



THE 2023

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Life-
changing
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Life-Changing Design

Proceedings of the 10th Congress of the
International Association of Societies of
Design Research (IASDR 2023)

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The Tenth IASDR congress. An Introductory Address from the IASDR Board

IASDR 2023 is the 10th biennial congress of IASDR, and the first to take place after the crisis of COVID-19. With this congress we re-confirm the importance of discussion and debate for the network of researchers in design, as well as the importance of developing younger researchers for the future of the Association.

The International Association for Societies of Design Research (IASDR) was established in 2005 through a collaboration of four academic societies: Chinese Institute of Design (CID), the Design Research Society (DRS), Korean Society for Design Science (KSDS) and Japanese Society for the Science of Design (JSSD).

The history of international collaboration in Design Research in the Asian region can be traced back to 1996 when JSSD organized the first Japan-China Industrial Design Symposium which was hosted by Beihang University in Beijing, 1996. This started a series of international conferences in design research known as the Asian Design Conference. Conferences took place in 1997 (Daejeon, Korea at KAIST), 1998 (Taichung, Taiwan at National Taichung University of Science and Technology), 1999 (Nagaoka, Japan at Nagaoka University of Technology), 2001 (Seoul by National Seoul University), and 2003 (Tsukuba, Japan at Tsukuba International Congress Center). At the 2003 congress – the 6th Asian Design Conference – the three Asian academic societies agreed to welcome the Design Research Society into a new association.

We thus began the International Association of Societies of Design Research for the field of design research in 2005, in Taiwan. Since that time, we have enhanced the network of researchers and fields of design research and promoted design research education. We will continue to build this incomparable network of design research as we move towards our 2025 congress, at Tapei, Taiwan.

Our deepest thanks go to Luisa Collina, and the entire Politecnico Milano team who have worked so hard, as hosts for IASDR2023, to ensure its success. Your leadership throughout the process has been excellent and we think the result will be much appreciated by the IASDR design research community.

Toshimasa Yamanaka
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On behalf of the IASDR Board
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Life-Changing Design.

Introduction to the Tenth IASDR congress

The International Association of Societies of Design Research (IASDR) has long been at the forefront of advancing design research, providing an international platform for researchers, scholars, and practitioners to engage in robust discussions, share insights, and explore the ever-evolving landscape of design research. IASDR 2023, the association's 10th Congress, stands as a pivotal juncture in the trajectory of design research, offering a comprehensive perspective on its current state while charting its future directions.

Over the past decade, design research has witnessed a remarkable transformation. From its roots in aesthetic considerations and form-centric approaches, design research has evolved into a multifaceted discipline, extending its influence beyond traditional boundaries. Contemporary design literature now encompasses a wide array of facets, each addressing critical aspects of design's impact on diverse domains, including organisational culture, public policies, product development, and the creation of immersive spaces, services and systems. This transformation underscores the dynamic nature of design research, as it continuously adapts to our society's changing demands and challenges.

The central theme of IASDR 2023, "Life-Changing Design", resonates profoundly in the wake of global events, particularly the unprecedented disruptions caused by the COVID-19 pandemic. This theme invites us to reflect on the profound transformations that have unfolded and continue to reshape our world. The pandemic has brought to the forefront questions about the role of design in navigating these changes, challenging us to explore how design can facilitate adaptation, resilience, and innovation in a rapidly changing world.

IASDR 2023 has been organised and host by Politecnico di Milano, where design keeps strong roots in the made in Italy tradition and where at the same time design opens up to the new territories of design research and to the new trajectories of innovation.

IASDR 2023 encompasses an array of thematic tracks, each dedicated to exploring critical dimensions of design research. These tracks serve as focal points for discussions and investigations, providing a framework for researchers to delve into specific areas of interest.

The following thematic tracks guide our exploration:

[Changing] Organizations and Policies

This track examines the transformative potential of design in the realm of public sector organisations and policies. It aims to foster social justice and sustainability by challenging traditional notions of prosperity. Researchers investigate how design equips itself with tools, methods, and frameworks to support systemic transformation, thereby promoting well-being and addressing complex societal challenges.

[Changing] Products and Production

This track focuses on the transformation of manufacturing processes and their impact on products and

systems. It explores the proliferation of digital fabrication and digital craft, analysing their potential to revolutionise product development, sustainability, and business models. Researchers delve into how design can envision emerging materials, artefacts, and future scenarios from a sustainable perspective.

Identities and [Changing] Identities

Cultural identities and their evolution in an increasingly multicultural world take center stage in this track. Researchers delve into the roots of design's influence on identity, considering factors such as authorial identities, identity hegemony, and the implications of design on gender, class, and religion. Additionally, this track explores the role of design in translation processes, which involve revising systems, tools, and programs for communicating and preserving identity.

[Changing] Ecosystems

Addressing the imperative transition toward sustainability, this track examines how design contributes to the socio-ethical and economic dimensions of sustainability. It explores design for sustainable materials, energy, business models, and transitions, focusing on fostering positive environmental and social change.

[Changing] Communities

Community empowerment and sustainable behavioural change through design interventions are central to this track. Researchers investigate how design can enhance collaborative processes, co-design knowledge, and tools while addressing urgent public interest issues. The track emphasises shared decision-making, democratic participation, and the evolving roles of individuals, communities, and entities in supporting systemic transitions.

[Changing] Education

This track reflects on the evolving landscape of design education, recognising the complexities and challenges inherent in this domain. Researchers explore the inspirations for change in design education, the transformations it engenders, and the existing gaps and issues. This track seeks to foster clarity, identity, and adaptability in designing educational goals while embracing diversity and differentiation.

[Changing] Spaces and Services

Integrating spatial and service design to create innovative living environments and services is the central concern of this track. It explores how design interventions across various scales, from micro to macro, can drive transformative actions, enhance public participation, and guarantee inclusivity and diversity in service offerings.

[Changing] Interactions

The dynamic interplay between technology, social changes, and design forms the core of this track. Researchers investigate how digital technologies, augmented reality, virtual reality, and mixed environments impact interactions, communities, processes, and professions. This track emphasises the role of Interaction Design in shaping technology-based innovations responsive to social and contextual changes.

[Changing] Heritage

Preserving and reinterpreting cultural heritage in the face of global change is the central focus of this track. Researchers explore how design research can offer novel approaches to knowledge preservation and cultural experiences related to tangible and intangible heritage. This track seeks to activate participation dynamics that reintegrate relevant portions of cultural heritage excluded from current development paradigms.

IASDR 2023, with its overarching theme of "Life-Changing Design" and its diverse thematic tracks, presents an exceptional opportunity for researchers, scholars, and practitioners to engage with the dynamic landscape of design research. The conference serves as a platform for robust discussions, knowledge sharing, and the exploration of innovative solutions to society's complex challenges.

By examining these thematic tracks and their intersection with the central theme, “Life-Changing Design,” we aim to contribute to the ongoing dialogue surrounding design research and its transformative potential, fostering a deeper understanding of design’s role in shaping our world.

Luisa Collina
Alessandro Deserti
Francesco Zurlo

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Next generation textile designers. A research project to connect the textile-knitwear manufacturing system with future design talents and its impact on education.

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Next generation textile designers. A research project to connect the textile-knitwear manufacturing system with future design talents and its impact on education

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The textile-knitting industry has always been in connection and dialogue with a constellation of manufacturing realities that contribute season after season to the success of the fashion system but are little considered when young talents with design backgrounds enter the marketplace. The research project reported in this article combines the expertise in the textile-knitwear area of the research group knitdesign.polimi of Politecnico di Milano with the one in the communication field of Imagis Lab, aiming at investigating the mismatch between education and manufacturing companies and laying valid foundations for the creation of an effective ecosystem that can make them converge towards a common meeting point. The goal is to update the educational methods, tools and practices with a twofold aim: on the one hand, to introduce young talents to the manufacturing reality; on the other hand, to facilitate the inclusion in the company of the same talents and create space for them to grow as high-potential profiles. In the first part of the paper, we will present the research background and the methodology applied. In contrast, in the second part, the main evidences that emerged are highlighted and discussed, presented together with the research actions taken and the space opened for further investigations.

Keywords: *knitwear design; student-business connection; textile-knitwear manufacturing; design for education*

1 Introduction

The research and educational activity of the research team knitdesign.polimi has built a network of relationships with textile and knitwear companies – spinners, knitwear factories, machine producers, and brands – which led to the update of the educational practices based on in-depth analysis on the industrial needs and the space and the role designers could take on in every step of the supply chain (Motta, 2019). On the other hand, the same research highlighted the university's and entrepreneurial realities' great difficulty in understanding each other's practices, skills, and objectives.



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Today, manufacturing companies struggle to integrate new profiles, intuit their perspectives and create growth spaces (Green Paper - Unlocking the Potential of Cultural and Creative Industries, 2010). At the same time, students have little knowledge of the creative opportunities that manufacturers offer and are exclusively fascinated by job positions inside the most renowned fashion brands.

Suppose this criticism reveals the need for textile and knitwear design education to get closer to the supply chain. In that case, it must not lead to the conviction that educational paths should merely serve the industrial sector. Design education should maintain its independence in creating new perspectives on generating ideas and building previously non-existent professional profiles capable of bringing innovation to a sector with extremely rooted traditional practices (Bertola et al., 2021).

We are not suggesting an adaptation of the figures to the dynamics of the companies but a new paradigm that can nourish the companies themselves with new sap so that consolidated knowledge is combined with a visionary perspective on a future that is not necessarily the same as the present in terms of how it has always worked.

It is essential to maintain the identity of design education by generating, with the productive fabric in which these designers will enter (Magni & Noè, 2017), a constructive and dynamic dialogue that allows the education itself to evolve and could trigger a virtuous circle oriented towards new dynamics of organization, ideas generation, professional growth. The demand for change, in this case, does not come as an explicit request from the entrepreneurial world but as implicit, reciprocal distress detected in manufacturing companies and in newly graduates that, the moment they meet, are not able of mutual recognition due to the very different languages with which they relate to the world.

The reported research project combines the expertise in the textile-knitwear area of knitdesign.polimi with the one in the communication field of Imagis Lab, aiming at laying valid foundations for a constructive dialogue between young talents and manufacturing companies, investigating the two opposite poles to create an effective ecosystem that can make them converge towards a common meeting point. The goal is to update the educational methods, tools and practices with a twofold aim: on the one hand, to introduce young talents to the manufacturing reality that offers creative opportunities of equal if not greater interest than those of the style offices of the big brands; on the other hand, to facilitate the inclusion in the company of the same talents and create space for them to grow as high-potential profiles, with creative and technical skills to guide the innovation of products and processes.

2 Research background: The manufacturing companies belonging to the textile-knitwear sector

Being one of the founding sectors of Made in Italy, the textile-knitwear is very articulated, composed of diverse companies like spinners, knitwear factories, machine producers, and brands. The research and educational activity pursued by the research team knitdesign.polimi actively involves all the variety of this supply chain to make manufacturers converge with the human and intellectual capital represented by the students and generate aware designers able to intervene in the upstream and downstream processes on the chain (Conti & Motta, 2022).

The transition to Industry 4.0, which requires infrastructure changes, new organizational models (Ghobakhloo, 2018), and new tools for physical and digital competitiveness (Fitzgerald et al., 2013),

has generated in these companies a specific resistance to innovation in production and industrial processes, in the implementation of professional skills, and communication (Lehner & Sundby, 2018).

Suppose big fashion brands - structured companies with an international profile - are more active in these directions due to their relationship with a demanding public. In that case, the manufacturing companies tend to close themselves and re-propose proven dynamics due to their small size and family organization of roles, the daily management of much operational work with tight deadlines, and the pressing requests of customers (Macpherson & Wilson, 2003). This makes it challenging to integrate resources with new profiles, understand their perspectives and create spaces for their growth (Edwards et al., 2005). Moreover, lacking time means lacking communication leveraging storytelling (Martin-Niemi & Greatbanks, 2009).

The manufacturing reality remains essentially unknown, and young talents looking for a job cannot recognize the creative opportunities offered by spinning, weaving and knitting factories: they see few growth prospects for their design vision and their technical skills, and they often find themselves assuming executive roles and adapting their *modus operandi* to the company environment. From here, the need to understand how to connect young talents with manufacturing companies to facilitate their inclusion as profiles that can guide companies towards a true transformation of processes.

The research was structured with two converging paths of awareness: on the one side, for manufacturing entrepreneurs, to make them understand the importance of communication for attracting talents able to generate innovative processes; on the other side, for young talents, to improve the annual educational program with actions that foster the awareness on the updated skills they own and on how they can find space in manufacturing companies.

3 Methodology and research structure

The project takes a multidisciplinary approach, merging the expertise of the two participating research teams. According to these, the methodology is grounded on two previous research experiences. On one side, the results of *Designing Knit Designers* (Motta, 2019) have traced knit designers' profiles with their skills and competencies. On the other, the research praxis experimented with the *Working Through Digital Transformation (WTDT)* educational experience (2019-2020), which conducted listening and needs analysis activities intending to activate a dialogue between future professionals and companies within the communication and marketing sectors, identifying the user journey and the main pain points of the stakeholders involved. The research protocol used the WTDT methodology and tools (Ronchi et al., 2020), adapting them to the textile-knitwear manufacturing sector.

The research structure followed four phases.

The first one is the *Desk research*, aimed at updating the stakeholder map and their needs with and mapping the ongoing initiatives to support the connection between students and businesses offered by the School, Department and University.

The *Field research* aimed to experiment with digital marketing as a tool for engaging with, listening to, and broadening audiences through:

- A quantitative analysis, with the distribution of two surveys to collect the opinions of undergraduates among Design, Fashion and Textile students and Italian manufacturing

companies. The first, dedicated to students, shared with graduates in Knit design of the last 4 years in Knit, students enrolled (AY 21-22), and designers in training from the Schools identified by the desk research. The second survey, dedicated to companies, was shared within the existing network of companies built over the years by the knit design group and within trade associations.

The surveys reached 93 undergraduates/new graduates and 67 practitioners from companies.

- A qualitative analysis that involved stakeholders of interest (based on the results of the desk research phase) to fully understand the sector's specific problems, the pain points in their connection with new resources, and the needs of entrepreneurs and young talents. A series of semi-structured interviews were conducted during *Pitti Immagine Filati*, the leading trade event for the knitting sector, in February and June 2022. The interviewees were selected if responding to at least one of the following criteria: representatives of the different categories of stakeholders (spinning mills, knitters, bodies and associations); senior figures in the company organization; strategic figures in networking between companies; figures already in contact with the training realities for previous collaboration/management activities or participation in competitions; in training knit design students.

Interviews involved 14 professionals in the textile-knitwear sector and six young talents.

Then, the *Defining* step started with the identification of the pain points as opportunities for intervention, the definition of the research actions needed for the solution of pain-points, the definition of strategies and actions to innovate the annual programming of the knit-textile courses offered by the School of Design, the definition of the contents and channels most suitable for the stakeholders.

The last step was *Connecting*, starting from the results obtained, design methods and the related tools, aimed at creating an awareness path for companies that ignites the student-business connection.

4 Con-text: connecting the textile-knitwear manufacturing system with future design talents

The objectives of Con-text were broad, and the results allowed the identification of 5 core issues as areas of intervention for further actions (Fig. 1). The present article narrows the attention on core issue 5, focusing on the evidence more closely related to education to understand the possible impact of the research in inspiring changes in design education, updating the paths, and renewing the practices.

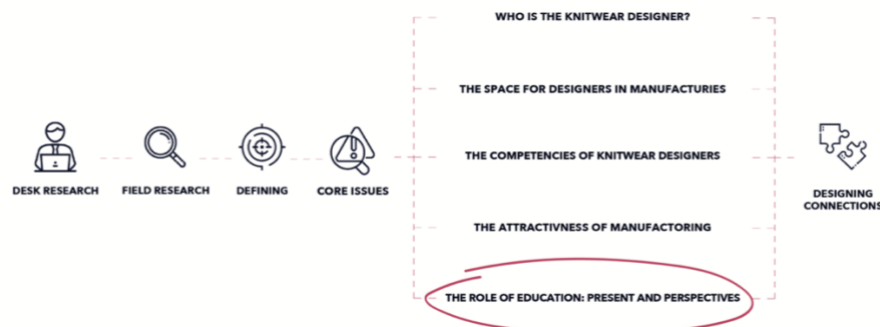


Fig. 1. The research process with the 5 core issues identified as spaces for further actions.

4.1 Research objectives

The investigation on the role of university education in the textile-knitwear sector starts from the results of previous research experiences (Conti, 2019; Motta, 2019), which have allowed the knitdesign.polimi research group of Politecnico di Milano to integrate the coordinates and contents of training course used today at the School of Design. Here, in the third year of the Fashion Design Course, the specialisation in Knitwear design combines theoretical with technical and practical lessons that are the basis for developing design and creative thinking. Furthermore, most of the activities offered to students take place in the university spaces - classrooms and laboratories - in collaboration with various companies belonging to diverse levels of the supply chain. These companies intervene in the learning experience, integrating themselves into the proposed contents in the various moments of the curricular path.

Since the beginning of the research, Con-text had a double objective of intervention on the existing method.

The first is to identify the spaces of convergence and divergence between the training and the professional realities to understand what are the responsibilities of the two worlds towards the academic and professional growth of young talents, when the baton should be handed over, how much the two realities can interact and even think of collaborative actions to facilitate the delicate moment of leaving university and entering the world of work. The second, and consequent, is to understand how the entire process can be updated not only to respond to the present demands of the market but to anticipate its future needs in terms of resources for innovation.

What does education already do, and what can it do to improve? What are the critical issues and possible points of intervention, where can action be taken in the short term, and where are long-term changes needed? What are the coordinates to imagine, define and design a new way for companies and education to be closer?

4.2 Main emerged evidences

As mentioned in the Introduction, the quantitative investigation on 93 design undergraduates and new graduates (Fig. 2) confirmed the desire of young talents to find job positions within fashion brands and the scarce consideration of positions within spinning mills (14.4%) or knitting machine manufacturers (5.6%). A slightly more pronounced interest is shown in the knitwear factories (38.9%) and consultancy studios (30%).

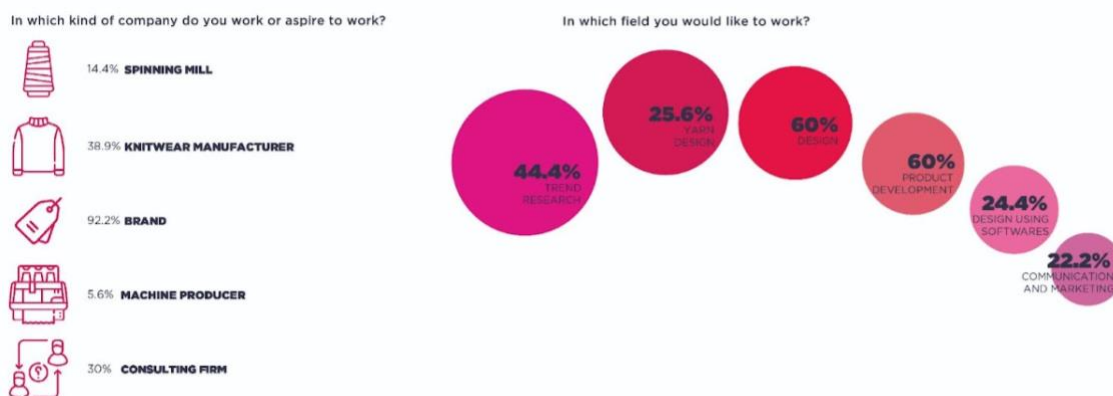


Fig. 2. Result of the questions related to the companies that attract young talents and the roles they would take into companies.

Among the 67 respondent companies, the spinning mills and machine producers are indeed those that claim to be least in need of designers, while knitting factories are more familiar with these figures and more aware of the benefits designers could bring.

Going deeper into these data with the qualitative investigation, the scarcity of interest emerged with spinners and machine producers is due to the fact that they still think of designers as craftsmen that propose new clothes every season and not as well-rounded figures that could foster the cultural evolution of processes and products on the longer term. However, when focusing on hard and soft skills, it emerges on both sides the overriding need for technical skills that are required by companies (83.6%) as much as young talents perceive them as a strong component of their being textile-knitwear designers (82.2%). By contrast, young talents feel the importance of their creative skills (82.2%) while the same are not as much considered by companies (50.7%). The detachment between the companies' needs and the young figures' perception becomes very pronounced regarding soft skills (Fig. 3).

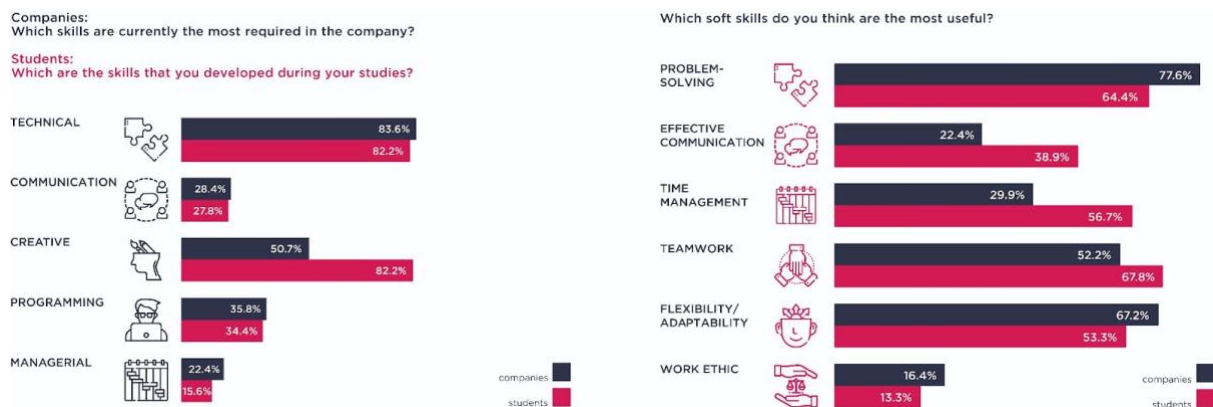


Fig. 3. Result of the questions related to the skills (hard and soft) required within the companies and acquired by the students during the educational path.

The most prominent shreds of evidence that emerged from the combination of the quantitative and the qualitative interviews are the ones connected to understanding textile-knitwear design education and its role and the relationship within the manufacturing sector. The combination of the diverse data collected allowed the researchers to address the complexity of five diverse intervention areas and define research actions to intervene in emerging problems.

The five areas are reported and described through the most relevant extracts from the interviews.

4.2.1 Area 1: The relevant detachment between the educational offer and the industrial sector and the projection towards mutual closeness

The questions were aimed at detecting the contact points between the activities of educational institutions and the competencies needed by manufacturing companies.

What emerged is a general tendency of design universities and academies to promote students' creative attitudes and prepare them for jobs inside the style departments of fashion brands. This approach consequently generates in students a fascination towards the brand and a low consideration for the other stakeholders on the value chain. Schools do not commonly include manufacturers in the overview that students are given during their study path. Manufacturers, on their side, are not used

to monitoring and being aware of what fashion schools are doing. Interviewee manufacturers declare the will to have students closer, and they also say they are open to creating connections when they find interest in students and design faculties.

Table 1. Quotes coming from the interviews with manufacturers

Name	Role	Company	Quote
Lorenzo Incagli	Coordinator	Feel the Yarn Promotional body	<i>Honestly speaking, I still see the fascination towards brands, especially among the age 18-22, and when they come from some schools where actually the placement is aimed at that type of context.</i>
Sergio Sala	Senior Consultant	Iafil Spinner	<i>Education should better prepare people to be ready to collaborate with spinning and other manufacturers as well as to the work of styling and modeling. Our interest is purely about the application of what the raw materials may be.</i>
Grit Schroeder	Designer of the yarn collection	Lineapiù Spinner	<i>I think first of all that schools should give a better smattering. Come and visit. [...]Because when you see one spinning machine, for example, if we are making Mohair and you see spinning five heads of a red, turquoise, green, yellow, blue, it's poetic, really beautiful. Or the yarns with buttons, where you see the fiber passing through, you see the nylon and then poom, these buttons that are put in.</i>
Enrico Ciccone	Head of Yarns B.U. sales	Loro Piana Spinner and fashion brand	<i>What is perhaps missing today is a strong closeness of the schools, technical and creative, to the company. That is, young designers, or anyway young technicians, should be approached immediately by the company, from the first year up to the last in order to begin to know what it takes truly in the world of work, design, and fashion.</i>
Fabio Campana	CEO	Lanificio dell'Olivo Spinner	<i>The existence of realities that direct young creatives also towards the world of textile spinning is very important to us, and we welcome them.</i>
Francesca Lavelli	Marketing Manager	Biagioli Modesto Yarns Spinner	<i>[...] the point of contact between the company, the industry and the young talent is essential for us. It is a stimulus for them, but also for us, to go and research, to develop more and more our product starting from extremely technical cues which, however, can make the creativity of these young talents take off.</i>
Renato Cotto	CEO	Biagioli Modesto Yarns Spinner	<i>You have to show them what reality is. You have to show them these things here</i>

4.2.2 Area 2: the need to combine creative skills with a technical approach to the product

The interviews deepened the understanding of the competencies that should be transferred to textile and knitwear design students. The statements confirm the central role of materiality in this area of design. All the interviewees declare that this materiality is only fulfilled when creative skills are strongly supported by deep, specific, detailed technical knowledge.

Table 2. Quotes coming from the interviews with manufacturers

Name	Role	Company	Quote
Pierluigi Biagini	Chief Operations Officer	Lanificio dell'Olivo Spinner	<i>The material approach is at the basis of what a knitted garment will be tomorrow. The material aspect is not abstract, it must be something very tangible and this is an added value that creates a great possibility for young people and their professional development and enrichment</i>
Chiara Bianchi Maiocchi	Owner	Lanecardate Spinner	<i>Whoever thinks they can do knitwear having attended a fashion school where you just teach sketching, well, it's not possible. It's a different job, too technical and that has nothing to do with fashion design.</i>
Grit Schroeder	Designer of the yarn collection	Lineapiù Spinner	<i>The important thing is that they learned the basics in school and that they have an open mind and the will to learn, because nowadays you cannot create the new if you don't know the matter</i>
Renato Cotto	CEO	Biagioli Modesto Yarns Spinner	<i>We believe that in all areas of the production cycle, down to style, there is the need of a lot of training. A training not only academic, but also related to the product, to manual skills. [They need] to learn more, to get to know the chain, to be prepared from the origin of the product, so that they really get this knowledge that is a little lacking. Back in decades, all product people in knitwear came from manual skills and not from the pencil. Armani, to say, he drew the lines, but Mrs. Veronesi put the knitwear together. Mrs. Veronesi started with knitting machines and she knew the technique. So, these are the people we need. I am noticing that this approach is slowly reappearing. Less pencil people and more product people.</i>
Renato Cotto	CEO	Biagioli Modesto Yarns Spinner	<i>If you go back a few years, there were no Shimas at Politecnico di Milano. Little by little they put on the Shima. Shima means putting the students in front of what they will find outside. Before that they used to work, to make beautiful stitches with Brother machines, but then they went to a company and found themselves in front of CNC monsters like Stoll, Shima, Steiger, and they didn't know how to use them. Today you are leading in this direction. [...] Other schools, from Central Saint Martins in London to Duperré in Paris, are also deploying their facilities, much closer to the new world.</i>

4.2.3 Area 3: the students' standpoint on strength and weaknesses

What is the perception of young talents? Do they feel confident approaching their future work with the competencies they learned during their studies? What do they value most?

In the most relevant extracts below, the interviewees' words answered the questions and helped detect which kind of knowledge learnt at school was valuable and what was missed. From these extracts also emerged the theme of relations and connections: human relationships are relevant to young people as a lever for personal and professional growth. In some cases, they are built during school years. In some others, creating bonds is a skill that improves on the field.

Table 3. Quotes coming from the interviews with manufacturers students

Name	Role	University	Quote
Pedro Ottavio Belvedere	KD Former Student - Designer and consultant	School of Design, Politecnico di Milano	<i>Thanks to the projects I've done, I've been able to explore and learn starting from the yarn, passing through stitches until the final garment, the finishes, in any case with the idea of making a relevant and high-quality product. This was very useful to interface with the world of work.</i>
Pedro Ottavio Belvedere	KD Former Student - Designer and consultant	School of Design, Politecnico di Milano	<i>I think my studies have given me quite complete skills, even if it is the experience that puts skills into practice with more awareness.</i>
Giulia Bortoli	KD Former Student - Designer and consultant	POLI.design	<i>[Studying knitwear design] made me know people like me with my same passion that I was able to share.</i>
Marie Nardi	KD Former Student - Emerging designer	School of Design, Politecnico di Milano	<i>What I later learned in the professional world is the more relational part, which is very important in the sector. Knowing people, exchanging opinions, helps to grow.</i>

4.2.4 Area 4: design competitions as valuable opportunities

When asked about the existing initiatives that connect manufacturing companies with young talents, the main, reiterated answer was "competitions". A few long-established competitions (e.g. Feel the Yarn, Woolmark Performance Challenge) propose year-by-year creative challenges to young talents with the support of manufacturers who usually sponsor the yarns with which participants realize their outfits.

Questions went deeper in investigating these events' purpose and the benefits on both sides. From the organizers' standpoint, the main driver is promoting companies and materials around young people who will be future client and system stakeholders. To people inside companies, the ideas of young designers represent a booster for the company's creative evolution. At last, to students, competitions are an unprecedented occasion to shed light on what lays behind fashion brands.

Table 4. Quotes coming from the interviews with manufacturers and students

Name	Role	Company/University	Quote
Lorenzo Incagli	Coordinator	Feel the Yarn	<i>The goals of a contest like Feel the Yarn are to spread the knowledge of Italian yarn and spinning mills on an audience of potential buyers. A promotional purpose, therefore, also for our consortium.</i>
Birgit Gahlen	R&D Manager Europe	The Woolmark Company Certification body	<i>For us, the commitment to competitions is a matter of education and training, as well as the promotion of wool and the search for proposals for how wool can be interpreted. [...] Then we also try to connect and make this world known at 360°, proposing mentors who come from industry, design, brands, from the entire supply chain. We try to train young people as completely as possible, to give them stimuli and clearly to convey a passion, as you do, because passion is essential for any type of work.</i>
Grit Schroeder	Designer of the yarn collection	Lineapiù Spinner	<i>When you're always inside, you need stimuli and we try to give these stimuli [with competitions], to bring this sector to life, to regenerate new energies, ideas and even talents. We have to sow for the future, because otherwise there is no future.</i>
Pietro Lo Presti	KD Undergraduate	School of Design, Politecnico di Milano	<i>We also got to know the other international designers. Seen a few different points. Learned from more experienced people. [It is important] the aspect of the showcase in which we show ourselves, and the possibility of knowing everything that surrounds us, such as for example the world of 3D prints on textiles, which is something we know exists, and now we also saw it, we saw something special. And then we saw how this moment where you buy and sell yarn and trade really works.</i>
Pietro Lo Presti	KD Undergraduate	School of Design, Politecnico di Milano	<i>Yes, I think I understood something more. There was also the proposal to go there to really see what's going on. Because, at least speaking for Biagioli, they were really interested in showing me the mechanism behind the production of their yarn.</i>

4.2.5 Area 5: towards the future: new perceptions, updated figures, reinforced connections
 The open questions allowed interviewees to talk about their own experiences and their vision for the future. The following extracts represent highly valuable insights for the research, as they foresee the

more strategic assets of designers and new spaces for them to spend their abilities. It is relevant to outline that these inputs came from people that, while being part of the value chain, operate outside manufacturing companies and have professional connections with all the diverse stakeholders, that result in a wide view of the existing dynamics and possible evolutions.

The insights received concerned the need for new kinds of figures, their possible job positions, and collaboration and connection between stakeholders.

Connected to the concept of collaboration, an additional, important insight has been the one that reconsiders the role of physical connection compared to the digital one. Presence emerges as a fundamental asset for personal, professional, and business growth.

Table 5. Quotes coming from the interviews with manufacturers

Name	Role	Company	Quote
Lorenzo Incagli	Coordinator	Feel the Yarn Promotional body	<i>Honestly speaking, I still see the fascination towards brands, especially among the age 18-22, and when they come from some schools where actually the placement is aimed at that type of context.</i>
Sergio Sala	Senior Consultant	Iafil Spinner	<i>Education should better prepare people to be ready to collaborate with spinning and other manufacturers as well as to the work of styling and modeling. Our interest is purely about the application of what the raw materials may be.</i>
Davide Barbieri	Sales Director	Shima Seiki Italy Machine producer	<i>We went towards the university and we began to understand that perhaps there we could find young people we could train and grow. And there were some guys who could have the same passion I had when I was a student in high school. [...] In universities we find students with technical and creative skills, to be able to create these "middle figures" who stand between a creator and a programmer who puts ideas into practice with the machine. And so, thanks to the universities we have found this "middle figure" who is helping us train a new generation that deals with knitting machines.</i>
Birgit Gahlen	R&D Manager Europe	The Woolmark Company Certification body	<i>We need new figures.</i>
Davide Barbieri	Sales Director	Shima Seiki Italy Machine producer	<i>We need to learn to dialogue, to invest in new generations. Inserted in our company, we made them understand the dynamics of a work process to create knitwear; collaborating with various companies to show them how to make clothes, what software programming means, what style means. Give them an overview to be able to enter this sector.</i>

Name	Role	Company	Quote
Birgit Gahlen	R&D Manager Europe	The Woolmark Company Certification body	<i>The seller is no longer just a seller. You also have to bring ideas. I believe we must all work together for that. Connect us.</i>
Davide Barbieri	Sales Director	Shima Seiki Italy Machine producer	<i>The good in these trade fairs –and that's why I wanted to have many young people– is that you have the opportunity to meet everyone. You meet brands, you meet knitwear factories, you meet tailors, spinning mills. We are making these young people known to the whole supply chain, and they are getting to know everyone. [...] Participate in these events, go to the market, collaborate as much as possible with people who are not only those related to the brand and from there, from a simple fair like Pitti Filati or a week with colleagues who show them the process, understand what is behind the brand. What's behind that sweater you see in the shop and from there remembering that at a fair you saw the yarn that was used for that sweater, the person that made that sweater. The style office that designed that sweater, therefore the entire production process that may interest you and that you can insert into the creation of what you see in the window</i>
Birgit Gahlen	R&D Manager Europe	The Woolmark Company Certification body	<i>You transmit charm and emotion with the passion of the people who present you a material, who are there, you can see them, and touch them... digital helps us, but in the end, let's not forget that we have to touch, and that interactions among people are important. There should be events, I don't know, exhibitions. Maybe you don't do it at school, maybe you put everyone together. It would be helpful for schools to join in an event as well and for companies to introduce themselves. We need something practical: digital is a support [...] In these three days of the fair, the world was here, and everyone was also happy to reconnect people. This confirms to me that we have to see the materials, touch them and in addition there is also the interpersonal relationship.</i>

4.3 Results and discussion

When discussing the future reshaping of fashion careers and higher education, Bertola, Mortati and Vandini (2021) state that in the contemporary scenario, fashion education should train creatives to become augmented professionals empowered by technologies and not “driven by them”. The same could be said for the long-established industrial practices that manufacturing companies are used to. Whether fuelled by technologies or traditional *modus operandi*, design thinking should return to the center of the manufacturing system as a "creative engine" (Bertola et al., 2021, p. 85).

The results collected still highlight a general gap between higher education and career opportunities in the textile-knitwear chain, which results both in the fascination of students for fashion brands and in a widespread lack of interest in the job opportunities along the supply chain, and in the limited ability of companies to imagine a path for the insertion of new professional roles. This situation

increased for educational realities – universities or academies – which have an approach to encouraging creative experimentation and artistic expression of individual students, often giving less importance to technical and process skills. Consequently, manufacturers are neglecting the role of design thinking and are used to considering designers as solely creative figures: they do not perceive the need to hire them and rely on external consultancy to work on renovation in colors, materials, and textures rather than on innovation. They are not aware of the effort of design education in equipping students with a set of hard and soft skills that go beyond the ability to provide new aesthetics. Design thinking can grow as a strategic function in companies and organizations (Banerjee and Ceri, 2016) to intervene at multiple levels and activate innovation processes (Bertola et al., 2021). Design-driven innovation foresees a radical change of perspective, which introduces a new solid way of competing, creates new markets and gives birth to new meanings (Dell’Acqua Bellavitis, 2012), not responding to the present needs but to the envisioned future scenarios.

Despite the diffused beliefs, some interviewees explained how they recently gained awareness of designers’ potential beyond the traditional roles dedicated to the product. Designers are recognized as strategic figures and facilitators with backgrounds renowned as exploitable in different job positions, able to connect the actors along the supply chain. In this case, we see the first signs of the process of rethinking roles that has just begun where the need for new figures has been raised and recognised. These few cases constitute a promising exception in a panorama where distance mentioned above is detected not just in the mutual perception of designers’ role, but also as a knowledge gap on the respective activities. Due to the lack of common tables to discuss the sector's needs, when companies propose a closer interaction with the training realities it often translates into a request for the trainers rather than an objective mutual convergence in building profiles with strategic skills. This prevents the establishment of collaborations, while the existing connections, born mainly from personal acquaintances, favor long-standing relationships and consequently a static and partial view of the entire system on both sides.

The lack of an institutional mapping of the training system makes it difficult for companies to orient themselves among the offers and outgoing profiles and know which institutes effectively address the textile-manufacturing sector. In this regard, educational institutions should, on their side, find a showcase to communicate their strengths.

Today, competitions emerge as the few established instances where fashion students and young designers have access to direct contact with manufacturing companies. Competitions are reported to positively impact on students, educational institutions and companies on a relational, promotional and training level. Young designers interact with companies and have access to spaces and events usually reserved for insiders that allow them to contact various stakeholders; on their side, companies create a bond with their tomorrow's customers, making their reality known lays the foundations for a future working relationship. Young designers present their work in privileged contexts. They can take advantage of the communication channels made available by the organization of the competition itself to promote their work and professional profile. At the same time, companies are nurtured with creativity and new visions and can use the results in their communication. Moreover, the opportunity to develop a project from start to finish allows students to learn by doing and to deepen not only the creative aspects related to the project or techniques but also those related to the choice of materials, the evaluation of costs, the consumption forecast, communication and presentation.

The last and most relevant lever for change emerged as the need for a connected system where all the stakeholders can dialogue and design initiatives. In this regard, communication becomes a valuable asset to create relationships and synergies among individual actors and all stakeholders in the supply chain to create a solid network capable of meeting the challenges of the global market. While some respondents believe that generating awareness is the sole responsibility of schools, others believe that it is the responsibility of the companies themselves, which often remain very closed and do not identify potential elements of value, job opportunities and growth prospects that they can communicate to the young designers.

5 Conclusions

The observation of the relationship dynamics activated during the Final Design Studio course in Fashion Design and the Final Design Studio course in Communication Design (School of Design) with the business community involved generated several results from which it emerges how strategic it is, already in training, to bring manufacturers and young designers closer together.

As introduced above, competitions aimed at students of fashion schools and young designers are often the only experiences of direct contact with manufacturing companies that students can access. They have a relational, promotional, and educational impact not just on students' careers but on the awareness of companies as well. These features make contests relevant elements to be taken into consideration. Moreover, few fresh initiatives are being carried out by bigger businesses that possess the structure and human resources to do so. Examples include the "Wool you meet me" interventions that the Loro Piana company proposed to universities and schools, as well as the ad-hoc Loro Piana training program for design professionals, requested by them to the knitdesign.polimi research group at Politecnico di Milano, aiming at integrating knowledge of knitwear techniques and creating opportunities for in-depth research that might not fit in with daily tasks.

Given such premises, we understand the need to resume a dialogue beyond stereotypes and redesign the relational modes between schools (education), companies, manufacturers, designers, and brands.

If the initial idea was to foster communication through a digital ecosystem (M. Jacobides, 2019), the research evidence demonstrated how all the stakeholders felt the need to be in presence, share spaces and time, and establish personal, physical connections. Therefore, going beyond the preliminary idea of a digital ecosystem, we designed a physical event to enhance the mutual knowledge of manufacturers and young talents and create an awareness path for companies that ignites the student-business connection. On the 24th of February 2023, we presented the result of the research project Con-text during a talk at the event *Feel the Green | Behind the Stage*, followed by the design of a speed date to bring companies and young talents together with a new dialogic tool for both students and companies. The speed date was not intended as a job interview but an informal exchange for letting the voice of those who live in the company tell about the passion and creativity that the manufacturing field can offer, but above all, to create an opportunity to meet further than the training paths.

In this sense, the research allowed us to lay the foundations of a new paradigm with shared purposes and a progressively open dialogue among the stakeholders around the textile-knitwear manufacturing

system. From here, further work will reinforce the dialogue and absorb useful insights to cooperate with companies in updating and co-creating educational paths, tools and methods.

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