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Cell phone-based University English learning platform design and implementation

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ABSTRACT

As cell phone is becoming more prevalent, cell phone usage is more and more widely, maximum usage of students with cell phones is learning by cell phone, from which apply cell phone to learn English is one of best ways, but how to combine English with cell phone has become hotspot of present universities researches. The paper just based on the theory support, it establishes cell phone-base university English learning platform model, according to design relative principle, it establishes university students' English learning platform that is implemented by utilizing cell phone, and makes systematic fuzzy evaluation on the model, puts forward main influence factors, after applying fuzzy evaluation, finally it gets its evaluation result is in the level of good, proves the model's rationality, and meanwhile it also proves that the paper established cell phone-based university English learning platform design and implementation will propel to future research to a certain degree.

KEYWORDS

University English learning platform; Cell phone learning terminal; Fuzzy comprehensive evaluation.

INTRODUCTION

English is world common used language and also is one of working languages in united states, with constantly deepening of China's reformation, English education's emphasis is also constantly deepening, English is also regarded as an important sign in measuring Chinese university students' language level, but how to improve university students' English level is key point of present researches.

For researches on how to improve English, formers have made many efforts and got plentiful achievements, such as Ding Jun-Yu in the aspect of improving university students' English level by using cell phone to improve university students' English learning ways, analyzed domestic and foreign university students English learning platform status, and then proposed target, combined with university students' English learning demands and status, it created platform that applied cell phone to implement English learning, and made concrete design and analysis of its frame and contents and others that paved the way for Chinese university students English level improvements; Xu Ming in the article of regarding network English multimedia teaching system design and implementation, he proposed Web browser network teaching mode-based, took internet utilization as media teaching main contents, and carried on playback and on-line answer on courses through network platform in network space, and meanwhile it could make comprehensive evaluation on teachers' teaching quality.

The paper just based on formers studies, makes systematic analysis of contemporary university students English learning status, carries on studying by English statistics, investigation, analytic hierarchy process as well as fuzzy mathematics, it creates conditions for Chinese contemporary university students' English level improvement, and builds important foundation for researching development trend of implementing university students' English learning studies on the basis of cell phone.

CELL PHONE-BASED UNIVERSITY ENGLISH LEARNING PLATFORM DESIGN

In order to let university students to better learn English in spare time, the paper designs cell phone English learning platform, design of the platform is on the basis of independent English learning, it creates beneficial conditions for improving their English levels.

To establish a complete cell phone English learning platform, it should set proper and reasonable plates, based on the idea; the paper establishes curriculum learning plate, system management plate, learning evaluation plate, exchanging cooperation plate and information releasing plate and so on, these plates can better complete a spare time system learning English process, in designing plates process, the paper should adhere to following principles:

(1) Students and teachers, students and system, inter-students good interactive communication is helpful for improving students' learning interests and better learning efficiency, the design used forum plate' s purpose is for convenience of university students' better exchanging based on the idea.

(2) Presently university students always have drawbacks n oral English and listening aspects, so the paper establishes university students' English learning's listening plate platform based on the status, and adopts HTTP protocol clients to carry on telecommunications with server.

(3) Due to cell phone as its client server, its memory is limited, so audio frequency, graphics and videos as well as others occupied space are very big, the paper designing platform is only fit for the paper situation.

University English platform model under cell phone effects

According to above process, the paper adopts stable performance database SQL Server2005to improve data computation, utilizes Spring+Hiberna technical routes, establishes university English platform under cell phone effects, corresponding overall frame chart is as following Figure 1 shows:

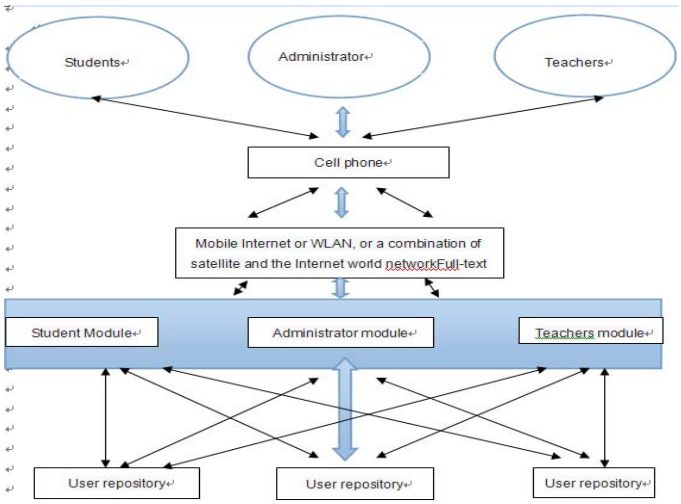

Figure 1 : Platform Architecture

Select partial indicators from above cell phone English learning platform reception desk frame chart to study, it will discuss in the following.

UNIVERSITY ENGLISH LEARNING PLATFORM MANAGEMENT SYSTEM IMPLEMENTATION UNDER CELL PHONE EFFECTS

Android system

In 2007, Google announced to establish a set of Linux platform-based cell phone operation system—Android, it is composed of users interface, operation system and middleware and so on, and the software occupied 58% proportion in China market.

English phonetic exploitation

Android is compilation with Java English language, it includes a series of resource files, and generates a new APK file package after compiling. Designed Java language is a kind of transportable, multithreaded, distributed, architecture neutral dynamic English language.

Sign plate design

After students entering into platform, what university students initially see should be sign interface, after students initially entering, it should sign, after signing, it can move to next step, but if signed, then students can directly sign. Among them, sign interface is as following Figure shows:

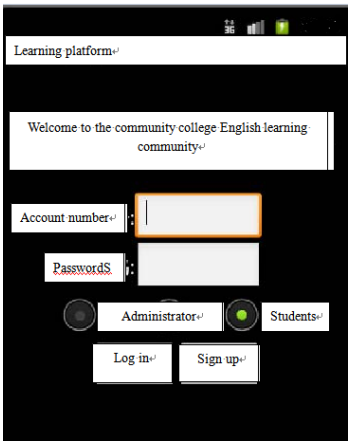

Figure 2 : Sign plate design

Cell phone English learning platform plate implementation

During the process of university students applying cell phone to learn English, regarding curriculum implementation, it needs to carry on designing of special pages for convenience of students exchanging, the paper designs abstract interface as following forms, as following Figure shows:

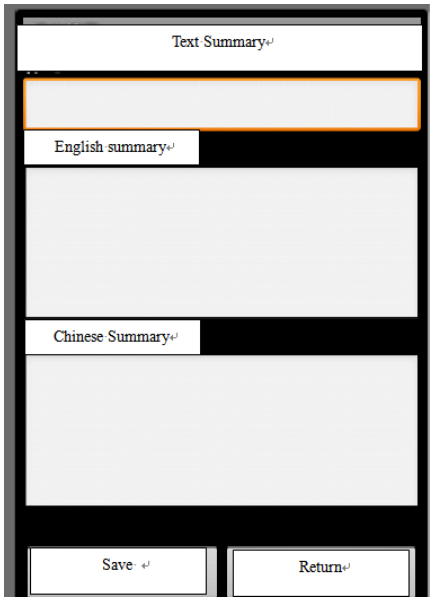

Figure 3 : Cell English learning platform to realize the interface module

COMPREHENSIVE EVALUATION OF CELL PHONE-BASED UNIVERSITY ENGLISH LEARNING PLATFORM

Fuzzy evaluation theory

In order to more intuitional present above built cell phone university English learning platform is reasonable or not, the paper chooses fuzzy mathematical methods to define its rationality, concrete steps are as following shows:

(1) Establishes factor set U, $U = \begin{pmatrix} U_1 & U_2 & \cdots & U_k \end{pmatrix}$

(2)Establish judgment set V (evaluation set), $V = (\mathrm{v}_1, \mathrm{v}_2, \mathrm{L}\ , \mathrm{v}_n)$

(3)Establish evaluation matrix fuzzy mapping from U to$V$, so it can get fuzzy relation as following:

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix}$$

(4)Establish weight set, $A = (a_1, a_2, \cdots, a_n)$, it meets conditions:

$$\sum_{i=1}^{n} a_i = 1 \quad (0 \le a_i \le 1)$$

(5)Fuzzy relation R every line will reflect the line influence factors to object judgment degree, meanwhile, R every column will reflect the column influence factors to object judgment degree.

$$\sum_{i=1}^{n} r_{ij} \quad j = 1, 2, 3, \cdots, m$$

$$B = A \circ R$$

$$= (a_1, a_2, a_3, \cdots, a_n) \circ \begin{bmatrix} r_{11} & r_{12} & \text{L} & r_{1n} \\ r_{21} & r_{22} & \text{L} & r_{2n} \\ \text{M} & \text{M} & & \text{M} \\ r_{m1} & r_{m2} & \text{L} & r_{mn} \end{bmatrix}$$

$$= (b_1, b_2, b_3, \cdots, b_n)$$

In V, fuzzy combination is evaluation set B, here fuzzy operator is using o to express, and b_j shows membership of corresponding B subset under the state of v_j, after normalization processing, it has $\sum = b_1, b_2, b_3, \cdots, b_n$, then it has:

$$B' = (\text{b}_1 / \sum b_2 / \text{L}\ b_n / \sum) = (\text{b}'_1, \text{b}'_2, \text{L}\ \text{b}'_n)$$

According to maximum membership principle, it makes selection, apply fuzzy evaluation theory to evaluate selected cell phone university English learning platform elements, finally define built platform merits by the size of evaluation values.

Fuzzy evaluation application

By cell phone university English learning platform system selected partial factors, it makes analysis as following show:

TABLE 1: Cell phone-based university English learning platform influence factors

Cell phone-based university English Learning platform influence factor U	Students plate (U_1)	Result search (U_{11})
		Small stories (U_{12})
		Listening area (U_{13})
		Friendly link (U_{14})
	CET four and six plates (U_2)	Vocabulary distinguish (U_{21})
		Composition (U_{22})
		Single selection (U_{23})
		Phrase (U_{24})
		Words (U_{25})
	Teachers plate (U_3)	Forum (U_{31})
		Listening area (U_{32})
		Institution announcement (U_{33})
	Administrator plate (U_4)	Sign (U_{41})
		Institution announcement (U_{42})
	University English plate (U_5)	Text abstract (U_{51})
		Words (U_{52})
		Sentences (U_{53})
		Phrase (U_{54})
		Vocabulary distinguish (U_{55})

By above theory, it establishes evaluation set that is:

$$V = \{v_1, v_2, v_3, v_4, v_5\}$$
$$= \{\text{Excellent}, \text{good}, \text{normal}, \text{not good}, \text{bad}\}$$

After that, distinguishes above every kind of factors, and meanwhile applies analytic hierarchy process to assign weights, it can get corresponding judgment matrix, apply above principles, it can calculate and get corresponding weights, as following Table shows:

TABLE 2: U - U_i judgment matrix

U	U_1	U_2	U_3	U_4	U_5	ω_i
U_1	1	1/3	1/5	1/7	1/7	0.041
U_2	3	1	1/3	1/5	1/5	0.0788
U_3	5	3	1	1/3	1/3	0.166
U_4	7	5	3	1	1	0.3598
U_5	7	5	3	1	1	0.355
Σ	23	14.333	7.533	2.676	2.676	1.0000

CI=0.0346CR=0.034<0.10

TABLE 3 : U_1 - U_{1k} judgment matrix

U_1	U_{11}	U_{12}	U_{13}	U_{14}	ω_i
U_{11}	1	2	1/5	1/5	0.1168
U_{12}	1/2	1	1/3	1/3	0.1044
U_{13}	5	3	1	1	0.3894
U_{14}	5	3	1	1	0.3594
Σ	11.5	9	2.533	2.533	1.0000

CI=0.064, CR=0.075<0.10

TABLE 4 : U_2 - U_{2k} judgment matrix

U_2	U_{21}	U_{22}	U_{23}	U_{24}	U_{25}	ω_i
U_{21}	1	1	1/3	1/6	1/5	0.0594
U_{22}	1	1	1/3	1/6	1/5	0.0594
U_{23}	3	3	1	1/4	1/3	0.1454
U_{24}	6	6	4	1	2	0.4456
U_{25}	5	5	3	1/2	1	0.2988
Σ	16	16	8.677	15	0.733	1.0000

CI=0.0238CR=0.02140.10

TABLE 5 : U_3 - U_{3k} judgment matrix

U_3	U_{31}	U_{32}	U_{33}	ω_i
U_{31}	1	1/2	1/3	0.1637
U_{32}	2	1	1/2	0.2973
U_{33}	3	2	1	0.5390
Σ	6	3.5	1.833	1.0000

CI=0.0048CR=0.00790.10

TABLE 6 : U_4 - U_{4k} judgment matrix

U_4	U_{41}	U_{42}	ω_i
U_{41}	1	1	0.5000
U_{42}	1	1	0.5000
Σ	2	2	1.0000

CI=0.0000, CR=0.0000<0.10

TABLE 7 : U_5 - U_{5k} judgment matrix

U_5	U_{51}	U_{52}	U_{53}	U_{54}	U_{55}	ω_i
U_{51}	1	1/3	1/4	1	1/5	0.0688
U_{52}	3	1	1/2	3	1/3	0.1707
U_{53}	4	2	1	4	1/2	0.2695
U_{54}	4	2	1	4	1/2	0.2695
U_{55}	1	1/3	1/4	1	1/5	0.0688
Σ	14	6.667	4	14	2233	1.0000

CI=0.015, CR=0.0138<0.10

By above tables, we simultaneously can know that every judgment matrix passes consistency test, so it can be accepted. Fill above obtained judgment matrix respectively into following tables: Combine with above factors and Cell Phone University English learning platform concrete status, it gets each indicator evaluation result, as following Table shows:

TABLE 8: Each indicator evaluation result

	First grade indicator (U_i)	Second grade indicator (U_{ik})	Evaluation value F_{ikj}				
			Excellent	Good	Normal	Not good	Bad
U	U_1 (0.0400)	U_{11}(0.116)	0.10	0.65	0.25	0.00	0.00
		U_{12}(0.1044)	0.00	0.70	0.05	0.25	0.00
		U_{14}(0.3894)	0.00	0.10	0.55	0.35	0.00
		U_{14}(0.3894)	0.00	0.60	0.05	0.3	0.00
	U_2 (0.0788)	U_{21}(0.059)	0.10	0.20	0.65	0.00	0.00
		U_{22}(0.0594)	0.20	0.10	0.70	0.00	0.00
		U_{23} (0.139)	0.10	0.25	0.65	0.00	0.00
		U_{24}(0.4455)	0.00	0.80	0.10	0.10	0.00
		U_{25} (0.2958)	0.00	0.50	0.10	0.40	0.00
	U_3 (0.1616)	U_{31} (0.1637)	0.15	0.20	0.65	0.00	0.00
		U_{32} (0.2973)	0.00	0.70	0.15	0.15	0.00
		U_{33} (0.530)	0.00	0.85	0.05	0.10	0.00
	U_4 (0.3598)	U_{41}(0.5000)	0.00	0.70	0.20	0.10	0.00
		U_{42} (0.500)	0.00	0.75	0.15	0.10	0.00
	U_5 (0.3598)	U_{51} (0.068)	0.20	0.10	0.70	0.00	0.00
		U_{52}(0.1707)	0.10	0.15	0.75	0.00	0.00
		U_{53}(0.265)	0.00	0.65	0.10	0.25	0.00
		U_{54}(0.269)	0.00	0.55	0.35	0.10	0.00
		U_{55}(0.088)	0.00	0.85	0.10	0.05	0.00

By above table, it can carry on fuzzy comprehensive evaluation, combine with previous formula, it can get its first grade fuzzy evaluation result, as following table shows:

TABLE 9 : First grade fuzzy comprehensive evaluation result table

	U_i	Evaluation value b_{ij}				
		Excellent	**Good**	**Normal**	**Not good**	**Bad**
U	U_1	0.017	0.550	0.136	0.297	0.0000
	U_2	0.0348	0.5571	0.2453	0.1629	0.0000
	U_3	0.0246	0.6990	0.2780	0.0985	0.0000
	U_4	0.0000	0.7250	0.1750	0.1000	0.0000
	U_5	0.0308	0.6044	0.2694	0.0954	0.0000

After that, combine with previous formula to carry on second grade evaluation, that :

$$\begin{aligned} B_i &= A \circ R \\ &= (a_1, a_2, \mathrm{L}\ a_5) \circ (B_1, B_2, \mathrm{L}\ B_5)^T \\ &= (0.0816, 0.8572, 0.0133, 0.0149, 0.0000) \end{aligned}$$

According to maximum membership principle, it can get 0.855 is final evaluation result.

CONCLUSION

(1)The paper mainly discusses design and implementation of platform that university students applying cell phone to learn English, for its influence factors, it applies analytic hierarchy process and fuzzy mathematics as well as other methods to evaluate its designed platform, gets the paper designed English learning platform belongs to level of good, it proves the paper designed platform's rationality and effectiveness.

(2)By then paper researched university students English learning platform designing, it is beneficial to implement students-centered self-adjusting time control learning, and it is beneficial to perfect and develop learning theories, arouse students' English learning interests, and improve students' English level.

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