Contemporary customized clothes using folk motifs

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ABSTRACT – REZUMAT

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More and more consumers are attracted to fashion brands that make an extra effort to offer them personalized experiences. The unique details, as well as the complexity of the decorative elements of the folk costume inspire the fashion designers to return to the folk motifs, which they reinterpret and resize while integrating them in the contemporary space, offering models adapted to the customers' tastes, sizes and preferences and at the same time to make mass customization a profitable production. This study addresses the issue of personalizing clothing items with folk motifs.

In order to collect information on consumer satisfaction regarding the use of folk motifs in contemporary clothing, an online survey about the clothing available on the market and about personalized clothes with folk motifs was developed and applied. The survey was applied to a number of 548 respondents from Romania, Bulgaria, Canada and Spain. To determine the correlation between the answers to the questions for the four countries and to analyse the answers in each country, the PCA method was used. Based on the answers to the survey, certain motifs from the folk costumes were selected, reinterpreted in a modern way and inserted in two fabric patterns. The fabrics were produced on a Loom Jacquard SMIT Textile GS900.

Keywords: *customized clothes, folk motifs, woven fabrics, survey, customer's satisfaction, Principal Component Analysis (PCA)*

Utilizarea motivelor tradiţionale în îmbăcămintea contemporană personalizată

Din ce în ce mai mulţi consumatori sunt atraşi de brandurile de modă, care fac un efort suplimentar pentru a le oferi experienţe personalizate. Detaliile unice, precum şi complexitatea elementelor decorative ale portului popular îi determină pe designerii vestimentari să se reîntoarcă la motivele folclorice, pe care le reinterpretează şi le re-dimensionează, integrându-le în spaţiul contemporan, oferind modele adaptate gusturilor, dimensiunilor şi preferinţelor clienţilor, încercând, în acelaşi timp, să facă din personalizarea în masă o producţie profitabilă. Acest studiu abordează problema personalizării obiectelor vestimentare cu motive folclorice.

Pentru a colecta informaţii despre satisfacţia consumatorilor cu privire la utilizarea motivelor populare în îmbrăcămintea contemporană, s-a realizat şi aplicat un chestionar online despre îmbrăcămintea disponibilă pe piaţă şi despre îmbrăcămintea personalizată cu motive populare. Chestionarul a fost aplicat unui numar de 548 de persoane din România, Bulgaria, Canada şi Spania. Pentru a determina corelaţia dintre răspunsurile întrebărilor pentru cele patru ţări şi pentru analiza răspunsurilor din fiecare ţară în parte, a fost utilizată metoda PCA. Pe baza răspunsurilor chestionarului, au fost selectate anumite motive din costumele populare, au fost reinterpretate într-un mod modern şi au fost inserate în două modele de ţesături. Ţesăturile au fost produse pe un Loom Jacquard SMIT Textile GS900.

Cuvinte-cheie: *îmbrăcăminte personalizată, motive tradiţionale, tesături, chestionar, satisfacţia consumatorului, Analiza Componentelor Principale (PCA)*

INTRODUCTION

Authentic folk costumes [1] are not only of great beauty, but they also represent a landmark of the cultural identity of a people, a precious artistic, social and historical document.

The progress of modern society has occurred not without paying a price: the elimination of the folk costumes from their daily use, so that today they can only be seen at folklore events, craft fairs or in museums.

Fortunately, in recent years, we are witnessing an increasing interest in traditional motifs [2, 3] and their re-investment in modern clothing. Young fashion designers have understood that their duty is to find solutions to capitalize the folk motifs through modern technologies [4], so that, by re-interpreting and re-contextualizing them, our cultural heritage can be restored at the same time.

This paper aims to investigate design themes and recommendations purposed to be inspirational and guiding for fashion designers and manufacturers who want to incorporate folklore components in their designs, and used as a retrospective lens for experienced folklore elements for personalized clothing

designers to evaluate their existing creations for exploring alternative paths towards new designs.

LITERATURE REVIEW

Key elements of traditional folk fashion

Lifestyles and consumption patterns have changed significantly with mass production and the loss of identity but in the recent decades, in the context of assertion of cultural identity, society's interest in folk costume has increased. Folk inspired trend connects people to their past. The return to ethnic motifs and elements highlights the importance of cultural and social archetypes, which were developed during important historical periods and have preserved their meaning and essence until the present time [5].

Starting from the idea that every piece of clothing in the traditional costume has a story behind it, and that this story should not be forgotten, but should be made known to all, the authors of this study have set out to remind the importance of tradition and cultural heritage, in an increasingly globalized and industrialized world. It is important for clothes with folk elements details to gain more and more ground, and clothes inspired by traditional motifs will be appreciated especially in urban fashion, where these elements are disappearing.

Often, we are afraid that if we keep the elements of tradition alive, we will be considered outdated or old-fashioned by the new trends. That is why, when purchasing new wardrobe items, we usually focus on fashionable clothes or accessories. However, over time, they become less popular or they start to become outdated and so we stop wearing them. Therefore, when it comes to creating a wardrobe, it is best to invest in a few classic clothing items, which not only will not be outdated, but also give us the opportunity to combine them in a series of always trendy and elegant outfits. Some simple attire, such as a white button-down shirt, can be worn in so many different ways throughout any season, but if you added, for example, embroidery with folk motifs, this trivial piece of clothing could then turn into a special garment. In the same way, designers can integrate traditional motifs into their creations, combining old elements with new and original ones, to finally create bold pieces that can be worn to even the most sophisticated events.

Traditional motifs need to be re-invented and cultural background should not be forgotten. It must not only be re-invented with respect to traditions, but it must be restored to the modern times. Clothes with folk elements details can become statement items that could be integrated into outfits for special occasions too. These can be integrated into daring youth outfits, perfect for everyday fashion and if properly integrated, the traditional models are even cool for the younger generation. In an industrialized world, where clothes are made in large series, we consider that it is very important that the emphasis should be placed on the unique garments.

Mass customization

The studies on this subject show that the focus in the fashion apparel industry is on "exclusive experience", while the global keywords in most industries set off push factors of product standardization. At the same time, consumers are more than ever before demanding of products, services and brands and will no longer settle for the mass offerings suggested by many distributors. Whatever they purchase, they wish it had a personal touch. The concept of mass customization aims at offerings that best serve the individual customer's needs [6] and some segments of customers at the same time [7]. Custom-made clothing requires a good understanding of the expectations and particularities of each individual [8].

According to Pine [7], the success of personalization and mass customization rests mainly on the integration of the competitive advantages of the value chain. Businesses must achieve success by operating well on different axes that are commonly on different sides in most businesses: maintaining short supply lead times, talk time and cycle time while offering custom-made products that correspond to customers' specifications. In global economy where the competitive pressure is very high, the textile and fashion apparel manufacturers are forced to lower production costs and increase their efficiency. Nowadays, the fashion industry has to deal with labour efforts for production processes, small quantities with few repetitions, frequently changing styles and short delivery times. Moreover, customer demands determine the aesthetic design [9] and the functional requirements of the clothing regarding its usefulness and lifespan. In the fashion industry, the firms try to produce, adjust, sell, and deliver, in a systematic and automated fashion, personalized and made-to-measure products. [10].

It becomes important to use well mass customization tools when buying clothes online [11]. The product configuration is essential for an effective implementation of mass customization as it creates possibilities to guide the customers while they are making choices. Haug et al. [10] affirm that configurator's main objective is to ease the decision-making process of customers using a Web-based interface. The importance of interactive, digital and 3D technology programs cannot be denied but the major issue for the clothing brands is to find solutions for sizing and fit [12].

The literature review led to a certain framework for the entire study. Independent variables were technologies design elements, which were separated into ten aspects: context, content, community, origin, style, fabric, details, customization level, communication, and distribution.

Similarly, the dependent variables can be defined as customer needs for design participation; in this study, these are divided into two aspects: i) **consumer satisfaction** based on clothing types available on the market with folk elements details and if the style of clothing is a source of concern for the consumer;

ii) **consumer innovation** based on **the difficulty** of finding well-fitting clothes with folk element details, including the aspect of co-design tools and the desire to modify, stylize or personalize his clothes. If they are willing to pay more for clothes with fashion folk details and interest in having more influence on the design of the clothes they buy. Even more, they would like to be more creative in the folk art of fashion and thus have clothes with a strong identity from folk details.

MATERIAL AND METHODS

An online consumer survey aimed at collecting information about the customer's satisfaction about the folk elements (print, embroidery, etc.) within fashion clothing available on the market and on customized clothes with fashion folk details was carried out between January and March 2020.

The survey covered 548 respondents spread over four countries: Romania, Bulgaria, Canada, and Spain. Respondents were randomly selected regardless of education, employment and gender. All respondents were aware of the purpose of the survey and the purpose of using the data received. The survey was conducted on-line. For its creation, Google forms (Google Inc.) were used. It had three types of questions: two questions about consumer satisfaction and innovation; one open-ended question; one Yes/No question.

Questions for analysis of consumer satisfaction (Q1)

(Q1.1) Overall, I am satisfied with clothing available on the market (stores and web);

(Q1.2) I am satisfied with the folk elements (print, embroidery, etc.) within fashion clothing available on the market;

(Q1.3) My style of clothing is a source of concern.

Possible answers: (A1.1) Very dissatisfied; (A1.2) Mostly dissatisfied; (A1.3) Neither satisfied nor Dissatisfied; (A1.4) Mostly satisfied; (A1.5) Very satisfied.

Questions for analysis of consumer innovation (Q2)

(Q2.1) Overall, I have trouble finding well-fitting clothes;

(Q2.2) I have trouble finding nice clothes with folk elements (print, embroidery, etc.) on the market (stores and web);

(Q2.3) If possible, I would like to modify, stylize or personalize my clothes;

(Q2.4) I would be willing to pay more for personalized and well-fitting clothes;

(Q2.5) I would like to buy customized clothes with fashion folk details;

(Q2.6) I would like to have more influence on the design of the clothes I buy;

(Q2.7) I would like to be more creative in the folk art of fashion and have clothes with a strong identity from folk details.

Possible answers: (A2.1) Strongly disagree; (A2.2) Somewhat disagree; (A2.3) Neither agree nor disagree; (A2.4) Somewhat agree; (A2.5) Strongly agree.

Open-ended question (Q3)

What is the most important if you personalized your own clothes?

Yes/No question (Q4)

Do you know something about the co-creation/co-design approach: the process of the creation of clothing by customers?

The process of co-creation is active, creative and social collaborative and it involves the producers as well as the users, which goals to create value for customers [13]. According to [14] and [15], the most important principles of co-design process are: 1) to provide a variety of choices to customers; 2) to use an illustrating tool to show sample products before committing to the purchase; 3) to interpret the specification and materials, details and parts of each order so that the products exactly meet the customers' needs.

RESULTS AND DISCUSSION

Survey data analysis

The PCA method [16–17] was used in order to determine the correspondence between the answers of the questions for different countries and for analysis of answers from each country separately. The advantages of PCA are that it removes correlated features, improves algorithm performance, and of course improves visualization. The method is an appropriate tool to analyse the relationships among the variables of survey data.

Principal components were calculated by rows and columns of the table with answers and the results were presented graphically. The data were processed in Matlab 2017 environment (TheMathWorks Inc.). All data were processed at level of significance $\alpha = 0.05$.

Figure 1 shows the results from PCA about answers of Questions Q1 and Q2 in different countries. First two principal components describe 93% of data variance. 86% of data variance of Q2 is described by its first two principal components.

As can be noticed in the diagrams in figure 2, the distribution of answers is not uniform regarding the questions for analysis of consumer satisfaction (Q1) with clothing available on the market and with the folk elements (print, embroidery, etc.) within fashion clothing available on the market. In Romania and Bulgaria, the level of consumer satisfaction is much higher than the one registered in Canada and Spain. In Romania, 69% of the number of respondents and in Bulgaria 66% of the respondents are satisfied and very satisfied with clothing available on the market and with the folk elements (print, embroidery, etc.) within fashion clothing available on the market where as in Canada the percentage is only 40% and in Spain 52%.
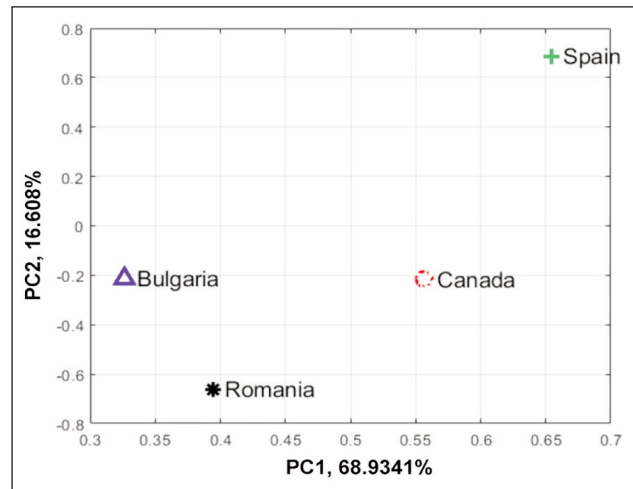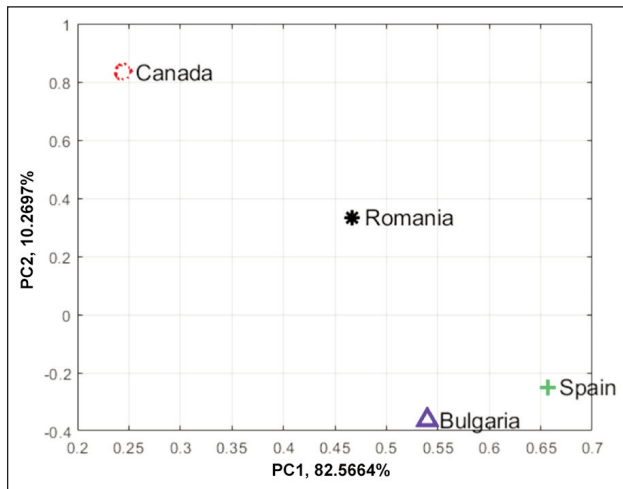
Fig. 1. PCA of answers of Q1 and Q2 for different countries: *a* – Question Q1; *b* – Question Q2

This could be explained by the fact that in recent years, both in Romania and Bulgaria, the traditional motifs have experienced an enchanting comeback. Renowned designers have included in their collections creations that pay tribute to the traditional costumes of these countries. The Romanian folk traditional blouse was re-interpreted and matched with the most modern clothing accessories, thus becoming a must have of the local wardrobe.

The low level of consumer satisfaction in Canada and Spain is due to the lack of innovation in the market. It seems difficult to find trendy clothes available on the market and with representative folk elements. This in itself is a headache for the North American market, looking for a traditional product, but with certified fair-trade options. What is available is more for tourists and specific events, but not fashionable. For various reasons, small companies in Spain also seek to manufacture their products in a fair and sustainable way.
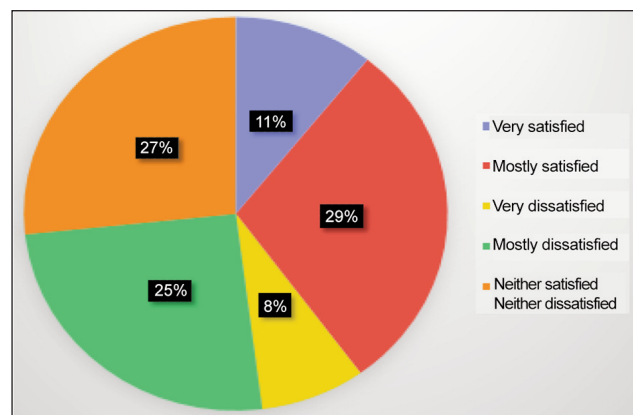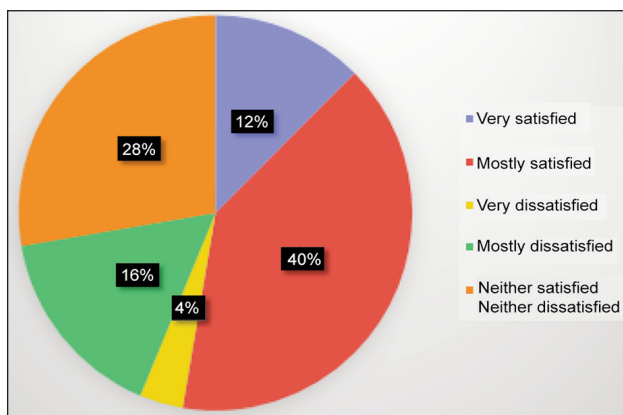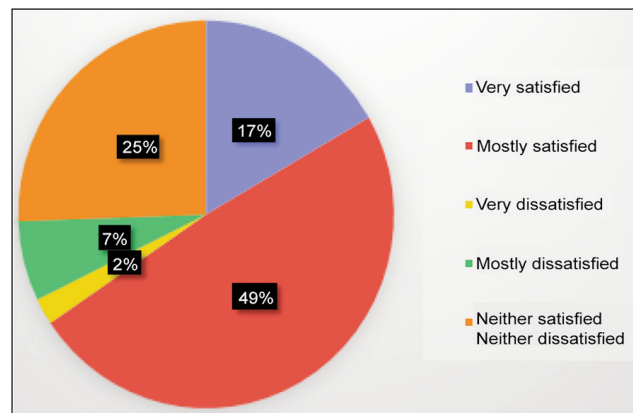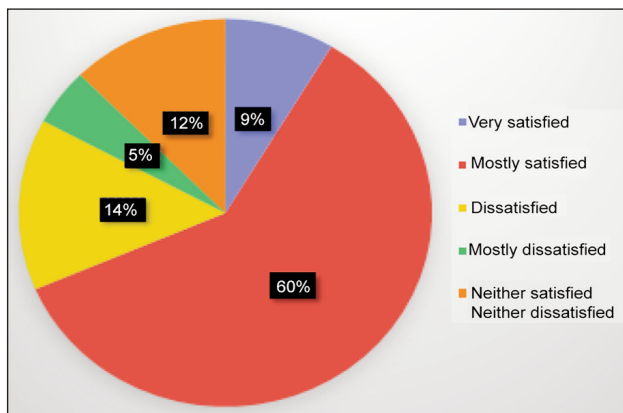

Fig. 2. Answers to question Q1: *a* – Romania; *b* – Bulgaria; *c* – Spain; *d* – Canada

However, just like Canada, the attractiveness of the fashion folk traditional products is not there. Spanish designers do not offer collections inspired from traditional Spanish motifs even though Spain has an important historical legacy. Different traditions between Spanish territories show significant differences between them, for example Andalusia, Aragon, Catalonia, Valencia, etc., but those differences have not yet been considered as ornamental motifs for fashion designers.

In reality, the results confirm that some consumers simply do not identify with the models and styles offered on the market. On the other hand, we need to underline that the printed and patterned market is growing, and that the consumer's interest seems to lean more towards the purchase of interpretations of traditional models like those of aboriginal and indigenous countries, and less in promoting or identifying with a particular ethnic identity.

In the second part of the questionnaire, (Q2) referring to the analysis of consumer innovation the distribution of answers is uniform in Romania, Bulgaria and Spain, exception being made for Canada.

As can be seen from the graphs in figure 3, consumers in Romania and Bulgaria reported problems with finding the right clothes and clothing items decorated with folk items. In these countries, the customers have expressed their desire to purchase personalized clothes and to have a greater influence on the design of the clothes they purchase. The interest in personalized clothes with folk motifs and the willingness of consumers to pay more for these types of products is also noticeable. In Spain, consumers have problems with finding the right clothes and express their desire to customize them, to influence their design and they are willing to pay more for such clothes. With regard to clothes adorned with folk motifs, it was found that in general there are no problems with finding such products. Compared to the responses received from the consumers from Romania and Bulgaria, a large part of the consumers in Spain is not interested in getting involved in creating clothes with folk details.

Responses received from Canadian consumers revealed that they generally did not encounter problems with finding the right clothes or the ones with folk motifs, but the Canadian consumer's interest in personalized and popular motifs is much lower than in Romania, Bulgaria or Spain. One of the main reasons is that, the folk motifs, patterns and design are less developed which creates a lower appeal for Canadians, except for native indigenous people, Inuit, Innu with folk design.

Regarding question Q3, from the data analysis we can notice that from the point of view of the respondents (Romania, Bulgaria, Spain and Canada), the most important aspects regarding the possibility of personalizing their clothing are related to the aesthetic component, the technical and functional component and the ergonomic component.

The colour and the colour combinations are what they would like to be able to customize for 13% of the respondents; the quality of the fabric – 14%, the texture of the materials – 7%, the fit and right size –
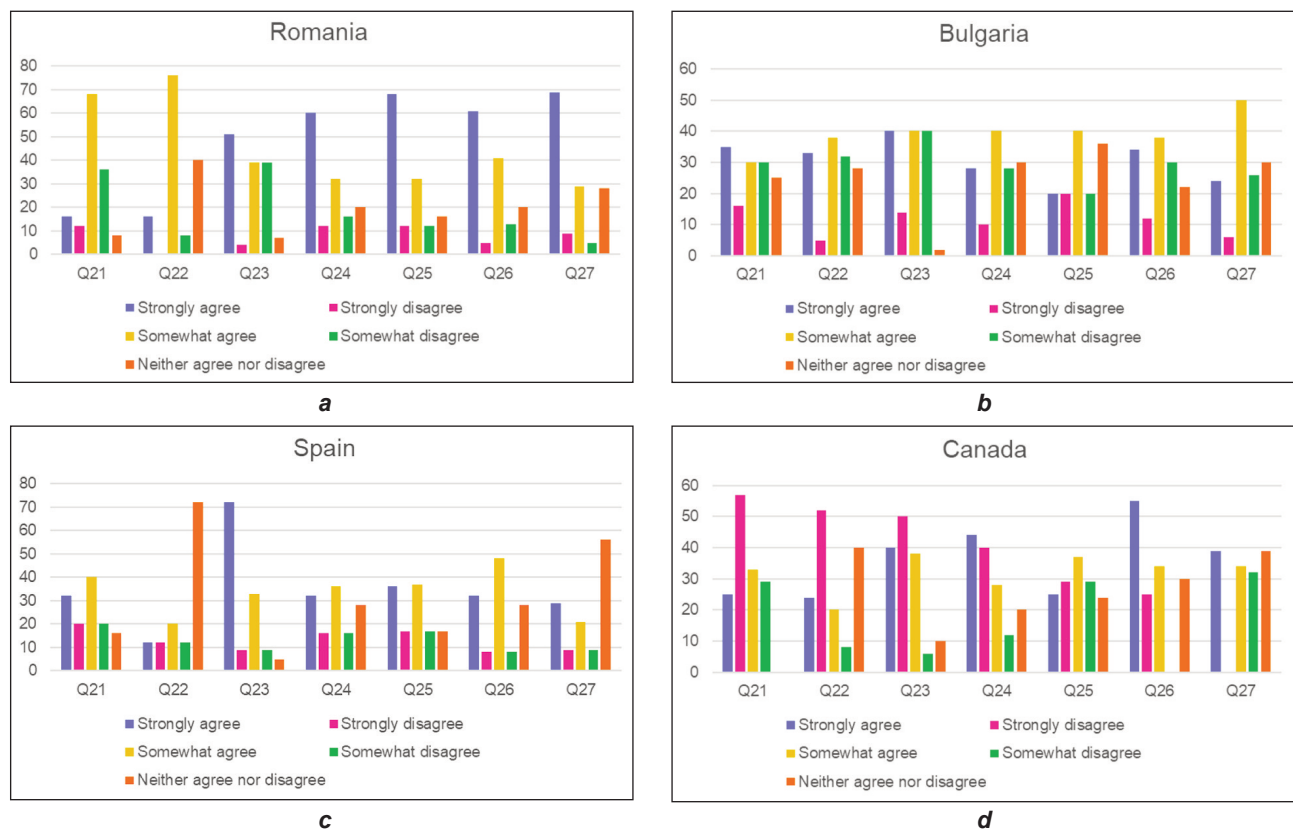

Fig. 3. PCA of answers to question Q2: *a* – Romania; *b* – Bulgaria; *c* – Spain; *d* – Canada
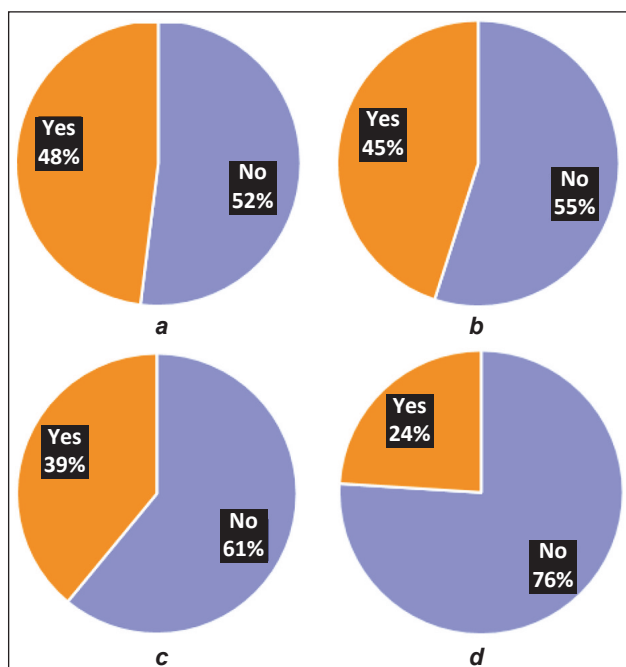
Fig. 4. Answers of question Q4: *a* – Romania; *b* – Bulgaria; *c* – Spain; *d* – Canada

26%, the comfort – 19%. A ratio of 21% of the answers the people are looking for bohemian vibes like dress and blouse with delicate embroideries and fancy print with fashionable folk details.

The answers to the question "Do you know something about the co-creation/co-design approach: The process of the creation of clothing by a customer?" highlighted that in all countries the notions related to co-creation and co-design are less known by consumers (figure 4).

Our research has certain limitations that should be emphasized and there are, in fact, many possible avenues for future investigation. First, due to a concern for simplification, we refrained from integrating other characteristics related to a manufacturer and designer that could have been relevant for example: the technical difficulties, know-how, capabilities, and fast fashion sectors. Besides, the fact that our research does not focus on a single category of business and products also has an impact on the external validity of our results.

Creation of custom designs by using folk motifs

Based on the answers of the questions 2 and 3 and inspired by the embroideries of folk costumes, the motifs taken from the traditional costumes have been reinterpreted in a modern way and have been inserted into two fabric designs. The influences of urban fashion can be seen in the geometric and floral models used. The old elements have been combined with some new and original ones, resulting in two bold materials, which can be worn even at the most sophisticated events. They combine the urban style with the traditional motifs taken from the traditional folk costumes.

The fabrics were produced on a SMIT Textile GS900 Jacquard Loom. The fabric ornamentation was obtained through its own weaving process. Both materials are perfect in order to adopt a very different style pattern and they combine the urban style with the traditional motifs taken from the traditional costume.

To visualize the virtual garment and to simulate fabrics drape and fit, different tools and functions of Vectary free online tool (https://www.vectary.com) were used (figure 5).

Vectary is a versatile application that can be used to create visually appealing 3D designs. To accelerate the design process, the keyboard and shortcuts of the application were used. It was possible to modify and create personalized objects with a professional output by drag & drop 3D models onto the scene. The personalized objects can be exported into 3D file formats, embedded in custom web page. Some Vectary's tools (modifiers, deformers, generators, and parametric primitives) were used to create and to edit 3D models.

This fashion simulation might resemble a stylish puzzle, made out of numerous key pieces that once put together do not assure an impeccable take on the trend (impeccable application but aesthetically good as a result).

Fig. 5. Creation of Custom design by using folk motifs

CONCLUSIONS

The trend called "customized clothes with folk motifs" will lead to an important renewal in the fashion apparel industry. The main particularities of this trend are personalized, stylish folks, shorter life cycles, quick response production, more specific customer preferences, and lifestyle purchasing. These characteristics will constrain the supply chain to create not only great opportunities, but also new challenges in fashion industry. This trend of revisiting the roots or back-to-the-land movement can be accomplished through personalization and mass customization, since its primary goals include quick response to fashion and customer's needs. The problem is not the quick response or in technology but the interpretation of drawings and the transfer of motifs: know-how. The notion of co-design becomes important in our case study. It remains to be seen if the consumer can

figure himself a design of folk motif adapted to what he wants and what he will eventually benefit.

• From the point of view of the actors of the fashion, the report is unanimous: the fashion with the traditional reasons should resume vigour.
• It is a fundamental folk trend, which is going to be accentuated, and to which it is imperative to adapt (more so for some countries).

The concepts of co-creation, co-design, personalization and mass customization give occasion to meet, even exceed, customers' expectations. Personalized clothing can help customers experiment with items with folk motifs they normally would not try to feel confident with how an item looks on their body before they place an order. These technology and digital approaches capitalize on comfort and convenience, which are priorities for innovating shoppers. The approach can create a real differentiation value for the manufacturer which is derived from focusing on its core competencies and from outperforming competitors on the market. However, the voice of the customers is crucial. They are sensitive to the relationship they can have with the product and the aesthetic aspect and the intrinsic part of cultural identity.

REFERENCES

[1] Veleva-Doneva, P., Yordanova, L., Kiryakova, G., Angelova, N., *The Secret Language of Bulgarian Embroidery,* In: Pedagogical Forum, ISSN 1314-7986, 2018, 2, https://doi.org/10.15547/PF.2018.010

[2] Mocenco, A., Olaru, S., Popescu, G.,Ghituleasa, C., *Romanian folklore motifs in fashion design*, In: Annals of the University of Oradea, Fascicle of Textiles, Leatherwork, 2014, XV, 1, 63–68

[3] Şuteu, M.D., Doble, L., Albu, A., Toth E., *Romanian traditional motif element of modernity in clothing*, In: Annals of the University of Oradea, Fascicle of Textiles, Leatherwork, 2017, XVIII, 1, 109–112

[4] Florea-Burduja, E., Irovan, M., Indrie, L., *Creativity and modern technologies boost the promotion of Romanian traditional motifs,* In: Journal of Social Sciences, ISSN, 2587–3490, 2019, 2, 3, 21–25

[5] Sims, M.C., Stephens, M., *Living Folklore: An Introduction to the Study of People and their Traditions*, Logan: Utah State University Press, 2005, 1–2

[6] Hart, C.W.L., *Mass customization: Conceptual underpinnings, opportunities and limits,* In: International Journal of Service Industry Management, 1995, 6, 2, 36–45

[7] Pine, B.J., *Mass Customization: The New Frontier in Business Competition*, Harvard Business School Press, Boston, MA, 1993

[8] Peterson, J., *Mass customisation finds favour (clothing industry)*, In: Knitting International, 2008, 114, 1360, 36–37

[9] Neacşu, N.A., Băltescu, C.A., Bălăşescu, S., Boşcor D., *The influence of design and aesthetics elements in choosing clothin*g, In: Industria Textila, 2017, 68, 5, 375–379, https://doi.org/10.35530/IT.068.05.1427

[10] Haug, A., Hvam, L., Mortensen, N.H., *Definition and evaluation of product configurator development strategies,* In: Computers in Industry, 2012, 471–481, https://doi.org/10.1016/j.compind.2012.02.001

[11] Zlatev, Z., Mahmudova, S., Dimitrova, T., Ruseva, N., *Analysis of the consumer opinion for the personalization of apparel*, In: Online magazine for Textile, Clothing, Leather and Technology, 2018, 4, 100–106

[12] Indrie, L., Mutlu, M.M., Efendioglu, N.O., Tripa, S., Garcia, P.D., Soler, M., *Computer aided design of knitted and woven fabrics and virtual garment simulation*, In: Industria Textila, 2019, 70, 6, 557–563, https://doi.org/10.35530/IT.070.06.1659

[13] Piller, F.T., *Handbook of research in mass customization and personalization*, World scientific., 2010, 1

[14] Peterson, J., Larsson, J., Mujanovic M., Mattila, H., *Mass customization of flat knitted fashion products: Simulation of the co-design process*, In: Autex Research Journal, 2011, 11, 1, 6e13

[15] Tangchaiburana, S., Watcharapanyawong T.K., *Development model of web design element for clothing e-commerce based on the concept of mass customization,* Kasetsart Journal of Social Sciences, 38(3) September–December 2017, pp. 242–250

[16] Mladenov, M., *Complex assessment of the quality of food products through visual images, spectrophotometric and image analysis hyper-spectral characteristics*, Monograph. University publishing Center of Rousse University "A. Kanchev", Rousse, 2015

[17] Hong, Y., Cao, X., Chen, Y., Zeng, X., Chen, Y., Pan, Z., *A framework of consumer perceived value on fashion products for female college students of France*, In: Industria Textila, 2018, 69, 6, 495–501, https://doi.org/10.35530/IT.069.06.1408

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