Integrating Innovation in Pattern Making Teaching and Learning for Higher Education in Fashion Design

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ABSTRACT

This article intends to integrate innovation into pattern making skills in fashion design education. This is align with the main goal of Technical and Vocational Education Training (TVET) which aims to produce students who are competent, competitive, has value in marketability while continue in improving themselves with the latest skills that meet the needs of the national industry workforce. Thus, some changes need to be made for the learners to meet the change in technology, knowledge and technical needs in the industry especially in educational system, training programs and curriculum in higher education institutions. This research employed qualitative research design. The qualitative data collection utilize face-to-face interview. A semi-structured interviews protocol was developed to guide the interview sessions. 5 fashion lecturers, 5 fashion designers, 1 pattern maker and 5 fashion graduates had participated in the interview session. Based on the thematic analysis, there are six dominant factors which influence the integration of innovation into the curriculum. The findings are also evidence to support the implementation of framework for innovation integration into the existing pattern making curricula. By having the proposed framework, fashion design students can enhance their pattern making skill through the application of advanced technology, aligned with the demand of the industry.

Keywords
Innovation, Teaching and Learning, Fashion Design

Introduction

In Malaysia, the production segment of an industry continues to play a significant role in the industrial and economic development structure of the nation. In the fashion industry per se, technical skills are mandatory requirement, without which, industry players will be handicapped. The three most sought after and demanded skills are pattern making, designing and sewing. These three technical skills are of utmost importance for the fashion designers to have, in order to have their own niche and trademarks in marketing their business. The fashion industry at the moment has been penetrated by instant fashion clothing and brands, which are copycat's designs or "inspired" versions of any particular successful and popular designer. These are the trends and parcel of the fashion world currently, albeit a misdemeanour in terms of laws concerning patents and rights of productions.

Knowledge and technical skills are two very important components of the fashion industry. To produce beautiful and quality designs require precise pattern making skills and intricate sewing, lack which has resulted in the stealing and fabricating of ideas from other designers. In the end, the market will be laden with designs and fashions of the same "look and feel" (Morris, 2016). To ensure that the goal of the National Education Philosophy to be achieved, the TVET curriculum should emphasize and focus on critical and creative thinking in line with student's abilities. Project-based which are conducted and implemented in the actual working industry will improve quality TVET learning experience thus accelerating transformation of TVET Institutions.

As the scale and scope of the industry has grown over the last decade, the appeal of fashion as a career opportunity has grown with it, leading more and more young people to pursue fashion education. Some of the practices implemented in the industry like collaborative learning, hands-on experience, professional skill development and communication skill development can be the new method implement in the current curriculum. These learning

benefits are aligned with the innovative teaching and learning method. This type of learning can promote student centred learning and at the same time enhance the technical skill of the students and promotes innovation.

Literature Review

The Concept of Innovation in Education

Creativity and innovation are becoming increasingly important for the development of the 21st century knowledge society. They contribute to economic prosperity as well as to social and individual wellbeing and are essential factors for a more competitive and dynamic country. Education is seen as central in fostering creative and innovative skills (Mishra, 2014). Innovation is a new idea, device or process. The application of better solutions that meet new requirements, inarticulate needs, or existing market needs is innovation. The application of innovation is accomplished through more effective products, processes, services, technologies, or ideas that are readily available to markets, governments and society. The term innovation can be defined as something original and more effective and, as a consequence, new, that "breaks into" the market or society (Mishra, 2014).

Creativity and innovation in education are not just an opportunity, but a necessity. First, several emerging trends entail an alteration in the way young people learn and understand (Redecker, 2009). Teachers have to attract students' interest and attention in a new way, and as a result the development of creative approaches is called for (Faull, 2009). Secondly, the current and forthcoming cohorts of learners are growing up surrounded by video-games, mobile phones, and other digital media. This overwhelming spread of technologies brings a new understanding of communication, information retrieval and meaning making (Faull, 2009).

Innovative Teaching

Innovation is the application of such a process or product in order to benefit a domain or field - in this case, teaching. Creative learning, implementation of new methods, tools and contents which give advantage to the learners and increase the creative potential is the process of innovative teaching. Without transformational, something is not considered as innovation. Apart from that, innovative is not accidentally appear. It is determined by a structure of principles and practices which maintain and reassure the coupling system and creativity to solve problems. Innovative teaching is both the practice of teaching for creativity and of applying innovation to teaching. Both aspects call for an educational culture which values creativity and sees it as an asset in the classroom. Teachers are key figures in constructing a creative climate, but they need support from both policymakers and institutions.

In particular, curricula and assessment are key areas to be addressed in order to allow creativity in the classroom. Curricula should undergo a skilful and thorough development, giving the same importance to every subject, taking creativity into consideration and defining it coherently throughout the curriculum, allowing freedom and time for discovery, and taking learners' interests into account. Assessment should also allow creativity to flourish by valuing it, both at micro, everyday level and at macro, exam level. The three functions of assessment (diagnostic, formative and summative) must contribute to the development of both knowledge acquisition and skills development for learning and creating (Gursoy & Celikoz, 2017)

Techniques in Pattern Making

Pattern making is related to creativity and thinking skills. It is a skill which requires the students to use their exploratory ideation process (Jerimiah & Harrah, 2016). In Malaysia, the pattern making course still adapt on the model-driven technique, whereas in other part of Asian country, like Singapore, La Salle university has introduced independent student work, in a technique driven approach to fashion, towards collaborative endeavours (Jeremiah & Harrah, 2016). Fashion graduates still have limited understanding for the scope, of what pattern cutting entails (Jeremiah & Harrah, 2016). This has to do with how educators introduce pattern making skill through teaching and learning method. Some of the skills gap across the industry are manufacturing skills, in terms of production, mass-

production knowledge, garment fitting skill (Moorhouse & Moorhouse, 2017), design, pattern cutting and sewing skills (Tanya, 2014).

Table 1.0 Techniques in pattern making process

Country	Technique	Pattern Making Process
General process in fashion education		Sketch – Pattern – Toile – (Design alteration) – Pattern alteration – Sample garment
Malaysia	Step-by-step process	Flat pattern and draping
Julia Roberts, English Designer (Fashion & Agency, 1973)	Creative point of view technique	Pattern – Toile – (Design alteration) – Pattern Alteration –Sample garment
Australia	Modification/ Development on purchased pattern	Existing garment – Sketch – Pattern – Toile – (Design alteration) - Pattern alteration – Sample garment
Australia (Vivien Westwood) (Clarke & Holt, 2016)	Self-taught (Analysation of structure and construction)	Existing garment – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment
Japan (Rei Kawakubo) Sudjic	Interpretation	Conceptual idea – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment
United Kingdom (Zandra Rhodes) (Rhodes and Knight 1984: 56)	Printed fabric determine the pattern	Textile print on paper – Draping paper on body – (Sketch) - Pattern – Toile – (Design alteration) – Pattern alteration – Sample Another contemporary

Figure 1.0 shows different types of technique in pattern making process in different countries. It shows that the process in Malaysian education is model-oriented which is step – by – step technique. As for other countries, they practice on experimentation. This type of technique can further develop the students' creativity and understanding. Model-oriented technique is the traditional lecture-demonstration method (e.g., step-by-step guides and directive instruction) (Lahti, 2012). This research will explore on the innovative teaching method, for example through problem-based learning, formative assessments, collaboration and inquiry which can be implemented in manufacturing skills of fashion. This is to encourage the student-centred learning approach. The innovative learning approach will encourage more inquiry from the students and to make the students apply their critical and experimental thinking process into learning.

Integration of Innovation in Pattern Making

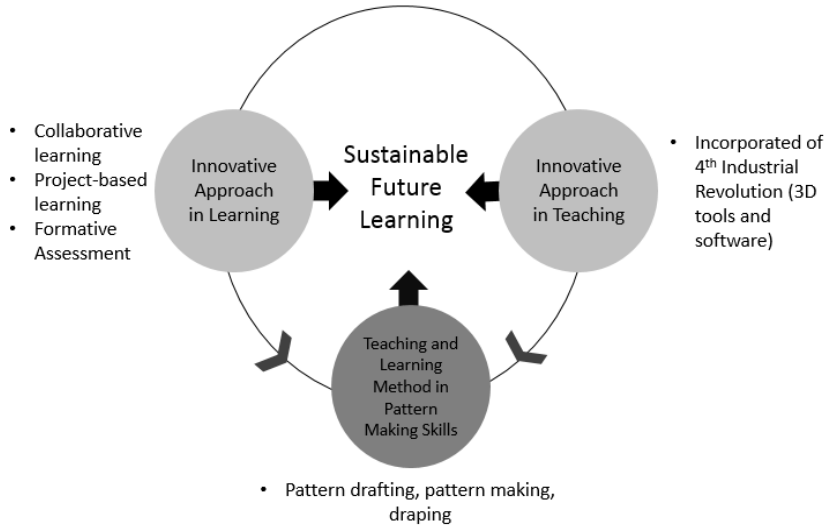

Figure 1.0 Integration of innovation in pattern making skills.

Figure 1.0 shows the conceptual framework of integrating innovation in pattern making skills. The framework is divided into two approaches, for further understanding. The first sphere shows the approach in learning method. Students can adapt innovative learning method though collaborations, project-based learning and progress assessment (formative assessment). As for the second sphere, the teaching approach can incorporate with the current trend of industrial evolution, through the application of 3D tools like 3D pen, 3D simulation or pattern making software. Such simulation will enhance their technical design learning experiences in a virtual setting. 3D garment simulation has been used as a tool to enhance students' understanding of 3D concepts in medicine, architecture, science, accessory design, and automotive industry design (Hwang, 2016).

Objective

The aim of this research is to enhance pattern making skills among students through pattern making which focuses on innovation. The main objective will be achieved by further exploring on these objectives:

- To investigate the factors which influence the integration of innovation in pattern making for higher education
- To investigate the practices of innovation in fashion industry specifically in pattern making process.
- To develop a framework for integrating innovation in pattern making for higher education.

Methods

For this study, a qualitative methodology has been carried out. The qualitative data collection utilizes face-to-face interview. A semi-structured interviews protocol was developed to guide the interview sessions. 16 participants from fashion institutions and industry were selected to give useful information on the current practices of pattern making skills. Figure 2.0 visualizes the research process, which starts from Phase I, identification of innovation elements in the current teaching and learning, Phase II; identification of current practices in industry and Phase III; development of framework

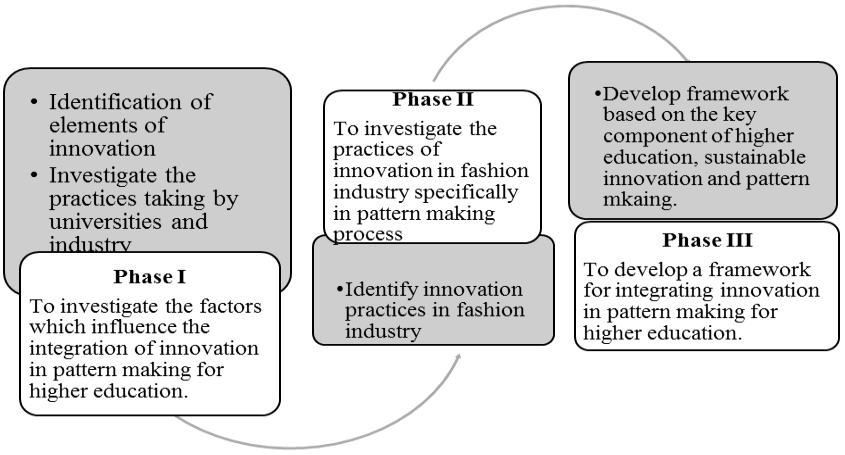

Figure 2.0 Operational Research Framework for this study.

Result

Based on the thematic analysis, there are six dominant factors which influence the integration of innovation into the curriculum. The findings are also evidence to support the implementation of framework for innovation integration into the existing pattern making curricula.

Table 2.0 Factors of Integration of Innovation in Pattern Making

Factors of Integration of Innovation	Impact on the student's pattern making skill
Technology advancement	Lack of technical skill of using advance technology which being used in industry
Difficulties in recruiting capable pattern makers	Low quality of pattern production
Lecturers' teaching style and also on the teaching instrument	Effect on the student's learning process
Focus more on research and design	Lack of hands on experience
Level of interest of being a pattern maker	Low impact of understanding of technical skill learning process
Practice from the real demand	Lack of collaborative skills amongst the students

Discussion

Technology Advancement

Most of the technology including software and machines provided in the industry are not synchronized with the technology used in institutions. This factor would probably because of the high cost of the technology. However, the alumni of local fashion school also have a shared concern where they also not able to apply the CAD in pattern making because it was not taught in the university. This statement is supported by Coetzee (2014) which suggests more emphasis on technology advancement as required by the clothing industry in the development of fashion curriculum. The following excerpts show how technology is important in pattern making process.

"We as the pattern maker need to use more than one software. There are Lectra for marker. Modaris and Gerber for pattern. Modaris is the latest software for pattern making. The 2D flat pattern will then be export to 3D pattern by using V-stitcher and Optitex. 3D pattern is on highly demand because it saves time".

(Pattern Maker 1)

"The final year students will be exposed with the Gerber software. The use of software is important for industrial purpose especially in mass production. The skill in using Gerber software is useful as it can speed up the production, effective and efficient".

(Fashion educator 1)

"I have used Gerber before in pattern making subject. But it was only for the purpose of 'knowing'. I found that the software is too difficult. The students used the software to produce mini patterns of our final design. We learned to use the software in our final semester".

(Fashion Designer 2)

"As an industrial pattern maker, I make patterns by using software like Gerber and Modaris. These types of software are necessary for industrial as we produce in massive quantity".

(Pattern Maker 1)

Difficulties in Pattern Maker Recruitment

The lack of Computer Assisted Drawing (CAD) skill of fashion graduates might be part of the problem faced by the industry. The industry encounters difficulties in recruiting capable pattern makers (Tan & Chon, 2016). Some industry specialists claimed that educators are not doing enough to promote the technical side of fashion (Debbie, 2017). Pattern making skill can showcase their creativity and uniqueness of brand. Hence, the absence of technical intelligence leaves the students at a distinct disadvantage.

"The fresh graduates who have been called for interview were unable to show off their pattern making skills even in basic skill".

(Pattern maker 1)

"Not all fashion graduates from good universities have skills in pattern making. I would prefer interns from polytechnics and community college as they have been introduced in depth in technical skills".

(Fashion Designer 1)

Lecturers' teaching style and teaching instrument

Innovations and new strategies is essential for the lecturer to improve on their teaching delivery and classroom learning. Additionally, the current instrument used in pattern making should be developed to facilitate the learning process. Pattern making is a very important skill to be learned and mastered by the students. Unfortunately, this is the skill which fashion graduates are lacking of, as claimed by the industry. It is believed that the fashion educators in universities and colleges have given the best to the students with all the required skill to be practiced from the first year of their study. Universities like Universiti Teknologi Mara Malaysia (UiTM), Limkokwing University, Malaysian Institute of Art (MIA), Polytechnics and other institutions offers fundamental skills for the fashion graduates to be skilful. For instance, fashion illustration, fashion drafting and draping are the basic knowledge which the students need to master in the first semester of fashion education.

"Pattern making will be taught at the end of Semester 1. They will learn about tailored jacket, trench coat and pants along with the components such as tailored jacket pocket (jetted pocket with flap and double welt pocket with facing and lining). For trench coat (hidden buttonhole stands) and more. They will also learn about different techniques in pattern making for tailored jacket which include the inner structure which and where to put 'hair canvas' with 'cotton tape' which need to be 'basting stitched'. For pattern drafting, the basic component are the front and back bodice, sleeve and also collar and lapel. Cuff, pocket and lining are also part of the jacket production".

(Fashion educator 1)

"It is quite difficult at the beginning. The teaching process is very fast that makes the students could not catch up".

(Fashion graduate 1)

"Some of the techniques are quite difficult but it depends on the teaching style of the lecturer. At some part, it is quite difficult to catch up when making own pattern".

(Fashion graduate 2)

The excerpt shows that the students will be loaded with too many skills in one semester. This will lead to difficulties in understanding of the essence of pattern making skill. It is good to be developed and enhanced with variety of knowledge but there must be a specific guideline and strategy so that the students are able to learn the lesson with ample time.

Focus more on research and design

It is undeniable that theoretical knowledge such as fashion forecast, measurement, textile and fabric knowledge is important for the designers but when it comes to industry, hands-on skill comes first. Pattern making skill is one of the hands-on knowledge which designers should understand and able to apply in real life situation. Without this knowledge, the production of garment would not be able to start.

"The fashion designers do not really know about pattern making, that is why they need advice from us. They just design based on the fashion forecast but lack in technical part. But we will still need each other, as the designers will do designs and we will do the pattern".

(Pattern maker 1)

Passion as pattern maker

Most of the fresh graduates from fashion school are more interested to be fashion designer and merchandiser rather than a pattern maker. This is due to the job role as pattern makers where they need to take charge on the technical part of the design and within the team. Pattern makers are those who stand behind the scene. Pattern makers are not in the 'glamour' part of the fashion industry as they did not have direct acquaintance with the buyer.

"There are many fresh graduates who do not want to be part of the production team like pattern maker because they said it is not 'glamorous'. They too want to 'shine' by being part of the stylist, merchandiser, designer or buyer".

(Pattern maker 1)

"This is because the students have low interest in pattern making. They think that this subject is very complicated".

(Fashion educator 1)

Practice from the real demand

Some of the students from local universities expressed their dissatisfaction regarding the practice from the real demand, which is interacting and collaborating with other functions, from sourcing to marketing sales. It is compulsory for the students to have hands-on experience during industrial training and internship placement for at least one semester. This practice has been implemented for years, both in public and private universities. However, the industry still claimed that fresh graduates are lacking in technical knowledge.

"We have undergone the internship program, but it was just for 3 months. For me, the three months were not enough for us to learn from the industry. Moreover, the industry did not even teach us the proper skills that we should learn from them".

(Fashion graduate 5)

"Usually, the final year students are encouraged to participate and collaborate with the local or international fashion events, such as Redress Ecochic Design award and such. In these 2 years, the students have been received sponsorship from the biggest zipper and trimmings, YKK. This is a good platform for both students and the industry".

(Fashion educator 1)

Conclusion

In conclusion, integration of innovation in fashion design course is applicable. Innovation in this research is not only focusing on the advancement tools of technology, but it will incorporate the students learning experience and also in the teaching and learning process. The integration framework (see Figure 1) demonstrates the specific steps and detail of the integration process. The findings of this study are also evidence to support the implementation of framework for innovation integration into the existing pattern making curricula. By having the proposed framework, fashion design students can enhance their pattern making skill through the application of advanced technology, aligned with the demand of the industry.

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