
Review Article

Cohesion and Coherence Studies: Development, Chaos and Application

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Abstract: Cohesion and coherence are the basic concepts and important subjects in discourse analysis. After the publication of *Cohesion in English* by Halliday and Hasan (1976), linguists paid close attention to cohesion, coherence and the relationship between the two concepts. They adapted and developed this theory from diversified perspectives. Since cohesion and coherence are also two critical elements of high-quality articles, a multiplicity of linguists and educators were committed to exploring the effect of cohesion and coherence on writing quality. In addition, some researchers tried to apply cohesion and coherence theory to English teaching so as to improve students' writing quality. The past decades have witnessed the theoretical and empirical development of cohesion and coherence. This paper first makes a review of the theoretical development of cohesion and coherence, and the relationship between the two concepts. And the present paper also deals with chaos in previous cohesion and coherence studies combining the author's beliefs. Then empirical studies of cohesion and coherence theory are introduced which are divided into two categories. The first group of empirical studies explores the relationship of cohesion, coherence and writing quality; The second group applies this theory to writing teaching. The article concludes with limitations and future directions of researches about the application of cohesion and coherence theory to writing teaching.

Keywords: Cohesion, Coherence, Writing Quality, Writing Teaching

1. Introduction

There is general agreement among researchers and educators involved in second language education that writing, among the four basic skills of second/foreign language, can reflect a person's language competence to the greatest degree and that cultivating writing ability acquires lots of efforts and time. As one of the two productive skills and a way to organize and deliver thoughts, writing deserves greater attention of researchers, teachers and students. In order to write an article of high quality, a writer needs to employ diversified vocabulary, follow grammatical and syntactic rules, organize sentences in a cohesive way and make sentences, paragraph and the whole passage coherent. Among the above requirements, those related to cohesion and coherence are the most difficult ones to meet. However, language learners tend to ignore the problems of incoherence and inconsistency in their writings. As a result, they fail to

express their intentions clearly and present their compositions in an organized and logical way. Although language teachers are aware of the importance of cohesion and coherence and students' incompetence in this field, they have no ability to design systematic instructional strategies to improve cohesion and coherence in students' writings, which results from their lack of knowledge regarding cohesion and coherence theory. Therefore, it is crucial for educators to grasp the relevant knowledge of cohesion and coherence. However, because of diversified study methods and perspectives, there are many disputes regarding the definitions of cohesion and coherence, and the relationship between the two concepts. This review article elaborates cohesion and coherence theory and analyzes empirical studies of cohesion and coherence theory which verify the importance of cohesion and coherence in improving writing quality. The paper aims to equip teachers with knowledge of cohesion and coherence and inspire them to design effective and convincing writing teaching approaches so as to make

students' compositions more cohesive and coherent.

2. Theoretical Studies of Cohesion and Coherence Theory

Cohesion and coherence are two basic concepts in the field of discourse analysis. During the past decades, linguists both at home and abroad have developed and supplemented the two concepts based on the remarkable achievements made by Halliday and Hasan [1]. However, because of diversified study perspectives, scholars formed different even contradictory perceptions towards cohesion and coherence. This part makes comparison and synthesis across studies, and mainly covers the origin and development of cohesion and coherence, and the relationship between cohesion and coherence.

2.1. The Origin and Development of Cohesion

There is a consensus among linguists that it was Jakobson that conducted the earliest study of cohesion by analyzing syntactic structure and parallelism in literary texts with reference to poetry [1]. In 1964, Halliday divided cohesion into grammatical cohesion and lexical cohesion. In the year of 1976, a pioneering work, *Cohesion in English* was published by Halliday and Hasan in order to describe relationships between and among sentences. It was this book that attracted scholars' attentions to cohesion and made it a significant concept in many fields. According to Halliday and Hasan, cohesion is a semantic concept and "it refers to relations of meaning that exist within the text, and that define it as a text" [2]. Concerning the nature of cohesion, many scholars hold different views with the one put forward by Halliday and Hasan. For example, Baker regards cohesion as a surface notion with the only function of connecting words and expressions [3]. Thompson has a similar understanding towards cohesion [4]. He believes that cohesion is the linguistic devices through which readers or speakers can signal the coherence of the text. Brown and Yule regard cohesion as linguistic forms and believe that it has no effect on coherence [5]. However, there are still many linguists siding with Halliday and Hasan. Schiffrin argues that "cohesion has to do with semantic meaning" [6]. Zhang believes that formal/linguistic features are used to represent cohesive relations and the features cannot be equal to cohesion [7]. After a review of the statements made by linguists who are disapprove of the semantic attribute of cohesion, it is easy to find that they tend to confuse cohesion with cohesion devices, thus treating the two as the same thing. In their studies, they only focused on the surface features of cohesion, which are actually cohesion devices. When we discuss text cohesion, the presence of linguistic features is considered as evidences of cohesion. Whereas cohesive devices are only used to present cohesive relationships, they are not equal to cohesion. In other words, cohesion in writing is achieved through the use of linguistic devices. Therefore, cohesion is a semantic concept and it is represented by surface linguistic devices.

Halliday and Hasan mentioned that "All grammatical units—

sentences, clauses, groups, words—are internally 'cohesive' simply because they are structured. Cohesion within a text depends on something other than structure. Our use of the term COHESION refers specifically to these non-structural text-forming relations. They are semantic relations, and the text is a semantic unit" [2]. Some linguists believe that Halliday and Hasan failed to include those cohesive ties within sentences. Martin, for example, argues that Halliday and Hasan's account failed to generalize across environment to include structural and non-structural relations [8]. He inclines to study cohesive devices at both the intra-sentence and inter-sentence levels. As a matter of fact, Halliday and Hasan do not draw a stiff line between cohesion within a sentence realized by grammatical structures and cohesion between and among sentences. Halliday and Hasan admit that "cohesive relations have in principle nothing to do with sentences boundaries" [2]. However, cohesive relations within a sentence attract less notice because it is grammatical structures that make the sentence hang together. In their opinion, "the task of conveying meanings (semantics) is so different from the task of building sentences (syntax) that discourse is fundamentally different in kind from sentences" [6]. Just as above mentioned, Halliday and Hasan confirm that cohesion is a semantic concept and cohesive devices are used to express semantic relationships among sentences. As a result, it is unnecessary to discuss the cohesive relations within a sentence which are realized by grammatical structures.

Halliday and Hasan mention that a cohesive tie "is a semantic relation between an element in a text and some other element that is crucial to the interpretation of it" [2]. The two semantically related elements can both lie within the text or one of the two lies outside the text. Halliday and Hasan name the latter case "exophora". In other words, exophora is the situation that "the information required for interpreting some element in the text is not to be found in the text at all, but in the situation" [2]. As far as Halliday and Hasan concerned, exophora does not contribute to the cohesion of a text because they focus on cohesive relations across sentence boundaries but within the text. They believe that cohesion depends upon lexical and grammatical relationships that allow sentence sequences to be understood as connected discourse rather than as autonomous sentences. Halliday and Hasan put forward a taxonomy of textual cohesion, categorizing linguistic features that have the function of cementing sentences together and forming a semantic unit [2]. They describe five linguistic devices that are used to establish cohesion: reference, substitution, ellipsis, conjunction and lexical cohesion.

After the publication of *Cohesion in English*, Halliday and Hasan continued their study of cohesion and further developed and extended it in subsequent works. In the book *An Introduction to Functional Grammar*, Halliday abandons the previous classification of conjunction and categorizes conjunctive elements into elaboration, extension and enhancement according to the logic-semantic relations between sentences [9]. Hasan enlarged the concept of cohesion and reclassified cohesion into structural and non-structural cohesion [10]. The former covers parallelism,

theme-rheme development and given-new information. The latter includes componential relations and organic relations. Besides Halliday and Hasan, many linguists both at home and abroad also adapted, developed and extended cohesion theory.

Perara indicates that the consistent employment of tense across the text also indicates the cohesion of writing [11]. Cohesion is represented not only by grammatical and lexical devices but also by tense markers. Hoey's insights of lexical cohesion were shown in his book *Patterns of Lexis in Text* [12]. In this book, he emphasizes the importance of lexical patterning and insists that much of cohesion of text is created by lexical ties. Just like he said, "the study of the greater part of cohesion is the study of lexis, and the study of cohesion in text is, to a considerable degree, the study of patterns of lexis in text". Martin reconstructs cohesion theory from the perspective of discourse semantics and forms an integrated structure of cohesion [8].

Since *Cohesion in English* was published and introduced to China, many Chinese scholars have made remarkable achievements in developing cohesion. Halliday and Hasan's theory of cohesion and its classification were elaborated in *A Survey of Systemic-Functional Grammar* [13]. In the following years, three authors of the book furthered cohesion studies from different perspectives. Hu Zhuanglin extends the scope of cohesion in his book *Discourse Cohesion and Coherence* [14]. He believes that cohesive relations should not be confined within lexical and syntactic level. Cohesive relations can also be found in other functional categories, such as transitivity at the semantic level, the theme-rheme structure at the syntactic level, and intonations and sound patterns at the phonological level. And context and pragmatic knowledge should also be included in the multi-level model of cohesion and coherence. As a result, Hu constructs a relatively systematic framework of cohesion and coherence in *Discourse Cohesion and Coherence*. Zhu makes a classification of collocation, dividing it into two types: words in the same semantic field and words not in the same semantic field but often collocate together [15]. This classification makes the identification of collocation much easier. Besides ideational and textual relations, Zhang and Liu argue that interpersonal relations can also create cohesive effects by applying mood, modality and other devices [16]. He also focuses on the relationship between cohesion and coherence which will be discussed in the following part.

The development of cohesion makes it evident that cohesion studies should not be restricted within linguistic devices. Now that cohesion is a semantic relation, any semantic features can be regarded as cohesive devices as long as it can express semantic relations even if there is no formal correspondence. Meanwhile, cohesion is often related to coherence so as to study their effects on the text systematically.

2.2. The Origin and Development of Coherence

The study of coherence can trace back to the 1960s. Many scholars had been studying coherence from different perspectives before Widdowson first proposed the term

"coherence" in 1978 [17]. Although reference [2] did not mention the term "coherence", the term "texture" is very similar to it. Halliday and Hasan believe that "the concept of TEXTURE is entirely appropriate to express the property of 'being a text'. A text has texture, and this is what distinguishes it from something that is not a text". Their interpretation of text and texture aroused the attention of linguists to coherence. With the flourish of text linguistics, linguists of all schools have been studying coherence in depth. Because of different study perspectives and methods, linguists have not reached a consensus on the nature of coherence. According to the previous studies, there are three major interpretations towards the nature of coherence.

The first school of linguists regards coherence as a semantic concept. Their studies of coherence are based on texts. They believe coherence is the inherent characteristic of the text used to differentiate texts from non-texts. Van Dijk proposes that the coherence of text is made up of two concepts, namely linear coherence and global coherence [18]. The linear coherence is manifested in three aspects, the sequence of stating facts, the degree of refinement and the organization of information. Global coherence is demonstrated by the macro-structure of the text. He believes that it is the macro-structure that determines the degree of overall coherence. Linear coherence just lays a foundation for the realization of overall coherence. Danes and Fries hold the view that the degree of coherence is related to the continuation in thematic progression [19, 20]. Their opinions on coherence are built on Dane's theory of thematic progression. Danes categorizes patterns of theme-rheme development into three types [19]. The first type is simple linear progression where the theme is the rhyme of the preceding sentence. The situation where the theme is identical in a sequence of sentences is called continuous theme progression. The last pattern is derived theme progression in which sentences are governed by an extra theme, hyper-theme. These patterns of thematic progression connect the information in the text based on the leading function of theme. Danes and Fries believe that the alternative movement of theme and rheme realizes the coherence of the text. If there emerges discontinuity in thematic progressions, the degree of coherence will be influenced. Although remarkable achievements have been made by linguists who explore coherence from a semantic perspective, there exists a common defect in their studies. Coherence is confined within a decontextualized environment where cultural and situational context and the writing purpose are all neglected.

The second school of linguists explores coherence from a pragmatic perspective. They hold the view that coherence is closely related to the context. The reader or the listener depends on the information provided in the context to interpret the proposition within the text. Widdowson mentions that in the process of communication, the interlocutors express a proposition and perform an illocutionary act simultaneously [17]. Cohesion is regarded as the explicit, linguistically signaled relationship between propositions expressed through sentences. While coherence is defined as the relationship

between illocutionary acts. If people can associate sentences with appropriate propositions, these sentences together form a cohesive discourse. However, when the discourse is not cohesive at all, we should deduce the illocutionary act and interpret the implication of the speaker or the writer according to the context. Reinhart and Ehrlich classify coherence into two categories, explicit coherence and implicit coherence [21, 22]. Three conditions need to be met for realizing explicit coherence. That is cohesion, consistency and relevance. When the text cannot meet the above three requirements of explicit coherence, the receivers turn to implicit coherence for comprehension. It refers to the circumstances when they make pragmatic inference with the help of the information in the context. Compared with studies of coherence which take a semantic perspective, there is an evident incorporation of contextual variables in the pragmatic studies of coherence. However, both semantic and pragmatic studies of coherence do not put cognitive variables into consideration. Verbal communication is a dynamic process in which interlocutors, linguistic system and context interact with each other. Variables relevant to interlocutors should not be overlooked in studies of coherence.

The last school of linguists makes full use of psychological knowledge to explicate coherence. According to Hobbs, the degree of text coherence depends on the listener's or the reader's interpretation of the speaker's or the writer's purpose [23]. Therefore, the more genuinely the receiver restores the sender's original plan, the more coherent the text will be. Brown and Yule point out that the listener or the reader assumes that words presented constitute the text conventionally [5]. Therefore, they make every possible effort to reach a coherent comprehension. In order to reconstitute the text, the listener or the reader is more likely to build a coherent picture and fit in a series of events rather than resort to verbal connections alone. Gumperz mentions that the interlocutors engage in the conversation in cooperative and negotiating manners [24]. He regards the cooperation and negotiation as the process of coherence. Givón claims that coherence is a subject behavior based on the constant negotiation between the interlocutors in the process of communication [25]. To sum up, the last group of linguists explores variables of coherence related to cognitive thinking of interlocutors comprehensively. Indeed, we should take psychological factors into consideration while discussing coherence. However, it is unreasonable to emphasize cognitive factors one-sidedly. As an inherent attribute of discourse, coherence should have its objective criterion. Without such a criterion, we cannot differentiate texts from non-texts.

Based on all the above studies of coherence, the present study summarizes its influence factors systematically. Three fields, semantics, psychology and pragmatics are all involved in studies of coherence. Semantic factors include discourse topic, discourse structure (macro-structure and theme-rheme structure) and cohesion devices. Since communication is a psychological activity, people's communicative intentions and cultural background knowledge should be taken into consideration when analyzing coherence of written or spoken

discourse. In addition, coherence is also influenced by pragmatic factors including situation, participants and modes of communication.

2.3. *The Relationship Between Cohesion and Coherence*

When it comes to the relationship between cohesion and coherence, scholars have not yet reached consensus on it. The effect of cohesion on coherence has always been the bone of contention. Their viewpoints can be classified into three categories.

The first type of belief is that cohesion is a necessary but not sufficient condition in achieving coherence. Halliday and Hasan are two leading representatives of this view. They explained it in the book *Cohesion in English* clearly [2]. They argue that "a text is a passage of discourse which is coherent in these two regards: it is coherent with respect to the context of situation, and therefore consistent in register; and it is coherent with respect to itself, and therefore cohesive". In other words, coherence must be realized through the satisfaction of the two conditions. Therefore, cohesion is not the only requirement of coherence. Thompson also believes that cohesion is the necessity of coherence. He pointed out that cohesion is indispensable but insufficient in achieving coherence of the text [4]. Two requirements need to be met in achieving coherence: cohesion and semantic requirements. Besides appropriate cohesion among sentences, internal semantic connection is also necessary for its function of allowing a text to be understood as a whole.

The second opinion is that a cohesive text is not always coherent and a coherent text sometimes is not cohesive at all. Linguists who hold this view can further be classified into two schools. One school of linguists believes that coherence is a social phenomenon. It depends on pragmatic functions rather than on cohesive devices. For example, Widdowson argues that cohesion is a locutionary act, while coherence is an illocutionary one [17]. Therefore, cohesion has little effect on coherence. The other group regards coherence as a mental phenomenon. They explore coherence from the perspective of cognitive science. Brown and Yule, for instance, emphasize the effect of listeners or readers on coherence [5]. Stubbs also claims that it is the interpretation of the listeners that creates coherence of discourse [26].

There is also a group of linguists who considers cohesion as the result of coherence. Beaugrande and Dressler represent this point of view. They believe that when readers are reading a text, an assumption already made by them is that the text is coherent [27]. And they will explore cohesion of the text so as to verify their hypothesis.

With the flourish of discourse analysis, an increasing number of linguists have made intensive study of cohesion and coherence. They look at the relationship between cohesion and coherence dialectically. Although there exist some coherent texts which are not cohesive, we cannot deny the significance of cohesion. In most cases, there are evident cohesive ties in coherent texts because cohesion can promote coherence. Zhu claims that cohesion should not be considered as the premise of coherence but one way of realizing it [28]. In

other words, cohesion does play an important role in achieving coherence. However, coherence can also be realized in other ways. Miao proposes that we should not set cohesion and coherence against each other [29]. It is reasonable to analyze the relationship between the two dialectically. During the process of communication, the speaker or writer always tries his or her best to keep the discourse coherent. And the receiver takes the coherence of the text as a prerequisite while interpreting the discourse. The receiver will pay less cognitive effort if the constructor of the discourse can make full use of cohesive devices. He also opposes linguists to fabricate cohesive but not coherent texts. Because artificial ones are totally different from discourse in reality. In addition, there are many problems in artificial texts. For example, only lexical cohesion appears in the discourse. And cohesive devices in those texts cannot form cohesive ties throughout the whole text. Zhang holds the view that situational context is the principal standard of testing whether the text is coherent [7]. In fact, context decides which meanings should be represented by linguistic forms and which meanings are expressed by other factors in the context. Artificial texts appear when we use linguistic devices to express meanings which should be represented by contextual factors. Besides cohesive links within the text and contextual factors, writers must consider the reader's knowledge of the world, expectation of this type of text and so on. Therefore, cohesion can only be considered as an important factor of coherence.

3. Empirical Studies of Cohesion and Coherence Theory

Although linguists hold different views on cohesion and coherence theory, there is little dispute among them that cohesion and coherence make a great influence on writing quality. As a result, researchers make further study on the application of cohesion and coherence to English writing so as to corroborate their effectiveness. Relevant empirical studies can be divided into three categories: the assessment of cohesion and coherence in students' writings, the relationship among cohesion, coherence and students' writing quality, and English writing teaching based on cohesion and coherence theory.

3.1. The Assessment of Cohesion and Coherence in Students' Writings

In order to investigate the relationship among cohesion, coherence and writing quality, reliable tools are needed so as to assess cohesion and coherence correctly. Cohesion is a relatively objective quality of writings because of its cohesive devices. However, coherence is inherently subjective concerning its various influence factors, especially those related to readers. Despite its inherent subjectivity, researchers tend to find some reliable methods to assess coherence. For example, Richard et al. used topic-based analysis to evaluate coherence and the results of this assessment were compared with teachers' marks for coherence [30]. And it was found that

the number of moves between key concepts per 10 T-units correlated most closely with the teachers' marks. Zhang also introduced a five-step method of determining the degree of coherence [7]. We need to determine the context in which discourse is produced, the situational dependency of discourse, the external cohesive mechanism, the internal cohesive devices and the relationship between cohesion and coherence in a sequence. This method depends on the markers' interpretations of discourse to some degree. Therefore, its objectivity cannot be guaranteed. However, researchers can employ highly trained personnel to increase the reliability of the result.

With the help of computer linguistics, researchers have made the assessment more easily and conveniently in recent years. For instance, Graesser et al. employ the computer system, Coh-Metrix to assess cohesion of texts [31]. Crossley et al. introduce a more advanced system named as Writing Pal which can not only evaluate cohesion but also can offer feedback concerning students' shortcomings in this aspect [32]. They also conducted an empirical study in order to verify the reliability and validity of the system. Another tool was introduced by Crossley et al. to analyze cohesion automatically [33]. This tool called TAACO (Tool for the Automatic Analysis of Cohesion) is able to evaluate cohesion from local, global and overall perspectives.

In general, relatively subjective assessments are chosen when there are plenty of time and energy. Online assessing systems are more suitable when there is an overwhelmingly number of writing samples since they are able to conduct an objective assessment in an effortless way.

3.2. The Relationship Among Cohesion, Coherence and Writing Quality

Although there is little dispute among researchers and educators that cohesion and coherence are important determinants of writing quality, they tend to find out concrete differences of cohesion and coherence in writings of different qualities.

Witte and Faigley analyze essays of college freshmen rated high and low quality in order to find out the usefulness of cohesion in writing [34]. Their research came to a conclusion that writers of high-quality articles employ a substantially higher percentage of immediate and mediated cohesive ties than do those of the low-rated essays and low-level writers rely more heavily on lexical cohesion. Crowhurst studies the compositions of pupils from three grades in order to find out the differences in the cohesive devices used by them [35]. The result shows that some cohesive devices, such as synonyms were more correctly used with the increase of students' age and grade. However, some were negatively correlated, such as reference, reason, and time connections. Xu makes an experiment in which articles written by English majors are compared with those written by English teachers [36]. The result shows that there are more cohesive devices in the articles written by English teachers than in those written by English major students. He emphasizes that attentions should be paid to cohesion and coherence during writing.

Song and Xia make statistical analysis of cohesive devices in articles of different levels [37]. A larger number of subjects made the result more convincing than the above one done by Xu (2000). The results also confirm that there exist more cohesive devices in high-quality compositions. In addition, they also find that lexical cohesion contributes most to good articles. Taboada analyzes expositions and narratives of 64 students and divides them into the high-level group and the low-level group [38]. Two types of writing make the same result as the above two researches more reliable. Although some results show that not all of the cohesive devices are positively correlated with writing quality, the above researches are persuasive enough in verifying the positive relation between cohesion and writing quality.

All the above researches merely focus on cohesion of students' writings. In fact, there are also many studies exploring coherence in students' essays. McCulley investigates the relationships among cohesion, coherence and writing quality [39]. The results indicate that general coherence is an important influence factor of writing quality and some lexical cohesive features and collocation are important elements of both writing quality and general coherence. Li makes an experiment in which 50 English majors are chosen to be subjects [40]. He not only analyzes five types of cohesive devices in their articles but also explores topic, logic and other factors related to coherence. The results show that students have the greatest difficulty in employing conjunctions correctly. In terms of coherence, he finds that students are not good at logical reasoning and example illustration.

The above researches offer implication to English writing teaching in that cohesion and coherence are important determinants of writing quality. In order to write high-level compositions, students need to pay more attention to cohesion and coherence and teachers should have the awareness of developing students' abilities of improving text cohesion and coherence.

3.3. English Writing Teaching Based on Cohesion and Coherence Theory

Since there are significant differences of cohesion and coherence in writings of different quality, the top priority is to find appropriate writing teaching approaches to improve cohesion and coherence of students' writings. In recent years, many domestic researchers have tried to apply cohesion and coherence theory to writing teaching practices. For example, Zhang puts forward four suggestions for writing teaching on the basis of cohesion and coherence theory [41]. First of all, teachers should make comparisons between Chinese and English cohesive devices during writing teaching so as to reduce the negative effects of native language in the aspect of cohesion. Secondly, students should be taught to make full use of synonyms, antonyms, hyponyms, super-ordinates. And teachers can make full use of sample articles to illustrate how to improve cohesion and coherence of writings. Finally, teachers should assess students' compositions in a more careful way rather than giving an overall and unspecific

evaluation. Li and Li make a teaching experiment at college in order to test the validity of the teaching model they designed based on cohesion and coherence theory [42]. They first explain cohesion and coherence theory to students and then make full use of sample writings to illustrate it. Then students are asked to write articles so as to practice applying cohesion and coherence theory. The positive results of their research verify the effectiveness of the teaching model. Zhao also designs a similar teaching model to teach high school students [43]. The research results indicate that cohesion and coherence theory-based writing teaching model is conducive to improving students' writing proficiency.

4. Limitations of Previous Studies and Suggestions for Further Researches

Although many linguists make efforts to apply cohesion and coherence theory to English writing, there are several limitations in the aspect of research objects, research instruments and teaching models. Most cohesion and coherence researches were conducted at college and college students are the main objects of writing teaching experiments which are based on cohesion and coherence theory. In the future, researchers should pay more attention to middle school students and try to conduct more teaching experiments at middle schools so as to improve middle school students' writing quality. In fact, a few researchers have studied the influence of cohesion and coherence theory on high school students' writings. However, evident defects in their studies make the results unauthentic and unreliable. For example, according to her example teaching plans, Zhao introduces the theoretical knowledge of cohesion and coherence to high school students in the process of teaching experiment [43]. She overestimates the understanding ability of high school students. Cohesion and coherence theory are knowledge of linguistics which is beyond their capabilities. Instead of explaining the theory, teachers can make full use of sample writings to illustrate how to improve cohesion and coherence, compare students' writings with sample ones and offer suggestions to students in terms of cohesion and coherence while evaluating their compositions. These teaching methods are more feasible in middle school teaching experiments. Single research instrument made the improvement of students' writing quality questionable. For example, Yang only analyzes the overall scores of students' writings [44]. He conducts the independent sample t test to analyze whether students' writing quality has changed. If researchers want to verify that writing teaching models based on cohesion and coherence theory can improve students' writing quality, they should first analyze whether cohesion and coherence in students' writings have been improved. For example, Zhao used Coh-matrix 3.0, a web-based analytic system to analyze discourse coherence and evaluated cohesion in students' writings by calculating the mean value of the frequency of different cohesive devices [43]. Besides automatic evaluation, researchers can also designate evaluators to assess cohesion and coherence of students'

writings on the condition that they receive unified trainings before the assessment.

To sum up, it is feasible to conduct writing teaching studies in middle schools based on cohesion and coherence. Future researches should select the essence and discard the gross of previous studies so as to design reliable and effective writing teaching models to improve students' writing quality.

5. Conclusion

This study gives a review of both theoretical and empirical studies of cohesion and coherence theory. After reviewing theoretical studies of cohesion and coherence, the author concludes that cohesion is a semantic concept and should be differentiated from cohesive devices. While the influence factors of coherence are not restricted within the field of semantics. Fields of semantics, psychology and pragmatics are all covered in studies of coherence. Moreover, the author puts forwards that cohesion is an important factor of coherence. Most coherent texts contain a variety of cohesive devices. However, coherence can also be realized in other ways. After reviewing empirical studies of cohesion and coherence theory, it was found that cohesion and coherence are two important determinants of writing quality. Many researchers tried to apply cohesion and coherence theory to writing teaching. However, many defects and disadvantages are found in their teaching experiments. And few researchers applied this theory to English writing teaching in high school. Future researches should get rid of the aforementioned defects and design convincing and reasonable teaching methods based on cohesion and coherence theory to improve students' writing quality.

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