TECHNICAL SKILLS, KNOWLEDGE COMPETENCIES AND EXPECTED CHANGES IN THE CLOTHING INDUSTRY

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ABSTRACT

Thus the purpose of this study is to determine the competency of technical skills, knowledge and expected changes in the apparel industry within the next 10 years. Interview results found that technical competency that is most preferred are drawing, designing, sewing techniques and computer skills. The study found that knowledge of the preferred competency is the latest trends, knowledge in fashion and knowledge of business strategy. Changes in the fashion in the next ten years is also expected to be influenced by the entertainment, popular culture from foreign countries, except patterns and shapes often look the same as the trend that has existed in the 1960s or 1970s. The findings provide plenty of space and ideas to the curriculum and teaching that can be used to streamline the fashion and apparel curriculum to produce graduates who obtained competencies in line with the needs of employers, apparel industry and as a guide to starting a business in the future.

KEYWORDS: Competency, Expectations, Fashion Industry, Knowledge, Skills

INTRODUCTION

The programs that are offered at training institutions in Malaysia are intended aim at preparing students in the technical field. Since technology is constantly changing due to globalization, the aim of training programs and curricula in training institutions should be ready to prepare students to meet the changes and needs for knowledge and technical skills in the industry (Rojewski, 2002; Habib et al., 2007; Hiyang & Nor Hazwin, 2010). The era of the borderless world of technology has an impact and brings challenges directly to the graduates. This scenario is made more challenging, because the number of graduates who complete their studies is increasing. Due to intense competition for jobs, graduates need to make arrangements and prepare as best as possible so that they will not have problems in meeting the criteria required by their future potential employers (Mohammad Shatar et al., 2008; Valde, 2009).

Similar to other technical industries, the apparel industry has changed based on the influence of global economic, technological, cultural, social, political, and environmental conditions (LeHew and Meyer, 2005). Based on the changes that often occur in the garment industry, the specific skills that are required have also changed. Employers tend to choose potential graduates who are skilful in information technology, innovative, creative, and possess a wide range of knowledge and intelligence in predicting the progress of future organizations (Paulson, 2001; Mohammad Shatar et al., 2007; Chida & Brown, 2011). Thus, the education system and curriculum used need to be more dynamic, as technological developments are adjusted based on the views, perspectives, desires, and needs of the industry simply because students are the workforce who will be working in this industry (Pate et al., 2003; Yu & Jin, 2005; Mohammad Shatar et al., 2008;

Karpova, Jacobs, Lee & Andrew, 2011c). Competencies play an important role toward being viable in life, especially in institutions in which relationship skills are required in the workplace. Do competencies that are acquired by students meet the needs of the industry? If the views of the industry, state that students are not quite ready to get involved in the particular industry, then the credibility of the apparel design education should be questioned.

When it comes to the economic and aesthetic aspects, although fashion emphasizes creativity, the importance of business and entrepreneurial aspects such as branding, marketing, and commercial value of a design should be taken into consideration (Pate, et al., 2003; Dickerson, 2003; Hodges & Karpova, 2008; MacDonald, Lazorchak & Currie, 2009; Brookshire & Lee, 2010). The consolidation of the economic aspects, skills, and a work of art is form the backbone of the success of each designer (Hodges & Karpova, 2008). Fashion is neither for the purpose of mere glamour, nor is it just a hobby, but in reality, it covers global business in which everyone all over the world needs clothes (Burns & Bryant, 2001; Johnson & Moore, 1998). The digital age makes buyers more discerning, with them seeking quality, having extensive knowledge of the development of cutting-edge fashion, and preferring to buy designs worn by celebrities (Tate, 2004). Students and young designers need to know about the development of various buyers' and customers' attitudes by listening, understanding, and being responsive to market needs and then using creativity to produce design that are relevant these days (Tate, 2004; Karpova, Marcketti & Barker, 2011a; Karpova, Marcketti & Barker, 2011b; Bonnardel, 2012).

Competency is the ability to perform a task and role in accordance to the combination of knowledge, skills, attitudes, personal values, and the ability to develop knowledge, skills, and learning experiences (Palan, 2003; Klein et al., 2004; Gangani, McLean & Braden, 2006). Among the technical competencies are their fashion sense, make patterns, draping techniques, and sewing techniques where sewing processes are needed to enable and fashion designers to design attractive clothes to fulfill customers' expectations (Kemp-Gatterson & Stewart, 2009; Burns & Bryant, 2002; Tate, 2004; Werhan & Vollmer, 2004; Lahti, 2012). Meanwhile, the knowledge competencies of the industry can be learned in all technical education institutions through tutorials, teaching in the class, lectures, course works, projects, case studies, research, and practical training in industries (Wesley & Bickel, 2005).

Knowledge competencies can also be in work-study programs that help students become better in understanding the fashion industry. In addition, learning can be achieved through work experiences while studying in educational institutions (Southward & Burgess, 2003). According to Southward and Burgess (2003); Rentenaar, Buckland, Leslie and Mulne (2008), the effectiveness of the cooperation programs for educators and lecturers lies in them providing benefits to students in business, such as the realistic learning opportunities, relationships, and networking opportunities with the industry.

Kim and Johnson's (2007) conducted a qualitative study of students in apparel design and retail merchandising. Students expected that in ten years to come, the clothing and textile industry would experience major changes in line with the globalized world. The changes take place in technology development as well as through an increasing dependence on computers for the design process. Therefore, the use of technology tools has simplified the process of production, and the sale of garments is made easier and quicker.

Besides that, continuous development and improvements in the quality of fabrics and yarns will lead to greater quality, comfort, practicality, emphasis on the function, and individuality. The widespread global use of online shopping or brick and mortar locations is possible. Jacob (2007) and Lovinski (2008), Kim, Forney and Crowley (2010), and Hodges and Damhorst (2008), on the other hand, expected changes in the future fashion which that are based on the development of better technologies in terms of quality fabrics available in the market, which sounds more practical, fortable, useable,

convenient, and easy to use, both in terms of quality and in being easy to clean. Clothing changes are affected by digital and advanced technologies and the expectations of rapid changes in human life. Technology also creates the dress of the future.

PURPOSE OF THE STUDY

The study presents three research objectives; 1) To explore the technical skills required by industry; 2) To explore the knowledge competencies required by industry, and; 3) To explore the expected changes of clothes in the garment industry within the next ten years.

RESEARCH METHODOLOGY

Sample and Data Collection

This study uses a qualitative case study approach. A case study is to describes, and analyzes in detail a phenomenon or a social unit as a group. Each case has its boundaries and the limitations of researchers asking specific questions on the number of participants to be interviewed (Merriam, 2009). The respondents were three designers from different locations around Kuala Lumpur, which is the center of fashion business for Malaysia. The selection of respondents was based on their own abilities and their willingness in providing the information needed to answer the research questions (Creswell, 2012). The selected respondents have more than ten years of experiences as fashion designers, in the business world, and each of them is an employer who places students in practical training at their business premises.

Thus, the respondents were investigated based on the skills exhibited in their students, and they also provided additional information that would help further improvement of the existing curriculum in training institutions. Purposive sampling was applied to select the respondents. Researchers have identified who can and have a lot of information that coincides with the phenomenon of interest (Merriam, 2009). The researchers had conducted a semi-structure interview questions by presenting three aspects of research questions, which are competency skills, the knowledge required by the industry, and the expectations of changes in the fashion world for the next ten years. The interview method is the one that is most often used in qualitative research data.

Data Analysis

The process of data analysis was conducted simultaneously during the data collection process. Specifically, it is based on the user constant comparative method (Merriam, 2009), which includes data collection, sampling, coding, and themes. The preliminary analysis of data commenced on the first interview by analyzing and developing categories and themes. This is later followed by further interviews, and the process is repeated. The themes identified can be determined during the analysis process so that the researchers can use it them as a guide to gather further data. Many themes were found and indirectly formed or changed during the process of data analysis.

Interview transcripts were written and revised several times to ensure that important information that is relevant to the study is obtained, given the code to facilitate the recovery of the original data, and created cross-references when writing a report. After all the relevant data had been encoded, only the selected relevant codes were used as the formation of themes (Creswell, 2012). There are studies using member checks that determine the validity and reliability of the themes. The researchers went back to the respondents to confirm the findings (*member check*). The aim of this process was to ask the respondents to check the interpretation of preliminary findings and to determine whether the findings were accurate and appropriate throughout the study (Merriam, 2009).

RESULTS

Background of Respondents

The three respondents are aged 35 years and above and they have a degree in fashion from one of the universities in Malaysia. The respondents have been engaged in the fashion industry for more than 10 years, and all of them manage their own businesses around Kuala Lumpur. It can be said that all the respondents have a stable business. One of them owns more than five branches of the business premises in Kuala Lumpur. Another respondent has a joint business with friends, with regular customers such as the royalties and dignitaries in the country, and is also a costume designer for films in Malaysia. Another respondent, is known among ordinary people, and carries out mass production of uniforms. All of the respondents started their business without financial assistance from the government but with help from their family members. Therefore, the respondents hope that the government helps fashion graduates who certainly want to be in the business world. Currently, due to financial factors and conditions such as difficulty in obtaining loans from banks, their dreams and plans are impeded.

Technical Skills

Technical skills are skills that featured designs, paintings, patterns drafting, sewing techniques, and computer and creative skills. First, their skill in drawing is the preferred aspect when dealing with clients, as stated by *Aie, "for example, the design drawing for customers, they like to be observe how I draw the design spontaneously emm.. and produce a beautiful drawing style. The customers wanted the design and style skills, so both should be balanced."* From this statement, it is clearly indicated that design and drawing skills are very important, especially when dealing with customers, in order to convince them that the designs are attractive, beautiful, and suit their bodies.

Second, the skills and techniques used for pattern drafting are also important skills that are required when venturing into the field of fashion, especially for those who just started their business in the fashion line. This was disclosed by Ema, *"... so when I started the business I thought of how I want to do it.. how to cut the fabric .. bla .. bla .. bla ..you know, I learned the skills from the tailors in three days. In three days, I concentrate to make pattern. After that,   I continued to make patterns until now. I really learned to make the patterns in three days with the tailors, so we should know how to draf the patterns, it is very important because what we learn in university is just the basic."*

Third, one needs to know the sewing techniques if he or she wants to participate in the fashion line, especially in the business world. This sewing skill deals with understanding the suitable sewing processes, techniques, and methods that are used to produce garments according to the needs of all customers, such as from Sid's statement, *"must know the sewing techniques, if they desire to participate in the fashion business, what we learn before this is the basic and the techniques need to be developed further besides the need to improve knowledge on sewing techniques."* Fourth, computer skills are very important, as stated by Ema and Sid, *"when it comes to the uniform design, we must use Photoshop, must be flawless, the presentation must be neat, figures cannot have too many lines and the lines to be clean cut."* Sid also considered the use of computers to obtain information about fashion a necessity, *"so, fashion graduates must know how to use the computers, have computer skill in finding the latest information via the internet."* A fashion designer should keep abreast of current fashion trends, which will generate more creative ideas; this would be the fifth aspect. Combining creative designs, materials, and mixing and matching the designs will attract customers, as seen in the statement given next:

Must know about fashion trends, from the latest fashion trends emmmm.. we need to know what is the current market, what is popular at present. Then a designer must think of something creative, popular and products that

can be sold and marketed. When there is a new design and customers purchase and wear it, means that we are a successful designer. Creative is an important aspect with the capability to match the color of beads." (Sid).

In addition, as a first step toward succeeding in the fashion business, all respondents emphasized the aspect of building their own label or brand in the fashion arena. Hence, every designer should have a taste, style, inspiration, own fashion, and healthy competition among designers who are already successful. This is for the purpose of introducing their names, labels, businesses, and also to get contacts to expand their business;

> *...Fashion graduates who wish to develop their own labels must have a sense of taste, fashion, flair, and art that are able to provide ideas to clients. We need to participate in fashion in order to expand our career in the future to be well-known. Indirectly, customers need to trust our brand and our business will grow..*(Ema). Ema's statement was supported by Aie, *"how to interact, we must promote the name, brand, sell products, take our label and must mingle, socialize among other designers, and we must always come forward so that people know us."*

Knowledge Competencies

The respondents also stated that a person who engages in the fashion world should possess certain knowledge. Knowledge of fashion trends, business strategies, fashion business, and knowledge on how to build their own brands. In addition, they should possess knowledge on the branch of the fashion industry, the basic knowledge about the fashion line, and knowledge of the fabric. According to Ema, *"... need to know the fashion trends, latest fashion, from fashion trends emmmm .. we know the market requirements, customer preferences, so we will know what can be removed and practice for sale."* Sid, however, stated that a business strategy should also note that:

> *Millick (boutique) accepts all types of reservations related to fashion, not only depending on customers' reservations but also rent clothes for weddings. Other incomes I get ordered from uniforms, t-shirts and readymade clothes which I try to sell first at Sogo later in Parkson, Alamanda (shopping complex). Hence, all these kinds of jobs are very important to generate income.*

Aie, however, stated that knowledge about fashion can be obtained through experiences *"...must have knowledge in fashion business, I educate myself to start this business, I do not study fashion merchandising [or] fashion marketing, but [I] need to find out by myself through experiences and associations."* According to Sid, the notion of building a brand itself is very necessary to grow in the business. In addition, according to Sid, the most important aspect involved in growing one's business is building one's own brand, *"I think students need to know how to build their own brands, building name is the most important aspect. How his brand would grow, as Millick is my brand."*

Sid's statement was also supported by Ema, *"... build a name is important in the first stage, to build a name first, because if we have the brand and known by many customers, we opened the business in any places, our customers will find us, they will come to make order, so branding is important. Customers that we serve will introduce our brand to others, the store is good everywhere, in my opinion if they wish to participate in this business, they need to build a name."* Furthermore, according to Aie, basic knowledge is also an important aspect if one is interested in getting involved in this business, *"I think there are important basic knowledge of fashion languages or basic garment construction techniques such as hamming, seam line, pleated, box pleat that are needed. Because all these terms are in English. [They need to know] mix and match colors. We speak to a customer based on the knowledge that we have to know".* Knowledge of the fabric should also be given priority, *"students must learn about the latest fabrics, knowing the type of fabric, silk for lining, linen, cotton, Japanese cotton or polyester. Basic knowledge of the fabric needs to be learned in*

order to provide service to customers. They also need to know the selection of the latest fabrics, choose fabrics that are appropriate to the customers and how to mix and match the fabrics." (Ema)

Expected Changes

All the respondents agreed that there would not be many changes in the fashion line for the next ten years. Changes will follow in the form of fashion rotation, where designs and appearances of the patterns would remain the same, but the use of different fabrics and how fashion is styled would differ, similar to the statement given next:

Yes, fashion is always changing, now followers of fashion have started enriching the fashions and styles of the old 40s, 50s, 60s, 70s, 80s and 90s. The old fashion is brought up to a new style, is reused for example, 80s style in 2010. Designers are required to create a trendy style as their own creativity with different types of fabric used. (Aie)

Mmm ... I think fashion has not changed much, 10 years ago and compared it with now there are still sillhouette glass, pencil line, bell shape, V shape, organic, geometric shape, origami shape and so on. If we look at fashion trends, the shapes, patterns and silhouette are still the same. So... in the coming next 10 years the existing patterns and design will always be modify. (Sid)

Fashion is expected to follow the trends of foreign cultures and the current popular entertainment world:

Ahh.. follow the trend, hmm.. nowadays the influence of Korean culture can be seen in the local fashion. There are many slots of Korean songs on MTV. Possible forms of Korean fashion can influence the local fashion, in terms of external and silhouette. (Ema)

....Changing trends based on the influence of entertainment. Following the manual shipped with the style of entertainment, such as Bollywood (influence from India), as well as Korea, ahh ... for example, and I think the ideas according to foreign cultures. (Aie)

The influence of technology is expected by all respondents in terms of the use of technology, the development of on-line business, and better-quality fabric.

Equipment

…The coming next 10 years, I think in terms of fashion technology amm .. fashion technology will grow to be more advanced, so .. meaning that the technology in fashion is very broad .. hmm and as new technologies. For example, existing machines will be up-graded. Now designs introduced through 3D dummy in computer would make the designing process easier. (Sid)

...If there are 3D forms of this dummy, we can make a fitting on a computer you know…amm. There is a software I have seen in a seminar in fashion technology. Fitting in 3D, can be consistent and included in all body measurements, fabrics and fittings in the dummy. Dummy may twist and we can see the effects of the fabrics. Such a technology, a new emm.. you know .. so I expect within 10 years the technology will be very useful. (Aie)

On-line Business

Possible business on-line will be successful, but shops or boutiques will not be closed, because of human nature where people like to go, feel and see. On-line might be able to hmm .. the possibility of lower prices, because the owner do not have to pay rental. (Ema)

Nowadays, there are too many and very effective businesses on-line. As long as we diligently update ourselves, can deliver products and do not defraud the buyer. For starters, online business is very good for the market. In addition, building a website seems to be a more serious business. Although with many existing technologies, I still believe that fashion business will become establish, exclusive and more prestigious with existing business premises, a boutique, studio or workshop. The brand or label has to be visible. And customers need to be more satisfied when coming to the boutiques to choose, read, try and appreciate, before making decisions to buy. Normally customers like to receive special treatment and be heard of. (Sid)

Quality Fabrics

In fashion, people prefer to have better quality of fabrics, comfortable with the future of fashion you know, maybe the machines produce better fabrics emm .. (Aie)

If possible for the coming period of 10 years, I think the design has not changed much unlike the use of the latest fabrics to show a more trendy design. The use of a variety of fabrics and designs will change the appearance of others, but the design does not changed much. (Ema)

All the expectations raised by the respondents show that fashion will experience significant changes in terms of the current trends, which are greatly influenced by foreign cultures and the culture of local entertainment. Besides that, technological developments in the area of fabric manufacturing will be more widespread and can produce more high-quality fabrics that are comfortable and durable. On-line purchases will continue to increase, however, the respondents felt that boutiques, department stores, and tailor shops would not be closed, instead, there will be more such shops.

DISCUSSIONS

Knowledge competency skills are the preferred aspect of whether graduates would like to participate in the fashion industry or start a business. The technical competencies required are painting, patterns drafting, sewing techniques, and computer and creative skills in which the competencies are related to fashion as specified by (Kemp-Gatterson, & Stewart, 2009; Tate, 2004; Burns & Bryant, 2007; Brookshire & Lee, 2010; Werhan & Vollmer, 2004; Lahti, 2012).

Knowledge competencies are very important. The aspects of knowledge involve the latest trends, business strategies, fashion businesses, knowledge to build one's own brands, branches of the fashion, the basic knowledge about fashion, and knowledge of the fabric. Since changes of fashion occur too quickly, therefore, each design is produced to meet consumers' preferences and market needs (Tate, 2004; Karpova, Marcketti & Barker, 2011a; Karpova, Marcketti & Barker, 2011b; Bonnardel, 2012)). In addition, the business strategies are an alternative strategy that increases monthly income. The study also found that knowledge of the fashion business can be explored, learned, and acquired through a long experience of being in the fashion business (Wesley & Bickle 2005). Apart from that anyone wanting to participate in the business world, we need to emphasize the aspect of branding.

They should have taste, inspiration, interact with people who have been successful, and also participate in fashion competitions. These are the commercial and technical aspects that are combined in the fashion business (Pate, et al., 2003; Dickerson, 2003; Hodges & Karpova, 2008). The expected changes in fashion for the next ten years would not be changed much with regard to the form of patterns. There would be the same patterns as the previous fashions in the 1960s, 1970s, and 1980s, while the difference would be just the type of fabric used and the way the fashion is worn by the followers of

fashion. Changes in fashion are expected to follow trends, foreign cultures, the world of entertainment, which were popular during that particular period of time, and the style of celebrities (Tate, 2004). Fashion in the near future is also expected to be greatly influenced by technology. The use of modern equipment that improves the quality of fabric and on-line fashion business will grow wider. According to a study by Kim and Johnson (2007), Jacob (2007), Lovinski (2008), and Hodges and Damhorst (2008), Kim, Forney, and Crowley (2010) the textile industry will grow, and the quality of fabric and yarn would be improved, thereby becoming more superior, useable, convenient, and easy to use, both in terms of quality and in being easy to clean. At the same time, local designers will present themselves internationally in the fashion industry, and this will contribute to the economic development.

CONCLUSIONS

Graduates who want to work or start a business in the fashion industry should prepare themselves with business knowledge, understand the market economy, and improve their skills and knowledge competencies. The fashion industry market in Malaysia is still practical and has a commercially driven fashion background in which the business concepts can earn a profit. Since the industry is moving very fast and is competitive, thus, future graduates need to work hard, persevere, be patient, and equip themselves with competencies that match the current needs. There are some competencies that are consistent with the desires and needs of the fashion industry in the fashion design curriculum in training institutions, but which place less emphasis on business and entrepreneurial knowledge.

Continuous efforts toward building relationships between educational institutions and the industry should be established to enhance and develop competencies in the fashion line. Relations and bilateral cooperation, such as inviting industry experts as speakers, part-time job opportunities, and industrial training, will provide exposure to lecturers. Thus, the industry believes that educators should look for opportunities to develop their professional career to keep pace with the current fashion world and in the interest of the prospective graduates produced.

Hence, this relationship will indirectly realize the role of educational institutions as training institutions in training skilled workers for the industry. The cooperation between educational institutions, the industry, and the private agencies that run these programs would make the programs more relevant, which could increase the credibility of the programs, the equipment and materials used are renewable in accordance with the standards of the industry. In addition, the curriculum content should always be up to date, and students are exposed to skills and real experiences at the workplace. The skills taught should not be behind times but always up to date and need to be more than ten years ahead. Students should acquire skills while they are learning and should be able to practice those skills in the industry after they graduate. Therefore, these skills can be applied in the industry, which, in turn, provides a good chance for the students to be employed. Therefore, it is hoped that learning institutions and educators will be able to produce students who are competent, competitive, able to improve themselves, willing to increase their skills, and have current knowledge in order to meet the manpower requirements in the country. It is also recommended that a quantitative study be conducted to achieve more reliable data on the current competency level in the fashion industry.

REFERENCES

1. Bonnardel, N. (2012), "Designing future products: What difficulties do designers encounter and how can their creative process be supported?", A Journal of Prevention Assessment and Rehabilitation, Vol.:41, pp. 5296-5303

2. Burns, L. D., & Bryant, N. O. (2002). The business of fashion: Designing, manufacturing and marketing (2nd ed.), New York, NY: Fairchild Publications.

3. Chida, M., & Brown, G (2011), "Evaluating the gap between industry assessment of job readiness and graduation standards in higher education institutions: the case of fashion studies", International Journal of Fashion Design Technology and Education, Vol.:4, No.:2, pp. 71-82

4. Creswell, J. W. (2012). Educational research: Planning, conducting and evaluating quantitative and qualitative research (4th ed.), Boston, MA: Pearson Education.

5. Dickerson, K. G. (2003). Inside the fashion business (Rev. ed.), Upper Saddle River, New Jersey: Prentice Hall.

6. Finch, C. R., & Crunkilton, J. R. (1979) In Mulyasa, E. (2003). Kurikulum Berbasis Kompetensi, (In Indonesia), Bandung: Rosda.

7. Gangani, N., McLean, G. N., & Braden, R. A. (2006), "A competency-based human resources development strategy", Performance Improvement Quarterly, Vol.:19, No.:1, pp. 127-139

8. Kim, H. J., Forney, J., & Crowley, R. (2010), "O·P·E·N Triad: The future success for individuals, institutes, and industries", Journal of the Korean Society of Clothing and Textiles, Vol.:34, No.:12, pp. 1980-1991

9. Merriam, S. B. (2009). Qualitative research: A guide to design and implementation, San Francisco: Jossey-Bass.

10. Habib Mat Som, & Megat Ahmad Kamaluddin Megat Daud. (2007). Globalisasi dan cabaran pendidikan di Malaysia (In Malay). Masalah Pendidikan, Vol.:31, No.:1, pp. 91- 101).

11. Hiyang, T. K., & Nor Hazwin Solehah Abdul Halim (2010), "Profil kemahiran generik untuk graduan hospitaliti: Perspektif pensyarah politeknik (In Malay)," In Prosiding 2nd World Congress on Teacher Education for TVET in Conjunction with World Teachers and Celebration, on 5-6 Oktober, pp. 126-137. Universiti Tun Hussein Onn Malaysia

12. Hodges, N. N., & Damhorst, M. L. (2008), "Focused issue on the future: Introduction to part II", Clothing and Textiles Research Journal, Vol.:26, No.:2, pp. 99-102

13. Hodges, N. N., & Karpova, E. (2009), "Women and higher education in Russia: Preparation for Career in the apparel industry", Clothing and Textiles Research Journal, Vol.:27, No.:8, pp. 124-144

14. Johnson, M. J., & Moore, E. C. (2001). Apparel product development (Rev. ed.), Upper Saddle River, New Jersey: Prentice Hall.

15. Johnson, M. J., & Moore, E.C. (1998). So you want it work in the fashion business?: A practical product development and global manufacturing, Upper Saddle River, New Jersey: Prentice Hall.

16. Jacob, J. (2007), "Surveying the present and an imagined future: The quest for a bright future in the textiles and apparel professions", Clothing and Textiles Research Journals, Vol.:25, No.:4, pp. 349-374

17. Lovinski, N. P. (2008), "Extensible dress: The future of digital clothing", Clothing and Textile Research Journal, Vol.:26, No.:2, pp. 119-130

18. Karpova, E., Marcketti, S. B., & Barker, J. (2011a), "The efficacy of teaching creativity: Assessment of student creative thinking before and after exercises", Clothing & Textiles Research Journal, Vol.:29, No.:1, pp. 52-66

19. Karpova, E., Marcketti, S. B., & Barker, J. (2011b), "Putting the puzzle together: Apparel professionals' perspectives on creativity", International Journal of Fashion Design, Technology and Education, Vol.:4, No.:2, pp. 103-113

20. Karpoval, E., Jacobs, B., Lee, J. Y, Andrew, A. (2011c), "Preparing students for career in the global apparel industry: Experiential learning in a virtul mutinational team-based collaborative project", Clothing & Textiles Research Journal, Vol.:29, No.:4, pp. 298-313

21. Kemp-Gatterson, B., & Stewart, B. (2009). Apparel: Concepts and practical applications, New York, NY: Fairchild.

22. Kim, H. J., Forney, J., & Crowley, R. (2010), "O·P·E·N Triad: The future success for individuals, institutes, and industries", Journal of the Korean Society of Clothing and Textiles, Vol.:34, No.:12, pp. 1980-1991

23. Kim, E., & Johnson, K. P. (2007), "The U.S. apparel industry: Futuring with Undergraduates students in apparel major", Clothing and Textiles Research Journal, Vol.:25, No.:4, pp. 283-306

24. Klein, J. D., Spector, J. M., Grabowski, B., & de la Teja, I. (2004). Instructor competencies: Standards for face-to-face, online and blended seting, Greenwich, CT: Information Age Publishing.

25. Lahti, H. (2012), "Learning sewing techiques through an inquiry", Procedia Social and Behavioral Science, Vol.:45, pp. 178-188

26. LeHew, M. L. A., & Meyer, D. J. C. (2005), "Preparing global citizens for leadership in the textile and apparel industry", Clothing and Textile Research Journal, Vol.:23, No.:3, pp. 290-297

27. MacDonald, N. M., Lazorchak, S. A., & Currie, K. M. (2009), "African American women's satisfaction with the design and marketing of ready-to-wear clothing", Family and Consumer Science Research Journal, Vol.:37, No.:3, 253-265

28. Mohammad Shatar Sabran, Samir Muhazzab Amin & Mohd Fauzi Abd Karim. (2007). 7 Kemahiran unggul mahasiswa Glokal (In Malay), Petaling Jaya, Selangor: GEMS Publishing.

29. Mohammad Shatar Sabran, Samir Muhazzab Amin dan Azali Mohamed. (2008). Kemahiran graduan idaman majikan (In Malay), Serdang, Selangor: Penerbit Universiti Putra Malaysia.

30. Mohamad Sattar R, Md Yusop, Napsiah, Muhammad Rashid R, Rose Amnah A. R. (2009). Peranan institusi pendidikan teknikal di dalam pemupukan kemahiran employability pelajar (In Malay), Jurnal Teknologi, 50, 113-127.

31. Palan, R. (2003). Competency management: A practitioner's guide, Kuala Lumpur, Malaysia: Specialist Management Resources.

32. Pate, S., Trautmann, J., Torntore, S., & Walters, C. (2003). Establishing professional competencies for curricular coherence in an apparel, merchandising, and design program. In ITTA Proceedings, 60, 47. Retrieved from http://www.itaaonline.org/downloads/P2003-Tea-PateS-Establising-Tea47.pdf

33. Paulson. K. (2001). Using competencies to connect the workplace and postsecondary education, In Richard, A. Voorhees, Measuring what matters competency-based learning models in higher education San Francisco: Jossey-Bass, 110-125

34. Rentenaar, T. J., Buckland, S. S, Leslie, C. A., & Mulne, S. (2008), "Expending opportunities in fashion merchandising. A successful internship program through an innovative collaboration with The National Needle Arts Association", International Journal of Consumer Studies, Vol.: 32, No.:4, pp. 323-327

35. Rojewski, J. W. (2002), "Preparing workforce for tomorrow: Conceptual framework for career and technical education", Journal of Vocational Education Research, Vol.:27, No.:1, pp. 7-35. Retrieved from http://scholr.lib.vt.edu/ejournals/JVER

36. Southward, L., & Burgess, B. (2003), "The effectiveness of student internships", ITTA Proceedings, Vol.:60, pp. 134, Retrieved from http://www.itaaonline.org/downloads/P2003-Res-SouthwardL-Effectiveness-Res134.pdf

37. Tate, S. L. (2004). Inside fashion design (5th ed.), Upper Saddle River, New Jersey: Prentice Hall.

38. Valde, C. (2009), "Employers' perceptions of graduate competencies and future trends in higher vocational education China", Journal of Vocational Education and Training, Vol.:61, No.:1, pp. 35-51

39. Werhan, C. R., & Vollmer, J. L. (2004), "Finding place for tradition in the curriculum: A case study for sewing in the Ohio family and consumer sciences classroom", Journal of Family and Consumer Sciences Education, Vol.:22, No.:1, pp. 43-57

40. Wesley, S. C., & Bickle, M. C. (2005), "Examination of a paradigm for preparing undergraduates for a career in the retailing industries: Mentors, curriculum, and an internship", College Student Journal, Vol.:39, No.:4, pp.   680-691

41. Yu, H., & Jin, B. (2005), "Enhancing international dimensions in apparel and merchandising curricula in the USA; A practitioner's perspective", Journal of Fashion & Marketing and Management, Vol.:9, No.:2, pp. 232-243