Fashion DIET

Sustainable Fashion Curriculum at Textile Universities in Europe
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Development, Implementation and Evaluation of a Teaching Module for Educators

Project: 2020-1-DE01-KA203-005657

Title of the Learning Material:
Textile Quartet: A Comprehensive Educational Resource for Textile Studies

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Short Description of the Content:

The Textile Quartet is a comprehensive and engaging learning unit designed to enhance students' understanding of various aspects of the textile industry. It incorporates information texts and interactive activities to explore textile segments, manufacturing processes, materials, and related topics in a holistic manner.

Through the Textile Quartet, pupils delve into the diverse world of textiles, including textile segments such as clothing, technical textiles, textile toys, and home textiles. They gain insights into the intricate processes involved in textile production, such as spinning techniques like wet spinning, dry spinning, and melt spinning. Additionally, they explore the different types of yarns, ranging from multifilament and monofilament yarns to spun and assembled yarns. The unit also covers a wide range of fibres, including plant fibres, animal fibres, and chemical fibres derived from natural and synthetic polymers.

The Textile Quartet fosters an interactive and immersive learning experience. Students get the opportunity to engage with information texts, examine textile samples, and participate in hands-on activities that reinforce their understanding. This comprehensive approach not only develops their knowledge of textile terminology and concepts but also nurtures critical thinking, problem-solving, and collaborative skills.

Furthermore, the Textile Quartet explores the various textile professions and career paths, from traditional apprenticeships in clothing production to specialized professions in technical textiles and beyond. It also sheds light on different textile labels and standards that promote sustainability, health, and environmental consciousness in textile production.

By actively participating in the Textile Quartet, students develop a deep appreciation for the significance of textiles in everyday life, as well as their impact on the environment, society, and the economy. They acquire valuable knowledge and competencies that can guide them toward potential career paths in the textile industry while fostering a sense of curiosity, creativity, and responsibility in their engagement with textiles.

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Image Sources

Textile Quartet No. 1 : Textile Segments

Clothing:
Left: Dresses, © Anne-Marie Grundmeier
Right: Left: Jeans, © Anne-Marie Grundmeier
Home Textiles:
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Technical Textiles:
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Textile Toys:
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Textile Quartet No. 2 : Fibres

Plant Fibres:
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Right: Hemp fibres, © Anne-Marie Grundmeier
Animal Fibres:
Left: No title, Sam Carter, https://unsplash.com/de/lizenz,
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Man-made Cellulosic Fibres:
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Right: Lenzing fibres, Markus Renner, © Lenzing AG,
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Synthetic Fibres:
Left: Polyester Granulate, © Anne-Marie Grundmeier
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Textile Quartet No. 3 : Yarns

Spun Yarns:
Left: Photo Spun Yarn, © Anne-Marie Grundmeier
Right: Drawing Spun Yarn, © Kim Frank
Monofilament Yarns:
Left: Photo Monofilament Yarn, © Anne-Marie Grundmeier
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Multifilament Yarns:
Left: Photo Multifilament Yarn, © Kim Frank
Right: Drawing Multifilament Yarn, © Kim Frank
Assembled Yarns:
Left: Photo Assembled Yarn, © Kim Frank
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Textile Quartet No. 4 : Spinning Processes

Left: Drawing Wet Spinning, © Kim Frank
Right: Drawing Dry Spinning, © Kim Frank
Left: Drawing Melt Spinning, © Kim Frank
Right: Drawing Lyocell Process, © Kim Frank

Textile Quartet No. 5 : Fabrics

Woven Fabrics:
Left: Weaving, © Kim Frank
Right: Denim, © Kim Frank
Knitted Fabrics:
Left: Blue Knitwear, © Anne-Marie Grundmeier

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Right: Warp Knitted Fabric, © Anne-Marie Grundmeier
Nonwoven Fabrics:
Left: Yellow Felt, © Kim Frank
Right: Orange Nonwoven, © Kim Frank
Transparent and Open-work Fabrics, Laces, Nets:
Left: Handmade Lace, © Anne-Marie Grundmeier
Right: Raschel Lace, © Anne-Marie Grundmeier

Textile Quartet No. 6 : Textile Finishing

Pretreatment:
Left: Bleaching, © Anne-Marie Grundmeier
Right: Mercerising, © Anne- Marie Grundmeier
Colouring:
Left: Dyed Fabric, © Anne-Marie Grundmeier
Right: Printed Fabric, © Anne-Marie Grundmeier
Finishing:
Left: Blue Fleece, © Anne-Marie Grundmeier
Right: Hydrophobic Fabric, © Anne-Marie Grundmeier
Coating and Lamination:
Left: Coated Fabric, © Anne-Marie Grundmeier
Right: Laminated Fabric, © Anne-Marie Grundmeier

Textile Quartet No. 7 : Textile Labels

Health Protection:
Left: Oeko-Tex Service GmbH (n.d.). *OEKO-TEX® Standard 100. What does the label mean?* https://www.oeko-tex.com/en/our-standards/oeko-tex-standard-100
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Natural Fibre Labels:
Left: Global Standard gGmbH (n.d.). *Global Organic Textile Standard. Ecology & Social Responsibility.* https://global-standard.org/
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Social Sustainability:
Left: Logo Fair Wear Foundation, Buro RuSt (2020, June 2). *Fair Wear member brand communication guide and policy*. Version 0.2 June 2020. FairWear-Member-Brand-Communication-Guide_-08-DEF.pdf
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Source: bluesign technologies ag (n.d.). *bluesign*®. https://www.bluesign.com/en

Textile Quartet No. 8 : Apprenticeships

Fashion Apprenticeships:
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Textile Apprenticeships:
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School-based Apprenticeships:
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Further training opportunities in textiles and fashion:
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Competences and Learning Objectives:

The following text lists the competences that can be promoted using the Textile Quartet.

1. **Knowledge about textile segments:** The students acquire comprehensive knowledge about textile segments such as clothing, home textiles, technical textiles, and textile toys. They become familiar with the manufacturing processes, materials used and the specific properties of these segments.

2. **Knowledge about fibres:** The quartet provides information about different types of fibres, including plant fibres, animal fibres, and man-made fibres from natural and synthetic polymers. When using the quartet, the students will gain a detailed understanding of the properties and characteristics of these fibres, their origins, processing methods and applications. This enables the learners to recognise the differences between the various types of fibres and to analyse their advantages as well as disadvantages.

3. **Knowledge of yarn types:** The quartet provides students with information about different types of yarns, such as spun and assembled yarns, monofilament and multifilament yarns. They learn about the manufacturing methods of these yarns and their specific properties. Furthermore, they will be familiarised with the wide range of applications of these yarns.

4. **Understanding of spinning processes:** The quartet covers different spinning processes such as wet spinning, dry spinning, melt spinning and the lyocell spinning process. Students develop an in-depth understanding of how fibres are transformed into yarns. They learn the differences between the various processes, their advantages and disadvantages, and their areas of application.

5. **Knowledge about textile fabrics:** Students acquire a sound knowledge of different textile fabrics such as woven fabrics, knitted fabrics, nonwoven fabrics, and transparent and open-work fabrics. They learn about the different types of surface structures, their properties and manufacturing methods. This enables them to differentiate surface materials and understand their areas of application.

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6. **Understanding of textile finishing:** The quartet provides information about different textile finishings such as pre-treatment techniques (e.g., bleaching), colouring processes (dyeing/printing) and wet or dry finishing (e.g., hydrophobising or roughening), including laminating and coating (e.g., artificial leather). Students develop an in-depth understanding of these finishing processes' effects on the properties of textile surfaces. They can analyse and evaluate the optimal finishing techniques for specific requirements and purposes.

7. **Knowledge of textile labels and certificates:** The quartet informs students about different textile labels that are relevant in the context of health protection, environmental protection, and social standards. These include labels like *OEKO-TEX® STANDARD 100* and *UV-Standard 801* for health protection, *Global Organic Textile Standard Organic Cotton* (GOTS) and *Naturtextil IVN certified BEST* for environmental protection and social standards in the natural fibre production chain, *Fair Wear* and *Fairtrade Cotton* for social sustainability as well *OEKO-TEX® MADE IN GREEN* and *bluesign® PRODUCT* for ecological and social standards. The students learn how these labels ensure the quality, sustainability, and production standards of textiles and can recognise and evaluate the corresponding certificates.

8. **Knowledge of textile apprenticeships:** The quartet highlights a wide range of apprenticeships in the textile industry, including apprenticeships in the field of clothing such as fashion seamstresses, fashion tailors, and custom tailors as well as other apprenticeships in the textile sector. In addition, school-based apprenticeships, further training to become a master craftsman, technician, or specialist, as well as study opportunities in the textile sector are covered. Students gain a comprehensive understanding of the required skills, qualifications, and career opportunities in these occupational fields.

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Methods and Approaches for Classroom Instruction

The following methods can be used to incorporate the Textile Quartet into a dynamic and comprehensive learning unit, providing students with a rich educational experience that explores various aspects of the textile and clothing industry.

Method 1: Textile Quartet "Game"

A Textile Quartet "game" may be an engaging and participatory method to improve learning in the classroom. It could be used as follows:

1. Introduction and Familiarization: Start by explaining the "Textile Quartet" game's concept to the students**.** Explain that it is a game designed to reinforce their understanding of textile segments, processes, materials, and related topics.

2. Divide the Class into Groups: Divide the class into equal-sized groups as much as possible. This encourages cooperation, teamwork, and active participation.

3. Assign Textile Topics: Provide each group with a specific textile topic from the quartet, such as a textile segment (like clothing, home textiles, technical textiles or textile toys), fibre categories (such as plant fibres, animal fibres, man-made cellulosic or synthetic fibres), spinning processes (such as wet spinning, dry spinning, melt spinning or the Lyocell process) or yarn types (such as spun yarns, monofilament and multifilament yarns or assembled yarns) and so on.

4. Provide Information Texts: Give each group the corresponding quartet cards related to their assigned topic. Make sure to assign students the task of thoroughly understanding the cards. Ensure that questions can be answered using the resources at hand, like research books, internet access, and so forth.

5. Game Rules and Objectives: Describe the game's rules and goals. The objective is for each group to become an expert on the textile topic that they have been given and to compete with other groups.

6. Gameplay: From their supplied information texts, each group evaluates and highlights relevant information. After that, they work together to develop a list of quiz questions based on the material. The questions should cover key concepts, characteristics, processes, or examples associated with their textile topic.

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7. Presentations and Quizzes: Each group takes turns presenting their textile topic to the class. They give a brief presentation, emphasizing the important details and providing interesting information. The group quizzes the other groups with its prepared questions after the presentation. The other teams can score points by providing the right answers.

8. Conversation and Reflection: Encourage group conversations throughout the quiz sessions. Motivate students to provide new knowledge, articulate ideas, and engage in constructive competition. Facilitate a quick discussion to highlight the key aspects learned from every textile topic after each round.

9. Rotation and Feedback: In order to provide each group the chance to learn about different textile segments, processes, materials, or related topics, rotate the topics among the groups for the following rounds. This provides the possibility for having an in-depth understanding of the subject matter.

10. Game Conclusion and Recap: Summarize the important ideas discussed in each round to bring the game to an end. Draw attention to the connections between the textile-related themes and reaffirm the most important concepts acquired throughout the game.

The Textile Quartet game strengthens understanding, critical thinking, and knowledge retention in addition to encouraging active engagement and teamwork. It gives students the chance to learn from their classmates, demonstrate their understanding of particular textile subjects, and delve deeper into those areas.

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Method 2: Interactive Textile Stations

1. Textile Exhibition and Analysis: Set up a textile exhibition in the classroom by displaying various textile components, procedures, supplies, and associated objects described in the instructional texts. Samples of various textile items, such as clothing, yarns, and fabrics, should be included.

2. Guided Exploration: Separate the students into pairs or small groups and give each group a particular textile fragment or theme to explore. Give them worksheets or questions with answers linked to their received segment.

3. Research and Investigation: Instruct the groups to thoroughly examine the exhibited textiles, read the accompanying information, and conduct additional research using provided resources, such as books or online materials. Encourage the students to take notes, analyse the characteristics and properties of the textiles, and investigate the processes involved in their production.

4. Presentation and Analysis: Give each group the opportunity to present their findings and analysis to the class. The groups can showcase the textile samples, explain the key features of their assigned segment, and discuss the significance and applications of the textiles within that segment.

5. Comparative Discussions: Initiate group discussions in which students compare different textile segments presented by their peers. Encourage them to identify similarities and differences in terms of materials, manufacturing processes, and end-use applications. This promotes critical thinking, analytical skills, and a broader understanding of the textile industry.

6. Reflection: Facilitate a reflection session where the students discuss their overall learning experience throughout the Textile Quartet activities. Encourage them to identify the skills they have developed as well as connections they have made between different textile segments and the real-world applications of their knowledge.

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Method 3: Textile Quartet Challenge

1. Textile Quartet Challenge: Divide the class into teams and provide each team with a set of information texts related to textile segments, processes, materials, and related topics covered in the Textile Quartet.

2. Task Assignment: Assign each team a specific challenge related to textiles. For example, they could be tasked with designing an innovative textile product, creating a marketing campaign for a sustainable clothing line, or developing a proposal for improving textile manufacturing processes.

3. Research and Planning: Give the teams time to thoroughly study the provided information texts. Encourage them to conduct additional research, brainstorm ideas, and develop a strategic plan to tackle the assigned challenge. Provide guidance and support as needed.

4. Implementation and Presentation: Give the teams a designated period to work on their challenge and bring their ideas to life. They can create prototypes, design visual aids, prepare presentations, and assemble any necessary materials. Encourage them to think creatively and to consider different factors, such as sustainability, functionality, and market appeal.

5. Showcase and Evaluation: Organise a showcase event where each team presents their solution to the assigned challenge. Invite other classes, teachers, or industry professionals to serve as evaluators. The evaluators can assess the teams' presentations based on criteria, such as creativity, feasibility, research depth, and problem-solving skills.

6. Reflection and Discussion: After the presentations, facilitate a reflection session where students discuss their learning experiences and the knowledge gained throughout the Textile Quartet challenge. Encourage them to reflect on the strengths and weaknesses of their solutions, as well as the collaborative skills and insights they acquired.

7. Awards and Recognition: Recognise the teams' efforts and accomplishments by presenting awards in various categories, such as best design, most sustainable solution, or most effective marketing campaign. This reinforces the importance of teamwork, innovation, and critical thinking in the context of the textile and clothing industry.

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By transforming the Textile Quartet in a challenge-based activity, students are actively engaged in problem-solving and creative thinking. They develop a deeper understanding of textile concepts and their practical applications, while also honing essential skills, such as research, collaboration, presentation, and critical analysis. This approach encourages student ownership of the learning process and fosters a sense of excitement and achievement in the classroom.

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