Study of the relationship between the perception of career anchor and core competence – a case of technical university in Taiwan

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The study is to explore the perception on career anchor and core competence to feedback the goals of department and revise curriculum to be more suitable. Career anchor can be originated by Schein (1971, 1975, 1978, 1990, 1996) which include technical/functional competence, managerial competence, security and stability, creativity, and autonomy and independence. To enhance student employability, school builds up roadmaps (such as e-portfolio, curriculum roadmap, and career roadmap) based on the core competence, which usually consists of generic skills and professional skills.

The industrial experts are invited to hold a group meeting to discuss what the skills should be the graduate of department of information management. The Career Anchor and Core Competence Questionnaire are adopted to investigate the perception of alumni. The reliability and validity of the questionnaire are tested by confirmatory factor analysis. Structural equation model is applied to test the model of goodness fit. The results find that generic core competence can be enhanced by professional skill and generic skill; the alumni attach importance to autonomy and independence, look forward to challenges and find the value of them among work.

Key Words: career anchor, core competence, roadmap

Introduction

Greater enrollment in Taiwan higher education, nevertheless, a substantial increase in the unemployment rate is also rising. The quality and academic standards students have the relative degree of public attention to promote higher education to train students with the professional core competences. In line with industrial development and to shorten the gap between practical application and academic education, from academic year of 2006, the Ministry of Education started to apply the department/division of norms based curriculum (DNBC) and thus to rethink the direction of the teaching development.

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The DNBC development by the title of the current work of industry, the work should have the ability to re-introduce each department of curriculum planning. The Mayer Committee of Australian (1992) has shaped the conceptualization of generic skill into the key competencies. Key competencies are in preparing learners for the reality of the workplace. The Association to Advance Collegiate Schools of Business (AACSB) founded in 1916, its mission is to lead the global quality of business education certification. AACSB is the world's highest certification of the University College of Business Administration, on behalf of teaching and research quality assurance, a clear commitment to the mission objectives and long-term improvement.

As Jacquelyn (2000) stated "Job readiness skills are clustered into three skill sets: basic academic skills, higher order thinking skills, personal qualities. Employability skills are those basic skills necessary for getting, keeping, and doing well on a job. Employability skills are teachable skills." Career anchor originated by Schein (1971, 1975, 1978, 1990) which defined as the association of self-perceived attitudes, values, needs and talents that individuals develop over time. The study aims to get the opinion of industrial experts and explore the perception of alumni on career anchor and core competence to feedback the goals of department and revise curriculum to be more suitable.

Literature Review

1. Career Anchors

The concept of career anchor was first proposed in behavior science by Schein (1978). DeLong (1982) extended the research and expanded the range of career anchor. Career anchor can be defined as an individual's perceived needs, values, and talents, which determine career decisions. Also, it can direct, stabilize, and consolidate the inner motivation of individuals (Schein, 1971, 1978). Schein (1978) identified 5 career anchors, including Technical and Functional Competence, Managerial Competence, Security and Stability, Creativity, as well as Autonomy and Dependence. Follow-up studies revealed three additional anchor categories, Service or Dedication to a Cause, Pure Challenge, Life Style (Schein, 1985).

The early research in IS domain (Ginzberg and Baroudi, 1988; Crook et al, 1991; Igbaria et al, 1991; Crepeau et al, 1992; Ginzberg and Baroudi, 1992) used Schein and Delong proposed model of career anchors to explore the effect of demographics variables such as sex, age, marriage status, number of children, education level, work type. Igbaria and Baroudi (1993) then adapted and revised the model to include nine anchors.

2. Core Competence

By extension, competence can be defined as all surfaces in the personal characteristics, may be called the individual has the ability; narrow a word, it is the individual with knowledge, skills, attitude and other attributes. Spencer and Spencer (1993) defined as individuals have the basic qualities. Guggenheimer and Suzic (1998) summarized the views of many researchers and classified three main categories: the first category of work-related, such as tasks, results, and outputs; second feature associated with the implementation, such as knowledge, skills, values and commitments; third type is integrated the first two categories, for the knowledge, skills and attitudes of the combination. From a practical point of view, Weinert (1999) divided competence into the generic competency and professional competency, the former refers to the speaking and writing, use of technology, problem solving ability, for the common need of all workplace; the latter depends on the specific work to complete the work required knowledge, skills and other capacities, different jobs require different expertise.

Australia, set up "the May Committee" in September 1991, defined the core competencies are collecting, analyzing and organizing information, communicating ideas and information, planning and organize activities, cooperation with others and the ability to work in groups, using mathematical concepts and techniques, solve problems, use of technology. The main purpose of this project should be business requirements, professional core competencies will be used as a working tool for education. Harvey et al (2002) pointed out that the professional core competencies should include: the attitude conducive to employment and personal characteristics; self-marketing and career management; positive will to learn, and to reflect on what they have learned.

National Youth Commission (2006) divided employability into three core categories: attitude in favor of employment and work ability; career planning and management as well as actively learn and progress; professional knowledge, and can be applied at work. Founded in 1916, The Association to Advance Collegiate Schools of Business (AACSB) Accreditation Standards now are used as the basis to evaluate a business school's mission, operations, faculty qualifications and contributions, programs, and other critical areas. For the operations, after specifying students of core competencies, it requires to begin construction of a curriculum planning, curriculum design, teaching and learning, and thus the process of career guidance for students. Among the above standards, the PDCA process is emphasized to get feedback from the stakeholders, such as students, alumni, employers, and industrial experts to improve the curricula and provide students better employability.

Methodology

In order to obtain different point of views for curricula planning, the study firstly adopts focus groups interviews to increase the faculties with industry experts and alumni of conversations. After the focus groups interviews, pilot study was sent 46 copies of "Career Anchor and Core Competencies Questionnaire" to graduates. A five-point Likert scale is applied to measure the respondents' perception on each item, anchored at 5 strongly agree to 1 strongly disagree. 40 copies were return, and effective response rate is 86.96%. As the formal questionnaires were sent 250 copies to graduates who were called by researcher and willing to fill the questionnaire. Due to out of date of students database and some are answered by their families. The response rate is 39.2% with 98 copies returned. Finally, the effective response rate is 38% when 3 invalid questionnaires were deleted.

Data Analysis

Focus group and Survey Questionnaire：This study adopts department/division based curriculum development and AACSB standards, view the current and future needs of the industry after five years, according to "Classification of Occupations Code, the Republic of China," lists the students work after graduation in small classes and subclasses name, and then refer to the graduates of academic years of work and manpower requirements as listed on the site available for graduates of this work, analysis of representative duties listed in job content and tasks, and the duties and tasks required for the corresponding should have the ability to. Thus, the need to enlist industry experts, the faculty, and alumni of the feedback build the road map of career and course map to improve student learning. Therefore, this study adopted a "focus group" and "questionnaire." The two methods of execution, respectively, are as follows.

1. **Focus group:**

In response to industry demand for the original system have three modules, namely, electronic industry, information systems development, and digital commercial content design. Therefore, in this forum also consulted industry experts, the faculty, and alumni, the appropriateness of the three modules. Hereby will discuss the results compiled as follows:

① University of Technology in practice the requirements are very competitive, if the industry practice match with the school curriculum; and career schools career map and map of the industry are connected, will reduce the predicament of the unemployed upon graduation. In curriculum planning features will establish information management systems is an important issue

② As network management, programming with higher employment, so if the students firstly trained in the information system development capabilities, such as in curriculum

planning to enhance programming and database, go to test-related information system development licenses, and for professional core of the license, do not go widely available licenses.

③ The industry to the electronic integration of information systems development programming capabilities, will be applied to different areas

④Constantly changing industrial environment, the school curriculum with industry practice does have gaps, how to improve the learning interest of students to the concept of the practice into student learning, service learning is a viable way.

⑤The general ability to help students develop the professional abilities to increase employability and competitiveness, such as interpersonal communication, so in addition to professional capacity-building, the general education curriculum planning should not be ignored.

⑥ Do not get lost into a license, because the license has not confirmed with the strength of the significant between the direct relationship, and general business experience required for the practice even more than the acquisition of the license.

2. **Survey Questionnaire:**

The questionnaire in addition to considering the department/division of norms based curriculum (DNBC) and the AACSB of the Department should have the capability. With reference to Schein (1978), the development of career anchors/orientations inventory analyzes the graduate alumni of the differences between career orientations. The Core Competence Questionnaire is referenced and revised from the AACSB specifications.

The questionnaire distribution and return period of 2009 October 1 to November 15, for alumni of 250 questionnaires issued, net of invalid questionnaires, 95 questionnaires were valid. Response rate was 38%. The return of the questionnaires and data entry used SPSS 18.0 and AMO 18.0 for Windows statistics software package for statistical analysis.

Profile of Respondents include: **Gender**: male 43.9%, female 56.1%; **Age**: under 30 years of age accounted for 61.2%, between 31 to 40 years of age accounted for 38.8%; **Education**: 35.7% for the college, the University accounted for 49.0%, where Master accounted for 15.3%; **Company Industry**: 23.5% services, culture and education related businesses accounted for 7.1%, 19.4% high-tech industries, general manufacturing 18.4%, finance and insurance accounted for 6.1%, other 25.5%; **Position**: the administrative staff accounted for 19.4%, Finance 6.1%, related to production, manufacturing accounted for 13.3%, of relevant academic, education accounted for 3.1%, of relevant marketing personnel accounting for 6.1%, software systems or information management related staff accounted for 18.4%, database management or data analysis accounted for 18.4%, multimedia design-related personnel 4.1%,

technology-related worker accounted for 8.2%, other 16.3%; **Working years**: under 3 years were 38.8%, 4-8 years 37.8%, 9-15 years 23.5%.

The Career Anchors/Orientations Inventory and Core Competence Questionnaire are adopted to investigate the perception of alumni. The reliability and validity of the questionnaire are tested by confirmatory factor analysis. Table 1 and Figure 1 show the indicators of confirmatory factor analysis. For convergent validity, "If the factor loading are statistically significant, then convergent validity exists" (Dunn, Seaker, and Waller, 1994). From Table 1, it shows that factor loadings are higher than .5 which meets the criteria of Bagozzi & Yi (1998) except the security and autonomy. Eestimated parameters are significant. Fornell and Bookstein (1982) stated that if CR value is higher than 0.6, it means that construct reliability is good with high internal consistency. Fornell & Larcker (1981) stated that if VE value is higher than 0.5, then the scale has higher distinct validity. The study also shows high internal consistency and high distinct validity.

Bentler (1990, p.425) notes that " choosing the right number of indicators for each LV [latent variable] is something of an art; in principle, the more the better; in practice, too many indicators make it difficult if not impossible to fit a model to data." Thus, the indicators for goodness fit of the model shown in Table 2, which include X^2, X^2/DF, GFI, AGFI, NFI, CFI, RMR, and RMSEA, indicate a highly acceptable fit between the model and data.

The results also shows structural model that the latent variables have significant causal relationship exists. Career Anchor has significantly positive impact on Core Competence (p < .05) with 0.27 coefficient.

Table 1: The reliability and validity of structural equation modeling (SEM) by Confirmatory Factor Analysis

Construct	Variable	Factor Loading	T-Value	Construct Reliability (CR)	Average Variance Extract (AVE)
Career Anchor ($\xi 1$)	Technical (X1)	.849	a	83.45	51.92
	Management(X2)	.866	8.994		
	Security(X3)	.374	3.344		
	Autonomy(X4)	.612	5.874		
	Creativity(X5)	.781	8.064		
Core Competence	Generic(Y1)	.822	a	86.55	68.53
	Professional(Y2)	.944	8.412		

Construct	Variable	Factor Loading	T-Value	Construct Reliability (CR)	Average Variance Extract (AVE)
(η 1)	Social(Y3)	.699	6.925		

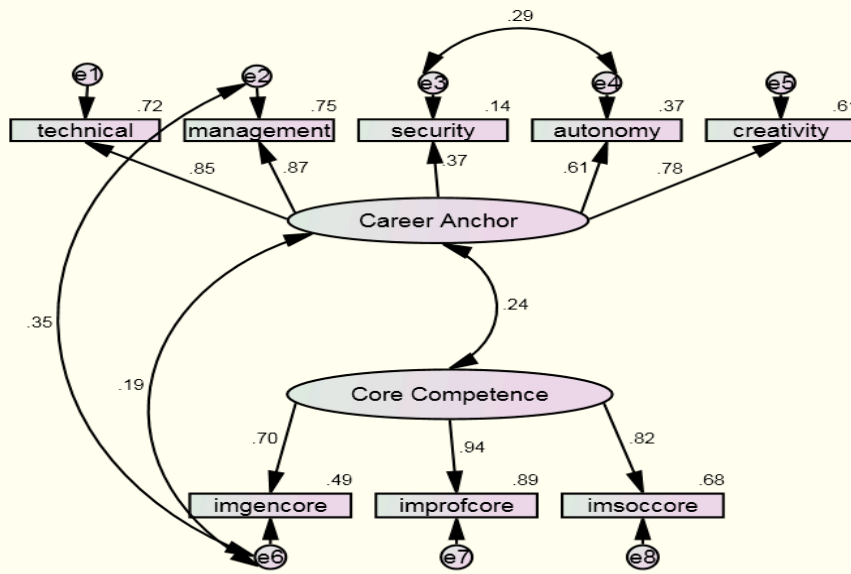Note. a. Parameter was set to 1. There was no significant test because it was not estimated. ** p<.01

Figure 1: Model of Confirmatory Factor Analysis CFA

Table 2: Fit Indices for the Model

Model Fit Summary				
Indicators	Criteria	Scholar	Research Result	Accept or not
X^2	--	--	12.005	Yes
X^2/DF	<3	Hayduk (1987)	0.750	Yes
GFI	>0.9	Scott (1994)	0.967	Yes
AGFI	>0.8	Scott (1994)	0.927	Yes
NFI	>0.9	Bentler & Bonett (1980)	0.964	Yes

Model Fit Summary				
Indicators	Criteria	Scholar	Research Result	Accept or not
CFI	>0.9	Bagozzi & Yi (1998)	1.000	Yes
RMR	<0.05	Joreskog & Sorbom (1986)	0.021	Yes
RMSEA	<0.05	Jarvenpaa et al. (2000)	0.000	Yes

Sources: Bagozzi & Yi (1988), Joreskog & Sorbom (1989)

3. Mean and Standard Deviation:

The following are alumni for the questionnaire in this study, analyzing the mean and standard deviation of the importance of each item to understand the alumni on career orientation and core competence of the evaluation. It is shown in Table 3 and Table4.

(1) The Career Anchors/Orientations Inventory: Table 3 shows, respondents considered that the importance of dimensions of this scale, the autonomy of the highest (overall average assessment is 3.82), followed by technical /functional competence (overall average assessment is 3.76), Creativity (overall average assessment is 3.54), Managerial Competence (overall average assessment is 3.45), Security and Stability (overall average assessment is 3.13). By the survey results, the respondents were still looking forward to some of the challenges and would like to find out the value of workplace. They do not want to be bound organization or business environment.

(2) The Core Competence Questionnaire: Table 4 shows, respondents considered that the importance of dimensions of this scale, general core competence the highest (overall average assessment is 4.14), followed by social core competence (overall average assessment is 4.04), professional core competence the lowest (overall average assessment is 3.87). By the survey results, the respondents rate general core competence higher than social core competence. But, when comparing the individual items of this scale,"with a responsible attitude" is still the highest.

Table 3: Mean and Standard Deviation (SD) of Career Anchors Inventory

Latent variable	Items	Mean	SD
Technical/ Functional Competence	1. Developing a career that permits me to continue to pursue my own life-style is?	3.63	.924
	2. Remaining in my area of expertise throughout my career	3.59	1.034

	is?		
	3. The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in?	4.05	.830
Average of Technical/Functional Competence：3.76			
Managerial Competence	1. The process of supervising, influencing, leading, and controlling people at all levels is?	3.61	.948
	2. The chance to do things my own way and not to be constrained by the rules of an organization is?	3.52	1.057
	3. An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is?	3.66	1.064
	4. To be in charge of a whole organization is?	3.24	1.149
	5. A career that is free from organization restrictions is?	3.21	1.018
	6. An organization that will give me long-run stability is?	3.74	.998
	7. Using my skills to make the world a better place to live and work in is?	3.31	1.143
	8. Developing a career that permits me to continue to pursue my own life-style is?	3.33	1.082
Average of Managerial Competence：3.45			
Security and Stability	1. Remaining in my specialized area as opposed to being promoted out of my area of expertise is?	2.92	1.199
	2. Remaining in one geographical area rather than moving because of a promotion is?	3.11	1.166
	3. It is more important for me to remain in my present geographical location than to receive a promotion or new job assignment in another location?	3.22	.990
	4. I feel successful only if I am constantly challenged by a tough problem or a competitive situation?	3.28	1.138
	5. Choosing and maintaining a certain life-style is more important than is career success?	3.47	.997
Average of Security and Stability：3.13			
Creativity	1. Working on problems that are almost insoluble is?	3.24	.953

	2. Building a new business enterprise is?	3.35	1.122
	3. Being able to use my skills and talents in the service of an important cause is?	3.76	.813
	4. I am always on the lookout for ideas that would permit me to start and build my own enterprise?	3.63	.946
	5. I have always wanted to start and build up a business of my own?	3.74	.956
Average of Creativity：3.54			
Autonomy and Independence	1. A career is worthwhile only if it enables me to lead my life in my own way?	4.00	.825
	2. I do not want to be constrained by either an organization or the business world?	3.71	.873
	3. I want a career in which I can be committed and devoted to an important cause?	3.87	.808
	4. I will accept a management position only if it is in my area of expertise?	3.71	.873
Average of Autonomy and Independence：3.82			

Table 4: Mean and standard deviation (SD) of core competence questionnaire

Latent Variable	Items	Mean	SD
General Core Competence	1. Graduates should have the general management knowledge and literacy	4.08	.795
	2. Graduates should have active knowledge, exploration, and innovative ability to integrate	4.31	.765
	3. Graduates should have the ability to do case analysis and production capacity	4.10	.780
	4. Graduate should understand the pulse of industry, with ready to accept new knowledge and growth of the life-long learning	4.17	.774
Average of General Core Competence：4.14			
Professional Core Competence	1. Graduate should have the full capacity of the abstract concrete	3.80	.837
	2.Graduate should have the ability of decision	3.82	.817

	analysis for industry		
	3. Graduate should have the planning ability of industrial electronic process	3.78	.819
	4. Graduate should have the ability of information systems integration and development	3.93	.899
	5. Graduate should have the ability of development of digital capacity of business planning	3.80	.908
	6.Graduate should have team spirit, to the planning process and implement a capacity	4.17	.850
	7. Graduate should have computer certificates	3.89	.929
	8. Graduate should have professional certificates	3.92	.927
	9. Graduate should have English proficiency certificates	3.94	.871
	10. Graduate should attend industry employment program or interdepartmental program	3.69	.842
Average of Professional Core Competence：3.87			
Social Core Competence	1. Graduate should have professional ethics and humanities literacy	3.89	.785
	2. Graduate should have a sense of proactive mission	4.26	.750
	3. Graduate should have a responsible attitude	4.48	.662
	4. Graduate should understand current issues	3.81	.869
	5. Graduate should have a caring community-minded	3.76	.850
Average of Social Core Competence：4.04			

Conclusion and Recommendation

The study aims to consult the opinion of industrial experts and explore the perception of alumni on career anchor and core competence to feedback the goals of department and revise curriculum to be more suitable. Through the focus group interview, the industrial experts suggest that increasing employability and competitiveness should combine abilities of the general and professional, such as interpersonal communication. So, in addition to professional capacity-building, the general education curriculum planning should not be ignored. Do not

get lost into a license, because the license has not confirmed with the strength of the significant between the direct relationship, and general business experience required for the practice even more than the acquisition of the license.

The reliability and validity of the questionnaire are tested by confirmatory factor analysis. The indicators for goodness fit of the model, which include X^2, X^2/DF, GFI, AGFI, NFI, CFI, RMR, and RMSEA, indicate a highly acceptable fit between the model and data.

By the survey results of this study found, from the career anchors/orientation inventory, the respondents were still looking forward to some of the challenges and would like to find out the value of workplace. They do not want to be bound organization or business environment. Also, from the core competence scale, the respondents rate general core competence higher than social core competence. But, when comparing the individual items of this scale "with a responsible attitude" is still the highest.

This study can provide the suggestions to the department teaching planning and in response to the students and counseling instructor as the guideline for course selection. Future study can do the longitudinal study which students complete the aptitude test and career guidance questionnaire during the school. Students based on the suggested of aptitude test and career guidance questionnaire and then follow curriculum map and career route map designed by the department. The information in the Student Learning Profile (e-portfolio) that the students record the process and results from new student to graduated. After graduated, school can track graduates career development and conduct variance analysis. These results of difference can back to department and school teaching quality assurance mechanisms.

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