. The entire success story is highlighted at https://www.unifash.eu/news_trends (UniFash, 2024).

The broadcaster produced a documentary on the success story of the first international test student of UniFash. Following the completion of the German pilot study, the program is now also available for the international market, culminating in a luxury fashion show featuring custom-made garments. The concept of digital learning for craftsmanship, successfully translated and adapted not just for the German market but also for international application, demonstrates its viability. Following the translation of all course modules into English, a collaboration was initiated with the Swiss School of Management in Bellinzona, which has campuses in Dubai, Bahrain, Milan, Rome, and Cairo.

This higher education institute recognized the project as a valuable practical complement to their business college offerings, introducing a hands-on 1-year Diploma in fashion design and custom-made tailoring skills for the English speaking audience. The development of a Bachelor's degree in Fashion Business and Practical Design Skills, targeted for 2025, aims to preserve traditional craftsmanship and address the skills shortage through a blended learning approach.

To fully leverage this potential, several strategic recommendations have been made. Firstly, it is crucial to elevate the fashion industry to a position of economic and cultural significance with robust support from the government and broader societal recognition. This includes actively promoting German fashion brands on an international platform to boost visibility and competitiveness.

Secondly, there is a clear need for universities and colleges to enhance practical fashion education. This can be achieved by focusing on advanced technical skills and craftsmanship and integrating digital e-learning platforms. Collaboration with industry professionals is essential to improve the quality and relevance of education, making it more attuned to real-world demands.

Closer collaboration between the fashion industry and educational institutions is recommended to provide students with real-world exposure through internships, guest lectures, and industry-driven projects. This approach not only enriches the educational experience but also enhances employability and industry readiness among graduates. Support for bespoke tailoring and avant-garde design within German design schools is also advocated. By providing a solid foundation in practical fashion skills, schools can stimulate innovation and foster the development of avant-garde fashion in Germany. The adoption of digital learning platforms and technologies is suggested to make fashion education more accessible and adaptable, accommodating a diverse student population, including working professionals and those with geographical constraints. Additionally, supporting research and doctoral studies in new instructional strategies and curricular improvements is essential for the advancement of fashion education.

This includes financial backing for research that can lead to advancements in digital technologies and pedagogical methods. Regular updates and reviews of accreditation standards for fashion education programs are necessary to ensure they remain aligned with the ever-evolving industry demands. This includes incorporating digital technologies and practical skills into accreditation criteria. Finally, investing in professional development for faculty members in higher education to keep them abreast of digital teaching methods and practical skills is vital. This ensures high-quality mentoring and instruction, keeping pace with industry trends and innovations. By embracing these recommendations, German higher education institutions can significantly enhance the landscape of fashion education. The integration of the UniFash pilot project and digital e-learning courses focused on fashion production skills addresses existing skill shortages and ensures the future success of fashion professionals. This initiative is set to strengthen the connection between academic learning and the contemporary demands of the fashion industry, benefiting students, educators, and the industry at large.

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