International Journal of Advanced Educational Research
ISSN: 2455-6157; Impact Factor: RJIF 5.12
www.educationjournal.org
Volume 2; Issue 2; March 2017; Page No. 05-09

Education in the professional field "Design": A comparative analysis of Egyptian and European experience in this study area of higher education

[1] Elsayed A Elnashar, [2] Zlatin Zlatev, [3] Petya Boneva

[1] Faculty of Specific Education, Kafrelsheikh University, Egypt
[2] Faculty of Technics and Technologies, Trakia University, Bulgaria
[3] Agrarian and Industrial Faculty, Department of Industrial Design, University of Ruse, Studentska str., Ruse, Bulgaria

Abstract
Training in the field of design takes place in curricula and programs providing the necessary fundamental, general engineering, special engineering and specialized training that match the level of development of the modern theory and practice in the field. This is one of the main prerequisites for the effectiveness of the specialty. A comparative analysis is made of the curricula of Kafrelsheikh University, Egypt and some of the universities in European Union that have specialties in the field of design. This analysis shows that Egyptian University has studied subject's compatable to Faculty of Technics and technologies, Bulgaria. The experience is presented of using of interactive training tools in that university. These tools are important in contemporary methods of education in the field of design.

Keywords: comparative analysis, interactive training tools, university

1. Introduction

The main objective of the training in the field of "Design" as in the European Union and Egypt is to prepare highly qualified and wide profile specialists with solid fundamental and general technical skills and extensive knowledge. The specialty meets the needs in different areas of the economy such as industry, energy, communications, transport, environment, agriculture and the dynamics of their development [3, 5].

To match the needs of modern textile production, training in the specialty must satisfy a number of conditions. First of all it is necessary to be done in curricula and programs providing the necessary fundamental, general design, special design and specialized training that match the level of development of the modern theory and practice in a particular subject area.

The modern advances in computer and communication technologies. Provided educational resources should match the learning styles of today's and future students, ie must be in digital format, to dominate videos and interactive environments, accessible from anywhere and anytime for the trainees. We should not ignore the desire of students for dynamic classes, attractiveness and continuous feedback and information on the results and the possibility of communication and consultation with teacher-mentor [8].

All described here preferences of today's students can successfully be satisfied with an interactive whiteboard and additional devices thereto, and the opportunities provided by developed interactive environments for collaborative remote users.

The primary aim in this article is to establish the wide variety of learning activities that e-learning make possible, thereby showing how digital media can scaffold the craft mens' minds; how they can be tools that add new dimensions to their learning and cognition. We are not stating that similar outcomes could not be achieved with traditional learning. But we do state that digital media significantly expand our possibilities for variation and interaction, and therefore likely to inspire and engage craft mens' more.

2. Comparison of curricula and programs of European and Egyptian education of area of textile design

The course content design field in dealing with European universities is mainly aimed at ensuring: extensive knowledge of mathematics; solid general technical training including courses in informatics, electrical engineering, mechanics, textile materials science, physics; specialized training including in-depth study of the theory of fashion design, modeling, textile machinery and technology management of processes in the sewing industry, etc.

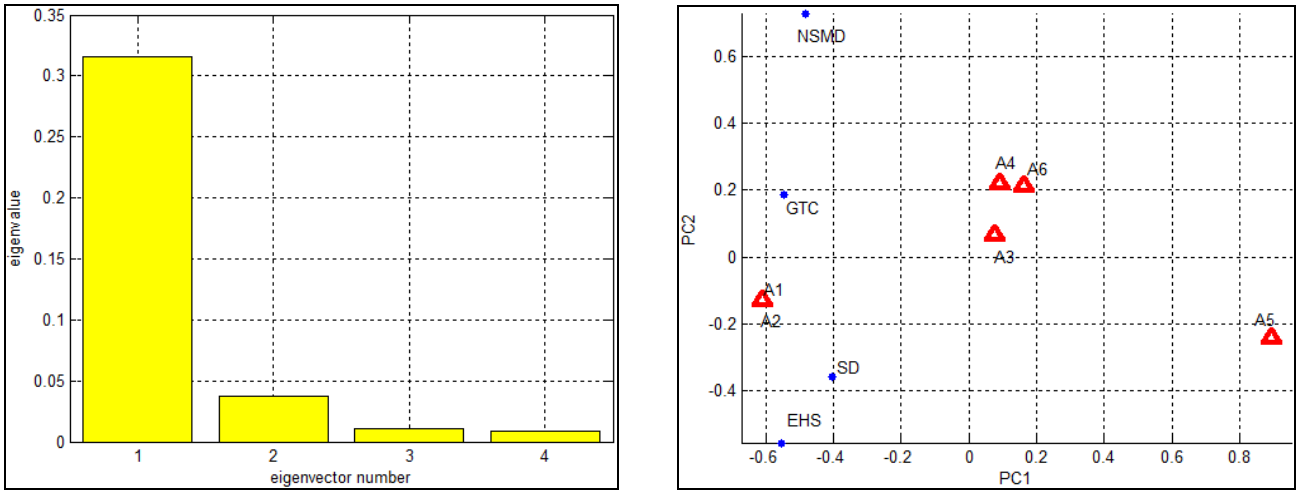
An important criterion for the effectiveness of the training is the compliance of the curricula in other foreign universities [6, 11].

In Table 1 are presented percent matching disciplines in four areas of training in design and fashion in the Egyptian Kafrelsheikh University and other universities that are in the European Union. Also included are major courses of the curriculum for the educational - qualification degree "Bachelor" and "Master" in various universities. A comparative analysis is made of 58 basic and special disciplines which are studied at the Kafrelsheikh University. They are grouped into four main groups.

Table 1: Comparison of the courses in Egypt and European union countries

University / Courses	Faculty of "Technics and technologies", Bulgaria (A1)	Kafrelsheikh University, Egypt (A2)	Technical University - Iasi, Romania, (A3)	University of Oradea, Romania (A4)	University of Beira Interior, Portugal (A5)	University of Technology - Kaunas, Lithuania (A6)
Natural sciences mathematical disciplines (NSMD)	100%	100%	80%	100%	20%	80%
Economic and humanitarian subjects (EHS)	100%	100%	62%	46%	23%	31%
General technical courses (GTC)	100%	100%	69%	54%	15%	77%
Specializing disciplines (SD)	100%	100%	48%	63%	44%	59%

The results of comparative analysis are processed by the method Principal component analysis (PCA). The task of analysis of the principal components is to separate the variables which are linear combinations of orthogonal variables and are not correlated. Geometric can be represented as a rotational axis around the original data into coordinates to orthogonal axis stacked against the amount of variations of the original data with which they are associated [2].



(a) Number of principal components (b) PCA analysis

Fig 1: Analysis of data for the courses in universities

In practice, seek the required number of principal components by which to describe the 70-80% of variance in the data. This information is summarized in the schedule of variations (different from zero eigenvalues) as the main component numbers (numbers of their own vector).

From Figure 1a) is shown that for a description of the data from a comparative analysis are required two principal components. Figure 1b) presented the results from that analysis.

The comparative analysis shows that there is a very great similarity in the curricula both in content and in basic parameters. This is due to several factors such as the presence of close contacts and cooperation between teachers from different universities.

Typical of curricula in design direction of Kafrelsheikh University is the largest share of general technical subjects and a large number of subjects with active forms (course project work and tasks).

In addition to the other universities the Egyptian Kafrelsheikh University have some courses about the Design and Embroidery, crouched. So there are press courses and education technology.

The comparative analysis shows that close in content of curricula are Kafrelsheikh University – Egypt and Faculty of "Technics and technologies", Bulgaria. In this Bulgarian University is widely applied interactive tools for e-Learning and distance learning.

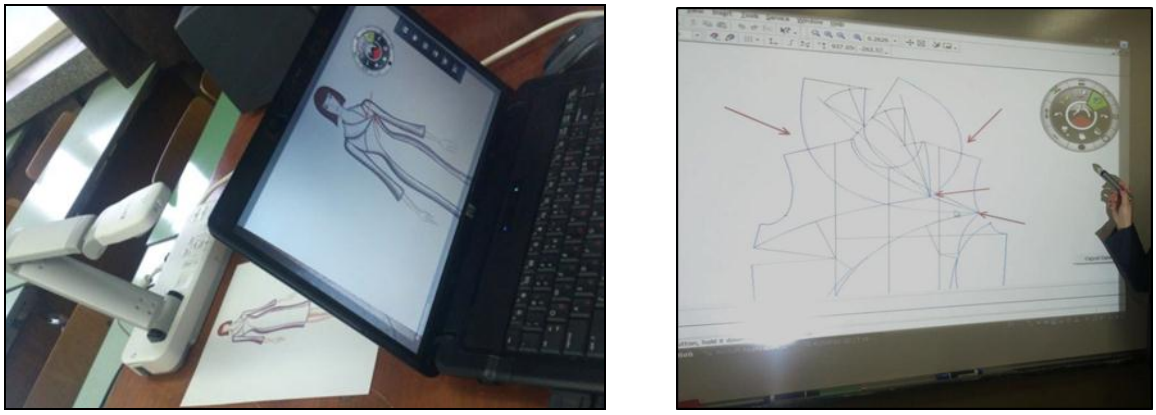
3. Examples of using of distance learning tools in higher education

As an example of the use of interactive environment tolls and distance learning applications will present the experience in this field by means of this education in faculty of "Technics and technologies" – Yambol, Bulgaria [15].

In the course of "Design and modeling of clothing" students gain knowledge of designing and modeling with universal CAD-system "Compass" [1].

While conducting classes, except projector is used an interactive whiteboard and software. Annotations and notes during the exhibition are applied using the appropriate tools (Freehand Lines, Shapes, incl. Arrows). For executing commands and selecting objects in a system "Compass" is used interactive stylus that performs all the functions of a mouse, but on the interactive whiteboard (figure 2b). All

actions on the image on the whiteboard at the building of the armhole is stored in audio-video (.avi or any other file format), to which students have access through the system of e-learning.



(a) Document camera (b) Interactive white board

Fig 2: Interactive whiteboard and additional devices

Lectures are conducted using a document camera (figure 2a). Teacher constructed on a sheet under the objective of video camera, and students in the audience watching the actions of the speaker on a screen or interactive whiteboard. The sequence of construction and modeling is recorded in training videos that are available for students on the Internet [4, 7, 10, 12, 14]. For example, modeling ladies dress in tight-fitting silhouette can be traced online:https://youtu.be/lfcAThWuvaU (figure 3).

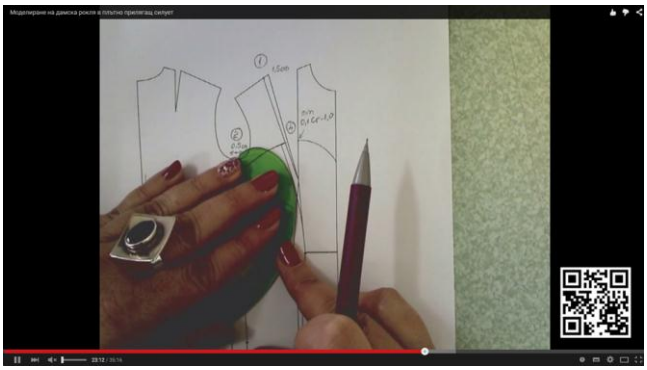
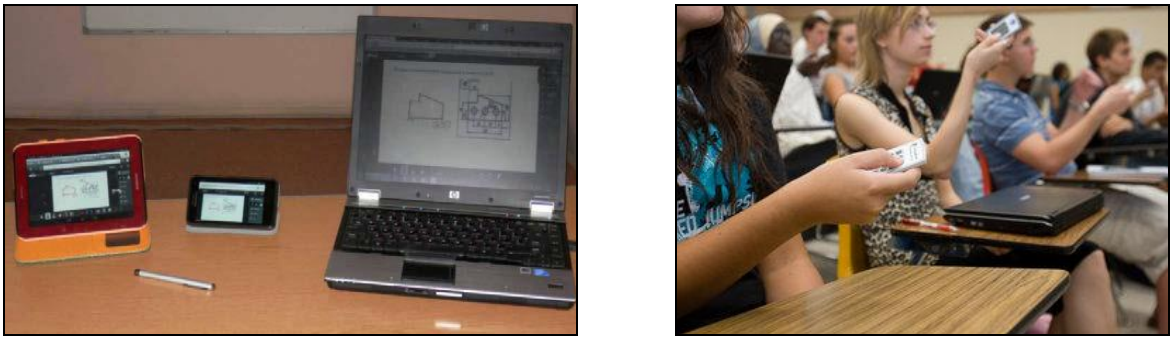


Fig 3: Modelling of ladies dress in tight-fitting silhouette

Web-based software tools allow lecturers and students to interact in the learning process by using a web-compatible devices such as tablets, laptops and smartphones. It is an indisputable fact that today the number of young people is constantly growing, including students using portable internet devices such as laptops, tablets, smartphones (figure 4a). The web-based e-learning environment allows users of these devices to collaborate in cyberspace, whether they are in the same physical audience or different geographical locations.



(a) Mobile computers and tablets (b) “Clickers” for fast response [quick click]

Fig 4: Devices for access of e-Learning environments

When there is interaction of type browser-browser the Web-based tools provide a type of sharing, in which a large number of students and lecturers, can start or join interactive sessions without special hardware or software only by using a web browser. The aim is to create, capture and share content in real time. On mobile devices, like Android, iPads or Windows tablets as well as smartphones, lecturers and students can use the touch screen or stylus for taking notes, drawing diagrams and more.

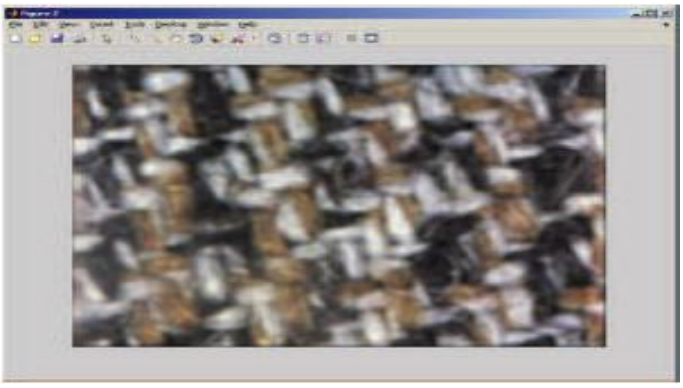
Devices called Clickers (Figure 4b) can be used for operational control of the audience almost instantly processing and presentation of results to the teacher and to all participating students [9]. The system consists of personal wireless remote controls, signal receiver and managing system software installed on the computer. Wireless remote controls with one or more buttons to input responses from the student and signal transmission to the receiver connected to the computer [13].

Existing models of interactive boards allow the use of ordinary whiteboard or screen. They are of lower prices but with a limited capacity. They can use software of interactive whiteboards of a higher class that has a larger capacity and is more convenient for the lecturer. The teacher can be facilitated by the use of means of computer assisted learning training using system for image recognition.

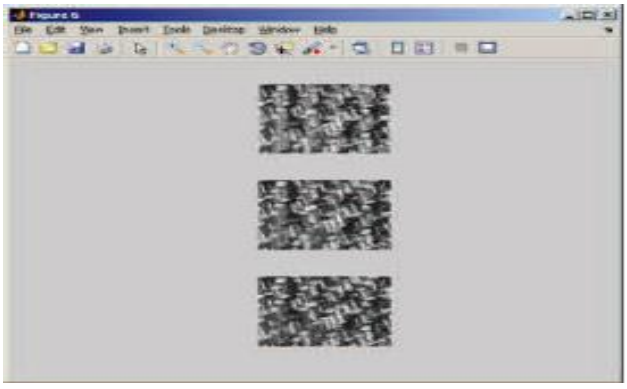
Usefulness of the application of this system in the training activities is in the fact that all of students can watch the object that is projected on the whiteboard. The teacher is able to describe, point and explain the observed elements of the image through software tools of the interactive board. Thus, the training in the area of design, technologies and management in the fashion industry may be conducted in each classroom with an interactive presentation system installed.

Fig 5: Joint use of interactive presentation system and additional device for image recognition

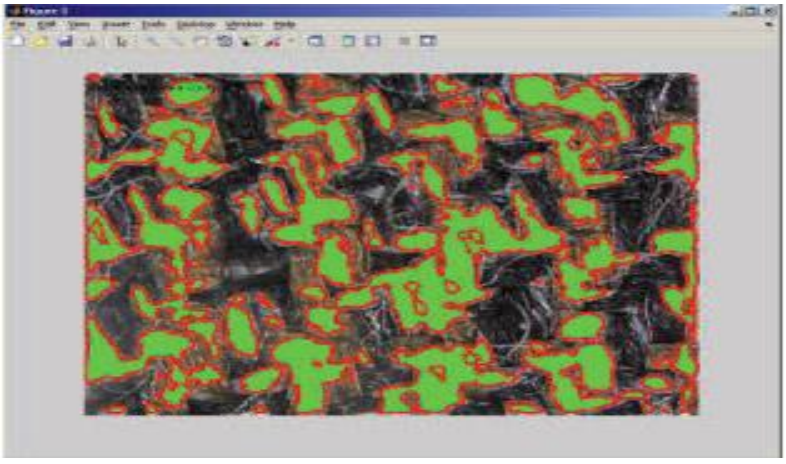
The proposed system for interactive presentations using an additional device for image recognition allows analysis of images by color features. Study by color features left behind in research and development of methodologies for assessing the quality of textile pattern by analysis of its image.



(a) Original image



(b) Representation of the image in HSV color model



(b) Recognized elements with white color

Fig 6: Steps of processing by algorithm for recognition by color features

One of the problems that arises in development is the variety of colors in the fabric. Hence there is a need of an objective and cost-effective method for assessing the quality parameters of plaited bands. Inspection of the quality of materials in the stream is important because this information will allow producers to sort the fabric on specific criteria and it will be of equal quality.

The realization of the task of automatically display information about presented object is done by developed algorithms and software programms to identify elements of the image by color and texture features.

The proposed system has the advantage that the lecturer can automatically receive information about the observed object and focus on essential part of the curriculum.

This methods will be improved through the development of specialized software for use in educational activities for which we are preparing some future experiments.

4. Conclusion

Training in the field of "Design" takes place in curricula and programs providing the necessary fundamental, general engineering, special engineering and specialized training that match the level of development of the modern theory and practice in the field. This is one of the main prerequisites for the effectiveness of the specialty.

New developments in the specialty are reflected in a number of disciplines. Training is done through modern laboratory facilities, incorporating the most advanced technologies, devices and systems for industrial automation of the leading companies. Also, are provided various forms to improve the practical training of students in this professional field.

The curricula of professional field "design" are aligned with the curriculum of the specialty in other Bulgarian and foreign universities in content and basic parameters.

This is important both for mobility of students and to integrate specialty in world educational space.

5. Acknowledgments

We want to thank Zlatina Kazlacheva, Vanya Stoykova and Julieta Ilieva from Trakia university, faculty of “Technics and technologies”, Yambol, Bulgaria for provided materials about the e-Learning courses of specialty “Design, technology and management in the fashion industry”.

6. References

1. Askon Compass, http://ascon.ru/ (accessed on 03.02.2017)
2. Binev I, Ivanov K, Balcheva E. Analysis of results of performed measures to increase energy efficiency in kinder garden Red riding hood – Yambol, Proceedings of ICTTE, 2016, 332-335. ISSN 1314-9474.
3. Georgiev G, Georgieva N. Investigation possibilities for the use of free software for data processing used for accurate measurement details through photogrammetry, ARTTE. 2014; 2(3):202-210. ISSN 1314-8796.
4. Ilieva J. Fashion design using decorative bands based on the golden and Fibonacci forms. ARTTE. 2015; 3(3): 265-274. ISSN 1314-8796.
5. Ivanova A, Atanasov V, Stoykova V, Mateev V, Ivanova G, Ibryamova E, *et al.* The role of innovative educational technologies and teaching models for the adaptation of the educational system to digital generation (from the experience of the University of Rousse), Publishing house of University of Rousse, ISBN 978-954-712-709-8 in Bulgarian.
6. Kazlacheva Z, Ilieva J. History of the costume and fashion, 2014. ISDN 978-954-338-101-2
7. Kazlacheva Z, Dineva P, Ilieva J. An investigation of fashion design and pattern making of ladies' jackets with different types of sleeves, ARTTE. 2016; 4(4):253-261. ISSN 1314-8796.
8. Mladenov M, Popova M, Lehov G. The Training in Automatics, Information and Control Engineering at Ruse University, Proceedings of Rousse university. 2008; 47(3):217-221
9. Quick click: Student response systems evolve in higher education, https://www.universitybusiness.com (accessed on 14.02.2017)
10. Shivacheva G, Nedeva V, Yaneva M, Georgieva D. Software for building virtual laboratories. XXIV International scientific conference Management and quality” for young scientists. 2015, 292-300. ISSN: 1314-4669.
11. Shivacheva I. Multimedia in education – art and professionalism. Journal of Innovation and entrepreneurship. 2015; 3(4):24-37. ISSN 1314-9180.
12. Stoykova V, Smrikarov A, Kazlacheva Z, Georgieva K. Some applications of interactive presentation systems in the learning process. Fourth National Conference on e-learning in higher education, Svishtov Academic Publishing Tsenov. 2012, 351-358. ISBN 978-954-23-0747-1.
13. Stoykova V. Application of interactive means in students education in technical specialties, International Conference on e-Learning and the Knowledge Society - e-Learning’11, Bucharest, Romana, 2011.
14. Stoykova, V., Interactive environments for training in the higher education. International Conference on e-Learning, e-Learning’15, Berlin. 2015, 268-273. ISSN 2367-6698.
15. Trakia University, faculty of Technics and technologies, Yambol, Bulgaria http://ftt.uni-sz.bg/ accessed on 12.01.2017.