A Study of Competence Model for Five-Year Junior College Students Taking Internship in Hairdressing Industry

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Abstract. *The paper aims to analyze the competence model for vocational college students taking internship in hairdressing industry based on the viewpoints of learning by doing, based on the discourses from Dewey's experience theory and to understand the correlation and hierarchy of the context of competence for the professional skills of hairdressing industry, thereby to facilitate the design and development of human resources for the hairdressing industry. The study analyzes the off-campus interns for junior college cosmetology and hairdressing related departments in Taiwan. The study also emphasizes on school teachers, hairdressing personnel and hairdressing industry interns through conducting qualitative research document analysis, and quantitative research ISM system. The analysis of context and correlation of competence skills for hairdressing industry can be adopted as the standard of occupational information for designing hairdressing competence and learning map by schools and vocational institutes. Secondly, the study will link hairdressing personnel development with hairdressing industry demand to create win-win situations for school course instrument, industry education training and employment of industry personnel.*

Keywords: Learning by Doing, Hairdressing Industry, Off-Campus Internship, Competence, Junior College

INTRODUCTION

As the industry evolves and the demand for cosmetics and styling draws increasing attention, the statistics compiled by the Ministry of Economic Affairs reveal that the sales revenue for cosmeceuticals retail industry exceed that of the overall retail industries, reaching NTD191,900 million in 2018. In particular, the majority of merchants comprise cosmetics and skincare products, accounting for 51.5% and ranked the first among all products (Department of Statistics, Ministry of Economic Affairs, 2000). Beauty and hairdressing seem to have become the necessary criteria for livelihood. Even during the profound impact of COVID-19 pandemic on the overall industry chain worldwide in 2020, the market scale of cosmetics and personal care industries in U.S. still reached as high as USD85,000 million. The business opportunity for beauty is undefeatable by the pandemic (udn.com, 2020). According to a report published by UDN.com on April 18, 2020: There was approximately 30,665 companies of hairdressing, beauty and body care in Taiwan and the sales revenue of body care industry can generate NTD37,900 million a year. Of which, the 21,915 hairdressing companies alone can generate about NTD24,800 million in sales revenue a year. Among the 8,750 beauty and body care companies, the beauty industry generates about NTD13,100 million in sales revenue a year. The Ministry of Labor compiled statistics on the employment status of July, 2018 and pointed out that the number of people employed for hairdressing, beauty and styling designers in the service industry sector was 38,639 people. Among which, the number of people employed by hairdressing, beauty and body care industries was 35,557 people, accounting for the majority and 92.02% of the total number of employed (Ministry of Labor, 2020).

In sum of the increasingly diversified development in beauty and hairdressing industries, the innovation in technology, product, services, and marketing coordinated with the market development, trends and movement, as well as satisfaction in customer demand and consumer willingness, have all contributed to the brand-new outlook and manpower demand for the corporate image. Specifically in the hairdressing and salon industries, the process of the operation model and development have evolved from traditional salon to personal studios, and thereby shifting towards franchise corporate management, which consequently demands for more human resource (Huang, Jiann-Wen & Lee, Ting-win, 2018). To supply the fine work force demand needed for the beauty and hairdressing industry in addition to implementing the training industry-academic connection and practical skills, the beauty related departments in five-year junior college then carry the burden of such important mission. Gavin Moodie (2002) mentioned that the purpose of vocational education aims to instruct professional knowledge conforming to the current demand in order to participate in the market, including learning the application of basic competency, problem-solving capacity, work attitude, general employment skills, and career skills. The beauty related departments in five-year junior colleges instruct the applied science and technology with the mission to foster practicing professionals. The term of study is five-year education that connects to the junior high schools after graduation. The total credits required for graduation may not fall less than 220 credits (Ministry of Education, 2017). In particular, the off-campus internship curriculum will be arranged among senior students to bridge the gap between school education and the employment market, thereby strengthening practical work force and implementing the foster of technical personnel.

To implement the educational benefits of applying what one has learned from vocational education, the occupational training integrated with workplace proposed by Ruhi Tyson (2016) can most effectively acquire the professional technology from the workplace and comprehend the work place in-depth, in addition to learning initiative, responsibility, and social skills of workplace. School education could not replace these forms of work socialization and development of occupational cognition. Hence, the intent of off-campus internship curriculum for five-year junior college education is similar to the concept of "learning by doing" proposed by pragmatism philosopher, philosopher and educator – Dewey. Dewey believes that educational activities should start with living experience, where students can accumulate the real work experience through the professional knowledge and skills acquired from the actual activities and workplace, thereby internalize the experience and value after establishing the inner realization in students. Currently, internship curriculum for beauty related departments in five-year junior colleges is implemented in three methods, namely: summer internship, semester internship, and academic-year internship. The interns still need to return to school during internship period while most schools arrange for one school day per week, in order to offer interns with workplace experience and care for their academic works.

Students can acquire work and professional knowledge from hairdressing companies and understand the concept of hairdressing competency when taking internship in hairdressing industries outside of school. Noe (2005) mentioned that the concept of competency is generally applied to corporate talent training and potential development. The competencies include knowledge, skills, attitude, value, and personal traits. With regards to the definition of competency model, Chen, Yu-Chen & Lin, Chin-Yen (2015) proposed the competency model, known in the U.S. as "Skill Standard," which analyzes the competency according to the tasks and develops the skill standards of all tasks. Such standards can be applied as reference for school curriculum and teaching as

well as for industries to improve employee skills, upgrade technical level and boost corporate competition. The context includes knowledge, skills, abilities, and performance, namely the basis of professional development. Moreover, competency model can be applied to recruitment or screening, educational training, capacity development, personnel evaluation, promotion scheme, remuneration standards, and personal transfer.

In view of the beauty-related internship in hairdressing industries outside of the five-year junior colleges that provide students with experience to acquire hairdressing competency to students of junior colleges, the systematic training provided by hairdressing companies can boost students' professional knowledge, skills and attitude in hairdressing industry. Nonetheless, only explicit competency analysis can stabilize the competency based education, training and examination basis. The researcher has worked in five-year junior college education for more than 15 years and serves as the internship interview teacher outside the school. The researcher has adopted the viewpoints learned from experience to analyze the competency model development of five-year college students taking internship at hairdressing industries.

Taiwan Hairdressing Industry Overview

The Directorate-General of Budget, Accounting and Statistics, Executive Yuan (2021) proposed the link to hairdressing related service industries in the 11th amendment on industry statistics classification as the industry engaged in hairdressing and haircutting, including the technology related to hairdressing without involving medical procedures. The hairdressing industry belongs to the highly labor-intensive service industry. Traditional hairdressing operations include hair washing, hair cutting, dyeing, perming, and hair conditioning. In particular, only hair cutting techniques require the technical person holding the scissors, electric hair cutters and razors. Hair washing technique requires shampoo and conditioning products while dyeing techniques require hair dyeing products, perming require various perming agents and hair conditioning requires hair conditioners (Chen, Jo-Chiao & Cheng, Pao-Ning 2019). Following the changes in hairdressing technology, hairdressers follow the following work: haircutting, hair styling, scalp massage, shaving, perming, hair dyeing, straightening curly hair, scalp treatment, product sales, hairstyle consulting services (Lin, Yung-Ying & Lyau, Nyan-Myau, 2017).

Huang, Jiann-Wen & Yi-Jie Wu (2017) mentioned that the hairdressing industry as the service industry that offers manpower techniques. The hairdressing staff offers a series of services to customers visiting the salons, including reception, communication and consultation, hair washing, haircutting, hair dyeing, perming, hair conditioning, scalp conditioning and others, which all rely on the technical manpower. The Directorate-General of Budget, Accounting and Statistics, Executive Yuan (2016) conducted the commerce and service census on manpower utilization and remuneration, and suggested that the hairdressing, beauty and body care industries are favored by the upgrade in living standards, which drive the economies of beauty to develop. Among other non-classified service industries, the hairdressing, beauty and body care industries account for the majority of 75.320 people (37.59%) while the employees of hairdressing, beauty and body care industries have an average remuneration of NTD360,914 per year. Since the hairdressing industry belongs to the labor-based service industry and majority of work involves entry-labor work that appeal in long working hours with request for performance, the demand for the employment market is then greater than the supply (Chen, Ming-Ya, et al. (2016). . The Directorate-General of Budget, Accounting and Statistics, Executive Yuan (2021) revealed the job vacancy for employees in hairdressing, beauty and styling design in the job vacancy criteria overview in service industries at the end of August, 2020 was 2,669 people, which indicated the potential demand for human resource in the industries.

Educational Training Learned from Internship Experience

Students are placed in a real work environment of hairdressing related industries when taking internship curriculum outside of school. The learning by doing practice directly accesses to the competency skills of fashion styling while the beauty and hairdressing companies offering internship mostly adopt "mentorship" model in training new employees. Namely, the company directly assigns senior employees to guide the interns with substantial workplace skills and implicit work attitude and learning attitude. The experienced colleagues providing business skills and guidance on work attitude to interns and the indirect counseling on the learning attitude of interns can help the interns acquire and construct the work competency for their tasks (Yeh, Ju-Hsuan et al., 2020). With regards to the "mentorship" instruction at workplace internship, Kerstin Arnesson. & Gunilla Albinsson. (2017) proposed the following two functions of mentorship: Assistance in developing professional knowledge and skills in occupational skills and the internal support and development in psychology and attitude.

Lin, Hsiu-Jen (2007) mentioned that Dewey believes all living experiences, information, emotions and cognitive thinking as well as other activities are the experience course of constant accumulation, restructuring

and renovation through organism, environment and interaction. For the various learning context accumulated from the interpretation experience of social learning theory, Chang, Wan-Jin and Lin, Yen-Ling (2010) suggested that the social learning theory expert – Bandura believes that individuals produce conscious connection and imitate the reactions through the observation of people, thing and objects in the environment with the mutual impact on behaviors, individuals and the environment. All learning responses generated through direct experience are the manifestation of observed learning. Observed learning can accelerate the learning effectiveness and reduce the errors and learned hopelessness.

Stephen Billett (2001) stated that the educational training for work experience can be divided into three types: participating in daily work tasks, direct guidance by colleagues, and the indirect guidance provided by all persons, things and objects in work environment. Among the internship experience in hairdressing industry, the learning model of mentorship allows the protégés to observe the mentor's skills and behavior results to acquire the learning experience through internalized imitation. The protégés can also receive feedback and evaluation from the process of serving customers at workplace, passing the feedback and opinions to the mentor as the reference and basis of correcting guidance to the protégés. Moreover, customers' feedback and opinions will also be passed to the colleagues and the protégés will acquire the learning experience in workplace through the interpersonal connection and compile the educational training process learned from internship experience (Figure 1).
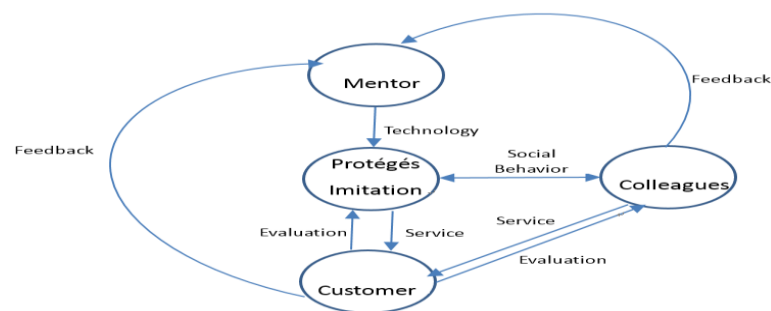

Figure 1. Educational Training Process for Internship in Beauty and Hairdressing Related Workplace

Introduction to Competence and Competence Model

The concept of competence has long existed and was preliminarily proposed by Harvard University professor David McClelland in 1970, which was adopted to oppose the use of intellectual tests on student screening in advanced education. The concept appealed in analyzing the actual impact on students' ability in learning performance (Chang, Wei-hsiung et al (2015). In the evaluation of competence development on work competency, competence can be regarded as the management model on competency basis and applied as the competency indicator between work performance and work behavior in the improvement on organizational and individual work performance (Chen, Chun-Hsi et al, 2006). Chang, Ting-Ting et al. (2007) suggested that the "Iceberg Model" proposed by Spencer & Spencer in 1993 most completely interpreted the definition of competence, which namely divides competency into explicit knowledge (professionalism equipped) and skills (executing tangible or intangible work competence), and implicit self-concept (attitude or value), traits (physical traits and consecutive responses to the environment) and motives (purpose and capability to take actions).

Lee, Li-Chon et al. (2008) proposed the following compositions of competence, including knowledge, technology, capacity, attitude, and traits. The indicators of competence changes through time and are adjusted by time, which are the behavior capacity needed by individuals in work tasks and the necessary mission performance to be accomplished. Such indicators affect the individual tasks and organizational development while the tasks completed must meet certain level of standard. The basic tools for improvement the occupational work performance and capacity are known as competence model. The competence model refers to the knowledge, skills, capacity, and other traits needed for effectively execution of work, which is considerably available in industry application, including the recruitment or screening, educational training, capacity development, personnel evaluation, promotion, remuneration, allocation, or changes (Lee, Yu-Ting, 2011). Campion et al. (2011) pointed out three functions of competence model: (1) Reference for organizations to conduct human resource management; (2) Distinguishing the difference between extinguished employees and general employees; (3) close connection between the competence model and the objectives of corporate organization.

Chen, Hui-Chuan (2018) mentioned that the hairdressing is a labor-intensive industry and the fostering education for general hairdressers require about 2-3 years of time, from "assistant □ hair washing personnel □

hair conditioning personnel□intern perming personnel □ cold perming personnel □ designer candidate□ designer. The competence of Taiwan's hairdressing industry divides the hairdressers into beginning hairdressers, intermediate hairdressers and senior hairdressers (Chen, Yu-Chen & Lin, Chin-Yen, 2015). In sum of the various professional competences required by hairdressing personnel, Chen, Chen-Yu & Lin, Teng-Chiao (2017) pointed out the workplace professional competence for hairdressers is divided into seven groups: hair and skin, salon operations and customer management, hair washing and conditioning, dyeing and perming, cutting, blowing and styling, work environment, safety and health, and cosmetics. The hairdressing competence model proposed in this paper emphasizes on the educational training to probe into the human resource and education training process for five-year junior college interns in hairdressing industry, and analyze the competence model for five-year junior college interns taking summer internship, semester internship and academic-year internship.

RESEARCH METHOD

The researcher intends to provide the study for the planning of beauty education and instruction in five-year junior college and as reference of hairdressing industry on internship manpower. The study executes the following purposes:
1) Establishing the vertical structure of competency association for five-year junior college students of beauty related departments taking internship in hairdressing industry.
2) Establishing the horizontal structure of competency association for five-year junior college students of beauty related departments taking internship in hairdressing industry.
3) Establishing the hierarchical structure of competency association for five-year junior college students of beauty related departments taking internship in hairdressing industry.

The paper adopts qualitative and quantitative research method. The qualitative research applies document analysis for qualitative research and ISM software for quantitative research with regards to data collection and analysis, which clarifies the hierarchical relation of context within hairdressing competence. The study facilitate the planning and development of the beauty education curriculum for five-year junior colleges, and can ne considered in the educational and training arrangement for hairdressing industry. The following will introduce the research method and implementation step:

Document analysis is one of the frequent methods used in social science research, which analyzes relevant documents through systematic collection and compilation. Such method breaks the restriction of time and space to discuss the various documents, records, and development and changes of report related to the research agenda, thereby comparing the differentiation between different regions or cultures (Chen, Wen-Ching, 2014). The study collects the research, journal and documents related to competence model and hairdressing industries, thereby compiling the relevant theoretical foundation to establish the research content of the paper, collecting the competence information on hairdressing, and extracting the factors of hairdressing competence in the preparation of fundamental structure of questionnaire survey. Analyzing the quantitative questionnaire data using interpretative structural modelling method (ISM).

Interpretive Structural Modeling (known as ISM) was developed by John N. Warfield for data analysis through computer between 1972 and 1974, which can be applied in the interactive learning and decision-making utilization of complex system and issues. The concept of binary matrix yields the value of reply only in 1 (denoting yes) or 0 (denoting no), which usually is subject to the majority vote in tested group when entering the ISM system (Chang, Ning, 2007). The interpretive structural modeling can be applied to determine the mutual association between community relations and to determine or decide the cause an effect among multiple variables. The relation of community is analyzed for the overall structure from the complex sets and undergoes tropic stratification and allocation modeling in the overall structure with specific relation (Marijn Janssen et al., 2018).

The computing software for interpretive structural modeling (ISM) conducts the overall longitudinal and cross-sectional analysis on the competence context of hairdressing industries, and tested 200 objects, including the senior designers in hairdressing industry, hairdressing experts and scholars, professional hairdressing instructors, and employees in hairdressing industry. The mutual correlation, connectivity, and hierarchy in the competence of hairdressing industries are analyzed for use as the reference on course planning and manpower training in hairdressing industry.

RESEARCH RESULTS AND DISCUSSION

The study conducts investigation through quantitative and quantitative research method, using the "concept satr 3.64" version of the interpretive structural modeling software to analyze the hairdressing competence structure of summer internship, semester internship, and academic-year internship through ISM. Consequently, the model analyzes the hierarchical relation of hairdressing competence for the planning and development of the hairdressing courses in five-year junior college beauty education, and as reference on the training arrangement of hairdressing education. The research process can be divided into three stages: (1) Compiling information on hairdressing

competence. (2) Extracting testing factors of hairdressing competence. (3) Analyzing the hierarchical structure of hairdressing competence factors using interpretive structural modeling.

The analysis of hairdressing competence in Taiwan extracts 23 factors of hairdressing competence accessible to five-year junior college students in beauty related departments through internship, including: 1. Skin physiology. 2. Epidemiology. 3. Study of Hair. 4. Cosmetics Knowledge. 5. Consulting Knowledge. 6. Product Sales. 7. Store Services. 8. Suppliers Management. 9. Head, Shoulder and Neck Massage. 10. Hair Washing Knowledge. 11. Hair Conditioning Knowledge. 12. Scalp Treatment Knowledge. 13. Bleaching and Dyeing Knowledge. 14. Perming Knowledge. 15. Hair Cutting Knowledge. 16. Blowing Knowledge. 17. Hair Weaving Knowledge. 18. Hairdressing Instrument Knowledge. 19. Device Sterilization Knowledge. 20. Safe Power Consumption Knowledge. 21. General Emergency Knowledge. 22. Cosmetics Knowledge. 23. Face Contouring Knowledge. The interpretive structural modeling (ISM) tests and analyzes the competence context of hairdressing industry. Chang, Ning (2007) extracted the majority vote of tested communities into the ISM system (Chang, Ning, 2007). For this reason, the total questionnaire of the study was 200 questionnaire with factors over 100 times calculated as 1 and those under calculated as 0. The statistical values are compiled in the following table (Table 1):

Table 1. Table for Interpretive Structural Modeling Analysis of Hairdressing Competence

Interpretive Structural Modeling of Hairdressing Competence	Results（sj）																						
	Skin Physiology	Epidemiology	Study of Hair	Cosmetics Knowledge	Consulting Knowledge	Product Sales	Store Services	Supplies Management	Head, Shoulder and Neck	Hair Washing Knowledge	Hair Conditioning Knowledge	Scalp Treatment Knowledge	Bleaching and Dyeing	Perming Knowledge	Hair Cutting Knowledge	Hair Blowing Knowledge	Hair Weaving Knowledge	Hairdressing Instrument	Device Sterilization Knowledge	Safe power Consumption	General Emergency Knowledge	Cosmetics Knowledge	Face Contouring Knowledge
Skin Physiology	1	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Epidemiology	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0
Study of Hair	0	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Cosmetics Knowledge	0	0	0	1	1	1	0	1	0	1	1	1	1	1	0	0	1	0	0	0	0	1	0
Consulting Knowledge	0	0	0	0	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Product Sales	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Store Services	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supplies Management	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Head, Shoulder and Neck Massage	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hair Washing Knowledge	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Hair Conditioning Knowledge	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0
Scalp Treatment Knowledge	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Bleaching and Dyeing Knowledge	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Perming Knowledge	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0
Haircutting Knowledge	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0
Hair Blowing knowledge	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Hair Weaving Knowledge	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Hairdressing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0

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Instrument Knowledge																							
Device Sterilization Knowledge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
Safe Power Consumption Knowledge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	
General Emergency Knowledge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
Cosmetics Knowledge	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Face Contouring Knowledge	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	

Summer Internship

The data analysis shows that summer internship only lasts about 2 months and for five-year junior college students of beauty related department, there are eight competences learned from schools that can be applied in the hairdressing workplace: skin physiology, epidemiology, study of hair, cosmetics knowledge, hair conditioning knowledge, head, shoulder and neck massage, hair washing knowledge, and device sterilization knowledge. Students can establish three hierarchies of hairdressing competence during the 2 months of summer internship, namely the basic competence, intermediate competence and practical competence (Figure 2). The diagram shows that epidemiology and cosmetics knowledge are the foundation to hairdressing competence, which can supplement the construction of subsequent capacity hierarchy. In particular, hair washing knowledge is the key learning indicator during summer internship since the workers of hair washing must have basic knowledge on hair washing due to the different hair quality and scalp of customers. Moreover, hair washing service is a technical work in frequent contact with people that requires the basic knowledge in epidemiology. The competence of skin physiology is the foundation on study of hair and the head, shoulder and neck massage.

Figure 2. Hairdressing Competence Hierarchy Diagram of Summer Internship

Semester Internship

After the students of five-year junior colleges in beauty related department have spent half year in hairdressing workplace, the students will develop 16 hairdressing competences from the semester internship through data analysis: skin physiology, epidemiology, study of hair, cosmetics knowledge, product sales, store services, head, shoulder and neck massage, hair washing knowledge, consulting knowledge, scalp treatment knowledge, hairdressing instrument knowledge, device sterilization knowledge, safe power consumption knowledge, general emergency knowledge, and cosmetics knowledge (Figure 3). Students can establish four hierarchies of hairdressing competence through semester internship, namely the basic competence, advanced competence, practical competence, and integrated competence. The data show that some competences come with multiple influences, including: epidemiology, cosmetics knowledge, and skin physiology, since interns can accumulate

more work skills from hairdressing professionals through semester internship. Apart from the basic hair washing techniques, the internship also offers store services, experience in product sales, and cumulative advanced scalp treatment knowledge with acceptance to simple hairdressing consulting knowledge. The analysis also reveals the close community relation between the consulting knowledge and scalp treatment knowledge. Moreover, the interns study relevant machinery operations at hairdressing workplace and thereby have accumulated knowledge on the safe power consumption and operation of hairdressing instruments.
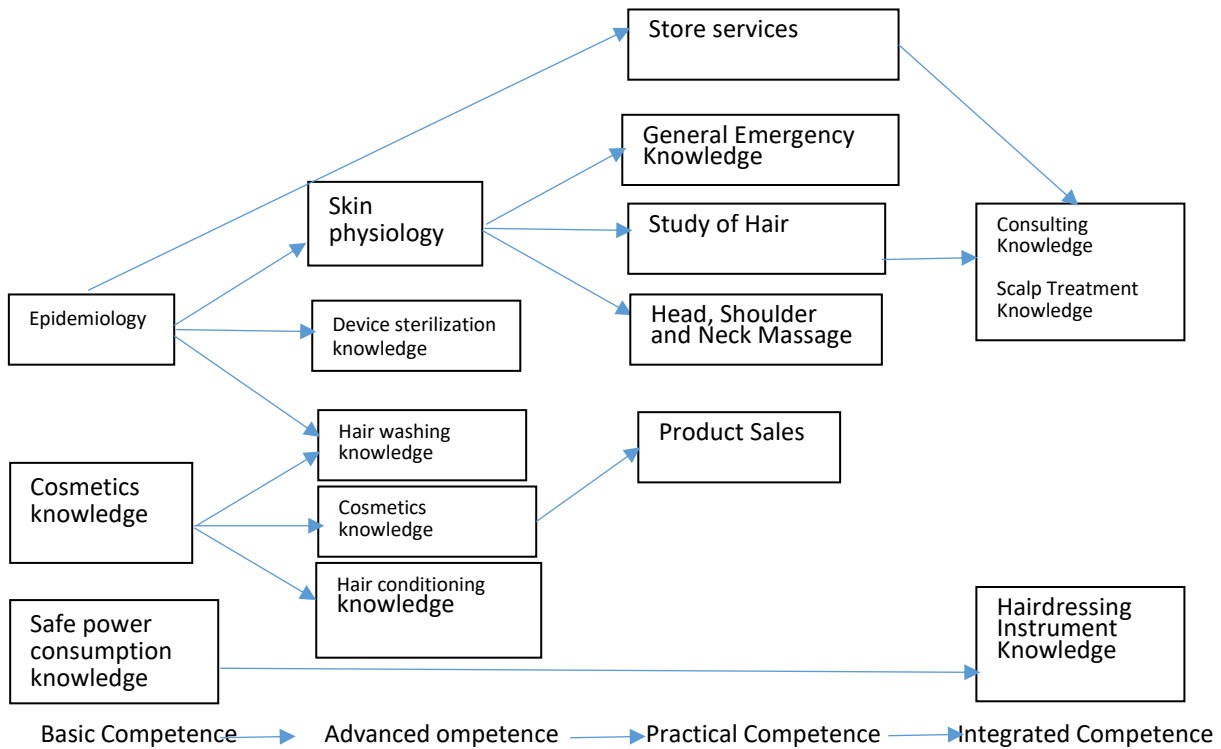
Figure 3 Hairdressing Competence Hierarchy Diagram of Semester Internship

Academic-Year Internship

The academic-year internship allows students of five-year junior colleges in beauty department to gain work experience in hairdressing workplace, accumulating 23 experiences in hairdressing competence: skin physiology, epidemiology, study of hair, cosmetics knowledge, consulting knowledge, product sales, store services, supplies management, head, shoulder and neck massage, hair washing knowledge, hair conditioning knowledge, scalp treatment knowledge, bleaching and hair dyeing knowledge, perming knowledge, hair cutting knowledge, hair blowing knowledge, hair weaving knowledge, hairdressing instrument knowledge, device sterilization knowledge, safe power consumption knowledge, general emergency knowledge, cosmetics knowledge, and face contouring knowledge. Students can establish four hierarchies of hairdressing competence through semester internship, including the basic competence, advanced competence, practical competence, and integrated competence. Hairdressing interns can accumulate more experience in hairdressing competence from academic-year internship (Figure 4), including the internship at the operating venue, the knowledge on face contouring, and the in-depth skills in hair weaving, hair cutting, perming, hair dyeing, and hair blowing. Moreover, the interpretive structural modeling diagram shows some part of the highly significant influence played hairdressing competence at all hierarchies. Namely, epidemiology, cosmetics knowledge, skin physiology, and face contouring knowledge. First, the epidemiology affects the store services, skin physiology, device sterilization, and hair washing knowledge. The skin physiology affects the general skin cleaning and bandage, as well as the study of hair, and head, shoulder and neck massage with simple skin meridian. The cosmetics knowledge affects the hair washing products, hair weaving and styling gel, and the cosmetic product knowledge and use. The face contouring knowledge affects the hairdressing competence for hair weaving, cutting, consulting, and scalp treatment.
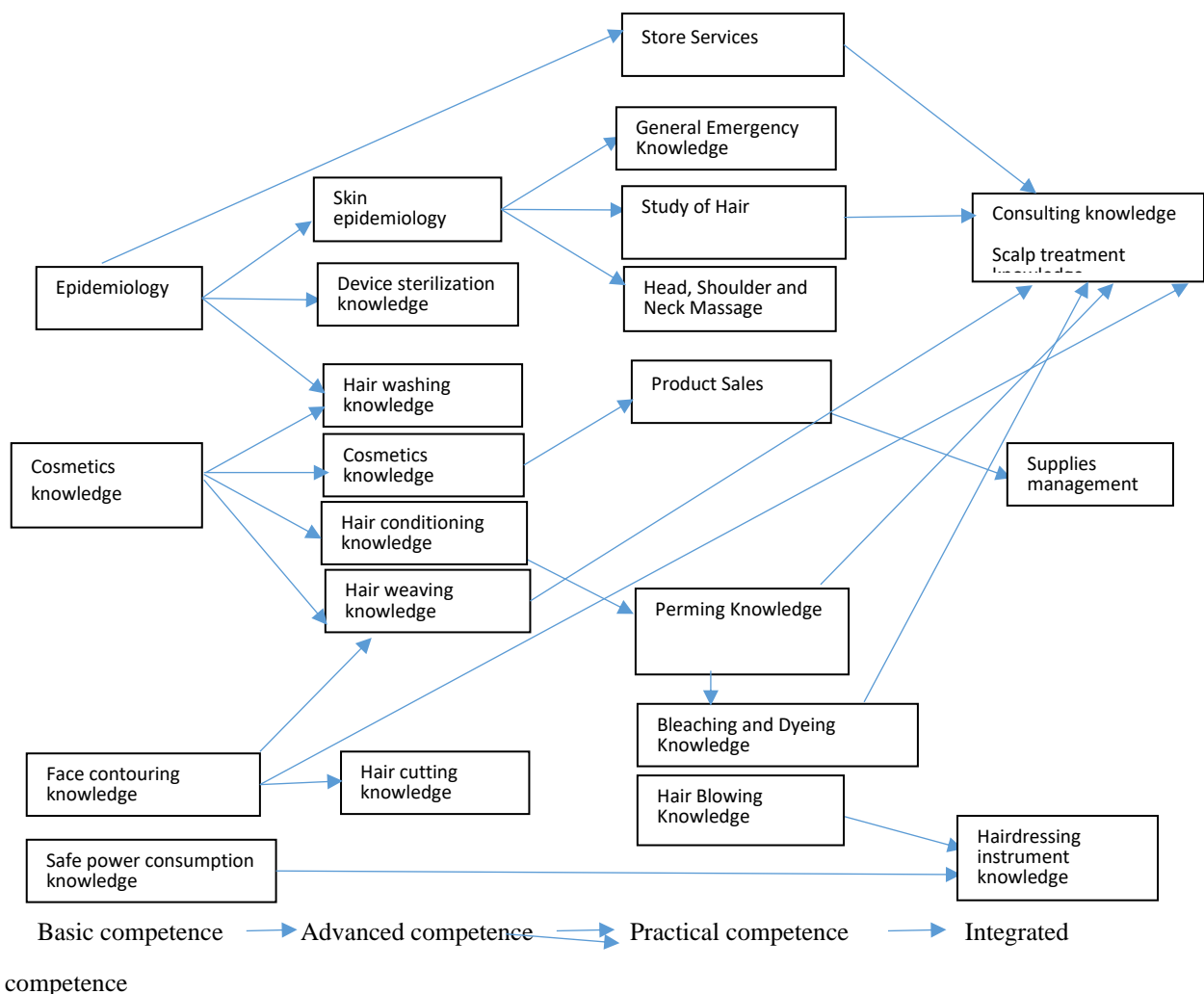
Figure 4. Hairdressing Competence Hierarchy Diagram of Academic-Year Internship

The diagram contains the following boxes: Store Services, General Emergency Knowledge, Study of Hair, Head, Shoulder and Neck Massage, Consulting knowledge / Scalp treatment knowledge, Skin epidemiology, Device sterilization knowledge, Epidemiology, Hair washing knowledge, Product Sales, Cosmetics knowledge, Cosmetics knowledge, Hair conditioning knowledge, Supplies management, Hair weaving knowledge, Perming Knowledge, Face contouring knowledge, Hair cutting knowledge, Bleaching and Dyeing Knowledge, Hair Blowing Knowledge, Safe power consumption knowledge, Hairdressing instrument knowledge.

Legend: Basic competence → Advanced competence → Practical competence → Integrated competence

CONCLUSION

To bridge the gap between the five-year junior college education and the workplace of relevant industry employment, the majority of schools have designed off-campus internship curriculum as the compulsory courses in attempt to strengthen students' future commitment in workplace technical knowledge, shortening the course of integrating with employment preparation. The internship curriculum has benefited the effect of human resource. For students of five-year junior college taking internship in hairdressing industries, they can accumulate hairdressing competence modeling through internship experience, with cumulative hairdressing competence experience from summer internship, semester internship, and academic-year internship. The interpretive structural modeling yields the following conclusion through longitudinal and cross-sectional hairdressing competence:

1. The research data analysis reveals that summer internship can construct the three stages of experience in hairdressing competence: basic competence, advanced competence, and practical competence. Semester internship and academic-year internship can establish the four hierarchies of hairdressing competence: basic competence, advanced competence, practical competence, and integrated competence.

2. Students can accumulate 8 experiences in hairdressing competence through summer internship: skin physiology, epidemiology, study of hair, cosmetics knowledge, hair conditioning knowledge, head, shoulder and neck massage, hair washing knowledge, and device sterilization knowledge. In particular, epidemiology and cosmetics knowledge are the key foundation to hairdressing competence, which can build the subsequent hierarchy of capacity.

3. Students can accumulate 16 experiences in hairdressing competence through semester internship: skin physiology, epidemiology, study of hair, cosmetics knowledge, product sales, store services, head, shoulder

and neck massage, hair washing knowledge, hair conditioning knowledge, consulting knowledge, scalp treatment knowledge, hairdressing instrument knowledge, device sterilization knowledge, safe power consumption knowledge, general emergency knowledge, and cosmetics knowledge. Students can construct the four hierarchies of hairdressing competence through semester internship, namely basic competence, advanced competence, practical competence, and integrated competence. In particular, epidemiology, cosmetics knowledge and skin physiology have multiple impact on other competence.

4. Students can accumulate 23 experiences in hairdressing competence through academic-year internship: skin physiology, epidemiology, study of hair, cosmetics knowledge, consulting knowledge, product sales, store services, supplies management, head, shoulder and neck massage, hair washing knowledge, hair conditioning knowledge, bleaching and dyeing knowledge, perming knowledge, haircutting knowledge, hair blowing knowledge, hair weaving knowledge, hairdressing instrument knowledge, devices sterilization knowledge, safe power consumption knowledge, general emergency knowledge, cosmetics knowledge, and face contouring knowledge. In particular, epidemiology, cosmetics knowledge, skin physiology, and face contouring knowledge have profound impact on other competence

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