

Constructing an Evaluation System for the Core Competencies of ESP Teachers in China

Yz Bian*

English Department, Hebei University of Architecture, China

NM Ibrahim

Language Academy, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia

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ABSTRACT

In recent years, there has been a great initiative to promote the concept of “New Liberal Arts” in China, which emphasizes integrating different disciplines into the traditional liberal arts. Against this background, the core competencies of ESP (English for Specific Purposes) teachers in colleges and universities must integrate subject intelligence, interdisciplinary coordination, and humanistic accomplishment to gear to the fast progress of social development. This study constructs an evaluation system for the core competencies of ESP teachers, including a first-level index to evaluate teachers' core competencies from five dimensions: discipline, innovation, information, morale, and collaboration. Then a survey to test the validity and credibility of the system was conducted with a questionnaire as a tool, consisting of 119 ESP teachers and other teaching practitioners relevant to the ESP area as participants. The survey results show that the index body can reliably reflect the situation of each observation point and has strong validity. Accordingly, the study proposes the implementation strategy of an evaluation index system combining process evaluation and phased evaluation, internal evaluation, external evaluation, quantitative evaluation, and qualitative evaluation from the multi-faceted, multi-layer, and multi-dimensional perspective.

Keywords: Evaluation system, Core competencies, ESP teachers

INTRODUCTION

The significant changes brought about by the new era require professionals from all walks of life to abandon the old conventions and look at the development of industries and disciplines with more tolerant thinking and a broader vision. In this context, ESP teachers in colleges and universities are facing unprecedented challenges in China. How to effectively achieve teaching purposes under the background of endless new technologies and surging new knowledge has become the key task for ESP teachers in contemporary colleges and universities. The concept of “New Liberal Arts” creates the conditions for ESP teachers to find a way out.

The “New Liberal Arts” concept advocates breaking the barriers between disciplines and promotes both tradition and innovation, interdisciplinary interaction and integration, and collaboration and sharing (Gan & Ming, 2022). It advocates the diversion of the teaching goals to demand orientation through

*Correspondence to: Yz Bian (email: yuzhu@graduate.utm.my)

interdisciplinary initiative and deep integration, realizing the shift from the division of disciplines to the convergence of relevant disciplines. The strategic goals, innovative practice, integration-oriented disciplines, and sustainable progress (Wang & Zhang, 2019) enable the formation of ESP teachers' core competencies in colleges and universities in the new era.

ESP teachers play an indispensable role in shaping students' comprehensive communicative ability in China. To better serve the role, they need to adopt the "New Liberal Arts" concept to integrate English teaching with professional knowledge of diverse disciplines along with other abilities to adapt to the rapid development of education. In view of that, improving the core competencies of ESP teachers in the new era has become one of the essential issues for higher education in China. Nevertheless, what is the current situation of the core competencies of ESP teachers? What is the evaluation method of core competencies? There seem to be no definite answers to these questions. There is also a lack of systematic research and national-level evaluation criteria and methods for ESP teachers in colleges and universities (Feng, 2021). Therefore, it is of great significance to design an evaluation system for the core competencies of ESP teachers in universities and colleges to promote the competencies according to the evaluation results. Based on such requirements, the Hebei University of Architecture, a state-owned university in Hebei province, has formulated the elements for the core competencies of ESP teachers. An evaluation was designed to meet the criteria.

Under the scope of "New Liberal Arts", ESP teachers must change their traditional roles so as to adapt to the changes brought about by the new technological revolution and achieve lifelong development, which is also the inevitable requirement to train the students in the new era. For this reason, the Hebei University of Architecture formulated the elements the ESP teachers need through a systematic analysis aiming to help accurately locate the relevant evaluation indicators and create conditions for constructing a scientific and perfect evaluation system.

1.1 Subject Knowledge: The Core Quality of ESP Teachers

The so-called discipline knowledge refers to educators constantly internalizing discipline knowledge and discipline thinking, forming discipline theory, knowledge and skills, and employing them masterfully (Feng, 2021). Professor Gardner (2006) of Harvard University believes discipline knowledge is crucial in future education. He believes it is an essential prerequisite for individuals to carry out innovative undertakings and achieve self-realization (Gardner, 2006). That also applies to teaching English for specific purposes in colleges and universities. Subject knowledge is the core quality of ESP teachers, which helps improve the sustainability and adaptability of their development. Through subject knowledge, teachers can not only master the relevant knowledge and skills of the subject but also build a bridge between subject knowledge, English, and subject practice so as to create teaching activities that combine theory with practice. That will help ESP teachers improve their ability to analyze and solve problems in education and teaching practice. Therefore, the cultivation of the core competencies of ESP teachers in colleges and universities focuses on refining the essence of the subject knowledge, taking it as the primary target, keeping pace with the time, and implementing the teaching and evaluation of higher education with the developing and broadening vision (Li *et al.*, 2022).

1.2 Interdisciplinary Collaboration: The Source of the Core Competencies of ESP Teachers

In recent years, training of professional and innovative teachers has been highly praised in China, and the establishment of a teacher community that leverages collective wisdom to enhance teaching practices is even more prevalent. In view of the new situation and new challenges facing higher education, collaboration between teachers, especially between different disciplines, has become the general trend (Xia, 2020). As for ESP, the situation is increasingly complex, and interdisciplinary collaborative teaching will be the source of strength for improving the core competencies of ESP teachers. Specifically, the interdisciplinary coordination of ESP teachers in colleges and universities is mainly manifested in the following two aspects: a high level of interdisciplinary communication skills and the cultivation of an efficient teachers' community. As to the high level of interdisciplinary coordination, to realize the coordination of different disciplines, we must ensure effective communication between teachers of different disciplines because coordination and communication are the basis for crossing interdisciplinary thinking and overcoming cognitive barriers. At the same time, cultivating an efficient teachers' community can effectively improve teaching efficiency and enable teachers to learn from each other in coordination and realize the further improvement of their comprehensive ability (Zhang & Feng, 2016).

1.3 Humanistic Accomplishment: The Foundation of the Core Competencies of ESP Teachers

Good humanistic accomplishment is an essential guarantee for ESP teachers to consolidate their own development and realize their teaching purposes. In higher education, teachers' humanistic accomplishment is the basis to ensure the positive direction of education and cultivate students' right attitude toward their academic life.

ESP teachers should be humanistic when interacting with their students and willing to help them throughout the teaching process. They also need to have a professional attitude of integrating knowledge and practice, striving for excellence, and constantly cultivating their ability to find and solve problems in practice (Gan & Ming, 2022).

3.0 THE EVALUATION SYSTEM

Based on the elements, an evaluation system was designed to assess further and improve ESP teachers' core competencies. Through the establishment of the evaluation index system, ESP teachers' core competencies can greatly benefit education, with their professional level being improved and their positive role in the construction of "new liberal arts" being better played. Therefore, on the basis of the above elements and functions of the core competencies of ESP teachers in colleges and universities, an evaluation index system was established with an eye on the principles of the regular evaluation index system. However, each evaluation index's scientific and practical nature needs to be tested to objectively evaluate the status quo of the core competencies of ESP teachers in colleges and universities. By doing so, the evaluation system can further promote the ESP teachers' teaching expertise, which will benefit the teaching system at the college level.

This system also referred to the document "The Excellence of Teacher Training Plan 2.0" issued by the Ministry of Education of China in 2018. Its main content involves discipline, quality, and survival. The first level indicators include the domains of practice competency, innovation competency,

information competency, moral competency, profession competency and emotion competency, and the secondary index contains 16 aspects of content (See Table 1).

Table 1 Styles available in the Word template

Domains	Competencies	Indicators
Discipline	Practice competency	Acquisition & application of new technologies
		Construction & application of knowledge
		Solvency of problems
	Innovation competency	Creative thinking
		Discovery of new knowledge
		Innovation in practice
	Information competency	Competency for general information
		Competency for disciplinary information
		Competency for information concerning scientific research
Character	Morale competency	Affection, attitude and value
		Aesthetic taste
	Profession competency	Professional ethics
		Occupational attitude
Emotion	Emotion competency	Ability to form good relationship
		Ability for cooperation
		Emotional management and conflict resolution capabilities

3.1 Evaluation Dimensions

As mentioned above, the evaluation index system of the core competencies of ESP teachers involves three domains. The relevant indicators covered by these three domains can thoroughly verify the extent to which ESP teachers can play their self-determined roles in education and social practice. Of these three domains, the "discipline domain" is the critical element for the core competencies evaluation of ESP teachers, acting as the foundation of the evaluation index system and a mirror that directly reflects the ability of ESP teachers. In this domain, "practice competency" is essential for teachers to adapt to education changes in the new era. It lays the foundation for maintaining the sustainable development of their disciplinary expertise. "Innovation competency" is one of the criteria for teachers' core competencies, which is also an essential quality for teachers to create diversified teaching activities geared to diverse situations. Besides, it is also the endogenous driving force of career development for ESP teachers. "Information competency" is a significant extension of teachers' core competencies in the new era. It determines whether ESP teachers can integrate information technology into their teaching and successfully carry out various tasks through cutting-edge technologies.

Teachers' professional ethics, sense of responsibility, and social responsibility are mainly in the "character domain". Such a domain will help to promote the efficiency of the teaching. "Emotion domain" focuses on the evaluation of ESP teachers' emotional intelligence, with emphasis on teachers' ability to build good relationships with others, the ability for teamwork, the ability for emotional management, and the ability for conflict resolution. This dimension affects ESP teachers' environment adaptability and directly determines whether the teachers can be competent for conducting teaching and scientific research

in the new era. The evaluation index of teachers' ability aims to reorganize the existing knowledge and apply it in practice creatively.

3.2 Evaluation Indicators

The indicators are the embodiment of the competencies of different domains. The “acquisition & application of new technologies” lays emphasis on the assessment of teachers' understanding and application ability of new technologies and new knowledge. The “construction & application of knowledge” is an evaluation index of teachers' ability to reorganize existing knowledge and apply it to practice creatively. As to “the solvency of problems”, this indicator mainly evaluates the teachers' ability to combine theory with practice, take advantage of the situation, and their ability to find and solve problems in the specific teaching practice. The indicator, “creative thinking”, is the basis for ESP teachers to create new methods constantly, form new thinking, and construct new ideas based on their existing knowledge and understanding of education. It is the premise and foundation of students' creative thinking and innovative ability.

The indicator, “discovery of new knowledge”, is an essential source of discipline vitality for ESP courses. Therefore, this indicator is one of the critical measures for the evaluation of the core competencies of ESP teachers. It is also a guarantee for teachers to cultivate students' independent thinking and enhance their independent learning ability. The indicator, “innovation in practice”, is a meaningful extension of innovative thinking, and it is an inevitable requirement and embodiment of ESP teachers to adapt to the needs of the new era. The indicator, “competency for general information”, focuses on whether ESP teachers are capable of using new media technology and other information resources to deal with the quality of basic teaching problems. Teachers' ability to use various information resources to solve the subjects' problems and improve the subjects' teaching efficiency belongs to the category of the “competency for disciplinary information”. The indicator, “competency for information concerning scientific research”, reflects the development of scientific research activities in the discipline and the level of scientific research's contribution to the teaching work of ESP teachers. The “affection”, “attitude”, and “value” are major indicators for teachers' mental health, which also have a significant bearing on the teaching process.

The indicator, “aesthetic taste”, is related to teachers' value orientation and professional spirit, and it is a comprehensive evaluation of teachers' humanistic quality and aesthetic education ability. The indicators of “professional ethics” and “occupational attitude”, reflect ESP teachers' professionalism in the professional field, compliance with industry norms, and sense of responsibility. The indicator, “ability to form good relationships”, means teachers should think in empathy and establish empathy psychology when interacting with colleagues and students. On this basis, teachers can expand interpersonal communication channels and establish harmonious interpersonal relations with them so as to create a positive working atmosphere. The indicator, “ability for cooperation”, evaluates whether ESP teachers can effectively deal with their working relationship with their partners, establish an efficient cooperation framework, and achieve the purpose of coordination among team members when completing a given task. Finally, the last indicator, “emotional management and conflict resolution capabilities”, emphasises that ESP teachers live and work as mature individuals. They should be able to effectively control their emotions in their work and life, and deal with issues calmly and skillfully when conflicts occur.

3.3 The Weight of the Evaluation Index System

(1) Weight of the first-level index

Based on the constructed evaluation index, this study distributed a set of questionnaires to relevant university experts and scholars. This study used the 1-5 scale criterion to obtain the judgment matrix according to its relative importance.

Table 2 Expert scoring and judgment matrix

Scale	Tendency	Definition
1	equally important	The Element i is equally important to the Element j
2	slightly important	The i Element is slightly more important than the j Elements
3	significantly important	The i Element is significantly more important than the j Elements
4	strongly important	The i Element is strongly more important than the j Elements
5	extremely important	The i Element is extremely more important than the j Element
The reciprocal of the above numbers	The reciprocal of the above numbers	Judgment value obtained by comparing Element j with Element i

At this stage, 12 experts from universities in China were invited, who are mainly directors of the academic affairs office, deans of the schools or departments, and directors of the teaching and research sections. The expert group selected in this study generally has relevant theoretical knowledge, particular practical experience, and decisive authority. The judgment matrix formed based on expert scoring is shown in Table 3.

Table 3 Expert scoring and judgment matrix

	Practice competency	Innovation competency	Information competency	Morale competency	Profession competency	Emotion competency
Practice competency	1.000	1.917	1.646	1.033	1.299	1.382
Innovation competency	0.522	1.000	2.455	1.128	1.174	1.431
Information competency	0.608	0.407	1.000	0.658	0.750	1.007
Morale competency	0.968	0.887	1.519	1.000	2.167	2.583
Profession competency	0.770	0.852	1.333	0.462	1.000	1.312
Emotion competency	0.724	0.699	0.993	0.387	0.762	1.000

Using the SPSSAU software, scores given by the 12 interviewees are shown in Table 4:

Table 4 Results of the AHP hierarchy analysis

Items	Weight	Maximum Eigenvalue	CI Value
Practice competency A1	21.600%		
Innovation competency A2	18.857%		
Information competency A3	11.271%	6.158	0.032
Morale competency B1	22.469%		
Profession competency B2	14.233%		
Emotion competency C1	11.570%		

By computing the judgment matrix of practice competency, A1, innovation competency, A2, information competency, A3, morale competency, B1, profession competency, B2, and emotion competency, C1 with AHP stratification method (Sum-Product Method), we have obtained results as in Table 4: the weight values are 21.600%, 18.857%, 11.271%, 22.469%, 14.233%, 11.570% respectively, with the largest characteristic root (6.158). Then, the CI value (0.032) [$CI = (\text{maximum feature root} - n) / (n - 1)$] is calculated, and the CI value is used for the consistency test described below.

Table 5 Random consistency RI Form

n	3	4	5	6	7	8	9	10	11	12	13	14	15	16
RI	0.52	0.89	1.12	1.26	1.36	1.41	1.46	1.49	1.52	1.54	1.56	1.58	1.59	1.5943
n	17	18	19	20	21	22	23	24	25	26	27	28	29	30
RI	1.6064	1.6133	1.6207	1.6292	1.6358	1.6403	1.6462	1.6497	1.6556	1.6587	1.6631	1.6670	1.6693	1.6724

Corresponding to Table 5, we can find that the random consistency RI value is 1.260. The CR value is 0.025 through adopting the above-mentioned CI and RI calculation results (See Table 6). This value is less than 0.1, suggesting that the judgment matrix of this study meets the consistency test and that the calculated weight is consistent.

Table 6 Summary of the results of the consistency test

Summary of the consistency test results				
The biggest characteristic root	CI	RI	CR	Results of the consistency test
6.158	0.032	1.260	0.025	Eligible

The weight of each index is obtained through analysis, as shown in Figure 1 (weight value). As revealed in Figure 1, In the evaluation system of core competencies of ESP teachers, morale competencies, practice competencies, and Innovation competencies accounted for 22.47%, 21.6%, and 18.88%, respectively, ranking the top three.

(2) Weight of the secondary indicators

In order to determine the weight of the secondary indicators, this study compiled a questionnaire on the core competencies evaluation indicators of ESP teachers, which used the 1-5 scale criterion for scoring. By issuing online questionnaires, opinions were obtained from Hebei, Inner Mongolia, Jilin, Tianjin, and other provinces and cities. An index matrix is constructed by hierarchical analysis, as shown in Table 7 to Table 12.

Table 7 Matrix of practice competency

Indicators	Acquisition & application of new technologies	Construction & application of knowledge	Solvency of problems
Acquisition & application of new technologies	1	1.859	2.016
Construction & application of knowledge	0.538	1	1.901
Solvency of problems	0.496	0.526	1

Table 8 Matrix of innovation competency

Indicators	Creative thinking	Discovery of new knowledge	Innovation in practice
Creative thinking	1	2.037	1.898
Discovery of new knowledge	0.491	1	0.527
Innovation in practice	0.527	1.897	1

Table 9 Matrix of information competency

Indicators	Competency for general information	Competency for disciplinary information	Competency for information concerning scientific research
Competency for general information	1	1.894	1.883
Competency for disciplinary information	0.528	1	1.88
Competency for information concerning scientific research	0.531	0.532	1

Table 10 Matrix of morale competency

Indicators	Affection, attitude and value	Aesthetic taste
Affection, attitude and value	1	2.158
Aesthetic taste	0.463	1

Table 11 Matrix of profession competency

Indicators	Professional ethics	Occupational attitude
Professional ethics	1	2.279
Occupational attitude	0.439	1

Table 12 Matrix of emotion competency

Indicators	Ability to form good relationship	Ability for cooperation	Emotional management and conflict resolution capabilities
Ability to form good relationship	1	1.926	1.927
Ability for cooperation	0.519	1	2.071
Emotional management and conflict resolution capabilities	0.519	0.483	1

Through further analysis with SPSSAU software, we have found the maximum eigenvalues are 3.035, 3.036, 3.045, 2.000, 2.000, 3.000, and the consistency ratio CR of Table 7, Table 8, Table 9, and Table 12 are 0.033, 0.034, 0.023 and 0, which are less than 0.100. That suggests the results have passed the consistency test. Table 10 and Table 11 have $n=2$, corresponding $RI=0$, and the evaluation matrix is consistent in general. Therefore, all the evaluation matrices passed the consistency test.

(3) Weight of indicators

The weights of all indicators are calculated and sorted as shown in Table 13.

Table 13 Overall weight and ranking of indicators at all levels

Domains	First-level Indicators	Weight	Secondary indicators	Overall Weight of Secondary Indicators	Ranking
Discipline	Practice competency	21.600%	Acquisition & application of new technologies	10.49%	2
			Construction & application of knowledge	6.80%	6
			Solvency of problems	4.31%	11
	Innovation competency	18.857%	Creative thinking	9.23%	4
			Discovery of new knowledge	3.75%	13
			Innovation in practice	5.88%	7
	Information competency	11.271%	Competency for general information	5.41%	9
			Competency for disciplinary information	3.53%	14
			Competency for information concerning scientific research	2.32%	15
Character	Morale competency	22.469%	Affection, attitude and value	7.11%	5
			Aesthetic taste	15.36%	1

Domains	First-level Indicators	Weight	Secondary indicators	Overall Weight of Secondary Indicators	Ranking
	Profession competency	14.233%	Professional ethics	4.34%	10
			Occupational attitude	9.89%	3
Emotion	Emotion competency	11.570%	Ability to form good relationship	2.26%	16
			Ability for cooperation	3.78%	12
			Emotional management and conflict resolution capabilities	5.54%	8

According to Table 13, among the factors affecting the core competencies of ESP teachers, the discipline domain accounts for the most in the domains of discipline, character, and emotion. The morale competency, practice competency, and innovation competency are the top three areas. The results also reveal that aesthetic taste, new technology acquisition and application ability, professional consciousness, and innovation consciousness are of great significance.

4.0 CONCLUSIONS

Via employing the Delphi method and hierarchical analysis, a set of core competencies evaluation system of ESP teachers was formulated, composed of three domains, 6 first-level indicators and 16 secondary indicators. It aims at a comprehensive evaluation of the core competencies of ESP teachers and promoting their sustainable development. By surveying relevant teachers and managers through a questionnaire, the results reveal a clear profile of the evaluation system and indicate that the evaluation system is acceptable and feasible for evaluating the core competencies, which lays the foundations for carrying out further work under the background of “New Liberal Arts”.

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