Quantum-Based Approach For Learning Spoken Mandarin: A Model Of Teaching Material

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Abstract. This study is an of R&D (Research and Development) program which aims to produce teaching material for learning Mandarin. In producing the teaching material, this research considered the following steps: (1) analysis of needs, (2) development of teaching material (i.e. teaching material plan, product design and test (phase 1), and limited operation test (phase 2), (3) effectivity test and readability test. This research used Kemp, Borg, and Gall mixed model. This research is conducted at University of Al Azhar Indonesia (UAI), and subjected as a trial in the second-semester course. The result suggests teaching material for speaking Chinese, that is based on the quantum approach, is effective in enhancing spoken Chinese ability within students of Chinese Study Programme in UAI. The result of re-pretest in average was 77,82, whereas the result of post-test 82,12. This suggests an increase after the model is implemented as a trial. Both samples represented the normal distribution. Further, the homogeneity test revealed the number of counted F (2,25) fell under the F table (3,19). Therefore, both groups appeared to have the same variant or homogeny. On the other hand, counted t value (2,18) is higher than t table (1,73). The result indicates significant difference so as to confirm the hypothesis of this study.

Keywords: Teaching model material, speaking chinese, quantum approach

I. INTRODUCTION

Teaching material for Spoken-Mandarin has been required in a different category of learners, ranging from kindergarten students to adults. However, at university level such requirement seems inadequate, due to the origin of most textbooks is from China. Recently, the government issued four skills of teaching materials (i.e. listening, speaking, reading, and writing) for learning Mandarin. These materials are intended for senior high school, which design used the scientific approach in 2013 curriculum. The materials are compatible with the present curriculum. However, quantum approach has not been used as teaching material in learning Mandarin. The pre-existing teaching material for learning Chinese seems to neglect conceiving scientific mindset in the way it adds problems of presenting material to learner or student.

Generally, most of teaching material at the university level in Chinese Literature or Chinese Education study program, is using books or teaching material from China. It seems challenging to find teaching material produced by local publishing for learning Mandarin at such level. Most of the teaching material for learning Mandarin, especially for its spoken language, is published by Beijing Language and Chinese Culture (BLCU). 北京语言大学 Beijing Language and Chinese Culture (BLCU) is renowned as Beiyu 北语 Běiyǔ. The book from BLCU is entitled 汉语教程 Hànyǔ jiàochéng, 看图说话 kàntú shuōhuà，汉语口语速成 hànyǔ kǒuyǔ sùchéng，汉语口语 hànyǔ kǒuyǔ, etc.

Li Xiao Qi (2006:126-132) presented that the construction or characteristic of teaching material for spoken Mandarin skill is indicated by the selection of quality elements of the language from the used text, topic, the condition of the learner, and cultural factor. It is a prerequisite for teaching the material to incorporate them. Several aspects are supposed to be considered at the elementary level, they are; 1) character, which in a teaching book consists of 726. The number is distributed into every topic of discussion. 2) diction comes in 1139 words and distributed into groups of words. Lastly, 3) grammatical aspect that is used for daily activity.

In order to develop teaching material, Tomlinson (2007:21) stated there are 16 principles of that one needs to take into account. The principles are 1) giving impacts, 2) giving ease to learner, 3) growing confidence of learner, 4) giving a sense of relevance and usefulness to learner, 5) causing and facilitating learner to individual discovery, 6) motivating learner to study the topics being taught, 7) showing learner the empiric use of the language, 8) describing attention of learner through the manifest of language, 9) providing opportunity to learner to use the language, 10) considering the positive impact of the learning process, 11) attending to the different learning style, 12) minding the differential attitude, 13) providing moment for preparation at the beginning of study activity, 14) maximizing learning potential by increasing intellectuality, aesthetics, and emotional involvement, 15) not controlling exercise excessively, 16) giving feedbacks to graduates.

Teaching material that is currently in use seems unable to build confidence. Typically, learner gives excuses as to hold back in communicating with both local and native speaker instructors, despite the given instruction to practice the skill of speaking Chinese. The reason is predictably learner is not confident or scared to make mistakes. Moreover, learner seems to refrain herself to use Chinese in replying or answering instructor who speaks Chinese, and more inclined to speak Indonesian. As argued above, it is suspected that the teaching material in current use is too contextual.

Regarding the skill of spoken language, according to Xu Zi Liang, et al (2005:132) speaking a foreign language is an important lesson. With the emphasis on reading and traditional teaching method, speaking skill cannot be neglected as otherwise would cause difficulty for the learner to speak the learned foreign language. Further, it is implied that speaking is essential in learning a foreign language, regardless the language program. Successful language learning is the ability to communicate well with a partner. Speaking activity in language class has two-way communicative aspects, that is between speaker and hearer. Therefore, prior to speaking practice, one needs to consider (1) listening skill, (2) pronunciation skill, and relatively (3) learning vocabulary.

Yang Hui Yuan (2007:232) applied the principle in speaking skill that it is the role of instructor motivating learner to exercise the learned language, so to practice communication. In that way, the learner is motivated to use words and text in order to articulate what she intends to say, and in so doing her ideas are expressed in the learned language.

According to Brown (2000:267) there are six types of model of teaching skill of spoken language, they are: 1) repeating pronunciation teaching model, 2) paraphrase teaching model, 3) storytelling teaching model, 4) retelling teaching model, 5) asking question teaching model, and 6) role-play teaching model. On the other hand, Harmer (2001:271-274) suggests various supporting activities to enhance speaking skill in the learning process, they are: 1) Acting from a script, 2) Communication games, 3) Discussion, 4) Prepared talks, 5) Questionnaires, dan 6) Simulation and role-play.

Typically, the current material used in classroom activities merely includes reading new vocabulary and text, having dialogue by repeating after the instructor, translating new vocabulary, text, or dialogue, listening to an explanation about grammar, and working assignment. In this activity, instructor seems to concentrate only on theoretical and contextual understanding while neglecting active participation of learner and thinking process in producing verbal language.

It is argued that quantum learning motivates learner's creativity in studying language. This learning model is classified into two fundamental sections, they are context and content. Quantum teaching principle has in itself five principles, or fixed truth such as the following: everything talks, everything is purposeful, experience prior to identifying vocabulary, every effort are appreciated, and if it is worth learning then it is worth celebrating. Its fundamental idea is: Bring Their World to Our World. It is expected that by quantum method learner becomes more motivated and that the image of the difficulty spoken Mandarin will change. The change is that speaking Chinese is fun.

Quantum Teaching is a shift in from monotonous learning into a learning activity which nuance is exciting and stimulatin (DePorter:1999,p6) Quantum approach is focused on the dynamic relation between classroom environment, the interaction that underpins the foundation and the framework for learning. It is intended to incorporate every related aspect of learning, interaction, and differences that can maximize the learning process. This model shapes a fun process of learning. As a matter of fact, the basic logic of quantum learning is to conceive fun and successful activity. It elaborates new ways that ease the process of learning by blending artistic element with a set of achievements, regardless of the courses. The framework of quantum learning model is abbreviated into TANDUR in Indonesian (i.e. grow, experience, identify, demonstrate, iterate, and celebrate). With quantum learning model learner is expected to experience fun and successful learning activity. The model attempts to combine multisensory and multiple intelligences so to enhance learner's ability in pursuing her achievement.

There has been a study that suggests quantum teaching helped increasing grades of students who were undertaking Correspondence course in a

vocational school, at Bandung. This implies quantum teaching operates better in the learning process of the course, that students become more active in expressing argument, discussing, and working on their assignment. Furthermore, there seems to be a strong relation between the result of the study with the application of the model of Quantum Teaching. It is plausible then to say that, considering the result of the study, the it seems necessary quantum teaching for more comprehensive learning activity (Yanuarti: 2016).

The design of quantum approach, TANDUR, is applied in the developed teaching material for every topic of discussion. On the "grow" level the role of the instructor is required in order to convey the purpose of learning, the competence of learning, the achievement of learning and the motivation of learning. This is to shed a light of preliminary knowledge regarding the course to the learner. The idea is that preliminary knowledge may be expected to trigger learner's curiosity, which would invite her to delve into the given topic.

The learner is attached to "experience" level because she would undergo the learned topic herself. Not only that learner can find the material is compatible with the upcoming topic of discussion, the learner can also determine learning style of her own in learning a given topic of discussion. In that sense, the learner can access different kind of media for learning purpose such as watching videos, listening music while studying, etc. However, learner activity is still under the supervision of the instructor. At the end of "experience" level, the instructor would provide discussion time to draw conclusion of the learned topic.

On the next TANDUR level, "identify", the learner is given exercises regarding the discussed topic. The learner is allowed to form a study group to carry out the exercises. This activity is also supervised by the instructor. On "demonstrate" level learner is granted opportunity to practice. It is on this level every learner speaks up publicly, in front of fellow learner and instructor. Subsequently, the practice would invite constructive feedback from fellow learner and instructor. On "iterate" level learner would repeat the exercise on the topic that is considered faulty. Here, learner can improve her skill in spoken Mandarin. On the last level, celebrate, the celebration is carried out by learner and instructor upon the successful learning. In the celebration, the instructor gives the score to the learner, so as to acknowledge that he or she has succeeded.

The use of quantum teaching approach in developing teaching material for Mandarin speaking course has splashed a new color, a breakthrough, and a memorable learning experience. That is so because the approach offers comfort and fun in learning. The approach can also increase the sense of sociability as it encourages close interaction between learner with her peer situated in a study group, in exchanging and appreciating the feedback

II. METHODOLOGY

This study used qualitative and quantitative methodology. As an R&D program, this study applied development model by Kemp, and Borg and Gal. This study also used pre-experimental design, in which one group has to undertake pre-test and post-test design.

Data was obtained by observation, discussion, and questionnaire. Specifically, this study used structured and guided observation. The discussion was arranged with the instructor after teaching schedule. Likert scale and Gutman scale were used as the questionnaire.

Five types of data were analyzed. They are (1) needs identification data (from both of instructor and learner), (2) learner's characteristic identification data, (3) result of learner's pre-test, (4) assessment from peer and expert, and (5) teaching material effectivity test data.

Two types of answer were set in the questionnaire for analysis of needs and learner's characteristic identification data (i.e. 'yes/no' type of questionnaire and multiple choice questionnaire). Number of percentages categorizes criteria of needs and characteristic as in the following: 1) 0-25% represents category of 'not needed' or 'not cared', 2) 26-50% represents category of 'less needed' or 'less cared', 3) 51-75% represents category of 'needed' or 'cared', and 4) 76-100% represents category of 'most needed' or 'most cared'.

The five-scale questionnaire was used to obtain quantitative data, ranging from 'very disagree' (score 1), 'disagree' (score 2), 'neutral' (score 3), 'agree' (score 4), and 'very agree' (score 5). It is expected that the questionnaire would uncover whether the developed teaching material for speaking II is appropriate. Suggestions or comments from peer, expert, instructor, and learner are noted as qualitative data. Average number of criteria of needs is 1) 0-1, 22 for the least inappropriate, 2) 1,23-2,48 for appropriate, 3) 1,23-2,48 appropriate, and 4) 3,75-5,00 the most appropriate.

In order to test the effectivity of teaching material model for spoken Mandarin, this study set pre-test. The test result suggested proficiency of learner prior to application of the teaching material. The teaching material was subjected to a limited operational test. On the other hand, the result of post-test suggested proficiency of learner after the developed teaching material had been applied. The tests were given to a conditioned group of the learner, so to operate pre-experimental design method with one group of pre-test and post-test. This method allowed a comparison between two conditions (i.e. prior to and after the implementation

of the teaching model). Following that, a statistical t-test was used to compare the difference between the result of pre-test and post-test.

III. RESULT AND DISCUSSION

A. Analysis of Needs

1. Characteristics Analysis Result

This study found 89% of the learner in speaking II course is neither from Chinese ethnics nor from family or environment in which there is exposure of spoken Mandarin. The number represents learners who started learning spoken Mandarin right when they start studying in University of Al Azhar. However, it is found that 75% of learner enrolled in Chinese literature study program because of her own choice. This seems to imply learners do have motivation in learning Mandarin, despite their environment and experience are not supplementing their language skill.

Further, in terms of learning experience, 79% of learners never study spoken Mandarin. Another 79% represents learners who do not practice their Mandarin speaking skill with their peers, whereas 84% of learners do not speak Mandarin with their instructors outside classroom activity.

As to learning style, 52% learners are more inclined to learn while watching a TV show or video. 20% learners prefer having the study group with their peers, whereas 15% are individual learners who like studying in a quiet environment which they believe it would help grasping the lesson.

2. Analysis of Needs of Learner and Instructor

This study summarized the needs of learner and instructor based on the course objective. It seems both learner and instructor share the same aim, that is to be confident in speaking Mandarin. This is supported by the questionnaire that suggests 100% of learners are aiming for confidence and fluency in speaking Mandarin as achieved by the completion of their study.

Both learner and instructor also strongly agree that topic of teaching material is designed based on the result of the analysis of needs. Apparently 100% of learners suggests that they need a topic that is close to daily activity. However, instructors see the necessity to adjust the topic with the level of fluency of learners. Learners need topics such as self-introduction, hobbies, and interests, appointment-making, asking for direction, transaction and phone call conversation. Further, learners add three more topics, namely applying for jobs, discussing message and moral, and job interview. On the other hand, instructors add new topics that are prerequisite for enhancing fluency of learners. The topics are foods, healths, weather conditions, recreations, and clothes.

Furthermore, 95% learners consider story the most needed learning material, 84% consider conversation or dialogue the most needed learning material, 53% consider making phonecall the most needed learning material, and 79% consider discussion the most needed learning material. Regarding speaking material aspects, learners most needed new vocabularies and grammar. In relation to the most needed learning strategy, 68% learners consider pronunciation, whereas 19% consider intonation.

The student-centered teaching is considered the most needed method and medium of learning to speak Chinese. The amount of percentage that representing this need is 63%. On the instructor's end, a video that contains particular theme or topic of study is considered the essential medium of learning. In the questionnaire 90% learners affirm they need video as such, whereas 10% learners see that the most needed medium for learning to speak Chinese is the audio CD. They believe that the medium makes learning activity more fun and less monotonous.

In case of the material of exercise and type of exercise, 95% learners consider question and answer session the most needed exercise material, whereas 79% describing single picture, 84% retelling stories, 53% completing sentences, and 84% conversation exercise. Instructor supplements exercise material with creating sentences. The idea is that so learners understand word placement in sentence structure. As to the type of exercise, 69% learners affirm the necessity of having varied types of exercise (i.e. individual and group exercise).

Regarding material and type of evaluation 68% learners consider pronunciation evaluation the most needed evaluation material, 95% fluency, 64% word choice, and 53% grammar. On the other hand, 84% learners require varied types of evaluation which include both individual or group work evaluation. As to evaluation schedule, 74% learners see their progress needs to be evaluated by the end of the course, while 16% believe the evaluation should include more than just one lesson unit, and 10% consider it is necessary to have evaluation by the end of every lesson unit.

B. The Present Chinese Teaching Material

Albeit the design of 发展汉语口语 fazhan Hanyu kouyu has been used by instructors, the teaching material provided by the design does not take into account the analysis of needs and levels of learners. Its design is based on the needs of learners at the general level who aims for the basic level of Mandarin proficiency. In this sense, the teaching material neglects the differential needs of learner at the university level, and the differential time-scales of learning progress between learner at the university level and learner at the general level.

Moreover, instructor often faces challenge in determining method or approach for the classroom

activity, in spite of a given degree of freedom to be more creative in selecting teaching method. Instructor sees the process of selecting teaching method time-consuming, not to mention the repetitive cycle of determining the selection for every classroom activity.

Therefore, it is not only the material that needs to be prepared material for the learner, the instructor is also required to ponder what method would fit with the learner. Moreover, the present teaching material lacks in speaking exercise, while having nonessential texts (e.g. dialogues and paragraphs). It is also short in exemplifying the way vocabularies are used. It does not as well provide room for discussion to the learner. In a way, it seems learner spends her time with monotonous teaching style (i.e. listening to a lecture), which may not suit every learner's style of learning. This leads to a conclusion that the present teaching material seems inadequate in encouraging and motivating the confidence of learner to practice speaking Chinese.

C. Developing a Design of Teaching Material

The first draft of a quantum-based model of teaching material for learning spoken Mandarin has received an assessment from peer instructor. On this phase, the assessment is given without any means of changing the design structure. Test from experts would move further the development progress, so to yield the third draft of the teaching material design as to prepare the design for limited operational test.

The test involved second semester students of University of Al Azhar Indonesia. Researcher cooperated with an instructor who teaches speaking Mandarin. Questionnaire was spread in order to probe the perception about the appropriateness of the prepared teaching material. The activity of speaking II course was observed before the test was run. Researcher discussed with Instructor and learners about the strength and the weakness of the tested teaching material. The discussion took place in between the change of themes during the progression of the course. From the discussion researcher obtained perception about the strength and the weakness teaching material which in its development.

Based on the limited operational test, researcher revised the third draft that is based on quantum approach. Quantum approach is considered fit to the result of characteristic analysis and needs analysis of both learners and instructors. The following figure is the design of teaching material model resulted from the limited operational test (fourth draft).
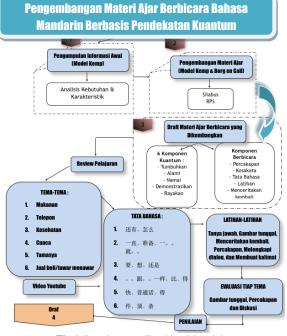

Fig 1. Development Teaching Material

D. Developing a Design of Teaching Material

Theoretically, the teaching material model has been categorized as a qualified model. Elaborated earlier the syllabus and the teaching material of the model has undergone a limited operational test. The test was operated by an expert in teaching Chinese. Two experts were involved, one from Huaqiao University, and the other Bunda Mulia University. They were given questionnaire which consisted of fourteen closed-question and one open-question. The open-question covers thirteen dimensions. The average score obtained from the questionnaire was 3.8, This indicates the model is very appropriate.

According to the experts, the syllabus is accrued with the proper dimensions. The dimensions are (a) the baseline of syllabus design, (b) syllabus identity, (c) learning objective, (d) basic competence, (e) evaluation indicator, (f) theme/topics, (g) learning experience, (h) evaluation material, (i) material design, (j) learning method, (k) references, (l) types of evaluation, and (m) achievement time span.

The experts also played role in making assessments on the third draft of the model. In doing so, they had a close look at the draft and fill a questionnaire regarding the appropriateness of the teaching material.

The questionnaire of the designed teaching material assessment consists of 34 closed-questions and one open-question. Five types of answer scale were provided, they are (1) agree, (2) very agree, (3) neutral, (4) disagree, and (5) very disagree. The average score was four, which means the the designed model was very appropriate. The highest score was on the baseline of teaching material development for speaking Chinese using quantum

approach. The experts showed great interest to the quantum approach as they consider the approach is compatible with the aim of enhancing the confidence of learner and building fun atmosphere in the classroom by its uniqueness. The approach allows learner to choose her own learning style. Moreover, every dimension in question is considered very appropriate. The dimensions that earned such criteria are (a) baseline of teaching material development for speaking Chinese using quantum approach, (b) purpose and approach, (c) teaching material organization and design, (d) speaking skill content, (e) theme/topic, (f) methodology.

The aforementioned explanation leads to the conclusion that the designed teaching material is theoretically in a very appropriate category. This is backed by the empirical evidence that is suggested by the result of effectivity test on learner, as well as the result of learner's study.

E. Discussion of Developed Teaching Material Model

The researcher had tested the effectivity of teaching material model for speaking Chinese in speaking II course which consists of 19 learners. Here researcher would argue all of the learners possess the same characteristic and competence. The researcher analyzes the class before and after the designed teaching material model was used. Since the model is a pre-experimental design, this entails the development of this design requires pre- and post-test design. This kind of research is one group pre test-pos test.

The mid-term result before and after the implementation of the designed model is being observed as the pre-test. They are calculated by using statistical test-t. The researcher uses the 北京语言大学 Beijing yuyan daxue (Beijing Chinese Language and Culture; BLCC) book titled 发展汉语口语 fazhan Hanyu kouy because the syllabus is not based on the analysis of needs and quantum approach.

The teaching material model that is used at present is model 4. The lecturers and learners also use the quantum approach besides the course books, the syllabus is the development of the analysis of needs and quantum approach result.

The post-test result is higher than the pre-test result. The pre-test lowest score is 51, the highest score is 90,5, and the average is 79. The post-test lowest score is 64, the highest score is 96, and the average is 82. Every sample is deived from the normal distribution. The pre-test dan post-test results are being observed by comparing the average scores. The result of test-t is t calculate (2,18) higher than t table (1,73) Therefore, it can be concluded that one of the tests is more significant. This means H0 is disapproved and H1 is approved. Teaching material model for speaking Chinese is based on the quantum

approach for the second semester level 1 in increasing speaking Chinese skill.

The designed teaching material model is also legibility tested. The test is given to 3 learners in speaking II course and a Chinese lecturer. The developed legibility test fulfilled the requirement with 4,6 score. Critic and suggestion from the evaluators are focused on the quality of the LayOut and the print result.

IV. CONCLUSION

The researcher analyzed the needs of lecturer and learner, the characteristic of learner, the condition of teaching material, the development of teaching material model, small groups test, up to effectivity test on a model. It can be concluded from all of the phases that:

First, according to the needs of the lecturer, learner, and the analysis of the characteristic of the learners, the lecturers and learners have different needs of theme because the learners wanted to get a job and/or continue their study after they graduate. Therefore, they wanted the theme of applying for jobs, job interviews, etc. the learners also wanted other themes based on daily life such as buying goods, hobby, health, etc. The characteristic of UAI's level 1 learners is they wanted to learn to speak Mandarin with confidence, although 98% of them are not Chinese ethnic.

Second, the learners are not confident enough to speak Mandarin based on the teaching material present. The lecturers have difficulties to find the right approach in teaching speaking course. With the teaching material at present, the syllabus or RPS that is being used by the lecturers, it is not based on the needs. The syllabus or RPS is still based on the KBK curriculum, not KKNI curriculum. Thus, the lecturers and learners need a syllabus or RPS and teaching material that provides their needs and it is adjusted to the characteristic of the learners, which is based on the quantum approach.

Teaching material model for speaking Mandarin based on the quantum approach for the level 1 learners is arranged by a few phases. The findings lead to several implications:

First, Learning Chinese with quantum approach can be applied on all levels. Start from middle school until high school, with themes that appropriate to the needs of the learner. According to the needs of the lecturer, learner, and the analysis of the characteristic of the learners, there are differences of the needs of theme between the lecturers and the learners in learning Chinese. The implication of it is the theme needed to be appropriate to the learners' skill. Therefore, they can learn progressively based on their needs and characteristics.

Second, Quantum approach is suitable for KKNI curriculum that is used at present. It leads the

learners to explore their learning style and the grading system at the end of every meeting. Based on the teaching material at present, it can be seen that the learners are not confident enough to speak Chinese. The lecturers have difficulties to find the right approach in teaching speaking course. Therefore, it needs RPS (syllabus) and teaching material that provide the needs of the lecturer and learner in using KKNI curriculum.

In order to fulfill the needs, the researcher develops RPS and teaching material which is appropriate to KKNI curriculum, needs, and quantum approach.

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