Discourse Markers in Composition Writings: 
The Case of Iranian Learners of English as a Foreign Language 

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Abstract 
The aim of this study was to investigate discourse markers in descriptive compositions of 90 Iranian students who were selected from two universities. Without any instruction, they were given a topic to write a descriptive composition per week for 8 weeks. 598 compositions were collected, and they were analyzed qualitatively and quantitatively by three raters following Fraser's (1999) taxonomy of Discourse Markers. Findings showed that students employed discourse markers with different degrees of occurrence. Elaborative markers were the most frequently used, followed by inferential, contrastive, causative, and topic relating markers. There was a direct and positive relationship between the quality of the compositions and the number of well-functioned discourse markers. Results also revealed statistically significant differences between the use of discourse markers and composition quality in the groups. Graduate students used more discourse markers, and this led to more cohesive texts. 

Keywords: Discourse marker, Cohesion, Contrastive marker, Inferential marker, Topic-relating marker 

1. Introduction 

According to Nunan (1991), writing is not only the process the writer uses to put words to paper but also the resulting product of that process. This process and product are also conditioned by the purpose and place of writing (its audience and genre). Writing in a second language is further complicated by issues of proficiency in the target language, first language literacy, and differences in culture and rhetorical approach to the text. Instruction in writing can effectively improve student proficiency in a number of key areas. 

With the status of English as an international language and the expansion in the use of English, an increasing number of second language learners are engaged in academic pursuits that require them to write compositions. One interesting area of investigation in second language writing is to see how DMs are tackled by non-native writers of English in compositions. Theoretically, discourse markers (DMs) are a class of verbal and non-verbal devices which provide contextual coordination for ongoing talk (Schiffrin, 1987). They help writers provide writing which is effective and satisfactory. 

DMs have been investigated in classroom oral discourse (Hays, 1992), informal settings (Lee, 1999; Muller, 2004; Trillo, 2002), reading (Abdullah Zadeh, 2006; Jalilifar & Alipour, 2007), lectures (Dailey-O’Cain, 2000; Perez & Macia, 2002), academic genres (Abdi, 2002; Blagojevic, 2003; Bunton, 1999; Longo, 1994; Mauranen, 1993; Ventola & Mauranen, 1993), and student writings (Connor, 1984; Field & Yip, 1992; Intraprawat & Steffensen, 1995; Johns, 1984; Johnson, 1992; Karasi, 1994; Norment, 1994; Steffensen & Cheng, 1996. These studies have targeted their use patterns of frequency.

Results have shown that conjunctions were overused and lexical cohesion was moderately used by native speakers (Johns, 1984), that non-native students of English used more conjunctions than Australian students did, and they usually put all conjunctions at the beginning of the sentence (Field & Yip, 1992), that there was a difference between text types in the use of cohesive devices (Norment, 1994), that differences between essays that received good ratings and essays that received poor ratings were found in the number of words, T-units, and density of DMs (Intraprawat & Steffensen, 1995), and that students receiving direct instruction on DMs used them more effectively and also became more sensitive to their readers’ needs thereby making global changes that improved their papers (Steffensen & Cheng, 1996).

The results of some studies were also contradictory. For example, while Connor (1984), Johnson (1992), and Karasi (1994) found no discrimination between native and ESL students in the frequency of ties, Norment (1994) discovered a correlation in the frequency of ties and the quality of writing. Results of the above studies, in general, suggest that language learners underutilize DMs (compared with native speaker use) especially for their pragmatic functions.

While several researchers have studied discourse markers from the descriptive and contrastive perspectives, to determine the role of DMs and language skills, still research needs to address these devices in relation to second language learners writing proficiency.

The present study reports on the use of discourse markers in academic compositions of Iranian university students at different levels of language proficiency. The research is based on the premise that the knowledge derived from this investigation will provide insights into the nature of the academic compositions of EFL university students. The investigation of the role of second language proficiency in second language writing ability continues to be revealing for the better understanding of the nature of second language writing. In order to examine the relation of discourse markers and composition writing of EFL students, the following questions were posed:

1. To what extent are DMs used in the compositions of students?
2. What is the relationship between the use of DMs and the composition writing experience of students?

2. Methodology

2.1 Participants

Participants in this study were 30 junior, 30 senior, and 30 MA students majoring in Teaching English as a Foreign Language (TEFL). The BA students were studying in Islamic Azad University of Masjid Soleyman and the MA students were studying in Ahvaz Center for Science and Research. Junior students had already passed three writing courses in basic writing and grammar and writing; senior students, with more writing experience, had also passed advanced writing; and MA students had passed National MA Entrance Examination which is a two-part test- a section on language teaching theories and another section on language proficiency that includes grammar, vocabulary, and reading comprehension. Besides, their MA courses required writing classroom papers. So they were expected to be more proficient in writing skills due to greater educational experience. The average age of the participants was 25.

2.2 Instruments

This study made use of two instruments for the purpose of gathering data. Descriptive composition writing was assigned to students to write on the topics, selected by the researchers. The rationale for the selection of descriptive composition was that the students were more familiar with this kind of writing as describing places and events is a common practice in writing classes; therefore, we believed the effect of rhetorical structure on learners' performance in writing was minimized.

Fraser’s (1990, 1999) taxonomy of discourse markers was chosen for classification on the ground that it conforms to written discourse and that it seems to be the most comprehensive classification in written discourse. Fraser’s (1999) taxonomy includes three main subclasses. The first are contrastive markers that signal that the explicit interpretation of the second sentence contrasts with an interpretation of the first sentence. The second subcategory is elaborative markers that signal a quasi parallel relationship between the sentences. And the third subclass, inferential markers, signal that the following sentence is a conclusion derived from the preceding sentence.
Besides, Fraser (1999) distinguishes additional subclasses of discourse markers that specify that the following sentence provides a reason for the content presented in the previous sentence. (e.g., after all, because, for this /that reason, since).

While Fraser’s first class of DMs involves the relationship between aspects of the explicit message of the second segment and either an implicit or explicit message of the first segment, his second class of DMs are distinguished by focus on topic, and so he calls them topic relating markers.

2.3 Procedure
The experiment was conducted within 8 successive weeks. Without any instruction, each week the participants were given a topic on which to write compositions individually within an hour for eight weeks. The total number of compositions delivered to the researcher by junior, senior, and graduate students was 197, 190, and 211 respectively, (598 compositions overall). During and after writing they received no feedback. Then, to reduce the danger of subjectivity in analyzing the compositions and to increase the reliability of results, two other applied linguistics instructors analyzed twenty compositions and calculated the number and type of DMs. After discussing the tiny differences agreement was reached by the four raters accordingly. Next, the compositions were carefully scrutinized to determine the extent that DMs were functionally appropriate in the context of use.

3. Data Analysis
The first step the researchers took was to group the compositions, according to their proficiency scores, which were labeled as JC, SC, and GC for junior, senior, and graduate groups respectively. Then the proportion of DMs to the total words in all compositions for the three groups was manually calculated. Table 1 introduces the frequency and ratio of DMs in compositions written by the three groups.

Results showed that the subjects in this study employed a variety of DMs with some types used more frequently than others. Graduate students were considered the greatest users of DMs with the ratio of 33.77. Data revealed a positive relationship between educational experience and the rate of DMs use. That is, the more experience one in English is, the greater the frequency of DMs.

The Chi-Square analysis was used to find out if the differences in the use of DMs between the groups were statistically significant. As shown in table 2, analysis revealed statistically significant differences between the groups in the use of DMs in their compositions at 0.05 level of significance (see Table 7).

The statistically significant results acknowledged a direct relationship between the use of DMs and the composition writing experiences of the three groups. In order to be precise regarding the use of DMs, the frequency and percentage of the subcategories of DMs was also determined. As shown in Table 3, Elaborative markers were most frequently employed (73.21%), followed by inferential markers (13.04%), contrastive markers (8.83%), causative markers (4.44%), and topic relating markers (0.54%). This order was observed by all the groups. The extensive use of elaborative markers may be explained because descriptive writing in general requires elaboration of ideas which depends on the use of elaborative markers to signal the relationships between segments. Zhang (2000) reported a similar result in her study on cohesion extensive use, even overuse, of additive conjunctions such as and, also, besides, and in addition. One finding was that as the writing experience increased, the rate of DMs other than elaborative markers increased, but elaborative markers decreased. That is, there was a negative relationship between increase of composition writing ability and the use of elaborative DMs.

The results revealed that students in the graduate group used DMs in their own places, and they were functionally appropriate in majority of cases.

The data revealed a close relationship between appropriate use of DMs and writing experience. That is, as writing experience increased, the number of well functioned DMs also increased. This shows that the graduate students had a better performance in using DMs, and consequently the quality of their compositions improved.
Having confirmed the direct relationship between DMs and the quality of composition writing through Chi-Square analysis, the researcher was also interested in finding out the strength of that association. To this end, two measures, Phi and Cramer’s V were used.

Results confirmed a strong association between DMs and quality of composition writing, with the Phi value of 0.842 being close to perfect association.

Insert Table 7 right here

That is, there were statistically significant differences between the compositions in the use of well-functioned DM types, especially elaborative and inferential types. Those compositions with a larger number of elaborative and inferential DMs were regarded as functionally more appropriate.

4. Discussion

Results of the study found the use of discourse markers effective in enhancing the subjects’ composition writing quality as the subjects in the graduate group performed far more successfully. This can be due to the fact that the participants in the graduate group were able to generate different kinds of discourse markers, develop the topic sentences, and support the main idea in light of the use of discourse markers, and that they could consciously draw on them while writing.

An important finding of the study was the statistically significant relationship between the quality of the compositions and the number of well functioned DMs used in the compositions. In other words, DMs, besides other textual characteristics, help identify good and poor writings, and more importantly, the quality is tapped by the use of well-functioned DMs. Thus, the larger the number of DMs in appropriate use, the higher the quality of the composition.

It was also found out that some DM types had a stronger influence on the quality of the compositions. Specifically, there were statistically significant differences between the compositions in the use of DM types in the three groups. Those compositions with a larger number of elaborative and inferential DMs were considered good writings. Therefore, elaborative and inferential DMs are the most closely related to the descriptive composition quality, much less contrastive, causative, and topic relating DMs. Elaborative markers were also the most frequently used by all three groups indicating the importance of this type of DMs, both with respect to the number and the effect of this type of DMs on the composition quality. In general, it was observed that there were quite a large variety of DMs within good compositions and repetition of the same markers in the poor compositions with the exception of topic relating markers.

Compositions with more DMs were considered as more cohesive though DMs are by no means the only evidence for a well-organized and cohesive text. The writer’s composition writing experience in the target language is also claimed to be a source of difference in the groups’ writings, as results showed. More experienced students frequently used DMs in their right places. However, some students, especially the senior students, overused them probably to make their composition seem more acceptable. Note an example (S3) from this group:

*If you wanted to go to the hospital city like Isfahan I suggested you to go the Persia hotel located in the main street with good co-worker and as well as the waiters and waitress and with good prices. And at first you go downstairs and to enter the big and interested green halls and you confronted with and tall and fat man with stomach and wearing the strong glasses. There is in his habit that every one comes to his restaurant stand up with glory and honor and to say welcome with Isfahani accent “ here you are” please take a seat and he also ordered to appear everything or dishes that you needed. I assure you that you have a good trip and joy of trip.*

Furthermore, graduate student writers seem to have an awareness of the needs of their readers and control the strategies for making their texts more considerate and reader friendly. And this is partly achieved through DMs. However, some graduate students compositions were linguistically appropriate even without the presence of DMs, and students compensated for this absence by generating relative clauses or short grammatical sentences. Composition (G7) is an example in which the student used short sentences as follows:

*My city, Tabriz, is very crowded during New Year. People from different cities come to this city. Everybody goes shopping. People buy new clothes. During New Year, children are very happy. There are light colors in streets. The streets are clean. There is special culture in my city. We go visiting our families. In New Year time, we give money to children as a gift.*

Another composition (G14) in which the student used relative clauses comes below:

*When I visited the Marshal Park in Aushrill, Tennesh, which is the southeastern of the US, I found that meaning of park is so much different with what I conjured before. It was so cramped with trees in which marvelous beauty was shining out of it. Then out there was actually like a non-stop feast we were treated unexpectedly.*

As genuinely shown by the above examples, where DMs were absent in compositions, they were compensated by generating relative clauses or short sentences, but their compositions were regarded cohesive. The result is probably
related to the limitation of the conception of DMs in predicting cohesion in all contexts since relative clauses can function as a way of elaborating on the previous clause.

Some good compositions with a larger variety of markers applied different kinds of elaborative DMs such as moreover, to sum up, etc. Note the example extracted from graduate group (G24):

*I live in a small town where I was born. Although this city is not so wide and developed, I like it a lot. As I mentioned it is my homeland. I can’t consider particular place for illustrating it as the city center, but I think there is an intersection which looks like the city enter. Because it is a place where you can touch real beauty more than any where, this place has combine from people and nature. More to the point, you can touch novelty and freshness, as a part of nature honesty. Above all, the reason undoubtedly comes out of what have surrounded this city. Besides, you can visit different parts of it which have covered themselves by colorful veils of nature. Moreover, you can’t camouflage your joy behind your face because of what you are confronting. By the way, you can just touch the spirit of freshness gently.*

More experienced writers seem to write more reader-oriented texts and use DMs as facilitating devices to make their text more comprehensible. So, students seem to need to accumulate more experience in writing compositions which brings self-awareness of DMs besides explicit instruction that they might receive in academic settings.

With most cases of overuse and misuse of discourse markers in junior group’s composition, I follow Demirci and Kleiner (1997) who suggest that DMs are used in their writing as a result of translation from their first language to second language. Some of the students in this group wrote a text with excessive use of discourse markers which overshadowed the text and made it difficult to read; on the contrary, others wrote compositions without DMs. However, lack of these textual elements in their composition made the texts more difficult to read. These writers seemed too busy with constructing sentences to pay attention to the use of DMs which seem to require a deeper level of understanding. Note an example extracted from junior group (J15) with more misuse of DMs:

*I always go to a restaurant and it is restaurants my aunt. This restaurant is good because of it has skill cook and make delicious and jocular foods. My family and I go to this restaurant and we order kebab. The name of this restaurant is Venus. On their publicity advertising V word in Venus appear same spoon and fork. In my opinion a good restaurant should has beautiful outward appearance and also it has delicious and jocular foods and it has cheap price for customer and attract until that restaurant can advance.*

Kubota (1998) specifically found that insufficient L2 skills account for the lack of attention to organization, the use of simple text structures, ineffectiveness in connecting paragraphs, or inadequate paragraphing. Even though the students’ classroom teachers may not directly teach discourse marker use, junior students may be modeling that use in the classroom, and they satisfy themselves with the idea that if they use too many DMs, they are making their composition more cohesive and acceptable.

Thornbury (1997, p. 126) reiterated that "Cohesion alone is not enough to make a text coherent". Texts have an internal logic, which the reader recognizes even without the aid of explicit cohesive devices. Students need to know that there are a number of other linguistic devices that affect the extent to which groups of sentences hold together and form a complete and cohesive text such as reference words (e.g. pronoun reference, article reference, ellipsis etc.), lexical sets, lexical repetition, as well as conjunctions. It is not sufficient to try to make ones’ writing cohesive (or appear cohesive) by simply using a sprinkling of discourse markers.

Use of DMs appears to be as a last part of grammar. Traugott (1995, p. 37) defines grammaticalization as a process where by lexical material in highly constrained pragmatic and morpho-syntactic contexts becomes grammatical and already grammatical material becomes more grammatical. In her study she found out that development of DMs coincides with development of highly specific constructions via strategic use in discourse to a sequential adverbial and ultimately a DM. According to Fraser (1988, pp.21-23), DMs are part of grammar by carrying on the label of pragmatic markers, and then they should be somewhere between grammar and discourse and somewhere between cohesion and coherence. If they are considered as a last part of grammar where discourse comes to vogue, then they could be part of grammar and discourse. So grammar develops via pragmatic strengthening which ends up with the use of DMs; for this reason, the use of DMs demands experiential language learning.

To make an analogy, the relationship between grammar and discourse markers is like the relationship between train and rail. Coal is morphology, skeleton of train is syntax, chains that join the compartments together are semantics, waiters are vocabulary items, passengers are readers, the person who is leading the train is writer, and the rail is DMs. If all parts of train work well, then the train is able to move on the rail, and if the person who is leading the train knows the interpretation of signs along the rails, then he is able to keep the train on the right track.

Fraser (1988, p, 22) points out that the absence of DMs does not necessarily render a sentence ungrammatical and/or unintelligible. It does, however, remove a powerful clue about what commitment the speaker makes regarding the relationship between the current utterance and the prior discourse. As Lichtenberk (1991) said “Grammar shapes discourse, and discourse, in return, shapes grammars” (p. 78).
Junior students’ failure to write appropriate compositions revealed that the lack of discourse markers strongly influenced the quality of compositions. So lack of DMs might entail incohesiveness of the passages, with connectors being a major part. Too, the incomprehensibility of some compositions arose as a result of the lack of discourse markers. Therefore, the immense magnitude of this incohesion made the compositions hard to comprehend for raters.

In the qualitative analysis, it was found that there was a difference in the use of the elaborative, contrastive, and topic relating DMs between the better writers and the weaker ones. The former in general tended to use a larger variety of markers in their compositions whereas the latter tended to repeat the same markers, and in the case of contrastive markers they were sometimes used without any explicit or implied contrast. Topic relating DMs were only present in the good compositions, namely higher group. Such findings seem to confirm the effect of these three discourse marker types on the composition quality obtained in the analysis of the data.

Excessive use of some DMs such as and sometimes makes the text dull which was especially observed in the junior group. Note the following example extracted from an elementary learner (J10):

The center of city is very crowded and many people are very happy. In new year time and they have beginning the new year and to congratulate each other and they try to beginning the new year by effort and good future and also in addition to people to buy things new in addition to new year. And for this reason that new year wants things new.

The above example shows that qualified written texts are tied more closely to the functionally appropriate use of DMs than grammar knowledge.

The group with more experience is hypothesized to write with more attention to audience needs, thereby making their text not only more effective in terms of using DMs in comparison to the other groups, but they also concentrate on the pragmatic function of DMs, which they use more skillfully than the other groups. They use DMs effectively to place emphasis on their belief about topic in order to progress the topic followed up by pack of supporting sentences which are hugging DMs as vessels which are leading the reader into the heart and body of the compositions. They use DMs effectively to catch their readers' attention besides progressing and developing their sentences, topics, and structure of paragraphs. Correct application of DMs in terms of occurrence, selection, and placement is like knowing how to create master painting, how to select the colors with regard to the impression they might have on people psychologically, and how to place it where everyone has perspective good view of it.

McCutchen (2000) in his study showed that contrasting writing compositions of children at various ages with that of adults’ learning to write is a developmental process which is influenced by the writer’s available cognitive resources. The results of this study suggest that DMs seem to be acquired developmentally beginning with elaborative, followed by inferential, contrastive, causative, and topic relating in which some types are given priority over the others in relation to semantic weight, and because by applying and, or, and also, writers want to show their continuity. Elaborative markers are also more common in descriptive writing, but other DMs may be more concerned with articulation of social and cognitive relationship between reader and writer; for example, topic relating DMs have nothing to do with the continuation of the message like by the way, but they bring up another topic or relate it to another topic such as speaking of x.

One of the eye catching differences among the three groups was the degree of knowing when to omit discourse markers and knowing where DMs do not serve any useful purpose, and that we assume to be due to practice, reading, and one's level of experience in language. Metaphorically speaking, discourse markers are like pearl earrings of good texts; if they are decorated in their right way, which is why many readers want to put them on. On the whole, the construction of knowledge of DMs can take place accurately if learners are given the chance to work actively and continuously to recognize and use the effectiveness of the language for educational and individual purposes.

My contention is that the distinction present between successful and less successful learners corresponds to the degree of flexibility that learners demonstrate when they select DMs, and when they use DMs appropriately. The use of DMs, which is found to be a discriminating factor in the quality of the student compositions, merits special and long-term attention. The results of this study calls for more attention to the significance of DMs in non-native speakers’ composition writing.

References


Table 1. Distribution of DMs in all compositions

<table>
<thead>
<tr>
<th>Group</th>
<th>Total number of compositions</th>
<th>Number of words</th>
<th>Number of DMs</th>
<th>Ratio of DMs per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>JG</td>
<td>197</td>
<td>19920</td>
<td>415</td>
<td>20.83</td>
</tr>
<tr>
<td>SG</td>
<td>190</td>
<td>25440</td>
<td>701</td>
<td>27.47</td>
</tr>
<tr>
<td>GG</td>
<td>211</td>
<td>31680</td>
<td>1070</td>
<td>33.77</td>
</tr>
<tr>
<td>Mean</td>
<td>199.3</td>
<td>25680</td>
<td>728</td>
<td>28.34</td>
</tr>
<tr>
<td>Total</td>
<td>598</td>
<td>77040</td>
<td>2184</td>
<td>82.07</td>
</tr>
</tbody>
</table>

JG: Junior Group
SG: Senior Group
GG: Graduate Group

Table 2. Chi-square tests

<table>
<thead>
<tr>
<th></th>
<th>DMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square(a,b)</td>
<td>8.067</td>
</tr>
<tr>
<td>Df</td>
<td>2</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Asymp. Sig.: asymptotic significance
df: degree of freedom

Table 3. Frequency and percentage of types of DMs

<table>
<thead>
<tr>
<th>Group</th>
<th>Topic relation</th>
<th>Elaborative</th>
<th>Inferential</th>
<th>Contrastive</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>JG</td>
<td>0(0%)</td>
<td>323(77.83%)</td>
<td>47(11.32%)</td>
<td>30(7.225%)</td>
<td>15(3.61%)</td>
</tr>
<tr>
<td>SG</td>
<td>0(0%)</td>
<td>522(74.67%)</td>
<td>89(12.73%)</td>
<td>60(8.58%)</td>
<td>30(4.29%)</td>
</tr>
<tr>
<td>GG</td>
<td>12(1.12%)</td>
<td>754(70.46%)</td>
<td>149(13.92%)</td>
<td>103(9.62%)</td>
<td>52(4.85%)</td>
</tr>
<tr>
<td>Total</td>
<td>12(0.54%)</td>
<td>1599(73.21%)</td>
<td>285(13.04%)</td>
<td>193(8.83%)</td>
<td>97(4.44%)</td>
</tr>
</tbody>
</table>
Table 4. Functions of DMs in junior group

<table>
<thead>
<tr>
<th>Function / Type</th>
<th>Elaborative</th>
<th>Inferential</th>
<th>contrastive</th>
<th>causative</th>
<th>Topic relation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malfunctioned DM</td>
<td>122</td>
<td>26</td>
<td>19</td>
<td>9</td>
<td>0</td>
<td>176</td>
</tr>
<tr>
<td>Well-functioned DM</td>
<td>201</td>
<td>21</td>
<td>11</td>
<td>6</td>
<td>0</td>
<td>239</td>
</tr>
<tr>
<td>Ratio of types of DMs</td>
<td>1.64</td>
<td>0.80</td>
<td>0.57</td>
<td>0.6</td>
<td>0</td>
<td>3.61</td>
</tr>
</tbody>
</table>

Table 5. Functions of DMs in senior group

<table>
<thead>
<tr>
<th>Function / Type</th>
<th>Elaborative</th>
<th>Inferential</th>
<th>contrastive</th>
<th>causative</th>
<th>Topic relation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malfunctioned DM</td>
<td>57</td>
<td>24</td>
<td>21</td>
<td>14</td>
<td>0</td>
<td>116</td>
</tr>
<tr>
<td>Well-functioned DM</td>
<td>479</td>
<td>92</td>
<td>74</td>
<td>56</td>
<td>0</td>
<td>701</td>
</tr>
<tr>
<td>Ratio of types of DMs</td>
<td>8.15</td>
<td>1.45</td>
<td>1.85</td>
<td>1.14</td>
<td>0</td>
<td>12.59</td>
</tr>
</tbody>
</table>

Table 6. Functions of DMs in graduate group

<table>
<thead>
<tr>
<th>Function / Type</th>
<th>Elaborative</th>
<th>Inferential</th>
<th>contrastive</th>
<th>causative</th>
<th>Topic relation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malfunctioned DM</td>
<td>22</td>
<td>18</td>
<td>11</td>
<td>11</td>
<td>5</td>
<td>67</td>
</tr>
<tr>
<td>Well-functioned DM</td>
<td>732</td>
<td>131</td>
<td>92</td>
<td>41</td>
<td>7</td>
<td>1003</td>
</tr>
<tr>
<td>Ratio of types of DMs</td>
<td>33.27</td>
<td>7.4</td>
<td>8.36</td>
<td>3.72</td>
<td>1.4</td>
<td>54.15</td>
</tr>
</tbody>
</table>

Table 7. Chi-square: Symmetric measures

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Approx. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal by Phi</td>
<td>0.842</td>
<td>0.00</td>
</tr>
<tr>
<td>Nominal Cramer's V</td>
<td>0.842</td>
<td>0.00</td>
</tr>
<tr>
<td>Valid Cases</td>
<td>598</td>
<td></td>
</tr>
</tbody>
</table>

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.