An Analysis of Educable Mentally Retarded Students’ Written Discourse based on Halliday’s Systemic Functional Approach

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ABSTRACT

Objective: The present study was conducted to analyze and compare the written discourse (in Persian) of EMR students according to experiential metafunction introduced in Halliday’s systemic functional grammar. Method: The present research follows a descriptive method. The informants (311 students) were chosen among the primary, prevocational guidance school and vocational high school students in 2009. Results: At first, the data (consisted of 2407 clauses and 10861 words) was analyzed concerning the type of process (verbs) used in clauses. Material (58%) is the most frequent process in all grades. Behavioral, relational and verbal clauses occurred in 13%, 12%, and 10% of the clauses. Existential process is the least frequent one (0.1%). Then, the frequencies of different processes in different grades were compared and the results were shown in different graphs. Conclusion: According to chi-square distribution table even when p≤0/001 the null hypothesis is rejected. Hence the grades of EMR students and their use of different processes in their writings are related. The frequency of different processes varies in different grades. It seems that the findings are compatible with Piaget's cognitive development and accredit it.

Keywords: systemic functional grammar, written discourse, mentally retarded, experiential metafunction, process

INTRODUCTION

It seems that linguistic analysis of the written discourse of educable mentally retarded students would be helpful for better educational material development. In addition, studying the abnormalities in the development of the language whether spoken or written of EMR students help psycholinguists to criticize current theories regarding language development and hypothesize a new one. Systemic functional grammar (SFG) devised by Halliday is one of the linguistic theories that attracted lots of researches in linguistic analysis of Persian (Farsi). To the extent we know there are very few researches which applied linguistic framework to describe and analyze EMR students’ written discourse. Generally we do not have lots of information about the conversational and narrative skill of EMR students (Rondal and Edwards, 1997). Functional linguists analyze a text, spoken or written, from a functional point of view. A text is “a harmonious collection of meaning appropriate to its context” (Butt, et al., 2000). Halliday and Matthiessen (2004) analyze a text in four different metafunctions: experiential, textual, interpersonal and logical. To investigate the meaning they consider a clause/sentence as the basic unit of analysis and try to put together the meaning in each layer/metafunction. The three metafunctions which concerns with different layers of meaning in a sentence are as follows:
- The ideational/experiential metafunction: It enables people to use language to represent experience, and is influenced by field.
- The interpersonal metafunction: It enables people to use language to enact social relationships, and is influenced by tenor.
- The textual metafunction: It enables people to use language to construct logical and coherent texts, and is influenced by mode (Halliday, 1994).

In experiential metafunction, it is believed that all human experiences (including outer and inner experience) can be instantiated into 6 different processes (material, mental, relational, behavioral, existential, and verbal) in any language. In other words, there is no verb and activity which cannot be classified in one of the processes in experiential metafunction. When the experiential function of a clause is described, the clause can often be broken down into three functional constituents: Participant, process and circumstance. A Participant represents the “thingness” concept that is being talked about, and in the grammar is most likely realized by a nominal group. Process, the essential ingredient, is about happening, doing, and being, saying and thinking. There are many types of processes, which are realized by verbal groups. Circumstance, realized by adverbial groups, prepositional phrases or nominal groups, is the circumstantial information about the process (Ning, 2008).

In this article, the written discourse of mentally retarded students is analyzed based on experiential metafunction of Halliday’s functional approach. The analysis of written discourse of mentally retarded students helps us to estimate the frequency of each process by different school agers. Consequently, Course book designers may understand which verbs are mostly used in different grades and plan to develop interventional programs for the less used processes. Of course the larger the corpus (written data), the better conclusion could be derived to achieve this goal. Furthermore, appropriate material (text/passage) selection can be better done considering the processes/verbs which are more tangible for students in each grade. The following is a brief description of the processes introduced in experiential metafunctions:

Our most powerful impression of experience is that it consists a flow of events, or “going-on”. There is a basic difference between inner and outer experience. The prototypical form of ‘outer’ experience is that of actions and events: things happen, and people or other actors do things, or make them happen (material process: e.g. “I am having a shower”/ “you produce so much money”). The inner experience is harder to sort out; but it is partly a kind of replay of the outer, recording it, reacting to it, reflecting on it, and partly a separate awareness of our states of being (mental process: “I don’t want a shower”/ “I was fascinated by the money”). We also learn to generalize - to relate one fragment of experience to another. Here the grammar recognizes processes of a third type which is called relational process (e.g. “every fourth African is a Nigerian”.

Material, mental, and relational are the main types of process in the English transitivity system. On the borderline of ‘material’ and ‘mental’ are the behavioral processes: those that represent the outer manifestation of inner workings, the acting out of processes of consciousness (e.g people are laughing) and physiological states (e.g. they were sleeping). On the borderline of ‘mental’ and ‘relational’ is the category of verbal process: symbolic relationships constructed in human consciousness and enacted in the form of language, like saying and meaning (e.g. the verbal clause, “we say that every fourth African is a Nigerian” which introduces a report of what was said). And on the borderline between the relational’ and the ‘material’ are the processes concerned with existence, the existential process, by which phenomena of all kinds are simply recognized to ‘be’ – to exist, or to happen (e.g. today there’s Christianity in the south) (Halliday and Matthiessen, 2004).

**REVIEW OF LITERATURE**

As it is mentioned above, we did not find any research in Persian or any other language which applied a systemic functional approach on the language of mentally retarded students. The following are some
researches on the application of systemic functional approach on the language of normal children and some studies on the language performance of mentally retarded students. Tabrizmanesh (2006) analyzed Persian course books of primary schools based on experiential metafunction of systemic functional grammar. Material metafunction is the most frequent process except for grade 1 in which relational is the most frequent one. Dastjerdi (2010) studied the spoken narrative of 20 six-year old boys and girls (10 boys and 10 girls). He analyzed the data gathered in a project called “Iranian Children’s Core vocabulary: a National Study”. The participants were asked to narrate a story for 14 picture stories. 4200 simple and complex clauses were analyzed and finally he found out that the frequency of the processes used in the narration of the six-year old boys and girls are as follows: material (61/5%), relational (13%), mental (10 %), existential (7%), behavioral (6/5%), and verbal (2%).

Miles and Chapman (2002) in their article “Narrative Content as Described by Individuals With Down Syndrome and Typically Developing Children” studied Narratives of the wordless picture story, Frog, Where Are You?, which were produced by 33 individuals with Down syndrome and typically developing children (33 matched for mental age, 33 for syntax comprehension, 33 for mean length of utterance). Their narratives were analyzed for expression of plot line, story theme, and the protagonists' misadventures in the story. They concluded that the group with Down syndrome had a conceptual understanding of the picture story similar to that of the TACL-R group and a strategy for expressing that understanding despite expressive lexical and syntactic limitations; this resulted in the expression of more narrative content than formal measures of expressive language would predict.

Kamhi and Johnston (1982) in an article “Towards an Understanding of Retarded Children’s Linguistic Deficiencies” provide a more accurate description of the language performance of retarded children and, by doing so, to understand better how the general mental handicap affects language learning. The results indicated that the retarded group’s language abilities were essentially comparable to those of the normal group, though differences between these groups were found. Notably, the retarded children did not demonstrate the same linguistic deficiencies as the language-impaired children.

Roberts et al (2007) compared the conversational discourse skills of boys who have fragile X syndrome with and without autism spectrum disorder (ASD) with those of boys with Down syndrome and boys who are typically developing. The results revealed that boys who had both fragile X and ASD produced significantly more noncontingent discourse than did boys who had only fragile X, boys with Down syndrome, or typically developing boys.

### METHODOLOGY AND DATA COLLECTION

The present research follows a descriptive method. The informants (311 students) were chosen among the primary, prevocational guidance school and vocational high school students in 2009 according to multi stratified cluster sampling. Four schools have been selected through random-sampling (two for boys and two for girls). After pilot study, four picture stories were recognized appropriate for the grades in the study. The participants were asked individually to write stories about one of the picture series. Total number of clauses produced was 2407. In table 2 the number of clauses produced by the students in each grade is presented.

<table>
<thead>
<tr>
<th>Grade</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of clauses</td>
<td>68</td>
<td>424</td>
<td>289</td>
<td>338</td>
<td>413</td>
<td>497</td>
<td>396</td>
<td>2407</td>
</tr>
</tbody>
</table>

*Table 1: Number of clauses in the written discourse of educable mentally retarded students*

### RESULTS AND FINDINGS
All 2407 clauses were analyzed concerning the type of process (verbs) used. Here we will try to demonstrate the percentage of occurrence of each process in different grades.

**Figure 1:** Percentage of occurrences of material process in different grades

**Figure 2:** Percentage of occurrences of mental process in different grades

**Figure 3:** Percentage of occurrences of relational process in different grades
Percentage of occurrences of existential process in different grades

In all clauses, only 2 existential processes reported in just grade 7 (pre-vocational guidance school). This shows that in story narration existential process may be the least used processes involved.

Non-parametric analysis of the frequency of different processes in different grades

To find out whether the difference between frequency of different grades is significant or not, Nonparametric statistical test ($\chi^2$ test) was estimated for each process in different grades.

To estimate the significance of the difference between frequency of each process in different grades, the degree of freedom is 6, and chi-square is significant even when $P \leq 0.001$. Thus, the null hypothesis i.e. equal frequency of each process in different grades is rejected. In other words, the difference between frequencies of each process in different grades is significant.

<table>
<thead>
<tr>
<th>Process type</th>
<th>Material</th>
<th>Mental</th>
<th>Relational</th>
<th>Behavioral</th>
<th>Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$ value in different grades</td>
<td>164/276</td>
<td>54/96341</td>
<td>74/65</td>
<td>186/0065</td>
<td>65/6</td>
</tr>
<tr>
<td>Significance</td>
<td>$P \leq 0.001$</td>
<td>$P \leq 0.001$</td>
<td>$P \leq 0.001$</td>
<td>$P \leq 0.001$</td>
<td>$P \leq 0.001$</td>
</tr>
</tbody>
</table>

Table 2: $\chi^2$ value of different processes in different grades
To estimate the significance of the different processes (5 processes) in every grade the degree of freedom is 4, and in all the grades Chi-square is more than 18.46 which approves that it is significant when \( P \leq 0.001 \) except grade 5 in which Chi-square is significant when \( P \leq 0.01 \). In general, the null hypothesis i.e. equal frequency of different processes in each grade is rejected. In other words, the difference between frequencies of different processes in each grade is significant.

<table>
<thead>
<tr>
<th>Grade</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \chi^2 ) value in different grades</td>
<td>220/9297</td>
<td>98/27404</td>
<td>12/41681</td>
<td>32/98167</td>
<td>30/57626</td>
<td>127/633</td>
<td>22/68431</td>
</tr>
<tr>
<td>Significance</td>
<td>( P \leq 0.001 )</td>
<td>( P \leq 0.001 )</td>
<td>( P \leq 0.01 )</td>
<td>( P \leq 0.001 )</td>
<td>( P \leq 0.001 )</td>
<td>( P \leq 0.001 )</td>
<td>( P \leq 0.001 )</td>
</tr>
</tbody>
</table>

**Table 3: \( \chi^2 \) value of the frequency of different processes in each grade**

**CONCLUSIONS**

As Halliday and Mattissen believe all human experiences can be categorized in 6 different processes. Considering the result of the current study may pave the way for better material development and course book writing.

- Material (58%) is the most frequent process in all grades which approves the studies on normal students (Dastjerdi, 2010; Tabrizmanesh, 2006). Behavioral, relational and verbal clauses happened in 13%, 12%, and 10% of the clauses. The frequency of verbal, mental, and existential process are 10%, 7%, and less than 0.1% respectively.

- The frequency percentage of material process decreases as the grade increases. Thus, the least frequency goes to grade 9 (vocational high school).

- The frequency percentage of mental process in grades 7 (pre-vocational guidance school), 8 (pre-vocational guidance school), and 9 (vocational high school) is about 9 percent and is more than other grades. In general, the frequency percentage of mental process increases as the grade increases.

- The average frequency of relational process in primary students’ written discourse is much more than pre-vocational guidance school and vocational high school students’ narratives.

- The average frequency of behavioral process in primary students’ written discourse is much less than pre-vocational guidance school and vocational high school students’ narratives.

- The average frequency of verbal process in pre-vocational guidance school and vocational high school students’ narratives are much higher than primary school students’.  

- Existential process was used in just 2 cases. It is the least used process in story narration. According to Tabrizmanesh (2006) existential process was the least frequent one except grade 2 in which behavioral was the least frequent one. However, according to Dastjerdi (2010) verbal was the least frequent process and existential was the second least one.

- Mentally retarded students in primary school mostly use material and relational process in their written discourse. However, Pre-vocational guidance school and vocational high school students mostly use material, behavioral, mental, and verbal processes. It seems that the findings are consistent with Piaget’s cognitive development model.

- \( \chi^2 \) value shows that the difference between frequencies of different processes in different grades is significant.
REFERENCES


