



THE SIGNIFICANCE OF PATTERN CONSTRUCTION IN JUMPSUITS: FOSTERING WOMEN'S CONFIDENCE AND EMANCIPATION

Original scientific paper
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ABSTRACT: Women were historically forbidden to wear trousers, which are generally associated with men. According to the research, accepting a new fashion style required adherence to cultural norms, customs, and expectations regarding appropriate clothing. Given that it symbolizes the emancipation of women on many levels, the wearing of trousers by women emerged as a significant symbol and turning point in the history of gender and fashion. In today's world, the proportion of women who buy trousers has increased significantly compared to the proportion who buy skirts. Wearing trousers became a symbol of masculinity, strength, and fighting skills in a patriarchal society. The jumpsuit has had an interesting journey since its creation in the early 20th century as a practical item of clothing for paratroopers. It has established itself as an essential piece of clothing in women's fashion, from its origins as protective equipment, through its peak as a fashion statement in the 1970s, to the status of a multi-purpose universal piece. Inspired by this type of clothing that has great significance for women, two types of women's overalls were created in this work.

Keywords: jumpsuits, trousers, pattern construction, modeling.

ZNAČAJ KONSTRUKCIJE KROJA U KOMBINEZONIMA: NEGOVANJE ŽENSKOG SAMOPOUZDANJA I EMANCIPACIJE

APSTRAKT: Ženama je istorijski bilo zabranjeno da nose pantalone, koje se generalno povezuju sa muškarcima. Prema istraživanju, prihvatanje novog modnog stila zahtevalo je pridržavanje kulturnih normi, običaja i očekivanja u vezi sa odgovarajućom odećom. S obzirom na to da simbolizuje emancipaciju žena na mnogim nivoima, nošenje pantalona od strane žena pojavilo se kao značajan simbol i prekretnica u istoriji roda i mode. U današnjem svetu, udeo žena koje kupuju pantalone značajno se povećao u poređenju sa udelom žena koje kupuju suknje. Nošenje pantalona postalo je simbol muškosti, snage i boričkih veština u patrijarhalnom društvu. Kombinezon je imao zanimljivo putovanje od svog nastanka početkom 20. veka kao praktičan odevni predmet za padobrance. Uspostavio



se kao neophodan komad odeće u ženskoj modi, od svojih početaka kao zaštitne opreme, preko vrhunca kao modne izjave 1970-ih, do statusa višenamenskog univerzalnog komada. Inspirisani ovom vrstom odeće koja ima veliki značaj za žene, u ovom radu su kreirana dva tipa ženskih kombinezona.

Ključne reči: kombinezoni, pantalone, izrada kroja, modelovanje.

1. INTRODUCTION

Growing consumer demands and technological advancements have had an impact on the apparel industry's development. Having expert pattern-making abilities to satisfy customers is one of the requirements for being competitive in the apparel sector. As a result, a variety of pattern-making techniques have been developed to specify the appropriate size and fit of clothing for varied body types and measurements [1]. A collection of 2D template parts for a simple 3D garment makes up the clothes pattern. The use of computer-aided design (CAD) for the creation of clothing and virtual prototyping has recently emerged as a clear trend in various industries and designers [2,3,4]. These days, virtual prototyping enables us to create accurately and fast as well as swiftly changing clothing. The outcome of a wide range of methods that have also seen significant development over the past ten years is virtual clothing simulation [5]. Clothing that fits well should have the right proportions, sit correctly on the body, and be loose enough to avoid compression, pulling, and fabric distortions. Even though each customer's fit preference may be unique and subjective, clothing makers should consider the target market's body size and type when going through the manufacturing process.

Gender is visually expressed through clothing, which varies greatly from culture to culture. Playing complimentary roles is only one aspect of gender-specific attire; power dynamics are intricately linked. Although it might not necessarily change the current power dynamics, Western women's adoption of pants, for example, represents a substantial reinterpretation of femininity [6]. The "right to pants" for women is very new, even though women's trousers are now generally accepted. In summary, trousers were considered a man's garment since the 14th century, and in certain regions, they were even illegal for women to wear. Over time, trousers became a symbol of manhood, strength, and battle power in a patriarchal culture. So, the women's rights movement and the women's trousers movement have been intimately related since the middle of the 19th century. As a sign of women's independence and a new, active position in society, trousers were promoted [7]. However, the general female population responded to this new fashion trend with considerable hesitancy. When women were able to participate in sports, paid employment, and other male-dominated fields of society, they began wearing trousers [8,9]. When trousers first appeared in Western women's fashion in the 1920s and 1930s, they were hailed as a symbol of women's liberation in the years following World War I, since it was deemed vulgar for women to wear fabric between their legs until the 20th century [10]. Consequently, "pants" have often been an undergarment type throughout evolution [11]. They are defined as "an outer garment covering the body from the waist to the ankles, with independent region for each leg," with the front and back crotch lines being sewn through [12,13]. Compared to

skirts, trouser pattern generation requires more body dimension data, movement appropriateness is more important, and trouser patterns are more likely to display significant body form [14].

History and culture are intertwined with the fashion industry. Some pieces make a lasting impression on the fashion industry, even though trends change over time. The jumpsuit is one design trend that evolved from its practical beginnings to become a cherished and timeless style icon. The top and bottom of this garment are combined to create a single, flowing piece that exudes sophistication and style. It is the pinnacle of adaptability, providing a smooth fusion of style and utility. It is a popular runway sighting and a hallmark of high fashion. To fit the spirit of the season, designers are always reinterpreting this timeless classic by combining different fabrics and cuts [15]. The modern jumpsuit was created by Italian painter Ernesto Michahelles (1919), a member of the Futurist movement. Because of its "T" form, it was referred to as the "Tuta" in Italian back then, and skydivers and parachutists wore them. By designing "lounging pyjamas" that woman wore during the warmer months while vacationing on the French Riviera, Coco Chanel elevated the jumpsuit to a new level in the 1920s. In terms of society, she represents the new free woman who appeared at the turn of the 20th century, bringing with her a new form of femininity based on financial autonomy, freedom of movement, and an easy-going, natural style of dressing. She knew how the modern woman would dress and, she liberated women from the weight of superficiality that had previously limited their motions and, in the process, created a new ideal of femininity. For women who, like Chanel, yearned for their own independence, this new ideal evolved into a new identity [16]. The Italian designer Elsa Schiaparelli, who is frequently mentioned as Coco Chanel's competitor, produced silk jumpsuits in the next year (1930), giving the fashion a more refined and feminine edge. In the 1950s-1960s, the jumpsuit was revived with the update of wide pants known as palazzos and flares. Later, in the 1970s they peaked in the disco era. Pop stars like Cher and Abba adopted it as their style [17]. Karl Lagerfeld revitalized the Parisian fashion house Chanel in the 1980s by reimagining historic Chanel pieces in a chic-sexy postmodern pastiche. Lagerfeld created his first Prêt-à-Porter line in 1984, which included the first Chanel Jeans. Chanel gave young ladies a contemporary, out-of-the-ordinary pants look that reflected the current zeitgeist and fight for gender equality [11]. In the decades that followed, Yves Saint Laurent, André Courrèges, and Emilio Pucci brought their dramatic interpretations to fashionable European society. At the same time, Hollywood celebrities contributed to the glamorization of figure-elongating, cinched-waisted styles on the big screen [18]. During the 1980s and 1990s, key trouser fashion trends were characterized by unique silhouettes, fabric selections, and cultural influences that captured the essence of each decade. A variety of jumpsuit designs were identified, including tight, frequently neon or animal-print denim jumpsuits worn with matching T-shirts or sweaters; loose, baggy styles with huge pockets inspired by hip-hop and street fashion culture; and frequently narrower and cinched around the ankle. Pop music and young subcultures were the driving forces behind a bold, inventive, and vibrant fashion culture that was represented in all these trends [19,20].

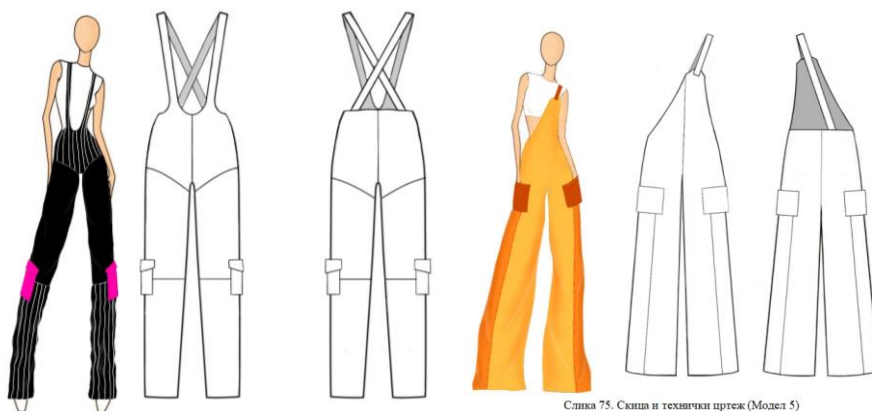
One of the largest issues facing the apparel business is how to put together and fit clothing, and pattern development is crucial to the production of clothing [21]. Thus, the following

studies demonstrate the significance of clothing construction and its relationship to historical landmarks and fashion innovations [22-25]. Women are more likely than men to wear trousers today, and there is a growing need for pants that meet physical, aesthetic, and mobility-related goals in addition to functional ones. Jumpsuits provide a multitude of styling alternatives for any occasion, whether they are formal, informal, or extravagant [26]. Therefore, because jumpsuits blend practical design, psychological impact, cultural significance, and expressive potential into a garment that empowers the wearer both psychologically and visually, academic fashion studies see them as symbols of confidence. Guided by this reality, this paper aims to construct and model two types of women's overalls.

2. EXPERIMENTAL PART

In accordance with the above-presented topic, in this study two types of women's trousers models inspired by the jumpsuit fashion were created. Figure 1 shows the technical sketches and drawings of both models.

Model 1 description: This model has a side, slanted zipper, wide straight legs, two straps and two pockets with a decorative flap in the knee area. They are made of three different materials and have 3 front parts and 3 back parts. Figure 1 shows a sketch and technical drawing of both models.



Слика 75. Скица и технички цртеж (Модел 5)

Figure 1: Technical sketch and drawing of Model 1 and Model 2

Model 2 description: It has wide legs and two pockets. The upper part has one strap. On these jumpsuits, the darts are taken in the width.

3. RESULTS AND DISCUSSION

The basic pattern design is created using body measurements and features a reasonable amount of mobility [27, 28]. So, the initial step in garment production is the creation of the cut patterns. Therefore, for both models, we use the basic construction of a woman's pants [29]. The second step is modeling the basic pattern construction.

For Model 1, the following modifications have been implemented:

- Widen the leg in the knee area and the length by 2cm;
- The dart is removed laterally, and model a strap 45 cm high and 3.5 cm wide at the top;
- The division of the front part into 3 parts. The first part is 25 cm from the waistline, from the side of the hips, and 3cm from the seat. The division of the second and third parts at the knee line. The modeling of the front part is shown in Figure 2.

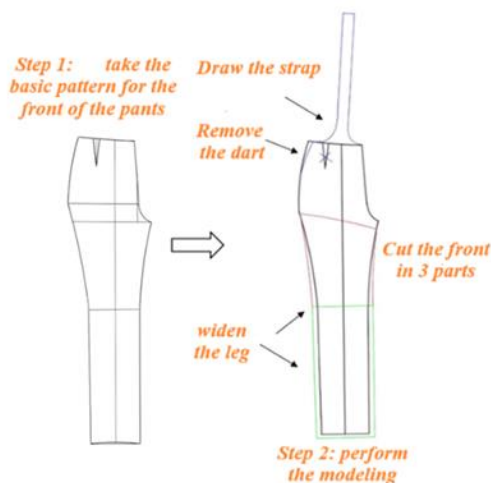


Figure 2: Model 1- Front modeling

The back part of Model 1 starts by removing the seam laterally and expanding the leg and dividing it into 3 parts, just like the front (Figure 3).

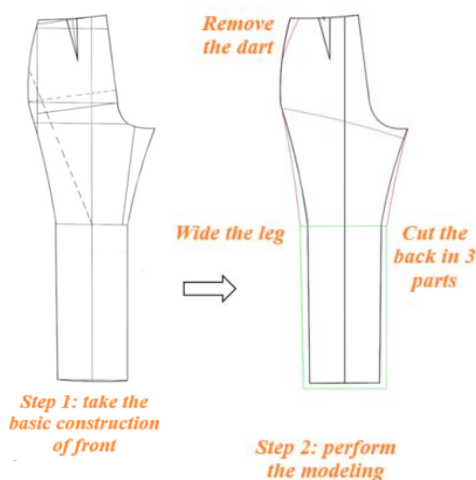


Figure 3: Model 1- Back modeling

The construction of the pockets and straps is presented in Figure 4. A pocket is being constructed with dimensions 20 x 15 cm, and the pocket flap with 17 x 3 cm and the top length of 5 cm. The strap is being constructed with dimensions 46 x 3.5 cm.

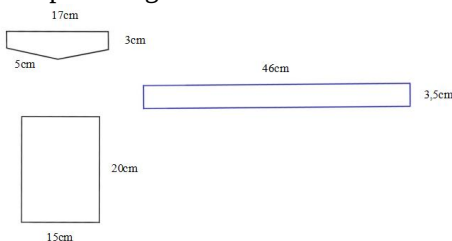


Figure 4: Modeling of strap, pocket, and pocket flap

The modeling of the front part of Model 2 is presented in Figure 5. Both front parts of this jumpsuit are modeled differently. The only difference is in the modeling of the upper part; the legs are the same. On the right front part, from the waist up, draw the upper part, which is 25 cm high, and let's take a dart in width. In the knee area, it expands the leg by 3.5 cm on one side and 3 cm on the other side. The length of the incision is extended by 3 cm. A separate piece is also marked on the leg, which is located 14 cm lower than the seat line and is 8 cm wide.

The back part (Figure 6) is modeled only in the leg area, and it is the same as the front part. In this part, we also take the seam in the width.

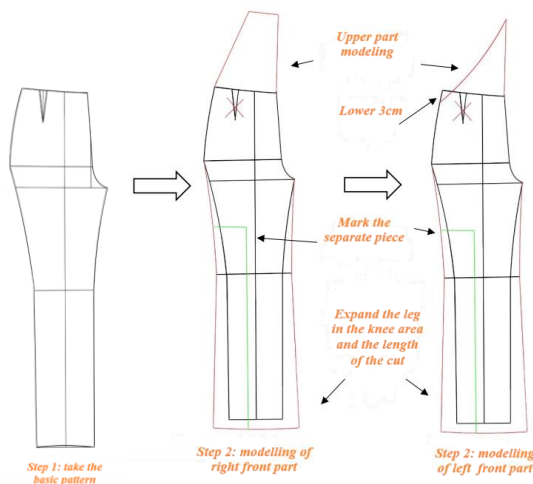


Figure 5: Model 2 - Front modelling

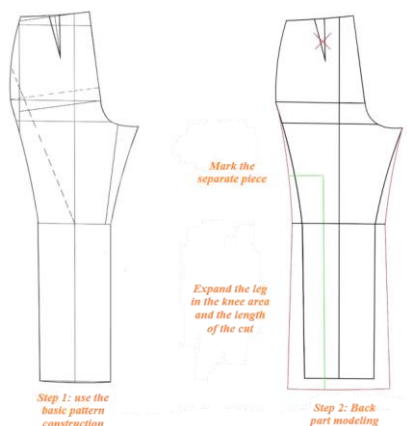


Figure 6: Model 2 - Back modeling

For this model, a strap with dimensions of 50 x 3.5 cm is constructed, and a pocket with dimensions of 20 x 20 cm is constructed.

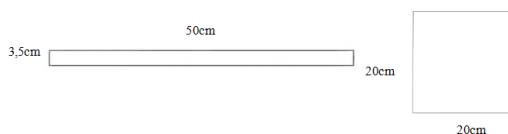


Figure 7: Strap and pocket construction for Model 2

4. CONCLUSION

Fashion is a cultural practice that creates and perpetuates social conditions in addition to reflecting them. The jumpsuit is a timeless piece that designers are constantly reinventing, from its utilitarian origin as unintentionally stylish air force wear to its dominance on the hedonistic disco dance floors of the 1970s to its current role as a mainstay of street style. These days, it has become an essential piece in any wardrobe and gives a multitude of styling options, whether it is worn elegantly, casually, or extravagantly. The jumpsuit is a timeless fashion icon because of its effortless ability to blend comfort, style, confidence, and adaptability. Its attractiveness lies not only in its appearance but also in its ability to reflect the evolution of fashion. The aim of this paper was to construct two models of jumpsuits, inspired by their significance for the upliftment and liberation of women. At the same time, our intense was to point out the importance of knowing basic construction and its modeling, since knowing this, every idea for creation can be designed.



REFERENCES

- [1] Lim H.W., Cassidy T. (2017). *A comparative study of trouser pattern making methods*, Journal of Textile Engineering Fashion Technology, 1(5), 189-196.
- [2] Jankoska, M., Stevkovska Stojanovska, R. (2024). The Impact of 3D Design and Virtual Simulation in Garment Creation, *Textile Science and Economy, 14th International Scientific-professional conference*, 25th October, 2024, Zrenjanin, Serbia, 94-102.
- [3] Jankoska, M., Stevkovska Stojanovska, R., & Donevska, A. (2024). 3D Virtual Simulation of Clothes Fitting and Fabric Draping, *7th International Scientific Conference Contemporary Trends and Innovations in Textile Industry, CT&ITI 2024, II Textile & fashion design*, Beograd, Serbia, pp. 375-384
- [4] Jankoska, M., Stojanovska, R.S. (2024). Comparison of a Computer - Aided Design and Manual Pattern-Making. In: Guxho, G., Kosova Spahiu, T., Prifti, V., Gjeta, A., Xhafka, E., Sulejmani, A. (eds) *Proceedings of the Joint International Conference: 10th Textile Conference and 4th Conference on Engineering and Entrepreneurship. ITC-ICEE 2023. Lecture Notes on Multidisciplinary Industrial Engineering*. Springer, Cham. pp. 461-467, Chapter of book https://doi.org/10.1007/978-3-031-48933-4_45
- [5] Stjepanović, Z., Rudolf, A., Simona, J., Gersak, J., Cupar, A., & Pogacar, V. (2011). 3D virtual prototyping of a ski jumpsuit based on a reconstructed body scan model. *Buletinul Institutului Politehnic Din Iasi*, Tomul LVII (LXI), Fasc. 1.
- [6] Chudi-Duru, C. (2024). *Sport as an influence on women trouser fashion: a case of igbo in South-Eastern Nigeria*. NJSS- Nnadiesube Journal of Social Sciences Vol. 5, No. 2, 32-52.
- [7] Roberts, M. L. (1994). *Civilization without Sexes: Reconstructing Gender in Postwar France, 1917–1927*. The University of Chicago Press.
- [8] Warner, P. C. (2006). *The Americanization of Fashion: Sportswear, the Movies and the 1930s*. In L. Welters, & P. A. Cunningham, *Twentieth-Century American Fashion* (pp. 79–98). Oxford: University of Massachusetts Press.
- [9] Turunen, A. (2020). Who Dares to Wear Trousers? Adoption of a New Fashion by Finnish Women 1920–1980. *Ethnologia Europaea* 51(2)
- [10] Eichhammer, B. (2020). *A little history of women's trousers*. sisterMAG, No. 57, ISSUE 03/2020.
- [11] Niu L., Pengfei L. (2022). *The Artistic Features of Women's Close-Crotch Pants Unearthed from Tombs of the Ming Dynasty in the Jiangnan Area of China*. Research Square
- [12] Oxford Dictionary. (2016). 'Oxford Dictionaries our story, products, technology, and news'. Oxford Dictionary Press.
- [13] Armstrong H.J. (2009). *Patternmaking for fashion design*. 5th ed. Pearson Education, USA.
- [14] Aldrich W. (2008). *Metric pattern cutting for women's wear*. 5th ed. UK: Wiley-Blackwell
- [15] Spruiell, B. (2024, February 28). *Exploring Fashion Trends: The History of the Jumpsuit*. Retrieved from Southboutique:

- <https://southboutique.com/blogs/news/exploring-fashion-trends-the-history-of-the-jumpsuit>
- [16] Andros, R. (2020). *A Look at Coco Chanel, Fashion, and History: An Introduction to and Translation of La Construcción de la Marca Personal de Coco Chanel a través de sus Fotografías*. Brigham Young University.
- [17] Shezi, N. (2016, December 11). A brief history of the jumpsuit. Retrieved from Timeslive: <https://www.timeslive.co.za/sunday-times/lifestyle/fashion-and-beauty/2016-12-11-a-brief-history-of-the-jumpsuit/>
- [18] Hastings, K. (2018, August 28). A look back at the history of one of fashion's biggest trends, jumpsuits. Retrieved from Vogue: <https://www.vogue.in/content/a-look-back-at-the-history-of-one-of-fashion-biggest-trends-jumpsuits>
- [19] Reddy, K. (2020, August 18). *1980-1989, 20th century, decade overview*. Retrieved from Fashionhistory: <https://fashionhistory.fitnyc.edu/1980-1989/>
- [20] Sessions, D. L. (2021, January 14). *1990s Fashion | 90s Fashion Trends for Women*. Retrieved from Vintagedancer: <https://vintagedancer.com/vintage/1990s-fashion-90s-fashion-trends-for-women/>
- [21] Jankoska M. (2021). 3D Virtual fitting system on woman's garment. *Tekstilna industrija*, Vol. 69, No. 4, pp. 72-79, <http://dx.doi.org/10.5937/tekstind2104072J>
- [22] Design, Z. (2025). *The History of the Jumpsuit: From work overalls to fashion must-have*. Retrieved from Gloriellas: <https://www.gloriellas.com/en/blog/the-history-of-the-jumpsuit-from-work-overalls-to-fashion-must-have>
- [23] Stevkovska Stojanovska, R., Jankoska, M. (2023). Ready-Made Garment Transformed in 2D Pattern Making Design. *11th International Conference TEX TEH 2023*, Bucharest, Romania, pp.115-122.
- [24] Jankoska, M., Stevkovska Stojanovska, R. (2023). Influence of architecture in clothing design, *Tekstilna industrija*, Vol. 71, No. 2, pp. 10-16, <http://dx.doi.org/10.5937/tekstind2302010J> .
- [25] Jankoska, M., Stevkovska Stojanovska, R. (2024). Connection of Women's Fashion Designs and Architectural Constructions. *7th International Scientific Conference Contemporary Trends and Innovations in Textile Industry - CT&ITI 2024, II Textile & fashion design*, Beograd, Serbia, pp. 287-295.
- [26] Jankoska, M., Stevkovska Stojanovska, R. (2023). Application of Futuristic Design in Women's Clothing Modeling. *VI International conference „Contemporary trends and innovations in the textile industry“*, 14 - 15th September, 2023, Belgrade, Serbia, pp. 194-202.
- [27] Cortosheva S., Jankoska M. (2021). *Construction of women's cloth*. Ars Lamina
- [28] Winifred A. (2015). *Metric Pattern Cutting for Women's Wear*. 6th edition Wiley.
- [29] Jankoska, M., Stevkovska Stojanovska, R. (2023). Modeling of Women's Pants Inspired by 60s and 70s. *VI International conference „Contemporary trends and innovations in the textile industry“*, 14 - 15th September, 2023, Belgrade, Serbia, pp. 332-340.