

Integrating Sustainability in Apparel and Textiles Higher Education

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Abstract. Apparel and textiles higher education is an interdisciplinary area which combines the study of every aspect related to textile and apparel industry. The comprehensive textile-apparel pipeline encompasses all of the production activities of the textile-apparel complex as well as the functions of distribution and retail operations to the end users/consumers. Therefore, textiles and apparel industry has tremendous power to control what people see, feel, and think about themselves, the environments, and the welfare of society. The study argues how apparel and textiles relate to sustainability. A framework is proposed that addresses how to integrate sustainability in core apparel and textile higher education curriculum. Strategies of teaching sustainability in apparel and textiles are discussed. The paper concludes that the interdisciplinary perspective of apparel and clothing higher education could play a key role in sustainability education, generate the new knowledge needed, and train the leaders and teachers of tomorrow, as well as communicate the knowledge to decision-makers and the public-at-large.

Keywords: Higher Education, Sustainability, Apparel and Textiles

1. Introduction

The most frequently cited definition of sustainability came from the report of the World Commission on Environment and Development, in its description of new directions for “our common future.” Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987).

Definitions of and approaches to sustainability vary depending on the view and interest of the definer, but each emphasizes that activities are ecologically sound, socially just, economically viable and humane, and that they will continue to be so for future generations. Historically, the term “sustainable” arose among those with environmental concerns, and most definitions reflect this emphasis. It is critical, however, to address social responsibility issues, and to know that there can be no sustainable communities and institutions without social justice (Newman, 2005).

Education in all its forms plays an indispensable role in addressing the critical challenges of sustainable development. The interconnected issues of globalization, economic development, social responsibility, and environmental protection require inclusive partnerships from different areas and from different organizations to create a global learning environment. Higher education has a special responsibility to generate the new knowledge needed and train the leaders and teachers of tomorrow, as well as communicate this knowledge to decision-makers and the public-at-large.

The declaration of ‘United Nations Decade of Education for Sustainable Development’, UN Resolution 57/254, February 2003, aims to promote and improve the integration of higher education and sustainability. The higher education institution is the main place in which free inquiry is undertaken in order to further the common good. The idea of a higher education institution as a setting for fostering of sustainable development awareness and responsibility has gained considerable momentum over the last decade in the US. Nurturing value and furthering the welfare of society is in keeping with the general mission of institutions of higher education. In order to better address the challenges and opportunities of sustainable development, every educated person should possess ‘environmental literacy’ and higher education institutions should provide good role models for sustainable development with a focus on creating learning modules which bring skills, knowledge, reflections, ethics and values together in a balanced way (UHL & Anderson, 2001).

There has been a growth in awareness that the changes to the curriculum for sustainable development must suffuse all areas of education provision. They cannot be restricted to the environmental disciplines or ‘ecoliteracy’ modules or even to the classroom, but must be demonstrated by the whole of a higher education institution’s approach to the world (Haigh, 2005).

This research is an effort to incorporate sustainability in apparel and textiles higher education. In the next section, the paper argues that the current apparel and textiles higher education in U.S. need to integrate sustainable development awareness, which emphasizes deep thinking, critical introspection and constructive education strategies

and action plans. Then the study proposes a framework that addresses how sustainability is integrated in apparel and textiles higher education curriculum. Following this framework, strategies of teaching sustainability in apparel and textiles are discussed. The paper concludes that apparel and textiles higher education could play a key role in sustainability higher education.

2. Apparel & Textiles Higher Education

Apparel and textiles higher education is an interdisciplinary area which combines the study of every aspect related to textile and clothing product and textile and apparel industry, including science, technology, arts, business management, culture and diversity, etc. Almost everything relates to apparel and textile education. The apparel and textile industry is very familiar with the increasing societal expectations regarding its use of textile components and materials throughout the world. In light of these societal views, and also a business climate that is experiencing increasing consolidation and globalization, it is not surprising that sustainability has become an increasingly relevant issue within the industry.

Throughout history, apparel and textile industry has fulfilled a myriad of needs ranging from the experiential and aesthetic to the most basic needs of warmth and protection. Apparel and Textile industry is one of the most diversified industries and apparel and textile production is one of the most complicated manufacturing activities in the world. The industry has a considerable impact on the regional and world economy, and has a significant role in employment and international trade.

Apparel & textile industry is global in nature. The comprehensive textile-apparel pipeline is the long and complex global supply chain which encompasses all of the production activities of the textile-apparel complex as well as the functions of distribution and retail operations to the end users/consumers (Figure 1 and 2). The textile-apparel-retail complex is large and highly fragmented. In the past, each segment in the textile-apparel-retail complex operated more or less separately, producing intermediate products for the next stage of the production chain (Dickerson, 1999). Fragmented and labor-intensive textile and apparel production has made the textile and apparel industry more vulnerable in terms of sustainable development.

Historically, as the textile industry used various chemicals in the production of fibers, dyeing, finishing, and so on, many pollutants were released in the environment. Today's textile industry is both sensitive and committed to preserving the environment, as illustrated by the large expenditures on environmental controls to reduce or eliminate contamination of the air, water, or land. In recent years, more and more companies in textile and apparel industry began to realize the importance of environmental responsibility in the global textile-apparel-retail supply chain.

Textile firms have responded to environmental concerns in many creative ways. New methods of applying dyes and finishing treatments reduce water usage and chemical discharge. A few firms have developed process to recycle plastic soda bottles to make fibers to be used in textile products. Additionally, many companies have been required to rethink their product packaging so they are using materials that are environmentally friendly. An increasing array of domestic and international regulations aimed at improving environmental protection and pollution control have been adopted and enforced.

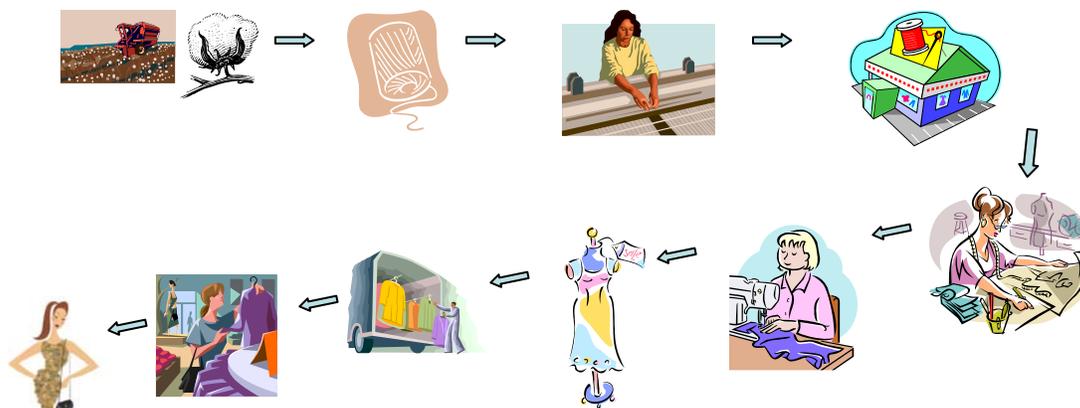


Figure 1. Illustration of textile-apparel-retail pipeline

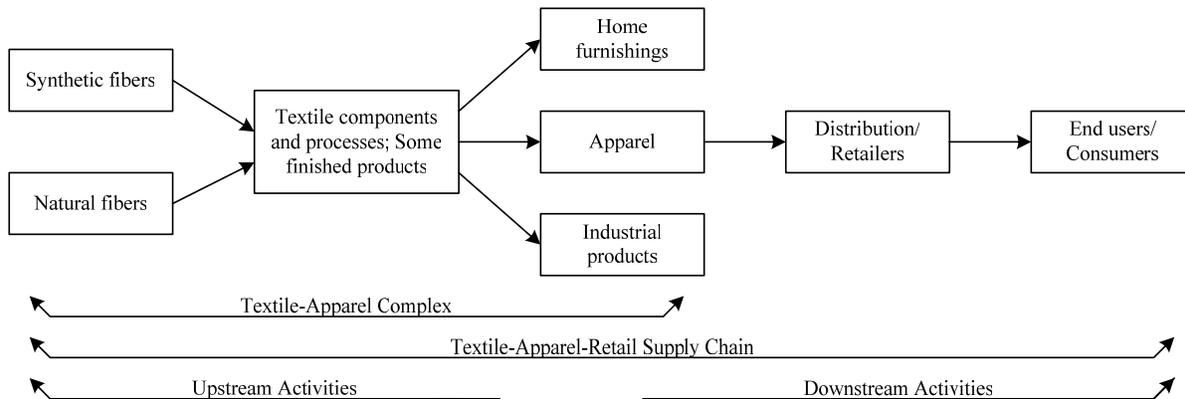


Figure 2. Comprehensive textile-apparel-retail supply chain (adapted from Dickerson, 2003).

Another trend that promotes the increased interest in sustainability is increased outsourcing in search of low labor and raw material costs, which extends textile and apparel industry activities to new geographical areas. Outsourcing has long-debated socio-economic implications for both exporting and importing countries. The shift from traditional production regions to new ones has aroused public debate because in many cases the establishment of new units overseas has forced companies to rationalize existing operations.

Globalization trends in the industry have served to raise public concerns over issues of raw material sourcing and tracking through the supply chain. Most of productions are done in developing countries and there are considerable environmental concerns about how the production activities in these developing countries impact the future development of the regions and the whole world. In this context, the development and impact of outsourcing trends is a substantial concern and industry needs to find an amicable balance between outsourcing benefits and regional economic and environmental considerations.

Textile and apparel industry is perhaps the largest and the most influential enterprise in the world cultural societies. With the ability to shape attitudes and social values, clothing/textile product has become a major social issue as it dictates the image and perception individuals have about themselves, others and culture (Damhorst, Miller-Spillman, & Michelman, 2005). Consumers' concern for the environment now influences what many individuals buy. Therefore, textile and apparel industry has tremendous power to control what people see, feel, and think about themselves, the environments, and about the welfare of society; and this power is even bigger because of globalization and advances in communication and information technologies.

The shift in apparel and textile industry's focus towards environmental and social responsibility has been especially prevalent during the last decade, reflecting a change in societal values. It is reasonable to believe that this phenomenon is advanced through a collective change in society and business toward post-modern values that span from social to environmental concerns with an increasing consideration of present and future generations. Sustainability is a rich and dynamic concept. The multi-dimensional construct of sustainability is introduced by emphasizing the interdependence among economic, environmental, and social dimensions in responsible behavior.

Therefore, it is imperative for apparel and textiles educators in higher education institutions to incorporate sustainability education in apparel and textiles discipline.

3. The Framework of Integrating Sustainability into Apparel and Textile Higher Education

The challenge faced by humankind will require rethinking of our values in many aspects of our society's way of life. Universities educate people who develop and manage future society. We therefore contend that the time has come for the concept of sustainability – that is, meeting present needs without compromising the ability of future generations to meet their needs – to become a new central organizing focus for apparel and textiles higher education. Higher education institutions should be developing and preparing students for this changing world, and in particular, for the sustainability challenge.

Most recently, globalization, advances in communication technologies, and the emergence of ethical investment opportunities have resulted in an increased focus on corporate responsibility. Globalization refers to the cross-border flow of people, products, information, and money. Globalization and cultural diversity which are important issues of sustainability are also important themes in apparel and textiles education.

Advances in the area of information technology have facilitated the focus on sustainability (Panwar, Rine, Hansen, & Juslin, 2006). The advances have allowed instantaneous global information flow at an extremely low cost. Easy access to detailed information on corporate activities has increased transparency and heightened public awareness regarding the impacts of major human activities worldwide. This awareness has boosted global discussion about sustainability and its adoption by companies worldwide. Advanced information technologies also provide a means by which companies can communicate their social and environmental orientation to a global audience. In particular, electronic media has fostered web-based exchange through which companies make available information to the public. Technology will always be a key part in sustainability education in apparel and textiles.

Not only do universities educate our citizenry with interdisciplinary knowledge, but they are large, prestigious, and influential institutions in their own right, capable of having large impacts on the environment as well as some influence on local and global communities. Therefore, it becomes increasingly important for institutions to attempt to be proactively responsive to social and environmental issues in order to ameliorate social concerns.

The study presents a model (Figure 3) that addresses the relationship between sustainability and apparel and textile industry. This model promotes an understanding of the interdependence of major systems, such as the relationship between production and consumption of textiles and apparel in the global environment, the need for long-term thinking/visioning, an understanding of the value of diversity in cultural, social, and economic and natural systems, and an understanding of the different approaches to sustainable solutions (legal, economic, managerial, scientific and technological, design, and educational).

Sustainability education can be treated as discreet educational components that enhance, but may not directly connect with, the major educational activities of the apparel and textile higher education curriculum. It is only when the principles of sustainability are embedded as a core philosophy into the apparel and textile curriculum that it will become apparent that the traditional apparel and textile culture needs to be fundamentally challenged. Only then will students experience the powerful contribution apparel and textile education can make towards creating a sustainable world. This is when students will fully engage with the sustainability agenda and truly begin to find clear paths to new forms of practice. Figure 4 shows a framework – integration of sustainability in apparel and textiles core curriculum.

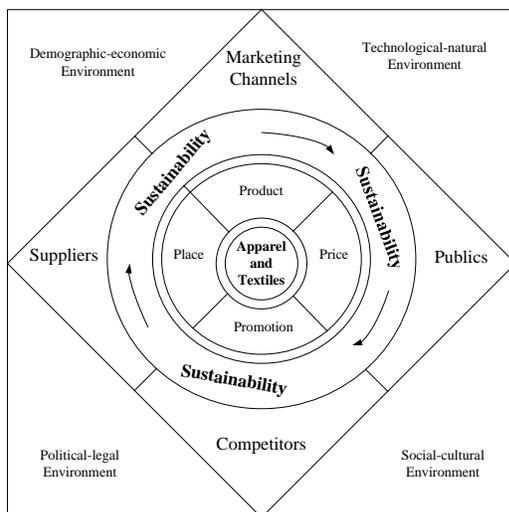


Figure 3. Relationship between sustainability and apparel and textile industry

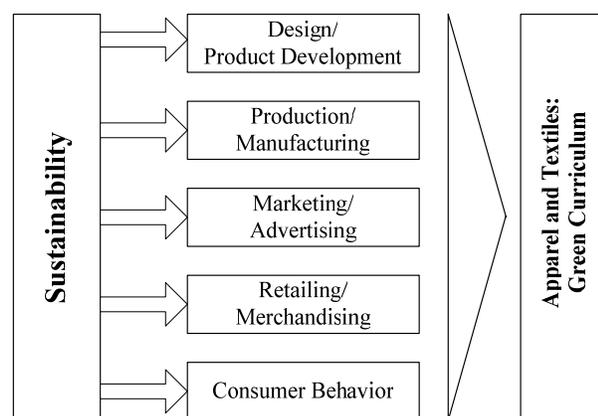


Figure 4. Integration of sustainability in apparel and textiles core curriculum

The development of the above model and framework will require an inter-disciplinary approach – not only amongst apparel and textile academics, critics and practitioners but also with colleagues from a broad spectrum of disciplines already immersed in the task of creating a sustainable world. These would include interior design, biology, chemistry, sociology, environmental science, human ecology, business, management, and many others.

Core sustainable development knowledge, values and skills relevant to apparel and textiles students include:

- Interdependence of major systems -- An understanding of the interdependence of major systems such as the relationship between poverty, population, consumption and the degradation of the global environment
- Long-term thinking/visioning – An understanding of the needs and rights of future generations and the need for long-term thinking/visioning. This includes the implications for future generations of different development routes e.g. globalization versus localization; high tech versus low tech; consumer versus conserver
- The value of diversity – An understanding of the value of diversity whether cultural, social and economic and natural systems (biodiversity)
- The precautionary principle – An appreciation for the need for adopting the precautionary principle in relation to action at individual and collective levels
- Alternative perceptions – An understanding of the alternative perceptions of growth and development
- Different Approaches to sustainable solutions – An understanding of the different approaches to sustainable solutions: legal, economic, managerial, scientific and technological, education, design
- Sustainable solutions tools and techniques – An awareness of the wide range of sustainable solutions tools and techniques currently available and detailed understanding of the design specific examples
- Sustainability policy – An awareness of environmental/sustainability legislation, policy and control mechanisms, international environmental/sustainability policy and agreements

The identification of the above core sustainability knowledge, values and skills will assist apparel and textile higher education in the development of new educational strategies, pedagogical models and learning resources. All these will help students to become more responsible global citizens.

4. Strategies of Teaching Sustainability in Apparel and Textiles Curriculum

Following the above model and framework, strategies of teaching sustainability in apparel and textiles curriculum are discussed in this section. Building on the ‘ecodesign’ discourse and practice, there is now serious mainstream discussion within the apparel and textile field on how progress can be made towards more fundamental changes in the existing paradigms of industrial production and consumption, if sustainability is to be fully embraced.

There is an urgent challenge facing today’s educators to improve the teaching/learning of environmental knowledge, attitudes and behavior across a range of disciplines. Apparel and textile faculty should understand the reasons why it is important for students to learn how to become responsible global citizens. It is, of course, vital when teaching sustainable development aspects and approaches, to maintain objectivity about facts, but we would be failing students if they were not given the opportunity to practice handling such ethical issues relevant to their subject area. The use of the structured controversy learning experiences would seem to be well suited to achieving this goal.

Strategies of teaching sustainability in apparel and textiles include:

- Balance intuitive, intellectual, affective and cognitive learning approaches
- Use direct experience in a variety of settings
- Use student’ knowledge and local community knowledge in relation to sustainable development
- Explore and clarify values in relation to sustainable development
- Use a range of participative techniques to facilitate the development and exchange of viewpoints in relation to sustainable development
- Consider the interrelationship between uncertainty and controversiality
- Critically reflect on pedagogical approaches
- Consider both sustainability related problems (cause and effect) and possible solutions referred to and encourage participation in responsible sustainable development practices at university and at home
- Include links to local community sustainable development

- Make regional and global links
- Use interdisciplinary approaches where appropriate

It can be argued that rather than attempting to rid teaching of pro-sustainability positions, lecturers have the responsibility to state and defend positions, however controversial; because the furthering of students' critical capacities and the cultivation of a critical and reflective autonomy (one of the root objectives of higher education) depend precisely on such an approach.

It would be very helpful if faculty use projects or research studies incorporating sustainability to give students opportunities to explore and understand that how textile and apparel industry impacts sustainable development. The ultimate goal of those projects and research studies is to encourage student engagement in sustainability activities. As majors in apparel and textiles, there are many things they can do for the sustainable future. Some project or research topics may be:

- Green design in fashion products
- Eco-Textiles and marketing: the ways towards sustainable development in textiles
- Environment management in textile and apparel industry ;waste control in textile production
- Outsourcing or domestic production
- Recycling
- Product life cycle analysis
- Textile-apparel-retail supply chain and social responsibility
- Fashion for good

5. Conclusions

It is time to embrace a new way of living and a new way of thinking. Universities, individually and collectively, can be the catalyst by assembling their various environmental efforts into a comprehensive ecological mission aimed at achieving sustainability in all facets of university life.

A golden opportunity to create a new generation of socially and ecologically responsible citizens is before us. By pursuing this ecological mission, higher education institutions could create a new model for living – one that is highly energy efficient, produces little or no waste, supports regional economies, engenders an abiding respect for life, and fosters bonds among all members of the community of life. The interdisciplinary perspective of apparel and textiles higher education could play a key role in sustainability education, generate the new knowledge needed, and train the leaders and teachers of tomorrow, as well as communicate the knowledge to decision-makers and the public-at-large.

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