Temporal Function of Research Process Nominal Groups in the English Titles of

Chinese Journal Articles

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Abstract

Most studies of research article titles suggests that they informational, but some

studies have shown the effect of cultural influences on title structure. However, the

extent of the influence of culture on title text is not clear. An investigation of research

process nominal groups in title text can help produce a better understanding of the

influence of culture on academic discourse. The incorporation of research process

nominal groups by L1 Chinese writers of English in research article titles is common.

A corpus of 408 titles from 76 Taiwanese journals was parsed into groups based on

nominal headwords, thereby resulting in 1776 nominal groups, 26% of which

contained a research process term. The most frequently appearing headword, *study*,

accounted for 16.6% of the research process nominal groups in the corpus. One

explanation for this situation is that L1 Chinese writers of English titles use the term

study because it realizes a temporal approach to narrative where the information

unfolds more gradually than the informational style of L1 English writers. In addition,

selected title constructions seem to be in contradiction to the rules primarily

elaborated for native Anglo-American writers in manuals of style.

Keywords: nominal groups, research article titles, contrastive cross-cultural analysis,

L1 Chinese writers, research writing.

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There is an increasing understanding of the importance of second language

writing in international scientific communication. Contrastive rhetoric has shown that

ways of thinking and writing in first language influence a person's second language

writing (Connor, 1996). As Dahl (2004) suggests, writers from English, French, and

Norwegian cultures "leave traces of themselves in their writing which may be linked

to national as well as disciplinary culture" (p. 1807). These traces of culture can be

seen in different types of text. In an analysis of first position nominal groups in

research article titles, Yakhontova (2006) shows that the influence of established

cultural traditions of research writing is expressed through syntactic structures.

Although research has shown that rhetorical traditions can be altered by cultural

influences, the *Publication Manual of the American Psychological Association*

(2001), hereafter the *APA Manual,* seems to suggest certain syntactic constructions in

title text serve no useful purpose without considering this issue. This interpretation

may be due to the assumption that certain research process nominal groups have only

a general reference to research methodology. However, many research process groups

serve a dual function, specifying methodology and creating a narrative structure that

orders the following nominal groups (Rath, 2010a), and their usage may be a L1

cultural tradition expressed in a L2 written form. Despite this, little progress has been

made by manuals of style to recognize the legitimacy of cultural traditions and

alternate functions of syntactic structures in research writing outside the dominant

Anglo-American model.

Title Structure

Since its inception, genre analysis (Swales, 1990) has examined and explained

research writing, including detailed analyses of all parts of the research article.

Despite many studies of title text (Cianflone, 2010; Haggan, 2004; Soler, 2007), there

has been considerable debate about the function of titles, though most research has

documented the dominance of nominal group construction. Nominal groups,

characterized by Halliday (1994) as above the morpheme and word level and below

the clause level, are noun-headed phrases. The canonical structure of noun-headed

phrases (Biber, Johansson, Leech, Conrad, & Finegan, 1999) requires that they be

constructed around a noun, called a headword or head.

When a title is parsed into nominal groups, the first position phrase can

contain either disciplinary content or research process (Rath, 2010a). Noun phrases

specifying methodologies or research concepts can be called research process nominal

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groups. When first position headwords specify research methodology through taxonomic compounding they are categorized as pre-modified nominal groups, whereas clausal constructions following the head are identified as post-modified nominal groups. Alternate descriptions of title structure, such as Cianflone's (2010), suggest that titles have a subject and object, like sentences, but full-sentence and question titles seem to be a minority of titles in most fields (Haggan, 2004), though they are more common in medicine, biology, and veterinary medicine according to Cianflone.

In a study of syntactic structures in English titles of international medical research articles, Wang and Bai (2007) categorize first position nominal groups by number of terms, grammar of phrases, and information structure. When nominal groups are pre-modified, Wang and Bai suggest they have a "powerful ability to compact information in an economical way" (p. 395). Jalilifar (2010) categorizes title terms in applied linguistics in six groups by their informativeness, including one group that specifies research methodology. Many researchers have used categorization systems that separate methods from content terms in titles (Anthony, 2001; Goodman, Thacker, & Siegel, 2001), though no system predominates. Based on categorization systems in recent research, three themes emerge: general research terms, research methods terms, and research constructs. General research terms are

introductory phrases such as *study* that emphasize process. Research methods terms

identify specific analytical techniques, such as *case study*. Research constructs

highlight concepts, such as an *effect* or a *relationship*.

In a study of linguistics titles in SSCI journals, Rath (2010a) shows that about

20% of the titles start with research process nominal groups, and the remaining 80%

begin with disciplinary content nominal groups. When a research process nominal

group is in first position it is likely to act as a theme marker. This text structure can be

described as a Theme/Rheme construction (Halliday, 1994). In this type of title, first

position nominal groups have a dual function, realizing a research concept and acting

as a theme marker. Research process nominal groups regularly perform these two

functions, specification, and narration, as opposed to first position disciplinary content

nominal groups which usually offer description without narration.

Given the formulaicity of scientific writing (Flowerdew & Li, 2007), it is easy

to overlook the realization of cultural meaning in frequently appearing phrases. Many

common terms, such as *effect*, have a formulaic use with a common meaning, but at

the same time function in other ways, such as signaling and marking theme.

Flowerdew (2003) suggests that *effect* is one of the six most common signaling nouns

in academic discourse. In a cultural analysis of theme markers, Yakhontova (2006)

suggests that first position terms in titles "indicate the theme" (p. 160). In a study of

theme markers in SSCI titles from linguistics journals, Rath (2010a) suggests that

about 4% of titles from a corpus of 2639 titles started with the headword *study*. By

comparison, 5.7% of the SSCI linguistics titles contain *effect*. In these studies,

formulaic terms may express secondary meanings.

In an analysis of titles from management science, Forray and Woodilla (2005)

suggest that temporality can be invoked and represented in titles. In their analysis of

temporality realized through academic terminology, they suggest that the word *study*

"situates the work within the academic discourse of material considered *over time*" (p.

332, italics added). The term *study* carries a temporal meaning separate from the

general research meaning. The repurposing of the term *study* to suggest research

throughout time is another challenge to the traditional interpretation of these words in

titles.

Cultural Influences on Titles

Research on the influence of culture, national language, and academic

discipline on academic discourse has highlighted differences in rhetorical structures

and textual features. This influence can move both ways, as in the case of traditional

Chinese L1 text structures which influence L2 academic discourse (Kirkpatrick, 1997;

Lee, 2003) and L2 rhetoric and academic culture which influence L1 research writing

in Chinese (Shi, 2003; Shi, Wang, & Xu, 2005). In a contrastive cross-cultural study

of titles, Yakhontova (2006) analyzes English, Ukrainian, and Russian titles and

shows that there are differences in research process nominal group structures among

cultural groups. Slavic titles, according to Yakhontova, are more likely to use "nouns

which denote the character of research" (p. 160). By comparing Russian and

Ukrainian titles with English titles, Yakhontova shows that English titles are more

informational and contain less emphasis on the process of conducting research than

Slavic titles.

In an analysis English narratives ranging from 175 to 750 words by L1

Chinese writers, Lee (2003) shows that the discourse organization and rhetorical style

contains differences in temporal structure and information placement which she

attributes to cultural influences. Lee observes that English text structures by L1

Chinese speakers are more temporal. By temporal, Lee suggests that they unfold more

gradually over time. In comparison, according to Lee, English narrative structures

written by L1 English speakers have shown a tendency to place more information up

front, specifying important information in the beginning, and clarifying relations

between narratives elements early in the description. From Lee's study, English can

be characterized as more informational while Chinese can be described as more

temporal.

One of the enduring issues in contrastive cross-cultural analysis is the question

of the extent to which phrasal variability is due to cultural influences (Connor, 1996).

Lee (2003) and Yakhontova (2006) suggest that cultural influence can be expressed

through syntactic structures such as nominal groups. Yakhontova shows that first

position research process nominal groups are subject to cultural influences, and Lee

shows that L1 Chinese writers often create text which is more temporal than

informational. In view of the suggestion by Forray and Woodilla (2005) that terms

such as *study* have a secondary meaning which creates a narrative structure where

research evolves over time, it is possible that this headword and similar terms may be

used by L1 Chinese writers of English titles to realize a temporal meaning alongside

the more literal research process meaning. The extent to which these first position

headwords appear and how they function in title text is discussed in the following

sections.

Methods

This issue was investigated by using a corpus containing titles from research

articles published in Taiwan and written by L1 Chinese speakers. The corpus used in

this study contained English titles of social science research articles from journals

published in Taiwan in 2007. The articles were collected from journals listed in the

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Taiwan Social Science Citation Index (Social Science Research Council, 2007). It seems likely that the titles in this corpus were originally written by the authors, not indexers or translators. When articles are submitted to TSSCI journals, they must contain both Chinese and English titles, abstracts, and keywords. For the most part, TSSCI articles are written in Chinese by local professors with the intention of being published in domestic journals. In an earlier study of TSSCI articles, Rath found that only three articles in a corpus of 411 were by non-Taiwanese (Rath, 2010b).

For articles written in Chinese that require English titles, abstracts, and keywords, translation issues may emerge. For example, articles published in Taiwan frequently use the phrase 之研究 (*zhi yan jiu*). This phrase, 之研究 (*zhi yan jiu*), means '*of research*'. The character 之 (*zhi*) is frequently translated as *of* and 研究 (*yan jiu*) is often translated as *research*. However, most Taiwanese authors of research article titles interpret the phrase 之研究 (*zhi yan jiu*) as *a study of*. When Chinese and English titles are side by side, 中 英 對 照 (*zhong ying dui zhao*), in Taiwanese journals, the translation seems appropriate. Translation by the original author in this way does not seem to be problematic. If there is a problem in interpreting this phrase it is due to the involvement of literacy brokers (Lillis & Curry, 2006) who edit research articles and change the translation. Literacy brokers are commonly used in

Taiwan for the preparation, submission, and revision of international articles, but not articles destined for TSSCI journals.

The sampling procedure involved collecting the titles of the research articles from the first issue of the 2007 volume for each journal in the index. A total of 408 titles from 76 journals were sampled. The distribution of journals was anthropology 2 (3%), area studies (e.g., China studies) 9 (12%), economics 7 (9%), education 9 (12%), law 5 (7%), management 13 (17%), political science 10 (13%), psychology 5 (7%), sociology 5 (7%), and miscellaneous (e.g., public health) 11 (14%).

The titles in the corpus were segmented into 1776 nominal groups. The total number of research process nominal groups in the corpus was 451 (26%), and the balance, 1325 (74%), were disciplinary content nominal groups. The titles were segmented by nominal group, where a phrase such as *A study of the relationship* was divided into two nominal groups, */1/ A study /2/ of the relationship*. After segmentation, the headwords (*study, relationship*) were categorized and the frequency was calculated. The research process nominal groups were categorized by headword to determine the frequency of common terms, and then assigned to one of three categories: general research terms, research methods terms, and research constructs.

Results

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Table 1 shows the most common research process nominal groups in the corpus, with 72% of the titles containing one or more research process nominal group. As can be seen, the most frequently appearing headword was *study* (16.6%), and only one term appeared in more than 10% of the research process nominal groups. The frequency of *study* suggests it is an important term in title construction. It appeared twice as often as the second most frequently appearing term, *analysis*, and more than three times as often as one of the most frequently identified title terms, *effect*.

Insert Table 1 about here

Example 1 contains a typical title that incorporates the head *study* in the first position nominal group:

(1) ***A Study** of Power Relationships between Teachers and Students in the*

   Fifth Grade Classroom

The first position nominal group, *A Study*, specifies research process and initiates a narrative structure. If *Power Relationships* was the first position nominal group, it would specify disciplinary content and initiate a narrative linking the following nominal groups, but that is due to the narrative quality of the term relationship which is a research construct.

Example 2 takes an opposite approach to structuring title content. Example 2 contains three disciplinary content nominal groups presented in an informative list:

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(2) *IPO Mechanisms, Share Allocations and Monitoring*

About one quarter of the titles in the corpus use this approach, focusing exclusively on the disciplinary content and avoiding research process nominal groups. The first disciplinary content nominal group in Example 2 does create a narrative that connects the following nominal groups.

Research process nominal groups containing pre-modification in the form of taxonomic compounding frequently retain their general character. Example 3, a title without pre-modification of the first position nominal group, establishes a temporal and narrative structure in the same manner as Example 4, a title with pre-modification of the first position term:

(3) ***A Study*** *of the Influence of Knowledge Integration and Operation Features on Core Competence with the Perspective of Organization Learning*

(4) ***Empirical Study*** *on the Taiwan's Social Security System – Analyzing the Effects of Wealth Redistribution*

The same narrative quality can be seen for the headword *analysis*. Examples 5 and 6, one without and the other with pre-modification, display a narrative tone:

(5) ***An Analysis*** *of Fruit Demand and Consumption Patterns in Taiwan*

(6) ***The Institutional Analysis*** *of Externalities Generated by Farmland Use Conversion*

In Example 6, however, the pre-modification indicates the nature of the analysis reported in the research article, but it is not detailed enough to specify a particular methodology. Examples 3-6 exhibit the temporal quality which allows the title narrative to unfold.

Example 7, by comparison, starts with two disciplinary content nominal groups presented in contrast to suggest a sharp dichotomy, and following the two contrasting terms a broader area of discourse emerges:

(7) *Communal Knowledge vs. Objective Knowledge: News in the Light of*

   Electronic Orality

Example 7 can be described as an information first title. Information first titles which contain disciplinary content nominal groups in first position often lack a narrative structure or have a fragmentary narrative. However, not all titles beginning with disciplinary content nominal groups lack a narrative structure, as Example 8 shows:

(8) *The Due Procedure of Appealing in the Administrative Enforcement*

   Procedure-Discussion From the Viewpoint of the Constitutional Right of

   Fair Trial

The use of the disciplinary content nominal group, *The Due Process*, focuses on a legal process, not unlike a research process, and integrates the following disciplinary terms into a narrative. From these examples, it can be seen that research process

groups aid in producing a narrative quality that can be described as temporal. The opposite approach, with a focus on disciplinary content nominal groups, can be described as informational.

Categorization of Research Process Nominal Groups

Table 2 shows the categorization and distribution of research process nominal groups. As can be seen in Table 2, for titles with just one research process nominal group, general research terms appear with about the same frequency as research constructs, and together explain about half of the titles with one research process nominal group. In addition, for all research process nominal group structures used in the corpus about 75% are terms which do not mention a specific methodology. This situation suggests that there is a marked preference by L1 Chinese writer of English research article titles for general research terms and research constructs.

Insert Table 2 about here

The number of nominal groups per title ranged from one to ten, with an average of 4.3, but 115 (28%) titles contained only disciplinary content nominal groups. The balance, 293 (72%) titles, contained at least one research process nominal group. For the titles containing research process nominal groups, 169 (41%) contained

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one per title, 91 (22%) contained two, 27 (7%) contained three, 5 (1%) contained four,

and one title contained five of these terms.

Example 9 presents a title with research process nominal group, *study*, which

functions as a general research term:

(9) ***A Study on the Relationship*** *between Image, Perceived Value, Satisfaction*

and Post-Purchase Behavioral Intention of Study Tour for University

Students

The general research term, *study,* can be compared with the research construct term,

relationship, in the following nominal group. Both terms enhance the narrative

structure in the title, but neither term specifies a methodology.

By comparison, Example 10 starts the title with a research methodology term,

action research.

(10) ***Action Research*** *for Art Educational Curriculum of Built Environment*

Example 11 demonstrates the occasional disciplinary quality of some research

methods terms:

(11) ***Using Program Evaluation and Review Technique (PERT)*** *for*

Evaluating the Assembly Span of Civil Aircraft Engine Maintenance Plant:

A Case Study

As can be seen in Examples 12-13, terms like *effect* and *model*, the third and fourth most frequently found terms, specify research issues without identifying the methodology:

(12) ***The Effect*** *of Daily Open Market Operation on Money Market Interest*

Rates

(13) ***A Model*** *for University and College Teacher's Job Stress and Job*

Satisfaction in Taiwan

These research process nominal groups refer to research process and tie together the following disciplinary content terms in titles. For example, *effect* orders the relationship between the following terms to suggest causation. Creating a cause and effect relationship in a title can be described as a narrative structure that unfolds over the length of the title.

Discussion

This headword, *study*, appeared in 75 (16.6%) research process nominal groups in English titles by L1 Chinese writers in this corpus, but appeared in only 4% of titles by L1 English writers in another study with a similar corpus and equivalent methodology (Rath, 2010a). It seems likely that certain research process nominal groups, such as *study*, play a greater role in English titles by L1 Chinese writers than

in titles by L1 English writers. Other headwords such as *effect* seem to be used with

the same frequency, appearing in 5.3% of the titles in this study compared to 5.7% of

SSCI linguistics titles. These two terms, *study* and *effect*, are the first and third ranked

terms, and when combined with the second ranked term, *analysis*, they represent

about 20% of the research process nominal groups in the corpus.

While many researchers have developed categorization systems for titles

(Anthony, 2001; Goodman, Thacker, & Siegel, 2001; Jalilifar, 2010), no system has

found widespread utilization by researchers. The categorization system implemented

in this research project divides there nominal groups into general research terms,

research methods terms, and research constructs. The benefit of this division can be

seen when evaluating the advice offered in manuals of style. Some terms are better at

creating thematic structures in titles, such as general research terms, and their main

usage does not seem to be specifying methodology. Research constructs work equally

well in this regard.

These findings need to be evaluated in light of research on cultural and

disciplinary influences on writing. This study of titles by L1 Chinese speakers

suggests that there is a cultural preference for research process nominal groups, and in

particular for temporal terms such as *study* which precede more informational

disciplinary content nominal groups in titles. Perhaps this usage of first position in

research process nominal groups as theme markers (Rath, 2010a) is related to L1

Chinese speakers' cultural orientation toward temporal sequences in writing (Lee,

2003). Phrases such as *a study of* facilitate the establishment of a temporal sequence

in the title rather than specification of a particular methodology, thus avoiding an

information first orientation in titles.

The results of this study are in line with Yakhontova's (2006) finding about

the frequency of research method terms in Ukrainian and Russian research article

titles. Russian and Ukrainian titles seem to be more oriented toward culturally

accepted title forms, such as those that have general introductory terms denoting the

process of research rather than beginning with specific content terms. Yakhontova

suggests that this construction "indicates the theme of the study, while the pos-

modifying attributive and adverbial groups point at the scope" (p. 160). The findings

of this study can be seen as in contradiction to the guidelines suggested in the *APA*

Manual (2001). Titles incorporating *study* demonstrate a temporal quality that is

somewhat different from the informational quality of English titles by L1 English

writers. The L1 Chinese writers seem to be employing a writing orientation to allow

the narrative structure to unfold more gradually. This narrative structure might be

characterized as whole to specific, as opposed to the L1 English writer's approach

which could be described as specific to whole.

There are two reasons why applying the rules and advice from the *APA Manual* (2001) can be problematic L1 Chinese writers of English titles. First, the expert genre users who codified the *APA Manual* are largely from the experimental psychology discourse community. Second, there seems to be an Anglo-American orientation to the guidelines offered by manuals of style. As a result, it would seem likely to find contradictions between the recommendations of the *APA Manual* and research writing of English by L1 Chinese speakers.

This situation leads to problems when evaluating titles written by L1 Chinese writers and other non-native speakers of English. Even though it is used by researchers all over the world, the *APA Manual* (2001) has an Anglo-American orientation because it is the manual of style for a national professional society in the USA. For L1 Chinese speakers in Taiwan writing research articles in Chinese, their appended second language titles and abstracts are evaluated in terms of guidelines for researchers from a different national and disciplinary culture. As a result of these contradictions, it is no surprise to find differences between what the *APA Manual* suggests and how research article writers from different cultural traditions.

Nevertheless, caution is necessary when generalizing about the influence of Chinese culture on English text. As Kirkpartick (1997) observes in his analysis of the influence of traditional Chinese rhetorical structures on contemporary English writing

by L1 Chinese speakers, the traditional four-part essay known as *qi cheng zhuan he* is more likely to influence students writing in Chinese than their English text. While the extent of the influence of Chinese culture on English text is difficult to exactly determine, there seems to be a difference between what the *APA Manual* (2001) suggests and the titles in this corpus. It seems that analysis of this corpus shows how English research writing by L1 Chinese writers has evolved in such as way as to reflect both current Chinese research writing forms and Anglo-American forms. There is a cultural influence, but the influence is expressed through the use of English research writing structures in a Chinese way.

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Table 1

Frequency and Percent of Headwords from Phrase Families in Research Process

Nominal Groups (RPNG) (n=451)

Headword	Frequency	Percentage
Study	75	16.6%
Analysis	36	8.0%
Effect	24	5.3%
Model	21	4.7%
Relationship	15	3.3%
Application	15	3.3%
Case	13	2.9%
Development	12	2.7%
Research	10	2.2%
Approach	9	2.0%
Factors	9	2.0%
Theory	9	2.0%
Sub-total	248	55.0%
Other RPNG	203	45.0%
Total	451	100.0%

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Table 2

Frequency and Percent of Research Process Nominal Groups (RPNG) by Category

per Title (n=451)

RPNGs per Title	General Research	General Methods	Research Constructs	Total
1	114 (25.3%)	68 (15.1%)	111 (24.6%)	293 (65.0%)
2	24 (5.3%)	36 (8.0%)	64 (14.2%)	124 (27.5%)
3	5 (1.1%)	8 (1.8%)	14 (3.1%)	27 (6.0%)
4	1 (0.2%)	3 (0.7%)	2 (0.4%)	6 (1.3%)
5	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (0.2%)
Total	144 (31.9%)	116 (25.7%)	191 (42.4%)	451 (100.0%)