E-learning for textile enterprises innovation improvement

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Abstract. The Erasmus Plus project- TEXMatrix: "Matrix of knowledge for innovation and competitiveness in textile enterprises", financed through the Erasmus+ Programme, Strategic partnerships– KA2 for Vocational Education and Training, aims at spreading the creative and innovative organizational culture inside textile enterprises by transferring and implementing methodologies, tools and concepts for improved training. Five European partners form the project consortium: INCMT – Bucharest, Romania (coordinator), TecMinho – Portugal, Centrocot – Italy, University Maribor, Slovenia, and "Gheorghe Asachi" Technical University of Iasi, Romania. These will help the textile enterprises involved in the project, to learn how to apply creative thinking in their organizations and how to develop the capacity for innovation and change. The project aims to bridge the gap between textile enterprises need for qualified personnel and the young workforce. It develops an innovative knowledge matrix for the tangible and intangible assets of an enterprise and a benchmarking study, based on which a dedicated software tool will be created. This software tool will aid the decision-making enterprise staff (managers, HR specialists, professionals) as well as the trainees (young employees, students, and scholars) to cope with the new challenges of innovation and competitiveness for the textile field. The purpose of this paper is to present the main objectives and achievements of the project, according to its declared goals, with the focus on the presentation of the knowledge matrix of innovation, which is a powerful instrument for the quantification of the intangible assets of textile enterprises.

1. Introduction

E-learning is a powerful instrument to reach decision-making staff for improving innovation within own enterprise. The e-learning concept can be broadly defined as the use of Internet technologies to create solutions that support and facilitate the teaching, learning and assessment processes.

It is revealed by the specialists, that combining e-learning strategies with face-to-face strategies in a blended learning solution, increases the educational effectiveness when compared to either type of strategy used individually [1].

The design and development of computer-assisted lessons are current requirements of the higher education system. Nowadays, the advantages of teaching by using interactive lectures which contain pictures, photographs, videos, animations, exercises, glossary, tutorials and further readings, are highly recognized [2].
The e-learning instruments continue to be developed and to be used in teaching textiles technologies, in a modern and efficient style. However, it is assumed and expected that the highest level of knowledge will be reached only by adapting a blended style of lecturing, under tutor guidance.

The complexity of the technical contents imposes such an approach, besides face-to-face teaching, an alternative and complementary method, exploiting so, both way benefits in the student’s interest and favour.

2. Need and rationale of the TEXMatrix project

Many textile enterprises face difficulties in finding the best solutions to compete on the global market. They face the challenge of skill development and innovation without having the focused resources and the strategic vision to adapt to the rapid changes of trends and technology in the textile field. The enterprises need qualified personnel, while the young workforce needs to cope with performance requirements of the enterprises.

The strong competition in the textile industry on an international level imparts better flexibility to the industry as well as investment in education and adaptation of new skills for young textile specialists [3].

3. Project specific objectives

The Erasmus Plus project- TEXMatrix: "Matrix of knowledge for innovation and competitiveness in textile enterprises" is financed through the Erasmus+ Programme, Strategic partnerships– KA2 for Vocational Education and Training, aims at spreading of creative and innovative organizational culture inside textile enterprises by transferring and implementing methodologies, tools and concepts for improved training. Five European partners form the project consortium: INCDTP – Bucharest, Romania (coordinator), TecMinho - Portugal, Centrocot - Italy, University Maribor, Slovenia, and Technical University "Gheorghe Asachi" of Iasi, Romania. These will help the textile enterprises involved in the project, to learn how to apply creative thinking in their organizations and how to develop the capacity for innovation and change.

The project aims to bridge the gap between textile enterprises need for qualified personnel and the young workforce. It develops an innovative knowledge matrix for the tangible and intangible assets of an enterprise and a benchmarking study, based on which a dedicated software tool will be created. This software tool will aid the decision-making enterprise staff (managers, HR specialists, professionals) as well as the trainees (young employees, students, and scholars) to cope with the new challenges of innovation and competitiveness for the textile field.

TheTEXMatrix project envisages the following specific objectives:

- Improvement of the innovation capacity and training methodology of textile enterprises with contribution of research providers;
- Delivering key competences both to employers and employees in the textile field;
- Elaborating new forms of practical training schemes and studying of real life cases in textile enterprises;
- Development and implementation of project-based transnational collaboration between enterprises and trainees;
- Development and delivery of new VET training methods, including work-based learning;
- Providing tools and methods for the professional development of VET trainees in textile enterprises.

4. Knowledge matrix of innovation

The focus within this paper is on the presentation of the knowledge matrix of innovation (KMI), which is a powerful instrument for the quantification of the intangible assets of textile enterprises.

Knowledge matrix for innovation quantifies the intangible assets of an enterprise on two dimensions: the horizontal dimension describes the intangible assets from point of view of their target use (existing /envisaged assets) and the vertical dimension presents the assets from point of view of
their nature (innovation strategy; training methodology; relationships portfolio; IPR). Examples of intangible assets of an enterprise are: innovation strategy/culture, informational resources, training methodology, relationships portfolio, IP rights etc. Their identification and improvement for a textile enterprise is of utmost importance for their competitiveness and capacity to implement innovation [4].

One of the project goals was the elaboration of the KMI, meant for supporting innovation and competitiveness in textile enterprises.

Figure 1. The general structure of the KMI [4].

Knowledge matrix is based on two key dimensions (figure 1), respectively:

- Application domain maturity (opportunity, need, problem);
- Knowledge maturity (solution, artefact, theory).

Figure 2. A conceptual model of innovation research and practice [4].
Figure 2 provides additional insights on how the KMI innovation categories support an improved understanding of the innovation economy. The development of the KMI has been carried out following the next tasks:

- Identification of all relevant factors for the knowledge matrix for innovation and adaption to the textile field
- Elaboration and validation of the final structure for the knowledge matrix for innovation;
- Elaboration of the dedicated questionnaire for textile enterprises.

The resulted matrix has on its vertical dimension the list with the assets by nature, namely: **conditions, resources, activities and results**. Each of these elements has been defined through a certain number of criteria and factors, resulting as shown in table 1, the agreed matrix structure, by the 52 factors in total.

**Table 1. The KMI developed within TEXMatrix project.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Criteria</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Conditions</strong></td>
<td>Innovation culture</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovation strategy</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Resources</strong></td>
<td>Human resources</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organizational structure</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Material resources</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External relationships</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial sources</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Activities</strong></td>
<td>Management of ideas</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management of innovation projects portfolio</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surveillance and knowledge management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovation promotion</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPR</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Results</strong></td>
<td>Evaluation and monitoring</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Image (Brand)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning from failures</td>
<td>1</td>
</tr>
</tbody>
</table>

The Knowledge matrix for innovation has the following importance for textile enterprises:

- an adequate classification of an intangible asset and their relation with other assets an improved of knowledge inventory
- the assets may be evaluated against their costs and overlapping assets can be eliminated
- non-productive assets may be better exploited
- all asset data of a certain criteria can be easily identified with all its relations
- certain gaps in the knowledge base can be bridged.

The KMI will be applied into the textile enterprises through the developed the Benchmarking Matrix for Innovation in Textile Enterprises questionnaire. Some examples of the questions elaborated in the Likert scale, are displayed in the table 2.

The KMI developed will be followed by a benchmarking study, which will establish the position of an enterprise on local/regional/national/European (consortium) level and statistical reports and charts upon the current situation of the textile industry on local /regional /national/European (consortium) level, will be done.
Afterwards, a guide with new solutions for textile enterprises, containing new solutions based on the gap analysis of the benchmarking study, will be proposed by the project consortium, and its content will be transformed into one e-learning tool.

Table 2. Selected questions for benchmarking matrix for innovation.

<table>
<thead>
<tr>
<th>Question #1</th>
<th>Conditions of the enterprise: Innovation culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please rate from 0 (= non), 1 (= lowest) to 5 (= highest)</td>
<td>0</td>
</tr>
<tr>
<td>Innovation is one of the company’s values;</td>
<td></td>
</tr>
<tr>
<td>The company promotes innovation initiatives on a regular basis</td>
<td></td>
</tr>
<tr>
<td>The company has mechanisms for technological surveillance of the sector and of the competition to feed the strategy of innovation (surveillance-competition, environment, technology)</td>
<td></td>
</tr>
<tr>
<td>The company encourages continuous change</td>
<td></td>
</tr>
<tr>
<td>The company's communication integrates diverse formal and informal knowledge sharing mechanisms</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question #6</th>
<th>Resources of the enterprise: Material resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please rate from 0 (= non), 1 (= lowest) to 5 (= highest)</td>
<td>0</td>
</tr>
<tr>
<td>The company seeks access to innovative materials and technologies</td>
<td></td>
</tr>
<tr>
<td>The company has a regular technological update plan</td>
<td></td>
</tr>
<tr>
<td>The company has access to specialized resources in the textile area, like databases, critical information and reports</td>
<td></td>
</tr>
</tbody>
</table>

5. The e-Learning platform

The e-learning tool is the most powerful instrument for the sustainability of TEXMatrix: it will be available on the INCDTPI server, even after project's end.

The e-learning tool will have the main aim of rendering solutions to the textile enterprises participating in the benchmarking study, based on the guide with new solutions. The solutions from the guide, including research results and new ideas for improving innovation capacity for textile enterprises, will be transformed in e-learning content, the e-learning content will have text, graphics and videos. The content will be scheduled interactively, in order to attract the young trainees in textiles.

The target group of the e-learning content are young trainees in textiles:
- young employees
- textile students and scholars
- young unemployed workforce

The e-learning tool envisages of total number of 300 user accounts (50 internal user accounts - consortium partners and 150 external user accounts). While e-learning is complex process it will have the following indicators:
- number of self-assessment tests and final tests (Moodle -Quiz)
- number of feedback questionnaires completed
- time spent on the e-learning tool
- the visits of the dissemination page of the project's website will complete the number of indirect beneficiaries of the project:
The E-learning tool and work-based training, developed within the project, will be hosted at the web address: www.advan2tex.eu/portal/.

The TEXMatrix project is complementary with the Erasmus Plus Strategic partnership VET project – Advan2Tex – “E-learning platform for innovative textile fields” (2014-1-RO01-KA202-2909). This project is currently under implementation and the project consortium includes 2 of the TEXMatrix partners and is also in INCDTP coordination. Within Advan2Tex 7 training modules in innovative textile fields have been elaborated and uploaded on the e-learning platform with the URL address www.advan2tex.eu/portal/. Moreover, 6 blended courses were organized based on the e-learning platforms and 3 guides were created within the 5 joint staff events. The envisaged target group consisted in professionals in textile industry, young entrepreneurs and students in textiles, which were supported with the mentioned results of the project.

6. Conclusions
New technologies and research results offered by research providers have to be implemented and adapted within textile enterprises. The enterprises need qualified personnel, while the young workforce needs to cope with performance requirements of the enterprises.

A solution to these needs is given by spreading of creative and innovative organizational culture inside of textile enterprises by transferring and implementing methodologies, tools and concepts for improved innovation and training.

The concept of the Knowledge matrix, which quantifies the intangible assets of an enterprise, brings added value in its innovation and training capacity. The project partners support the enterprises by means of their latest research results and training methods. They are able to identify gaps in the innovation capacity of enterprises based on the Benchmarking study and to enrich it with new solutions.

Hence, main impact indicators on the enlarged target group are:

- acquiring improved training methods;
- better knowledge of innovation mechanisms in textile enterprises;
- improving the implementation of the innovation;

The main sustainable output of TEXMatrix, the e-learning tool, will be hosted on the INCDTP server even after project’s end and will further support the textile world-of-work in improving innovation and training.

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E-learning and blended learning in textile engineering education: a closed feedback loop approach

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Abstract. E-learning has gained a significant role in typical education and in professional training, thanks to the flexibility it offers to the time and location parameters of the education event framework. Purely e-learning scenarios are mostly limited either to Open University-type higher education institutions or to graduate level or professional degrees; blended learning scenarios are progressively becoming popular thanks to their balanced approach. The aim of the present work is to propose approaches that exploit the e-learning and the blended-learning scenarios for Textile Engineering education programmes, especially for multi-institutional ones. The “E-Team” European MSc degree programme organized by AUTEX is used as a case study. The proposed solution is based on (i) a free and open-source e-learning platform (moodle) and (ii) blended learning educational scenarios. Educational challenges addressed include student engagement, student error / failure handling, as well as collaborative learning promotion and support.

1. Introduction
E-learning has gained a significant role in all grades of typical education as well as in training, thanks to the flexibility it offers to the time and location parameters of the education event framework. Although purely e-learning scenarios are mostly limited either to Open University-type higher education institutions across Europe or to graduate level or professional degrees, blended learning scenarios are progressively becoming popular in undergraduate education, where students’ physical presence and participation in classes and labs has traditionally been mandatory. Blended learning employs conventional, face-to-face instruction in class and e-learning in a complementary role; students benefit from the merits of each approach. Research focusing on the learning outcomes of undergraduate degree programmes provides evidence for the advantages of blended learning over either the pure e-learning or the pure face-to-face approach, [1].

During the last decades, modern Textile Engineering education in Europe has steadily been putting the emphasis on quality rather than bulk, volume or numbers, in an attempt to counterbalance the negative impact of the migration of textile industrial production basis to Asiatic countries. Both modern cognitive / learning theory results and advanced ICT technology have been exploited to this end; as a result, Textile Engineering has become a pioneer in modern education, [2]. Today there exist
a number of joint-degree programmes, such as the one offered jointly by ENSAIT and North Carolina State University, USA, or the “E-Team” European MSc degree programme organized by AUTEX and offered by 24 partner institutions. Course organization and management as well as the mobility of students, professors and researchers have been largely dependent on ICT, [3]. However, given the very nature of Textiles as an Engineering discipline, instruction has been bound to the traditional side, [4].

The aim of the present work is to propose approaches that exploit the e-learning and the blended-learning scenarios for Textile Engineering education programmes, especially for multi-institutional ones. The proposed solutions are based on

(i) free and open-source e-learning platforms, such as moodle, and
(ii) collaborative education scenarios.

Challenges addressed include student engagement, student error / failure handling, as well as collaborative learning promotion and support.

2. E-learning technologies in the Blended Learning and the Flipped Classroom models

Information and Communication Technologies (ICT) can offer considerable advantages

(i) in the organization, structure, delivery and management of academic or vocational training courses and the presentation of the course contents (educational material) in electronic form, and

(ii) in the pedagogical scheme applied by the course instructors and lab tutors.

Both these aspects have a significant impact on the ultimate goal of every taught course, i.e. the learning outcomes achieved by the students upon successful completion of the course. E-learning platforms, such as the moodle platform, offer functionalities that support these educational aspects, keep track of the progress at the student, the class and the course levels and at the same time manage the financial aspect of tuition paid by the students, where applicable; all under an integrated environment and through a user-friendly, web-based interface, [5].

In relation to the pedagogical strategy adopted in a course, a fundamental advantage of the moodle platform is the integration of easy-to-use features that allow students to receive immediate and focused feedback through all types of (self-) evaluation activities. Errors made by students are thus transformed into opportunities for discussion and clarification of subtle points in the course content, [6]. They offer the instructor an opportunity to communicate with his/her students, encourage them and direct them to study the specific course modules they need (personalized learning). In face-to-face instruction scenarios, live teachers will do all this in class, drawing from their experience and relying on their training as well as on intuition. In e-learning, however, this has to be carried out by the platform which should be adequately equipped.

According to the degree of the use of e-learning in an educational scenario adopted for the instruction of a given class, the scenario is characterized as purely face-to-face, purely e-learning or blended learning. Today, blended learning is considered as both the most practical and the most advantageous approach, as it allows learners to benefit from the advantages of both face-to-face and e-learning instruction. The e-learning component makes the course attractive to learners thanks to the interactive and multimedia aspects it involves, while allowing them to go through the material at a personal pace, asynchronously to the rest of the class. At the same time, the face-to-face component promotes the solidarity of the class and the sense of belonging to a team, facilitates live discussion with the instructor and classmates and allows questions to be answered and difficult points to be clarified immediately.

Engagement of the learners is known to be a weak point of purely e-learning systems and educational scenarios. While the interactive and multimedia features of e-learning have been seen to attract the learners’ attention to the learning content of the course, the retention of the initial interest and attention and the lasting engagement of the learners in the educational activities are objectives not fully conquered as yet. The impressively low percentage of learners subscribed to MOOCs, [7], that complete their courses (an average of 12% reported in 2015) is an aspect of the same problem, the MOOCs being typical examples of purely e-learning education. To address this weakness, modern e-
learning platforms incorporate learning style recognition in adaptive learning platforms that can personalize both the learning content and the media through which this content is offered. [8], [9]. narration, Animated Pedagogical Agents (APA), [10], [11], affective computing, [12], [13], gamification, [14], 3D or Virtual Reality environments, [15], and other such state-of-the-art technologies.

It essentially amounts to a question of motivation: motivated learners will not drop out; they will do their best to overcome difficulties and complete activities, assignments and eventually the course. Blended learning exploits the live teacher’s skills and experience to motivate and engage the learners during the face-to-face sessions and relies on the e-learning component attractive features to sustain interest and engagement during the remote, e-learning sessions.

It has been observed worldwide that, in general, typical K-12 education learners have to be motivated by their teachers, in order to (i) achieve the required educational outcomes and (ii) complete the education cycle and not drop out of it. Motives may be intrinsic (genuine interest or curiosity awakened by the teacher on a specific field or subject) or extrinsic (high grades or other bonuses and prizes); the former are verified to be the most efficient and trustworthy ones. On the other hand, students in higher education or professionals in training courses or seminars are usually strongly motivated, either internally, as they study their preferred and chosen subject or externally, as they need to complete a course or a seminar in order to keep a job or to acquire higher qualifications and get a better salary or otherwise improve their professional position and prospects. Graduate studies are such an example: a typical master’s student is expected to combine an intrinsic (chosen field of study) and an extrinsic (better professional prospects) motive; either a purely e-learning or a blended learning with a strong e-learning component is therefore considered as an appropriate educational scenario at the graduate level.

A pedagogical model that has recently evolved out of blended learning is the flipped classroom model, [16], [17], [18]. In the flipped classroom approach, contact hours between instructor and students are considered too valuable to be “wasted” for the presentation of new material with examples and practice / exercises, which are the activities devouring the most part of the class hours in conventional education models. Rather, students spend time at home to study the new material on-line, supported by an e-learning platform. This may include any type of educational technologies such as on-line material, videos, simulation environments or collaborative environments for study, practice and collaborate. In class, they discuss difficult points, ask questions, resolve ambiguities and in general collaborate with the instructor and their classmate in a more productive way. Contact and remote sessions are regularly interleaved within an instruction term (e.g. semester). The learner-centered model is adopted under the flipped class paradigm, [19].

Although the first experimental applications of the flipped classroom have been in high school classes (physics, chemistry), it has soon entered the higher education area where it is today considered to be a valid alternative to the conventional instruction approaches. A major advantage is the efficient use of the class hours and the instructor’s time; this is counterbalanced by the need for careful and detailed preparation of the on-line material to be studied remotely and of the educational aims and objectives sought in class during contact hours. Within the higher education area, the flipped classroom model is very well suited for graduate programs where contact hours tend to be limited and yet the expectations regarding learning outcomes and academic achievement are high. Indeed, in the graduate level students are expected to take over the full responsibility for and load of their studies.

3. The proposed methodology and tools
The proposed methodology is based on blended learning and relies on moodle (i) for student preparation before the course and (ii) for student (self-) evaluation at specific milestones during the course and upon course completion. The “Industrial Information Systems” (IIS) course module within the E-Team AUTEX MSc course is selected and used as a case study, thanks to its intensive nature and its multi-institutional organization, two features that make IIS ideal for illustrating the strengths of the proposed approach. In brief, students study through the platform preparatory material before the
intensive two-week IIS course delivery commences. Students are evaluated on-line. Feedback on errors and progresses made is provided by the platform both on a personal and on a class basis - the second one in a statistical form. Feedback is complemented by a personalized recommendation as to missing knowledge units that have to be studied in more detail or refreshed.

Fig. 1 presents the introductory web page of the moodle platform e-learning environment developed for the IIS course module. It is hosted in the Electronics Engineering departmental moodle server, in the Piraeus University of Applied Sciences, Athens-Egaleo, Greece, [20]. Information on course title, course contents, learning outcomes, ECTS credit units gained, language of instruction and name of instructor is provided through the same platform. A Forum facility is also made available for students and instructor(s), given the essential role held by on-line communication and interaction facilities in e-learning and/or blended learning.

Through the navigation menu offered in the left-hand side frame of the introductory page, students may easily and directly access specific part of the learning contents, either for study or for evaluation. A News and Upcoming Events menu is available in the right-hand side frame, in order to aid students to keep track of actuality and interesting events related to the course module. RSS feeds from academic or research sources relevant to the IIS subject are also included in this frame.

Fig. 2 shows the structure of the learning contents that directly reflects the organization of the IIS course module material to be taught in a two-week session. It is currently broken down into seven (7) Sections, namely,

1. Introduction to I.I.S.
2. Signals
3. Systems - Control Systems
4. Sensors
5. Industrial Control Systems
6. Computer Networks
7. Computer-Integrated Manufacturing - PLCs
The platform offers (i) a link to the Section learning content and (ii) a link to the Section student self-assessment quiz, uniformly across all seven Sections.

The learning content is presented in a linear, sequential manner. Linearity implies that Sections should be studied sequentially, from (1) to (7), each followed by the corresponding evaluation task (quiz). This arrangement of the material follows the behavioristic educational model, [21], which is considered today as obsolete. In the second half of the 20th century, constructivistic and collaborative models have been proposed as more advantageous for the students, in terms of initiative, engagement, development of high-level, “horizontal” skills such as critical thinking, analytic-synthetic skills, ability to collaborate, etc., [22], [23], [24]. Digital, on-line forms of education relying on ICT, such as e-learning and blended learning, lend themselves nicely to the support of these models because experimentation, simulation and interaction with the material and with fellow-learners are of great importance within them. At this initial phase of the development of the platform, however, the linear arrangement is chosen as the simplest and clearest structure; it is the first step in the designed evolution of both the course module and the platform into a more dynamic and interactive version.

![Fig. 2: The learning content structure of the I.I.S. course module, organised in a sequence of seven (7) Sections, each complete with a study and a (self-)assessment part.](image)

Features available in moodle that are interesting from a pedagogical aspect include

(i) The option to enforce the sequential study of the material Sections, by activating the moodle option for Section sequence control: the next Section is made accessible to a student only upon completion of the previous Section – and, possibly, only upon successful results obtained in the previous Section Quiz. Quantification of the term “success results” is flexible; the instructor may differentiate the pass/fail line according to the profile of each of his/her classes. These features may be turned on or off by the instructor according to the pedagogical scenario he/she adopts during a given semester.

(ii) The option for automatic, manual or mixed grading of the quizzes. Moodle allows both for multiple choice quizzes that are graded automatically and immediately by the platform and for “open-type” questions where students are expected to reply in free text form or insert diagrams, plots or images created in their computers to answer the given questions. In the later case the instructor grades manually the specific quizzes or quiz questions and the platform merges results according to predefined grading rules to yield the final grade for the students.
The proposed blended learning scenario to teach this course aided by the moodle platform material presupposes that the instructor makes a part of the course material available to the students before the intensive course delivery period. This may also include review of background knowledge, such as electronics, computers or programming. Students spend time to study this part of the material off-line and possibly take the corresponding tests or quizzes.

Before the instructor commences teaching the course module, he/she is updated in detail through the platform both on each student’s personal performance on the preparatory material and on the time and effort he/she had spent to interact with the material. The later is made possible through a custom design API inserted into the moodle platform in order to collect and extract platform access and usage data per user (student). These are subsequently analysed using data mining methods to extract meaningful information about the student effort and the outcomes achieved, [25].

During the intensive IIS course module delivery period, the instructor may use the platform to upload new material, give students assignments, keep them updated through the News option, communicate with them and answer questions on-line through the Forum and Chat options and monitor their individual and collective progress through the statistical information options available in moodle.

Fig. 4 shows a sample of statistics results from the moodle API, illustrating the webpage loads requested by students while interacting with the learning content in moodle (actual results drawn from another course module offered through the same platform). In fact, this is only one example of a multitude of statistical information that the moodle platform may provide the instructor with, either automatically or by developing and inserting appropriate API modules in it. What is interesting is that
such “snapshots” of the class progress, both at the personal and the class level, may be obtained at any time during the course and not only once upon the closure of the course module. It is also possible to automate this option for the instructor and ‘program’ moodle to produce a personalized statistics report for him/her upon request.

Fig. 4: A sample of statistics from the moodle API: number of page loads requested by students while interacting with the content (actual data drawn from another course module offered in 2016).

4. Conclusions
A blended learning scenario for the instruction of graduate programmes in Textiles Engineering is proposed in this study, based on ICT, e-learning and the moodle platform. The “E-Team” European MSc degree programme organized by AUTEX is used as a case study. The blended learning approach proposed here complements face-to-face instruction in class with asynchronous study and (self-)evaluation at home, in two phases: a first phase where students study preparatory material and a second phase that runs in parallel to the actual course delivery. The IIS course module of “E-Team” is used as a sample module to illustrate the advantages of this approach. Educational aspects referring to student initiative and engagement, error handling, feedback and recommendation for further study are supported. The proposed scheme supports the instructor to identify the students’ strengths and weaknesses and to assess the effort they have put in the preparatory study for the course. Further research currently underway aims to introduce a dynamic and interactive character in the course layout and in the course delivery method, through the incorporation of stronger constructivistic and collaborative elements.

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Resume, Eulogy, Education and Future

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Abstract. Will the current trend of the Industrial Age, focused on profits, greed, material wealth, and mass consumption continue? Inequality and polarization, which are seen in today’s world, are ranked as the top drivers of global risks. Unequal community threatens democracy. Communities with greater inequality are more violent, have more people in prisons, more mental illness, lower life expectancy etc.. On the other hand, communities with greater equality have higher abundance and lower stress. Among eleven factors most important for classroom learning, social and emotional factors accounted for eight. Our emotional and social IQ developed over millennia of living in groups will continue to be one of the vital assets that give human workers necessary tools for creating and building a world of 21st century. Today’s education system is based on the model which was essential for industrial era and mass production. With fast technological development the approach to teaching should be changed. We need new curriculums for new skills and new learning concepts. The aim of the article is to raise awareness regarding the planet’s and mankind’s future and to stress the importance of education and designation between résumé virtues and the eulogy virtues.

1. Introduction

Predictions about how the future regarding earth, humanity and education will be are constantly being made. Will the current trend of the Industrial Age, focused on profits, greed, material wealth, and mass consumption continue? Or will the humanity re-examine collective values and envision a society where success is judged by whether a person carried out his or her fair share of responsibilities within the community? To know what competencies should be thought in schools we should know what the future would be like. We should be proactive in building the bright future.

Regarding the person’s success two sets of virtues can be distinguished, the résumé virtues and the eulogy virtues. The résumé virtues are the skills you bring to the marketplace. The eulogy virtues are the ones that describe one’s personality - whether you were kind, brave, honest, faithful… The former leads to external success while the later to a set of internal values defined by the depth of character. The two, under our current societal norm, are at odds with each other.

The aim of the article is to raise awareness regarding the planet’s and mankind’s future and to stress the importance of education and designation between résumé virtues and the eulogy virtues. The authors will present the important role of a proactive educator.
Educating a new generation, which is not thinking just about career success and money but rather the wellbeing of all species and success of the community (company, town, country, humanity, etc) through sustainable and holistic development of/for all! This should be the primary objective of educators.

2. Discussion

2.1. Planet (Mother Earth)
It is believed that we are entering the new earth epoch dating from when human activities started to have a significant global impact on Earth's geology and ecosystems, Antropocene. The Anthropocene is a proposed (not yet officially approved) term as a recognized subdivision of geological time. The Antropocene concept includes, and transcends, the idea of anthropogenic climate change.

According to Noam Chomsky, American philosopher, the Earth's climate is being radically modified by human action, creating a very different planet, one that may not be able to sustain organized human life in anything like a form we would want to tolerate. There is good reason to believe that we have already entered the Sixth Extinction, a period of destruction of species on a massive scale, comparable to the Fifth Extinction 65 million years ago, when three-quarters of the species on earth were destroyed, apparently by a huge asteroid. Atmospheric CO$_2$ is rising at a rate unprecedented in the geological record since 55 million years ago. There is concern that global warming, amplified by feedbacks from polar ice melt, methane release from permafrost, and extensive fires, may become irreversible, with catastrophic consequences for life on Earth. Sea level rise and destruction of water resources as glaciers melt alone may have horrendous consequences for human [1].

We do not want Antropocene to be the last Earth’s epoch! Is there something that we can do? According to the authors of the article, we can! Educating a new generation, which is not thinking just about career success and money but rather the wellbeing of all species and success of the community (company, town, country, humanity, etc) through sustainable and holistic development of/for all! This should be the primary objective of educators. Some text.

2.2. Humanity
According to Credit Suisse report on global wealth for the year 2015 half of world’s resources and funds are under the control of the 1 % of world’s richest citizens. Half of the world’s poorest citizens’ own less than 1 % of world’s resources and funds [2]. One of the key findings of this year’s Global Risks Report, written in the frame of Word Economic Forum in Davos, is that inequality and polarization are now ranked as the top three drivers of global risks [3].

Such unequal community threatens democracy. According to R. Wilkinson and K. Pickett (in the book The spirit level: Why greater Equality Makes Society Stronger) communities with greater inequality are more violent, have more people in prisons, more mental illness, lower life expectancy etc.. On the other hand, communities with greater equality have higher abundance, lower stress, etc. [4]. The world’s economic system in which winner takes it all does not reflect a bright future for large majority of people.

Capitalism, as an economic system, based on private ownership of the means of production and their operation for profit includes private property, capital accumulation, wage labor, voluntary exchange, a price system, and competitive markets. In a capitalist market economy, decision-making and investment are determined by the owners of the factors of production in financial and capital markets, and prices and the distribution of goods are mainly determined by competition in the market.
The capitalism brought to developed world higher material standard but on the other hand brought also stress and fear. Typical for this is what Alan Greenspan said about Worker Insecurity: “If the workers are more insecure, that's very healthy for the society, because if workers are insecure they won't ask for wages, they won't go on strike, they won't call for benefits; they'll serve the masters gladly and passively. And that's optimal for corporations.”

And there is another important issue. When we look at the information which is produced by humans we can see that quite a few of them are distorted and false. With this also our perception of the world (reality) is distorted. Imagine the news which we hear from the TV, radio, internet and imagine all commercials. In one way the world is all negative and in the other everything that is advertised is perfect. The real world is different. Today it is common that one who is the best wins and collects everything, teaching for tomorrow should be that the collective work and knowledge is reworded and that all involved parties win.

We as educators have to teach the new generation how to deal with such situations and how to act responsibly in future. Educator should prepare youngsters for the real world!

2.3. Humanity

The emphasis on academic achievement often captures most of the attention in debates on education reform. However, important inroads are being made by those who take a more holistic approach to education. Wang, Haertel, and Walberg (Wang 1990) reported that among eleven factors most important for classroom learning, social and emotional factors accounted for eight [5].

Our emotional and social IQ developed over millennia of living in groups will continue to be one of the vital assets that give human workers a comparative advantage over machines (Davies 2011) [6].

Neuroscience, too, has offered evidence to support a holistic message about cognitive, social, and emotional development. Recent scientific advances indicate that the prefrontal cortex, considered the center of higher-level cognition in the brain, also plays a dramatically important role in emotion processing and regulation. Thus, the operation of the brain is more like an orchestra than a number of soloists. Not only does academic learning depend on social and emotional skills, but also it is virtually impossible to disentangle the two.

The current approach — a product of the Industrial Age, focused on profits, greed, material wealth, etc. which relied on compliant factory workers and mass consumption — promotes weakness rather than strength. It has become even more regimented (and thus more disempowering) in recent years due to a lack of trust. Adults who feel hard-pressed to predict or control their own destinies, and who feel confused about the “big issues of life,” and are less willing to give children the time and space they need to shape their own futures.

We must start by re-examining our collective values and envision a society where individuals once again matter. Clues to a more suitable paradigm can be found in the metaphors that characterize the dynamic, networked Information Age. These share some key characteristics with the pre-industrial past, when people learned in the community, from a variety of adults with whom they built relationships. Learning continued over the course of a lifetime filled with meaningful work (in contrast to today’s high unemployment rates and low workplace engagement levels), and success was judged by whether a person carried out his or her fair share of responsibilities within the community.

It is essential to view learning as a total community responsibility, and have or expect no short cuts. Children need to be integrated, fully contributing members of the broader community, so they can feel useful and valued. It is not just the children who need this; healthy communities also need children in fact all age groups.
Many educators continue to focus on issues of how to improve their craft, serve students better, nurture well-rounded, emotionally intelligent students and make educational change in more fundamental ways. Much of the disaffection with the school system stems from a pervasive feeling that the intense focus on formal academics has inadvertently neglected the rest of a child’s personality and humanity. While employers, psychologists and other researchers have repeatedly noted that social and emotional skills like empathy, ethics, cooperation, mindfulness, personal growth, etc. are some of the most important parameters for success.

New education would foster young minds with the tools for creating better tomorrow and more responsible global citizens who will contribute to the wellbeing and progress of humanity [7, 8].

2.4. Education

According to fast technological development the humanity needs new educational approaches to solve the challenges in 21st century. World is changing, the communication and competencies of the future are changing – also education has to change. Youngsters need tools for solving challenges of future.

We need new approaches regarding our actions towards our nature environment (Earth), humanity, and humans as social beings. To learn about new approaches, we also need new approaches in Education. Today’s education system is based on the model which was essential for industrial era and mass production. With fast technological development the approach to teaching should be changed. We need new curriculums for new skills and new learning concepts. The vision is also that the students are active, creative, passionate about the study fields, brave, helpful, honest etc. The education process should be changed and organised in accordance from the child birth on (this includes parent’s education as well) through school education process and lifelong learning.

Today’s employers at youngsters in Slovenia miss:
- motivation for work
- flexibility
- discipline,
- perseverance
- reliability
- self-organisational competencies
- working habits
- enthusiasm
- working experiences
- communication competencies
- team work competencies
- self-initiative ….

It is time to start with changes in our Educational systems. We’ll see the results of the changes which we’ll start today only in decades to come. Much likely the changes will experience future generations. And we own next generations that we actively do something about the world in which they will live.

Finland started with new curriculum in primary school (till 6th grade) in August 2016 (changes were prepared since year 2000). It can be said that Finland has the most liberal view at education where only best talents become teachers. The aim of new Educational approach is to connect professional fields and to change the approach to teaching them. To build a kind of multidisciplinary subjects since life is not divided into subjects, on the contrary, it is interconnected. To develop general competencies at different subjects simultaneously. The approach to teaching is more holistic. Teaching on the basis of certain phenomenon or examples which are than enlighten from different aspects. On
the basis of first experiences in Finland it is seen that children are more active and curious, creative, interested, independent. Emphasis is on multidisciplinarity, critical thinking, creativity, team work, learning outside school, writing, reading, mathematics, sport and cultural education, knowledge linking, using world wide web. Basis for everything is trust and respect of teacher's work. If we do not trust teachers (as it is today) than we have too much control of teachers work which decreases teacher’s performance. Distrust and control of Teachers is than reflected in distrust and control of pupils and consequently in decreasing of their creativity and motivation. Additionally, Finish educators have a lot of autonomy.

There is no comparation (evaluation) of pupils regarding knowledge. Just their individual progress is evaluated.

2.4.1. Active learning. According to the research of Dolnicar et.al. in which three teaching methods, applied to credit-bearing information literacy (IL) university courses, were evaluated and compared. The effects of lecture-based learning (LBL), project-based learning (PjBL) and problem-based learning (PBL) were investigated using the information literacy test (ILT) as an assessment tool, with regard to the total ILT score, specific IL contents according to the five ACRL standards and students’ mental skills according to the Bloom’s cognitive categories. While all three teaching methods showed a significant improvement in the ILT post-test, the active-learning groups of PjBL and PBL scored significantly better than the LBL group. The most notable positive difference was observed in students’ effective access to information related to database searching skills, in the intellectual property/ethics issues and in the cognitive category of comprehension. The PjBL and PBL post-test results did not differ significantly, indicating that both active learning methods resulted in similar improvements of students’ IL [9].

2.5. Virtues
Regarding the person’s success two sets of virtues can be distinguished, the résumé virtues and the eulogy virtues. The seeming dichotomy between the two virtues is the creation of our own thought process. Asking which of these is more important we will uniformly answer eulogy virtue. However, currently, we will spend unlimited amount of time honing resume virtue. Our culture and our educational systems spend more time teaching the skills and strategies you need for career success than the qualities you need for personal success. Many of us are clearer on how to build an external career than on how to build inner character! If living just for external achievement the deepest parts of personality goes unexplored and unstructured (lack a moral vocabulary). Such person lives with an unconscious boredom, separated from the deepest meaning of life and the highest moral joys. Gradually, a humiliating gap opens between your actual self and your desired self, which can be clearly seen as rising number of psychological disorders, negativism, pessimism etc. in developed societies. The résumé and the eulogy virtues do not need to be mutually exclusive but rather to be as two sides of the same coin and (or) to be complementary. In our education, we need to develop both virtues without compromising either one of them.

3. Conclusion
It is believed that we are entering the new earth epoch dating from when human activities started to have a significant global impact on Earth's geology and ecosystems, Antropocene.

Inequality and polarization, as consequences of Capitalistic system, are drivers of global risks. Communities with greater equality have higher abundance, lower stress, are more peaceful, are healthier and have higher life expectancy.
Today’s education system is based on the model which was essential for industrial era and mass production. With fast technological development the approach to teaching should be changed. We need new curriculums for new skills and new learning concepts. The approach to teaching should be more holistic. Emphasis is on multidisciplinarity, critical thinking, creativity, team work, cultural education, knowledge linking and active learning. Basis for everything is trust, respect and autonomy of teacher’s work.

The résumé and the eulogy virtues do not need to be mutually exclusive but rather to be as two sides of the same coin and (or) to be complementary. In our education, we need to develop both virtues without compromising either one of them.

Authors believe that highly evolved and developed world needs focus on highly emotionally and socially developed human beings with high awareness who can build a better world using sustainable and holistic approach. Education is the strongest tool. We should use it!

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Comparative study on fashion & textile design higher education system, Pakistan vs UK

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Abstract. Fashion clothing has a fundamental link to what is generally called global society. However, fashion as a social phenomenon does not only co-create and shape society’s image, it also reflects its current status and responds to the changes taking place in it.[1] In the past few years, Design Education has gained more and more importance. As our clothing consumption has reached an all-time high, and in response, advocates for creative, mindful, eco-friendlier design are screaming their message louder than ever. And it seems the fashion industry is finally listening: More and more fashion designers with formal education are engaging in the practical field. [2]. In the world of globalization almost every country in the world wants their education system to be the best, so their students can obtain the necessary skills and knowledge taught by the schools/universities that meets the challenges of the 21st century. [4]. South Asian countries including Pakistan, Bangladesh and India play a very prominent role in cotton and Garnet production. The textiles and clothing sector has been one of the leading manufacturing sectors of South Asia in terms of its contribution to output, employment and trade. The sector collectively employs over 55 million people directly and more than 90 million indirectly in the region. [5]. Besides the availability of raw material, south Asia still deprived in the value addition in Textile, Apparel and fashion products. Parallel to the other factors associated with competitiveness like poor state of trade facilitation, high transaction costs associated with cross-border exchanges and supply chains this region also lacks in creative, innovative and value added products. [6] The presented research explores how Pakistan and UK way of higher education system works in the domain of Apparel Design in which way both the countries differ and how they are leading in the field of higher education and it also highlight the different pathway that leads to the different type of man power in this domain. Presented research will focus on the study of different modules of textile & Apparel Design Higher Education in Pakistan & UK. Its relation and comparison will be an important area of study. Research work document the Educational modules, its implementation and impact on industry. Afterwards this data was used for comparative study between higher education systems in Textile & Fashion Design.

1. Introduction

Besides many new inventions and technological advancements, Textile & Clothing is considered to be the largest industry with worldwide business networks. Substantially it is considered to be the milestone which triggered industrial revolution [6]. Brenton et al. (2007) discussed the various aspects
of Textile & Clothing and elaborate the importance of this sector in relation with our daily life. Textile & Clothing covers wide range of workmanship commencing from unskilled labour to technological trained human resource. It is rooted from agriculture to countryside and linked with civic lifestyle of fashion. Business of Textile & Clothing comprises of small entrepreneurship setups to giant industrial states. Contemporary textiles are beyond conventional material and technique. It involves Hi-tech value addition and many countries are generating revenue from export of garments and other value added products [7] Indisputably, Textile and clothing have been an important factor in economic growth of a country and it is equally important for developed countries to the developing nations. Trading in Textiles is influencing international policies and strategies [8]

Textile industry can be considered as the backbone of Pakistani economy. It engages 38 percent of the industrial labour and about one third of commercial productivity includes textiles and related goods. As far as the international scenario is concern, Textile business is a major contributor in total export of Pakistan which rose up to 60 percent in recent years. Besides very strong infrastructure, Pakistan is not playing a vital role in the Textile Sector of the world. Scenario of Value added products in Textiles and Garments is also very disappointing. Research and development lack in overall Textile sector of Pakistan [9]

Clothing industry has been revolutionized after amalgamation of Fashion Clothing. It has been persuading internationalization and globalization. Clothing and Textiles has become larger than the stereotype mage of this industry. Today Fashion clothing is shaping the society and working as catalyst in the social change of the modern world. Few decades back Fashion was restricted to specific class, higher end market and limited designers and fashion houses [10] Fashion has been evolved from exclusivity to mass market. Fashion system has become complex as its horizon broadens with the involvement of different social classes. Industries have been developing systems to regulate this business. Forecasting, Market segmentation, Production planning, costing, Marketing and merchandising have become essential part of Fashion Industry. Industries are developing liaison with academic institutions, Forecasting agencies, Social Media networks and research organizations to develop innovative products incorporate with market need [11] Involvement of diversified manpower, technology and market diversity raised challenges to the Textile & Clothing Industry of the world[12] Origins of Fashion Clothing relates with invention of sewing machine in 19th century. Designing in clothing amplified with the industrial settings after World War II. New materials and Stitching techniques gave freedom to designers and tailors to do experiment with clothing and garments. Evolution of the Fashion is much expanded But Central Europe specifically France remained the crèche for New Look in the Fashion scenario. Clothing transformed from aesthetics to practicality. UK can be considered as the Hub of modern fashion. Practicality met with beauty and explored new dimensions in the fashion arena [13]

Textile is a very vast field and it is difficult to conclude exact figure of the people associated to the field of Textile. According to various resources approximately 26 million people are associated to the textile sector. Shifting of Textile industry is evident in Asian countries for the last decade. China is leading with major chunk of the human resource in this textile & clothing followed by Pakistan, Bangladesh, India, Mexico, Romania, Cambodia and Turkey. Besides many factors, Labour cost is considered to the important factor in this change and employability in Textile sector decreased in Europe, USA and the Philippines from 1995 to 2005 and this process is still going on [14]

The present Global Scenario of Textile Industry with specific reference to the position of Pakistan in the International Textile Market is given here for the enthusiasm of our pursuers. The interest for materials on the planet is around $18 trillion, which is probably going to be expanded by 6.5% in 2005. China is the main Textile exporter of the world's aggregate fares of US$ 400 billion in 2002. Despite the fact that Pakistan has developed as one of the significant cotton material item providers on the planet advertise with a share of world yarn exchange of around 30% and cotton texture around 8%, having absolute fare of $ 7.4 billion which represents just 1.2% of the general share. Out of this Cotton texture is 0.02%, Made-ups are 0.18% and Garments is 0.15%. [15]
Specialized advance and existing quality models from material industry require a decent understanding and a mind boggling process situated considering. Advancement of strategies and settings for instructing and learning with a specific end goal to guarantee fabulousness in the instructive procedure, it is thusly of an awesome need. The need of these improvements is firmly identified with the significance of European material industry, considering the aggregate work drive measurement and yearly turnover on one hand, and the assortment of end uses applications, then again. [16]

The capability prerequisites have been changing all through the material and dress division, while the advanced education arrangement is not any more ready to offer appropriate arrangements. Consequently, dynamic measures must be actualized over the EU so as to give the part know-how for a superior reckoning and positive administration of progress and better adjusting to the area's future aptitudes require Participation as immediate and aberrant, individual and non-individual connections between advanced education foundations (HEI), look into focuses, industry and business with the support of government for common and societal advantage is the way to the new instructive projects and courses improvement.[17]

There are different methods of participation amongst colleges and business, which incorporate coordinated effort in innovative work, - versatility of understudies and scholastics, - educational modules advancement and conveyance, - long lasting learning, - commercialization of R&D results, - enterprise and - administration. The benefits of the co-operation for understudies, business, HEIs and society include: - increment of employability of future graduates, - increment of abilities and graduate advancement, - change of the business execution and - useful consequences for the neighbourhood business [18]

Textile Design study evolve from Art & Craft education in Pakistan. Pakistan came into being in 1947. Mayo School of Arts Lahore was the only art and design intuition at that time founded during British reign (1872) in subcontinent to promote art and craft in this region. Mayo School, of Arts always focused on oriental crafts. It passed through various titles such as, “Mayo Memorial School of Industrial Design, Industrial School of Art & Design, Lahore School of Arts and finally National College of Arts(NCA); suggested by its last British Principal, Sidney Spedding in 1954 which was [formally] adopted in 1958[19]
Textile Design Education can be divided into two major Phases in Pakistan. In first Phase NCA can be considered as influential body in art and design education. NCA can be considered as pioneer in Textile Design Education in Pakistan and for many Years other intuitions remained influenced from the teaching methodology and learning settings of NCA. Initially NCA awarded 4 year diploma after matriculation (Grade 10 according to local route of Secondary education). In Late 80s Diploma was upgraded to Degree Program and eligibility requirements changed from Secondary education to higher secondary education (12 standard). 4 year bachelor program started and college offered Bachelor of Design Degree with the specialization in Textile, Graphic, Product and ceramic Design. Annual system of education was practiced and foundation year remained identical for all the students of Design. NCA remained the dominant institution in Art & Design Education.

Karachi is the largest city of Pakistan. Considering needs of the region and huge Textile industry in the city, another institution was founded in 1989 with the name of Indus Valley School of Art & Architecture. This institution contributed in Textile Sector of Karachi. Settings of Indus Valley resembles with NCA Lahore with focus on Craft of Sindh, traditionally rich land with the roots of Indus valley civilization.

Higher Education Commission Pakistan (HEC) formulated in 2000 result in major changes in education sector of Pakistan. Educational reforms were implemented with the proper planning on the curriculum. National Curriculum Revision Committee deliberated on the requirements. During this process curriculum of Textile Design was revised and compiled in 2008. This was done with the consent of various experts from different art & Design institution of Pakistan. Many new programs were purposed and approved including Fashion Design, Fashion Marketing & Merchandize, Textile Design, Jewellery Design & Gemmological Sciences, Furniture Design & Manufacture, and Leather Accessories & Footwear Design. Curriculum was design according to need of the market including eLearning techniques and other advanced courses of practical and theoretical side of the Textile & fashion Design.

2. Methodology

Mix method approach was adopted to conduct the current study. Three Basic tools were practices for data collection
- Survey through Questionnaire
- Observation

2.1 Institutions

Two institutions from Pakistan and two institutions from UK were selected for the study. Researcher prepared set of similar survey questions for recent graduates of selected institutions. Students of most senior class were also engaged during the data collection. Study focused on the students of undergraduate studies of Textile Design, Fashion Design and clothing Design.

Study conducted in following institutions
- National College of Arts Lahore Pakistan (NCA)
- Pakistan Institute of Fashion & Design Lahore, Pakistan
- University of Leeds, UK
- University of Bolton, UK

2.1.1 NCA

Data have been shared about NCA in introduction.

2.1.2 Pakistan Institute of Fashion & Design Lahore, Pakistan (PIFD)

It was in 1994 that an alliance was set up with the Ecole de La Chambre Syndicale de La Couture Parisienne initially created by the French Federation of Fashion Designers in 1927. Concentrated meetings were held to draw out a far reaching four year educational modules that would not just set up
the understudies for the neighborhood requests additionally engage them to meet worldwide principles. In 2008, it got subsidiary with the Asian Institute of Gemological Sciences (AIGS), to give essential introduction to understudies and personnel of Jewelry Design and Gemological Sciences. The huge point of interest in the historical backdrop of the organization is the degree granting status through PIFD Act of 2011. PIFD was upgrades as Degree awarding institute from HEC Pakistan. The graduates finishing their degree projects will now be perceived at national and universal level.

2.1.3 University of Leeds, UK, School of Design
The School of Design has a long and recognized history. Since our establishment in 1874, school claimed built up notoriety for being one of the world's driving Textile and material exercises. However later advancements have seen the School grow its center concentration to incorporate the element and continually developing zones of visual depiction, Fashion Design, contemporary workmanship practice and outline textile innovation. According to information from website, Configuration, Color, Textile Materials and Sustainability are enter components in the progressing achievement of the School and the current interests in the School in offices and gear have fortified our dedication to make a fantastic domain for understudy advancement and improving graduate employability.

2.1.4 University of Bolton, Textiles & Surface Design - BA (Hons)
As per Data accessible on University site, it gives chance to investigate and explore different avenues regarding an amazing blend of customary and advanced procedures for imprinting onto surfaces including papers, textures and earthenware production. Computerized advances incorporate the utilization of industry-standard programming, for example, Adobe Creative Suite and AVA CAD CAM. We likewise subscribe to the WGSN slant determining site so you will work with the most recent reports and bearings. This program covers outline for an extensive variety of plan and business settings - from plan for mold textures and adornments, stationery items and bundling configuration, outline for inside textures and divider covers to contemporary display/outline drove pieces. The course is educated by a group with broad experience of offering and displaying material/surface outline work professionally, and unites the College’s qualities in material plan, expressions, and innovative work.

2.2 Focal Points
Two aspects were emphasized during the present study

- Quality indicators
- Structure of the undergraduate program

2.2.1 Quality indicators
Naveda Department of education formulated Career and technical education. CTE is responsible for standardized education in six different domains. It work as facilitator to the management of the university and provide quality standards for the higher education. These indicators assess the quality of various programs and provide guidelines for better output of different universities. Continuous improvement in collaboration with academicians and stake holders is another objective of this program.

The development of Nevada career and technical standards and assessments is a community exertion supported by the Office of Career, Technical, and Adult Education at the Department of Education and the Career and Technical Education Consortium of States. The Department of Education depends on educators and industry delegates who have the specialized mastery and instructing knowledge to create gauges and execution pointers that really measure understudy aptitude achievement. Most essential, be that as it may, is acknowledgment of the time, skill and incredible tirelessness gave by the written work colleagues in building up the vocation and specialized benchmarks for Fashion, Textiles, and Design [22]
Quality standards were adapted to create understanding for the graduates and senior most enrolled students. Random sampling was done in execution of the study. Data of 10 respondents from each institution were collected for the results. Following are the main components of questionnaire which further segregated into 20 dichotomous questions.

Data was counted and converted to numeric and ratio method was used to elaborate the Data.

2.2.2 Career Path

![Figure 2. Comparison about awareness about career Path](image)

Sequence of the questions is designed in such a way that respondents can show his expression and opinion about his/her knowledge about the career path of selected field of domain. Opinion about entrepreneurial opportunities and information about potential employer are also discussed in this portion. Professional way to present the portfolio and necessary knowledge about career planning was thoroughly examined in the designing the questionnaire. This is the major difference between respondents of Pakistan & UK. Graduate and students of Leeds & Bolton are much aware of their career planning. They are familiar with different dimensions of the design in term of professional planning. Most of the graduates have developed linkage with professional organizations during their studies. On the other hand Pakistani Textile Design students lack in entrepreneurial skills. Positions of career consultant do not formally exist in the Design departments or higher institutions. Pakistanis students are not much familiar with modern techniques of market like e learning & E business.

2.2.3 Performance Standards

![Figure 3. Comparison of Performance Standards](image)

This series of questions can be considered as heart of the questionnaire. In this portion, respondents were asked about the key role and responsibilities of the Textile Designer. Information about Process of Design development and execution was collected through this series. Questions about mandatory
skills of Designer were asked to analyse the competency of young Designers. Results of both the countries do not much vary in this area. Most of the graduates and senior students are satisfied about the performance standards of the outcome of their undergraduate Study. There is a possibility of Numeric difference because of language barrier because mostly Pakistanis students are unable to answer complex questions like reflective learning/teaching and constructive criticism.

2.2.4 Knowledge of Material

Contemporary Textiles is incomplete without knowledge of material, techniques, technology and legislative work regarding to design. Familiarity about the prominent features like spinning, weaving, knitting, embroidery and printing was arbitrated through sequence of queries. Information about practical experience was also gathered. Questions about legislation and Fabric care was also asked in this portion. According to collected data, there is a slight difference between Pakistani & UK Textile Design graduates. UK respondents are slight more conversant about Material and techniques. Data represent that Pakistani students have a deficiency in areas of textile legislation /standards, and labelling.

2.2.5 Textile Product & Garment Detail

Information about product detail and development has become important phenomenon for the designer. Stitching, Flat patternmaking, Draping and machine sewing are the required skills for the successful industrial designer. Finishing in the products, garment cannot be achieved without acquaintance of product detail and development. Questions were asked to analyse the understanding...
about this side of the Textile & Clothing design. Data interpret the Product knowledge is quite frail in Pakistani graduates as compare to the UK. Graduates of PIFD are better than NCA in this area. This is because presence of Fashion Department with in the campus and focus of PIFD is more towards garments and costumes.

3. Structure of the undergraduate program
Structure of Bachelors Programs is quite different in UK & Pakistan. Basic difference starts from secondary education in both the countries. Secondary education in Pakistan goes on for a long time (review 9-12). It is cooked in government optional and higher auxiliary schools; the majority of these schools have working classes also. In every one of the areas practically similar sorts of schools and universities exist to provide auxiliary classes. In the UK, optional schools for the most part provide instruction of age gathering 12-16 or at times 12-17 or 18 wherein understudies join A-Levels.

In UK, Students have the possibility to study Art & Design on secondary level of education. Options like GCSE in Art/Design, HND and other related programs are available for the students. Contrary to this, students in Pakistan have limited access to opt art and design on secondary level. Admission criteria in UK universities are based on Portfolio. Interview used to conduct in exceptional cases. In Pakistan, Eligibility criteria of admission are strictly related to drawing & aptitude test conducted by the university.

Difference in Secondary education creates variation in duration of Bachelor Degree of both the countries. Approximately completion time of the undergraduate degree in Pakistan is 4 years and 3 years in UK.

Credit which is considered to be the basic component also varies in two countries. 360 Credits are required to complete undergraduate studied in UK. On the contrary Higher education commission Pakistan (HEC) define limit of 131-138 credit hours to Textile Design undergraduate programs. At advanced education level, the colleges are absolutely independent bodies to build up their own particular educational program in the UK, however in Pakistan to a lesser degree, as HEC is settling least benchmarks for every degree program as far as least credit hours, nature and weightage of centre and different courses, and method of appraisal

Road map of the undergraduate Programs is obstinate in Pakistan. Accessibility of elective course is limited and students are bound to stick with the predefined scheme of studies. On the other hand students have handsome range of minor or elective courses during their studies. Variety of courses reflects in the professional capabilities of the graduates.

Difference in nomenclature of the courses and modules is also evident from the comparison between institutions of both countries. In Pakistan, title of courses seems to be indistinct where modules are updated and proficient. Courses resembles with contemporary education terminologies and modern technologies used in textile and clothing sector.

4. Results and Discussion
The results of the survey indicates that, the Bachelor Program in Textile Design have certain differences which effect the process of value addition in Textiles. The findings of the study appear to be in agreement with general perception about the system of education.

Knowles about the career path and legislation and Fabric care and are one of the most questioned issues for Pakistani Textile graduates. The involvement and competency of students as well as the supportive behaviour and capabilities of the trainers outstands as important success criteria for the undergraduate programme.

There are some other differences which are being observed during qualitative process of comparison.

4.1 Faculty, Staff and other Resources
The quality and estimation of an undergrad training in the previous decade got, and keeps on getting, investigation by different partners related with the advanced education group. A significant part of the
vitality encompassing the undergrad experience and understudy learning was set on the two noteworthy duties of personnel, educating and research. (Kezar, 1999). Kuh (2001) and Pascarella (2001) set that a quality undergrad instruction was one that drew in understudies in demonstrated great instructive practices (e.g., center and nature of undergrad instructing, associations with workforce and companions, and contribution in coursework) and that additional incentive to understudy learning. Concentrate self-revealed understudy engagement practices was critical and a vital stride in measuring the nature of undergrad instruction; yet, it was similarly imperative to comprehend and assess what personnel rehearses affected understudy learning picks up. [23][24][25]

Professional Divergence is evident between higher institution of Pakistan and UK. If we critically analyse the competency of faculty member in Textile Design Programs, Situation is pondering. In National College of Arts Lahore, there are very limited no Faculty members and none of them have relevant master’s degree of Textiles as per data available on the website. According to primarily information department do not have any formal industrial collaboration. Pakistan institute of Fashion and Design has been striving to improve quality of Design education in the region. Faculty of PIFD is comparatively better then NCA with foreign qualified faculty. But still they lack experienced faculty in the domain of Textile Design. On the other side, Faculty of University of Leads is very strong with the relevant experience of Textile Design, Material, Marketing and technology. Diversity of Faculty is also manifest from the faculty profile. We can see Faculty members of different positions with different professional background and interests. Culture of research is also evident from the faculty introduction.

Striking difference between Pakistan and the UK can be seen with regard to resources in studio. In comparison to the UK, Pakistani Higher institutions lack in trained teachers, and handful teaching and physical resources

UK advanced education organizations are associated with industry and business, and assume a basic part in exchanging learning to these. Industry and the scholarly community in Pakistan are completely different, and don’t hear each out other. The UK has received an entrepreneurial approach that doesn’t block scholastic accomplishment. In any case, Pakistan’s college pioneers think that it’s testing to adjust these two yearnings

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Work process and task-based design of intelligent assistance systems in German textile industry

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Abstract. The mid-sized embossed German textile industry must face social challenges e.g. demographic change or technical changing processes. Interaction with intelligent systems (on machines) and increasing automation changes processes, working structures and employees’ tasks on all levels. Work contents are getting more complex, resulting in the necessity for diversified and enhanced competencies. Mobile devices like tablets or smartphones are increasingly finding their way into the workplace. Employees who grew up with new forms of media have certain advantages regarding the usage of modern technologies compared to older employees. Therefore, it is necessary to design new systems which help to adapt the competencies of both younger and older employees to new automated production processes in the digital work environment. The key to successful integration of technical assistance systems is user-orientated design and development that includes concepts for competency development under consideration of, e.g., ethical and legal aspects.

1. Introduction
In a context of globalized textile production with companies in low-wage countries featuring lower production costs than German enterprises [1], modern production machines in connection with digital technologies will be the prospective competitive basis of German textile industry. Mostly small and medium-sized enterprises (SMEs), they have to be enabled to profit, for example, from links of physical objects and virtual entities (“industry 4.0”) in a suitable way. The digitalization of value-added processes and the necessity for employees to interact with intelligent systems connected to modern production systems create new tasks, work structures and processes with increasing complexity. Simultaneous to these demands, German textile manufacturers face a social challenge due to a staff structure characterized by heterogeneity and aging. One way to address this challenge is to provide assistance systems as a technical tool to support employees in different situations and operations, especially in improving their knowledge in a way adapted to their individual needs [2, 3].

2. Interdisciplinary research group SozioTex
In favour to let the implementation of such systems lead to work-integrated, socio-technical equipment and work systems and thus also to provide vocational and academic education along with new challenges, the integration of different perspectives has to be considered as crucial. To ensure the
consideration of both, the innovation in techniques and the social point of view, the interdisciplinary research group SozioTex comprising engineers, sociologists, and educational scientists was established. SozioTex aims at installing an assistance system for weaving operators which supports employees with different levels of qualification in successfully working in an “industry 4.0” setting. For this purpose, the team takes on the task of analyzing and evaluating the effects of increasing diversity as well as the increasing usage of highly complex “industry 4.0”-technology in the textile industry. So especially the ever-changing interaction of employees, machinery, control systems and work organization systems can be considered in an integrated, holistic manner.

3. Methodical approach
In general, the methodology of SozioTex (figure 1) can be described as an interdisciplinary, participative approach to the described task. The experts from different areas of expertise meet regularly and evaluate continuously their work with respect to the findings and preconditions of the other disciplines. Participation of stakeholders is embedded in the crucial steps of system development. First, a catalogue of requirements for assistance systems was framed by the research group [4]. It was generated by a wide range of empirical methods of social science, such as literature review, surveys, guided interviews, group discussions and observations in weaving mills, workshops and feedback by experts from the companies as well as industrial and scientific advisors. Further, the SozioTex Team assessed the work process and details of task performing which led to the definition of critical work tasks requiring assistance. By taking into consideration the results of the further studies, concepts for the overall assistance system with its subcomponents and a qualification concept have been developed. At the end of the development phases, concept decisions were made, which are then followed by further development and implementation steps. The aim of the system construction is the implementation and evaluation of experimental prototypes. From the synthesis of these prototypes, a complete assistance system is developed. During the phase of system implementation, the assistance system is realized in a real-world condition lab, the textile learning factory in Aachen, Germany where it will be validated in user studies.

Figure 1. Methodical approach for designing sociotechnical systems exemplary on assistance systems.
A recommendation catalog for the design and implementation of assistance systems with the example of textile production will be drafted as project completion for the transfer of the project results. Furthermore, the implemented assistance system will be used in the textile learning factory for transfer activities such as workshops or training courses, beyond the course of the project.

4. System architecture
In order to support the future design of user oriented systems, a catalogue of requirements for assistance systems was developed, including technical, organizational/company-specific, individual-related and legal requirements. The assessment of task performing provided concrete tasks needing assistance so that the functionality of the assistance system could be specified. Based on these criteria, the SozioTex team developed the following system architecture (figure 2).

![Figure 2. System architecture for assistance system.](image)

The team designed prototypical applications (apps) which assist the operator of a weaving machine. These design variations were rated following economic criteria to identify a concept which will guide the conceptual systems design. To allow the transfer of findings to other industrial sectors, the team classified tasks needing support by an assistance system. Next results will be a technical realization of the chosen prototype and the examination of organizational implications.

5. Training concept
The development of a learning tool and the related teaching-learning situations in the technical work requires an analysis and description of organizational and person-centered occurrence as well as professional action situations. Within the framework of written surveys and work process analyzes, the necessary data are collected and analyzed in exemplary weaving mills [5, 6]. The qualification level in the examined weaving mills is at a high level, as almost all employees have completed vocational training in a textile profession. Through the tablet app as an assistance system, the individual work steps of the work process could be illustrated in detail and the work-in-time, for example when new machine types were set up. According to the surveyed companies, further training and further
education are very important for competitiveness [5], so that the assistance system should support lifelong learning as well. Furthermore, there will be implemented self-learning elements for apprenticeships machine operators or production mechanics, whose experience and knowledge are still on a lower level. From the results of the work process analysis teaching-learning modules for the work-integrated further education are developed.

Didactic goal of the teach-learning module is the promotion of reflexive acting competencies concerning operation processes. Therefore, the focus of the learning situation will be on reflexive learning, especially on experience based learning. This stands out for an awareness of an action and the resulting reflection [7]. That’s the reason why the production system of a weaving machine and the related production chain of a concrete process is the starting point to be able to offer theoretical knowledge as a reflection basis throughout the learning tool. Through appropriate work assignments from the learner’s field of action, concrete goals are given as a point of reference for reflexive action. The reflections on the subject of the weaving machine and the superior textile process chain in the company will be promoted first. Furthermore the reflection concerning social processes, e.g. the interaction with colleagues in up- and downstream processes, will also been promoted. The learning tool provides step-by-step instructions through the work process as well as background materials for the increasing of knowledge. If the experience of the employees increases, they can skip individual explanations and action instructions, or the entire assistance function. Further, the assistance system will provide feedback to employees and information, e.g. in form of a result feedback, for the assessment and optimization of the own work results. [6]

6. Conclusion
To conclude, the adoption of such “industry 4.0” solutions in the textile industry and its effects on employees are assessed in cooperation with partners in industry and research and along with key user tests of demonstrator models. Furthermore, the compatibility of enterprises to processes is tested and recommended actions are deduced from best practice examples. To sum up, our contribution therefore shows an integrated interdisciplinary and participative approach to the conception of intelligent assistance systems in German textile production which aims at integrating both, critical economical-technical as well as social issues of “industry 4.0”.

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Education - Employment Partnership for VET in the fashion sector

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Abstract. The paper presents the objectives, the planned outputs and the innovative aspects of the project entitled “Education - Employment Partnership for VET in the fashion sector”, acronym E&E Fashion, which is co-financed by the European Commission under the Erasmus+ Programme, Key Action 2 - Strategic Partnerships in the Field of Education, Training, Youth and Sport. This is a two year project that has started on December 1-st, 2016. The project aims at developing a European teaching and training Toolkit for supporting the implementation of Work-Based Learning (WBL) in all stages of VET. Moreover, the project will support the implementation of quality assurance mechanisms for WBL in VET in the fashion sector with a specific focus on feedback loops between iVET and cVET systems. The project includes as partners from four countries (Romania, Bulgaria, Italy and Netherlands) representing two iVET providers, a university a Chamber of Commerce, a Federation of SMEs connected with fashion industries, one research institution, one company in clothing and fashion sector, two consulting companies with experience in education and training policies.

1. Context of the project
The European labour market is actually undergoing major changes and it is not certain that the skills and qualifications provided by the European educational system are able to satisfy the current and emerging needs, which means that there is a possibility of further imbalances and gaps in the supply and demand for skills.

The European Commission (EC) launched the “New skills for new jobs” initiative to provide a general framework for the implementation of policy actions in the European Union. Building on this initiative, the EC stressed the need to reinforce the attractiveness of vocational education and training (VET). Also, Member States and social partners committed themselves in the Bruges Communique for 2011 – 2020 to the objective of including work-based learning in all initial VET courses.

Creating opportunities for high-quality WBL lies at the heart of current European education and training policies. It was also confirmed by the European Council that the highest priority should be given to promoting youth employment and invited the Commission to establish a “European Alliance for Apprenticeships” and it also announced the creation of a dedicated Youth Employment Initiative, open to regions with high youth unemployment rates.

The needs and gaps analysis conducted by the partners for preparing the project proposal led to identifying the main problems in the field:
The supply of apprenticeship and traineeship places in the EU continues to be under-developed and varies greatly by country;

Efforts are needed to invest in expanding the offer of apprenticeships and traineeships in countries were opportunities for this type of learning remain very limited;

The permeability between iVET and cVET often represents an important challenge for individuals in pursuing their professional training;

A lack of workplace experience and the related skills and competences is one of the factors contributing to the “skills gap” in the EU today.

2. Project aims and objectives

The project aims at developing a European teaching and training Toolkit for supporting the implementation of WBL in all stages of VET. Moreover, the project will support the implementation of quality assurance mechanisms for WBL in VET in the fashion sector with a specific focus on feedback loops between iVET and cVET systems.

The E&E FASHION project addresses two priorities established for Erasmus+ programme, KA2 (Cooperation and Innovation for Good Practices), considered as the most relevant:

- Promoting work-based learning in all its forms, with special attention to apprenticeships-type training;
- Transparency and recognition of skills and qualifications to facilitate learning, employability and labour mobility.

The specific objectives of the project, listed below, are correlated with the two selected priorities:

- Providing a WBL Toolkit for supporting the concrete implementation of WBL programmes in iVET during the key stages: planning, organization, implementation and assessment;
- Define the quality assurance guidelines and tools for iVET for supporting the application of EQAVET at VET provider level;
- Defining and testing the role of iVET teachers and in-company trainers and the related training curriculum for their professionalization in the field of WBL;
- Promoting and supporting the WBL application in iVET programmes for enhancing their quality and for making them more relevant for the labour market and thus, for reducing the skills gaps between the competencies developed through existing iVET offer and the need of the business sector.

In addition, the application of WBL principles at VET provider level will facilitate the development of VET programmes (both iVET and cVET) that will guarantee the recognition of skills qualifications, and thus will enhance employability, lifelong learning behaviours and mobility for learning and working within the sector.

3. Key outputs

The project objectives will be achieved by following key outputs:

- Report on the implementation of WBL and quality assurance in VET in the Partner countries in the fashion sector.
- WBL Toolkit for supporting the concrete implementation of WBL programmes in iVET.
- Quality assurance guidelines and tools for WBL.
- Learning programme for iVET teachers and in-company trainers in the field of WBL and Quality Assurance.

4. Innovative aspects

The innovative character of the E&E FASHION in the field of education in training is based on the followings:
• It combines a top-down approach to criteria, descriptors and indicators EQAVET with a bottom-up sector (fashion) and provider needs approach. The result will be a set of quality assurance guidelines and tools for iVET providers;
• It creates convergence among quality assurance in iVET, work based learning methodology and training of teachers and in-company trainers for supporting WBL;
• It capitalise the results of former projects and initiatives concerning WBL and QA;
By developing the WBL Toolkit and Quality Assurance guidelines and tools for iVET, the project will lead to the following innovative elements:
• Disseminate the culture of WBL and QA as integrated elements for enhancing the quality and labor market relevance in iVET in the fashion sector;
• iVET providers will have at their disposal practical tools and guidelines for implementing quality WBL;
• The project will support transparency and enhance mobility within the sector, at EU level;
• Using sector specific toolkit and guidelines for WBL and QA, more space for cooperation and trust between iVET providers at national and European levels will be created.

5. Expected results
The expected results of the project can be found in its intellectual outputs and their indicators. The most representative are presented in the following subsections.

5.1. Intellectual output 1: Report on the implementation of WBL and QA in VET in the fashion sector
Based on the needs and gaps analysis conducted by the partners and considering data collected at the beginning of the project, this report will include information regarding the needs and gaps in the field of WBL implementation in VET programmes, examples of good practices in the field and the stakeholders to be involved and training needs to be addressed.

The performance indicators of the output are:
• Common methodology for research;
• 4 National reports on the implementation of WBL and QA in VET in the fashion sector, with focus on iVET;
• One European report, with special focus on iVET.

5.2. Intellectual output 2: WBL Toolkit for supporting the concrete implementation of WBL programmes in iVET
The objective of this output is to develop and provide iVET providers, enterprises and learners practical and ready-to-use tools and instruments for implementing WBL in their iVET activities.

The performance indicators of the output are:
• Tools and instruments for WBL implementation in iVET in the the fashion sector;
• Guidelines for supporting the implementation of the toolkit.

5.3. Intellectual output 3: Quality Assurance guidelines and tools for iVET
The output will provide practical indications for improving quality of iVET in the line with EQAVET criteria and indicators. The performance indicators of this output are:
• Tools and guidelines for supporting iVET providers in integration WBL in their QMS;
• Methodologies for improving the feedback loops between iVET and cVEt.

5.4. Intellectual output 4: Learning programme for iVET teachers and in-company trainers (in the field of WBL and QA)
Within this output the partners will define the roles of the teachers and in-company teachers tutors, mentors, coaches) in the WBL activities. Also, a training curriculum and materials will be designed and produced.
Job description for teachers and in-company trainers in implementing WBL and QA in iVET;
Training curriculum for teachers and in-company trainers;
Learning modules for teachers and in-company trainers for supporting the implementation of the WBL Toolkit and QA Guidelines and tools.

The main target groups of the project are iVET providers, Higher Education Institution (tertiary level) and business sector.

The expected impact of the project on the participants and target groups is given by its outputs and can be summarized as follows:

- Increase the awareness of providers and business sector concerning WBL characteristics, benefits, challenges and existing good practices;
- Raise the awareness among the project stakeholders regarding EQAVT and its criteria, descriptors and indicators;
- Will put WBL and QA on the agenda of providers and companies in the sector;
- Enable providers with practical guidelines, tools and instruments in the field of WBL implementation in the fashion sector;
- Integrate the results of the previous projects into sector specific toolkit for WBL;
- Give iVET providers a concrete tool for supporting the implementation and improvement of QMS within their organizations;
- Support a more systemic approach to quality within sectoral iVET;
- Represent a quality objective and criteria for iVET providers;
- Provide a benchmark for training of teachers and in-company trainers in the field of WBL and QA in the fashion sector;
- Represent a professional opportunity for teachers and in-company trainers;
- Allow formal and public recognition of the teachers and in-company trainers competencies in the field of WBL and QA for iVET in the fashion sector.

6. Conclusions

The project results are expected to have an important impact both at national and European level and the most relevant aspects are:

- Supporting iVET programmes to align their quality initiatives with sectoral European VET policies;
- Helping providers in the sector and local/regional/national authorities understand the level of change required of providers and VET provision to align their WBL and QA approach with the existing policies in the field of WBL and QA;
- Promoting the awareness of the WBL and QA among sectoral stakeholders and obtain the commitment of key stakeholders;
- Facilitating the assessment and documenting stakeholders interests, influence and importance concerning WBL and QA in iVET;
- Generating a desire to change and improve iVET programmes
- Facilitating local and regional authorities to specify current practice regarding the role of sectoral stakeholders in iVET;
- Increasing transparency of provided sectoral iVET programmes and thereby facilitating implementation of other European instruments for VET such as EQF, Europass and ECVET.

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Developing innovative training protocol for export personnel in the fashion industries through “Extro Skills” project

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Abstract. The paper presents the objectives, the planned outputs and the innovative aspects of the project entitled “Developing new skills for the extroversion specializations of fashion industry in Europe”, acronym EXTRO SKILLS, which is co-financed by the European Commission under the Erasmus+ Programme, Key Action 2 - Strategic Partnerships. This is a 30 months project and started on December 1-st, 2015. The project aims to bridge the gap between fashion industries and lack of specific expertise and experts of SMEs in these industries. Fashion industries require a more qualified workforce and, therefore, the availability of adequately skilled workers and trained and qualified personnel for their export and fashion marketing departments has become one of the major issues. The new curricula that will be developed in the project will offer essential transversal skills for a quick and qualified response to the international trade and market demands and for enhancing the extroversion and the competitiveness of the fashion industry. The learning content will be tailored to the needs of export and fashion marketing personnel. The constitution of the partnership was based on the cooperation between education and employment in order to better achieve the objectives of the project. The project consortium includes six partners from five countries (Greece, Belgium, Romania, Spain and UK).

1. Context of the project
Nowadays, the fashion industries are subjected to a continuing restructuring and modernization that is due to many causes, resulting from the trade liberalization and increasing external competition, consumer developments, technological advances, changes in production costs and environmental issues.

According to the European Commission, “European fashion and high-end industries represent European cultural heritage and know-how. These industries are a significant part of the creative economy and form complex and strongly interlinked value chains from design and manufacturing to the distribution and retail of fashion goods” [1]. As a result, these industries require a more qualified workforce and, therefore, the availability of adequately skilled workers and trained and qualified personnel for their export and fashion marketing departments has become one of the major issues.

Recognizing their critical role, the European Skills Council of Textile Clothing Leather & Footwear and the European Fashion Industries Alliance, have come together in order to strengthen the advantages of the fashion industries which include, among others, the well-educated and high-skilled professional workforce of the industry.
2. Project objectives

2.1. General objective

The general objective of the project is to enhance the employability of the European fashion industry workforce by promoting a deeper match between labor market outcomes and needs (new objective of the Bruges Copenhagen process) [2] and, in particular, those linked with technological innovation (New skills for new jobs). Moreover, the project aims to ensure that qualification profiles are defined according to the analysis of the professional and training needs and that learning outcomes are continuously readjusted taking into account the innovative context [3].

The project also aims to bridge the gap between fashion industries and lack of specific expertise and experts of SMEs in the fashion industries.

The new curricula that will be developed will offer essential transversal skills for a quick and qualified response to the international trade and market demands and for enhancing the extroversion and the competitiveness of the fashion industry. The learning content will be tailored to the needs of export and fashion marketing personnel.

2.2. Specific objectives and expected results

The key output of EXTRO SKILLS project is an innovative training protocol oriented to European fashion companies in order to encourage them to internationalize their actions.

According to the key output, the project specific objectives can be summarized as follows:

• Development of a new European ICT-based training protocol (Curricula for VET including a qualification and recognition framework) to enhance knowledge, skills and competences of export and fashion marketing experts, following a holistic, approach that brings together different sectors of fashion industry and views them under a common training umbrella. The training protocol will be hosted in a digital platform boosting e-learning method in life-long learning approach;
• Establishment of an integrated framework for cross-sector certification of export and fashion marketing personnel, increasing transparency, comparability and validation of qualifications (European standard as per EQF);
• The definition and development of a Curriculum for the VET as an European Standard, including a qualification and recognition framework;
• Improvement and extension of high quality learning opportunities tailored to the needs of export and fashion marketing personnel, operating within the entire spectrum of fashion industries;
• The contribution to the modernisation and professionalism of SME’s through the use of a high quality ICT Tool;
• Establishment of close cooperation between formal education providers and businesses in order to increase the market relevance of the proposed training protocol;
• Define a professional profile for the exports and fashion marketing employees, focused on SMEs.

3. Intellectual outputs

3.1. Quality and Evaluation Management Plan

The Quality and Evaluation Management Plan documents the necessary information required to effectively manage project quality from project planning to delivery. It defines a project’s quality policies, procedures, criteria for and areas of application, and roles, responsibilities and authorities. Its purpose is to serve as a flexible tool that can be modified during its implementation if necessary.

3.2. Methodological Guidelines for the Research and Need Analysis

This intellectual output contains the methodological guidelines for the desk research and needs analysis including also the conceptual background with terminology and definitions. Furthermore, it provides a detailed description of the methodology used to achieve the aims and objectives of the next IOs i.e. contextual framework for the research, desk–based research, qualitative methods of data
collection, etc.) as well as general guidelines on how to interpret the results and to analyse findings identified from the research.

Common templates for the collection of data and information were provided both for the literature review and next intellectual outputs development, in order to promote standardisation and support cross-case comparison.

The Methodological Guidelines also provides a base of information at EU level on existing mechanisms and arrangements facilitating permeability in education and training, relating with ECVET and EQF principles.

3.3. Study for the Development of Sectoral Methods for Anticipation of High Skills Needs
The purpose of the study is to detect and identify exports’ staff skills needs and the existing gaps in EU MSME and to develop sectoral methods for their anticipation. Questionnaires were elaborated and distributed to companies.

The questionnaire was structured on the project needs so that its questions were related to three core main areas:

- Profile of the companies
- Exports’ experience and knowledge for the exports profile of the sector in each country
- Identification of skill needs and gaps

The questionnaire is structured in four sections:

- Section 1: Information about the company
- Section 2: Company’s export history
- Section 3: Importance of exporting
- Section 4: Rating of knowledge

Each section contains a number of questions related to the section’s core area. In that way they can give a perspective about the enterprises’ size, their exporting activity, their exporting experience and their needs at European level.

The results of the study represent the input for the design of the professional qualification of export and fashion marketing departments’ experts.

3.4. Data Collection Report
The survey has been conducted in 12 EU countries (Greece, Spain, Romania, UK, Belgium, Portugal, Hungary, Bulgaria, France, Italy, Lithuania and Croatia) and there have been received responses from 117 companies. The targeted companies were classed as Micro, Small, Medium and Big (according to SME’s EU definition) from textiles and clothing sector.

The data collected from the survey questionnaires were analyzed both qualitative and quantitative. The two types of analyses had different but complementary objectives allowing full exploitation of data gathered.

The qualitative analysis aimed at cross-checking of the questionnaire responses and related comments, in order to draw a reliable and accurate “profile” for each country and allow in-depth country comparisons for selected key items.

The quantitative analysis was based on using statistical methods to identify patterns, correlations and rankings of countries, the relationship between export activities, the size of the company and their skill needs and opinion about e-learning and use of a digital training platform.

3.5. Design of the Professional qualifications
The aim of the output is to develop a reference frame for the professions in the export and fashion marketing departments related to two necessary professions in the sector: export officer and fashion marketing officer. Such a common reference forms a common interpretative framework used to establish coherency between qualifications in each country.

The description of qualifications will be based on learning outcomes, regardless of how or where these are achieved.
3.6. Curricula Framework
Previous outputs will be the inputs for the production of the curricula framework. This will include:
- an introductory part of specific knowledge and skills needed for staff;
- a fundamental part consisting in a number of compulsory subjects that will cover knowledge and skills necessary to manage complex export and fashion marketing issues;
- a complementary part according to the needs of students with different backgrounds willing to specialize in exports and fashion marketing.

3.7. Courses for VET
This output is about the development of the contents of the Export and Fashion Marketing Curricula (teaching materials), and will further identify what subjects/courses/modules will be taught. This output will be a natural continuation of the Curricula Framework and its objective is to create a curricula based on export management and fashion marketing principles, including consumer-driven and demand-driven approaches.

The courses will cover recent trends of fashion marketing and expo’s evaluation in the global market, market’s development, development of the demand of sector’s products, consumer’s behaviours, trend analysis, demand chain, mechanisms for directs distribution of a product to international markets (by identifying customers; meeting their needs; implementing sales plans). Also courses will concentrate information and data regarding third countries market mechanisms and their function market’s technical requirements. These courses will be part of the input of the ICT tool - Digital Platform.

3.8. Set-Up of the Digital Platform
This output refers to the Moodle Platform that will be customized to fit the needs of the project.

3.9. Pilot Tests
The objective of the output is to test, in real life conditions, the complete platform, providing the feedback for adjustment and customization according to the final users’ requirements and demands.

4. Conclusions
The results of the project will fill the gap between fashion industries and lack of specific expertise and experts of SMEs in these industries which require a more qualified workforce and adequately skilled and qualified personnel for their export and fashion marketing departments. The new curricula that will be developed in the project will offer essential transversal skills for a quick and qualified response to the international trade and market demands and for enhancing the extroversion and the competitiveness of the fashion industry.

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