The Application of the Individual Teaching Based on Generative Phonology in the University[*]

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Abstract—There are the main differences between traditional phonology and generative phonology in terms of methodologies, depth and scope, which can be applied to the design and interaction in individual teaching. Generative phonology or modern phonology is more advanced than traditional phonology, but most learners can't understand the generative phonology, so their differences can help the students understand phonology and know their nuances. The definition of phonology, the research scope and methodologies of phonology , the contrasts between traditional phonology and generative phonology from the three respects of methodology, depth and scope, which play the instructive significance on the individual teaching and the future of phonology.

Index Terms—phonology, generative phonology, methodology, phonetic

I. Historical Review and Definition of Phonology and Individual Teaching

In the modern history of linguistics, Saussure (Hu Zhuanglin, 2001), one of the founders of structural linguistics, studied the sound absolutely and abstractly. His distinction between langue and parole leads to distinct disciplines that study sounds and their linguistic function. The former studies sound in speech acts from a physical point of view, and the latter focuses on the distinctions between the abstract phonemes and their functions within the linguistic system. He believed that phonetics would describe the actual sounds produced when one utters the form, but the form of a word, e.g. "bed", as a unit of English does not depend on the nature of these actual sounds but on the distinctions which separate "bed" from" bet", "bad", "head", etc. it is just phonology that is the study of these functional distinctions. Take the sound /i/in "lend" and "peel" in English for example, there's a phonetic difference. Another example is the difference between vowels of "feet" and "fit" used to distinguish signs. The difference plays a very important role in the phonological system of English in that it creates a large number of distinct signs.Before the period of Saussure Neogrammarians believed " the sound changes cannot allow the exceptions" in their animism[1] (泛灵论), which is an absolute point of view. After the period of Saussure[2], American structuralists like Sapir[3] proposed the same concepts as allophones which showed that linguists began to observe the truth of language keenly.

The important turning point appeared when the school of Prague[4], whose theories belong to early functionalism linguistics. Functionalism linguists, however, find that mere formal description of language is insufficient. Therefore, they attempt to explain linguistic phenomena from a functional point of view. They aim is not simply to describe language but also to explain it; not simply to show what language is but also why language is what it is.

One of the most outstanding contributions of the Prague School is the distinction they drew between phonetics and phonology. Following Saussure's distinction between langue and parole, they argued that phonetics belonged to parole whereas phonology belonged to langue. On this basis, they developed the notion of phoneme as an abstract unit of the sound system as distinct from the sounds actually produced. To determine these phonemes, they employed, for example, commutation tests, by which significant features of sounds bringing about changes in meaning, e.g. bat, bet, bit, could be established.

Trubertzkoy[5] is the most influential scholar in the Prague School to study the connection between phone and phoneme. His most complete and authoritative statements of principle are formulated in his *Principles of Phonology* published in 1939.Trubetzkoy followed Saussure's theory in his discussion of the phoneme. He said, phonetics belongs to parole, and phonology belongs to langue. As a founder and a leading scholar of the Prague School, he had his own particular approach to the study of phonology. He regarded the approach as the study of the function of speech sounds

[1] The term Animism is derived from the Latin *anima*, meaning "soul". In its most general sense, animism is simply the belief in souls. In this general sense, animism is present in nearly all religions. In a more restrictive sense, *animism is the belief that souls inhabit all or most objects; it attributes personalized souls to animals, vegetables, and minerals wherein the material object is - to some degree - governed by the qualities which comprise its particular soul*.

[2] Ferdinand de Saussure, called Forefather of Modern Linguistics, **made clear the object of study for linguistics as a science.**

[3] Edward **Sapir**, one of American anthropologists, once produced a hypothesis on the relation between language and culture with Benjamin Whorf

[4] The **Prague** **School**, the functional linguistics in structuralism school, is best known for its contribution to phonology and the distinction between phonetics and phonology.

[5] Prince **Nikolay Sergeyevich Trubetskoy** (or **Nikolai Trubetzkoy**) (April 15, 1890 – June 25, 1938) was a Russian linguist whose teachings formed a nucleus of the Prague School of structural linguistics.

and because of this emphasis he and other Prague linguists are called functionalists. Besides this distinction, Trubetzkoy defined the sphere of phonological studies. He studied the interindependent relations between phonemes and the method of studying phonological combinations, so Trubetzkoy, so Trubetzkoy developed Saussure's theory.

To sum up, the most outstanding contribution of Prague School is the method to study phonology from the aspects of sound and meaning, in other words, in terms of functions of sounds.

In linguistic history, behaviorist Bloomfield didn't consider the meaning when he studied phonology. But Chomsky, who believed the innate theory, in his *The sound Pattern of English* regards the phonology as part of syntax in "generative phonology". He found the phonological rules studied by the inner structure in the sentences. Firth's Prosodic phonology combines phonetics with grammars .Halliday's phonology relates forms to phonetic entities, for example, the relation between grammar and intonation, the grammar and stress and so on.

In 21th century there are most of changes in concrete phonetic alphabet, which influence the signs of phonology such as the KK IPA different from traditional IPA.

From the linguistic history on which we discussed, we define phonology as the science of speech sounds and sound patterns .One goal of phonology is to describe the differences among these speech sounds. And another goal is that of stating the general principles which determine the characteristics of all sound systems.

Phonology has both a physical and a psychological aspect of studying. The physical aspect is embodied in the study of phonetics, and the psychological in the study of naturalness. The information absorbed from phonology has applications in a number of areas, both practical and theoretical. Among these are applications to psychology, philosophy and the teaching of foreign languages.

Phonology has different transcended phonetic speech sounds in different language environment and different accents for different people (Jef Verschueren, 1999). **Learner's individual differences (cognitive style, motivation, personality and affect factors etc) affect second language acquisition (SLA) directly. Good cognitive style, high motivation and enthusiasm benefit the learners.** Individual teaching is an ideal teaching form and also a main stream of educational development in the future. Teaching strategy of teaching learning interaction in classroom is a good experiment to realize individual teaching. The strategy inputs the interaction between students, teachers and students, symbols and persons in emotion releasing, thought conflicting, sense perceiving, conformity of knowledge ability, and constructs abundant interactive scene in classroom, renews and perfects the problem- solving mode by students with the scene force, shapes the rethinking critical ability of students and enlightens students to master the learning strategy.

Above all, individual teaching in phonology can be good for the students to play a solid foundation for the second language learning.

II. THE ADVANTAGES OF GENERATIVE PHONOLOGY IN METHODOLOGY OF ENGLISH INDIVIDUAL TEACHING

The traditional phonologists used the method of description of absolute speech sound, which is abstract, but modern phonologists use the experimental method to measure the relative concept of speech sounds. In other words, traditional phonological rules are absolute, while modern phonological rules are generative rules drawn from the different context. In essence, traditional phonologists describe the isolated speech sound from subjective angle, and generative phonologists pay more attention to the real speech sounds in actual context (Carr, P, 1999).

In the early decades of this century, many traditional phonologists assumed that speech is composed of a series of isolated sounds which are combined into larger units, can be attached to meanings. They also believed that the correct understanding of nature of speech sound is a basic ability of speaker.

One of the traditional methods of phonological analysis is the formation and testing of hypotheses. Suppose, for example, that we describe the relationship between wanted and want. They do not have identical meaning and have only partially similar phonetic shapes though they have the same basic meaning. We at first should have the hypotheses that in the past time "We wanted to do something". Traditional phonologists try to describe the "ed"absolutely that in the past environment, the verb is added "ed" without variations.

In the 1940s and 1950s experiments with speech spectrography and speech synthesis show that speech is better described as a continuum of sound; individual speech sounds were still seen as the basic units of language. In other words, in the processes of production and perception of speech, these distorted basic units are adapted to their context, so the traditional understanding of speech is that speech withy few segments pronounced clearly is far simpler than spontaneous conversational speech. It is the limitation of traditional phonology.

Traditional phonologists have given us a great deal of useful information about nature of speech which is somewhat absolute. But they can not deal with the details of speech sound and the connection among spontaneous speech. From above interpretations, the following questions are raised: What are the rule and principles of combination of the speech sounds? How is the abstract representation of speech converted into concrete actual speech in the context?

Generative phonologists' new philosophical method differs from the traditional phonology in several ways (Chomsky, 1957). But their theories can answer those problems. Contemporary Chinese teaching philosophy results from the reflections on teaching practice, from the inheritance and advancement of the knowledge on teaching, and from the call of the teaching practice for teaching thoughts, with pedagogical thoughtfulness in particular. The generative teaching philosophy, born in the fertile cultural soil of contemporary China and the rich thoughts as to Chinese teaching philosophy, based on the inheritance of the traditional philosophical wisdom and the reference to the brilliant ideas from

home and abroad, has gradually established its fundamental standpoints, thoughts, and methods, which have increasingly closer ties with the external world and have a trend for a unification of its internal elements, with influence over such domains as teaching ontology, axiology, epistemology, aesthetic conception, and the conception of cultural history. Those thoughts combined form the Chinese theories on teaching philosophy, i.e. the generative teaching philosophy, with its core frame including such conceptions as pair-interaction, humanistic transformation, relationship evolution, super art, and cultural history. Such exploration in teaching philosophy, is supposed to undertake the historical mission, with the clarification of teaching value, the nourishing of teaching wisdom, and the leading of teaching innovation as its core. So individual teaching in generative phonology can help the students to develop their own language competence.

The application of Generative phonology need link with the meanings. Generative phonology belongs to generative linguistics, the study of the surface structure of language, which connects with the deep structure of language such as grammar, meaning, lexicology and context.

Modern or generative phonologists observe and understand the real speech sounds in the context from the angle of language functions. They defined the phonology as the component of a grammar made up of the elements and principles that determine how sounds vary and pattern in a language.

Especially their theories on allophones, syllable, a segment prove that speech sounds are changed with different contexts which produce many principles. Phonetic variation is a system of similar segments which are conditioned by the phonetic context or environment. In fact, every speech sound we utter is an allophone of the same phoneme. The different phones occur in different linguistic contexts and represent the same phoneme; they are called the allophones of that phoneme. When two or more allophones of one phoneme never occur in the same linguistic environment they are said to be in complementary distribution. For example, is an English phoneme which is phonetically realized or pronounced as either or [p] or [ph], [p] and [ph] are the allophones of the phoneme. So we can say traditional phonologists describe the isolated and abstract phoneme in the flow of utterances. And modern phonologists study the allophones in the phonological context in addition to the syllables and suprasegments. One reason that syllables are treated as units of phonological structure is that they are relevant to station generalizations about the distribution of allophonic features such as voiced, voiceless or velar and so on. The suprasegmental features such as stress, pitch, juncture and terminal contours are above the phonemic features. These features only can be sensed in the spoken context

All of the theories on allophones, syllables, and suprasegments prove the generative phonology in the context. With the introduction of transformational grammar came the generative phonology which establishes series of universal rules for conversing for the phonemic representation into phonemic representations into phonetic representations. So the generative phonology focuses on the process of conversion from abstract to concrete and vice versa. The phonemic features and suprasegmental features make further evident for generative phonology because they can help summarize the phonological rules.

Generative phonology has the most outstanding advanced method. It combines the morphology and syntax with phonology. Some linguists would say that it is the phoneme [t] that occur finally in both Rad and Rat in German, and account for the change of [d] to [t] in this relation, which describes the intermediate between morphology and phonology, namely so-called morphophonemic. This is a typical approach of generative phonology.

Another typical approach of generative phonology is the combination between phonology and syntax. There are also some phonology rules that depend on certain Kinds of syntactic information. Take some stress patterns of English for example. The stresses are determined by the syntactic category of the form to which the rules apply. A point case is the compound of greenhouse and the syntactic phrase of green house. The primary stress is assigned to the first word in the compound. The primary stress is assigned to the last word in the phrase. So the meanings are different. The former means a place to grow flowers, the latter means a house that is green.

The combination of phonology with morphology and syntax prove the advanced approach of generative phonology for combination of speech sound with meanings which is a creative finding. The recent methods adopted by modern phonologists involve the physics or mathematics and non-linear.

The different methodologies between traditional phonology and generative phonology decide the different depth and breath of their researches.   Of course, traditional depth and breath in phonology are more limited than generative.

III.   Their Advantages of Generative Phonology in Application to Individual Teaching

Traditional phonology shows their descendents about the problem how to convert the simple kind of speech into the more complex patterns of everyday connected speech sounds. But it can't explain the actual speech sound occurred in different spoken environment.

Generative phonology lessens the gap between what the phonologists knows about speech and how we people actually use the speech in real life. The phonological rules are internalized into people's linguistic competence through their combination with morphology and syntax. A point case is children's language acquisition Children can master their mother tongue from one-word phase to one-sentence phase because of their internalized rules in different actual environments.

The present situation for the individual teaching in the university is: Students from the same class are different from

one another in many aspects such as aptitude, motivation, personality, attitude, etc.

(i) Language aptitude refers to a natural ability for learning a second language. It is believed to be related to a learner's general intelligence. It has been generally accepted that learners who achieve high scores in language aptitude tests learn rapidly and achieve high proficiency in second language learning.

(ii) Motivation. While language aptitude works on the learner's cognitive mechanism, motivation, defined as the learner's attitudes and affective state or drive, has a strong impact on his efforts in learning a second language. Learners' motivation may ebb and flow at times and in accordance with their particular interests, learning involvement and the learning context. As learners' strong motivation promotes their learning, their progress or achievement will in return enhance their language learning motivation further.

(iii) Personality. In terms of communicative ability rather than grammatical accuracy or knowledge of grammatical roles, the personality traits such as extroversion, talkative, self-esteem, self-confidence can be found in successful second language learners. Certain personality traits appear helpful in completing certain tasks in learning a second language. Teaching strategies: Teachers face a lesson where the students are at different levels-some with quite competent English, some whose English isn't very good, and some whose English is only just getting started.

What are the possible ways of dealing with the situation?

(i) Use different materials: when teachers know who the good and less good students are, they can form different groups. While one group is working on a piece of language study, the other group might be reading a story or doing a more advanced grammar exercise. Later, while the better group or groups are discussing a topic, the weaker group or groups might be doing a parallel writing exercise, or sitting round a tape recorder listening to a tape. In schools where there are self-study facilities (a study centre, or separate rooms), the teacher can send one group of students off to work there in order to concentrate on another. Provided the self-study task is purposeful, the students who go out of the classroom will not feel cheated. If the self-study area is big enough, of course, it is an ideal place for different-level learning. While one group is working on a grammar activity in one corner, two other students can be listening to a tape and another group again will be consulting an encyclopedia while a different set of colleagues is working at a computer screen.

(ii) Do different tasks with the same material: while teachers use the same material with the whole class, they can encourage students to do different tasks depending on their abilities. A reading text can have questions at three levels, for example. The teacher tells the students to see how far they can get: the better ones will quickly finish the first two and have to work hard on the third. The weakest students may not get past the first task. In a language study exercise, the teacher can ask for simple repetition from some students, but ask others to use the new language in more complex sentences. If the teacher is getting students to give answers or opinions, she can make it clear that one word will do for some students whereas longer and more complex contributions are expected from others. Lastly, in role-play and other speaking or group activities, she can ensure that students have roles or functions which are appropriate to their level.

(iii) Ignore the problem: it is perfectly feasible to hold the belief that, within a heterogeneous group, students will find their own level. In speaking and writing activities, for example, the better students will probably be more daring, in reading and listening, they will understand more completely and more quickly. However, the danger of this position is that students will either be bored by the slowness of their colleagues or frustrated by their inability to keep up.

(iv) Use the students: some teachers adopt a strategy of peer help and teaching so that better students can help weaker ones. They can work with them in pairs or groups, explaining things, or providing good models of language performance in speaking and writing. Thus, when teachers put students in groups, they can ensure that weak and strong students are put together. However, this has to be done with great sensitivity so that students don't get alienated by their over-knowledgeable peers or oppressed by their obligatory teaching role. Many teachers, faced with students at different levels, adopt a mixture of solutions like the ones suggested here. As teachers we should first understand and respect the diversity of learning strengths within any group, and offer choices in how information and skills will be acquired. It is the teacher's responsibility to create in the classroom a democratic educational environment that enables students to equitably develop their individual learning styles to meet the diverse demands of school and life with increased confidence and competence. We can indeed work toward promoting and sustaining greater diversity in our educational system by first assessing the extent to which we truly honor individual differences within our own classes, then by setting incremental personal goals for modifying our instruction to respond to a wider range of learner characteristics.

(v) A new type of evaluation method, operating different evaluation to the individuality of different students, will help stimulate interest in learning. Evaluation can include the language of individual evaluation in the classroom; individual evaluation of students' homework and mutual evaluation in the group.

So we must go further, though, than instructional modification in our efforts to create democratic learning environment we must actively seek and share practices with colleagues that will help our students identify the obstacles that restrict their possibilities in school and in society, and equip all of the unique learners who fill our classes with the knowledge and strategies to take action toward transforming which limits them.

The most advantage of generative phonology can help people generate the different utterances in different context, in other words, it can relate the abstract speech to the actual world. The goal to train the students' language competence will be achieved in the individual teaching of Phonology.

IV.   Conclusion

Generative teaching as the spirit of the new curriculum reform is the basic orientation of teaching reform, but at the same time, its own technical tendencies start to breed. Technology - oriented generative teaching will rise to "false generation", "random generation", and "rigid generation". Technology -oriented generative teaching will be to deviate from the purport of the departure from the teaching of liberation, to hinder the teachers are recognized as changes in the main role and the impact of teachers involved in curriculum reform, and to hinder cultivate students' creativity and teaching democracy.

Generative phonology is largely dominated by the theory in Chomsky and Halle's SPE. A significant development in phonology is the appearance of nonlinear phonology. In nonlinear phonology the focus on phonological structure has replaced the formal role of phonological rules.

All in all, generative phonology is more advanced than traditional phonology from those ways. Especially the study of phonological structure instructs effectively on the teaching of foreign language. If it applies to individual teaching, it can be used in the context.

Acknowledgement

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