Let’s Replace Words with Pictures: The Role of Pictures and Spatial Intelligence in Learning English Idioms

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Abstract—The present study attempted to explore the effects of spatial intelligence—one of Gardner’s (1993) eight intelligences—on learning idiomatic expressions through pictures. To this end, 76 Iranian learners of English were assigned to 2 groups: pictorial and non-pictorial. Both groups were comprised of learners with low, moderate, and high levels of spatial intelligence profile. Put differently, there were three subgroups in each group, totaling 6 subgroups. Groups proved to be homogeneous with regard to their understanding of the idioms in focus. During the treatment period, which lasted for 3 months, 2 sessions a week, the pictorial group received idiomatic expressions along with pictures associated with those idioms while the control group received the idioms with no pictures. An omnibus t-test run on the scores obtained from a posttest demonstrated statistically significant difference between the pictorial and non-pictorial groups in understanding the meaning of idiomatic expressions. Fine-grained analyses including 3 separate t-tests showed that there were no statistically significant differences between the lows and between the moderates in the pictorial and non-pictorial groups. The difference between the highs, however, turned out to reach statistical significance. A one-way ANOVA run on the scores of the 3 subgroups of the pictorial reached statistical difference while the one-way ANOVA run on the scores of the 3 subgroups of the non-pictorial group did not show any significant difference. Viewed generally, the results suggest that learners with higher levels of spatial intelligence would be more privileged to benefit from idiomatic expressions presented along with associated pictures.

Index Terms—spatial intelligence, pictorial idiomatic expressions

I. INTRODUCTION

Classroom research studies (e.g., Emig, 1997; Haley, 2004) have shown that the application of multiple intelligences (MI) is likely to enhance students learning and performance significantly and make students have better attitudes towards language learning experience. The application of MI model in general educational settings as well as language learning classrooms has already been substantiated by the theoretical argumentations which hold that traditional intelligence tests primarily premised on intelligence as a single ability tradition can hardly account for multi-faceted nature of human intelligence (Gardner, 1993). Challenging the traditional IQ test which viewed school children’s IQ as a fixed index of their cognitive operations (Gottfredson, 2004), Gardner (1993) argued that every single individual is born with a cluster of different intelligences which can be enhanced under appropriate training circumstances. Stated differently, learners have individual differences part of which is associated with their different types of intelligences. An individual learner might be quite strong in terms of one type of intelligence and at the same time experience frustration in performing activities associated with another type of intelligence. Training and practice, however, are assumed to foster improvement in terms of weak intelligences.

The original model of MI proposed by Gardner (1993) comprised seven intelligences to which he added one more. Included in his model are linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist intelligences (Armstrong, 2009). This list, however, seems to be far from complete as new types of intelligences are thought to be added to it, provided that they meet the tests into which any new intelligence has to be put. An immediate implication of Gardner’s rationalist model in language classroom settings is that syllabi prepared, activities delivered and assignments given should take into account cognitive individual differences closely. Such a concern with individual differences is more likely to attract students to the activities which are in harmony with some of their intelligences. Explicit in the model is the claim that if a language learner appears to have a high index of any of the intelligences identified by Gardner and his associates, he/she will benefit from the activities consistent with the intelligences at stake. Put differently, any classroom activity might enjoy the potentiality to stimulate some of the intelligences which each individual possesses. To involve learners in learning process and make them experience success in learning a new language, the learning material has to be structured around the intelligences at which the
learners have proved to be strong. These argumentations should not imply that every single learner can benefit only from the materials which stimulate the intelligence at which the learner is strong enough; Gardner (1993) is of view that weak intelligences can be enhanced to a significant extent through proper training and enough exercise.

MI theory suggests "that teachers need to expand their repertoire of techniques, tools, and strategies beyond the typical linguistic and logical one" (Armstrong, 2009, p. 54) which are practiced in large scale in classroom settings around the globe. One-sided pedagogy has to give way to innovations which are likely to prove more intriguing to learners with individual differences and in particular with differing degrees of capacity in terms of each of the eight intelligences identified. Diversity in materials, tools, techniques, and activities might tap into a spectrum of "proclivities" of learners involved and consequently stimulate more brains to be engaged in learning and L2 development. Approaching the classes with "preferred intelligences" of different learners involved, the teacher will be equipped with an understanding as to learners' preferences for the type of classroom activities which can then lead to their improved performance. It has to be made clear immediately that every single learner might show strength in more than one type of intelligence as one type of activity is likely to engage a cluster of any number of the eight intelligences which have been credited to account for cognitive operations of human beings. It has to be borne in mind that none of the intelligences is assumed to exist or operate by itself; rather they are taken to interact with each other (Armstrong, 2009; Gardner, 1993). As it is the case with general educational settings, language teaching profession has judged the MI theory to be of paramount impact on L2 learning and accordingly has embraced its varying applications under different teaching circumstances. A number of studies have endeavored to substantiate its positive effects on language learning in different situations with different types of research designs.

Different studies have looked at the effect of multiple intelligences or different types of intelligence on learning from a wide range of perspectives. Rauscher, Shaw, and Ky (1997), for instance, reported that students who were exposed to music could develop their spatial/temporal intelligence. Sadoski, Goetz, and Avila (1995) found that comprehension of a text was easier for learners if it had the feature of evoking images than a text which was rich in terms of contextual information. The power of a text in creating images has also been demonstrated to foster more interest on the part of learners in being involved in reading comprehension. Imagery is associated with visual-spatial intelligence of the MI model whose significance in learning has been theoretically elaborated on in Paivo's (1986) dual coding theory. This theory hypothesizes that we use verbal system for linguistic items and resort to our non-verbal system to attend to images, forms, and shapes which can be collectively taken as non-verbal world.

II. LITERATURE REVIEW

A. Importance of Spatial Intelligence

The role of spatial intelligence, particularly in the process of language learning, is of significance because this type of intelligence renders form, space, color, line, and shape salient to learners. At the same time, it features the ability to graphically represent some visual or spatial ideas (Christison, 1996). Armstrong (2003, 2009) holds that providing the learners with visual mapping activities and encouraging students to create charts, bulletin boards, establishing class atmosphere in which the learners can draw pictures, watch pictures on TV and voice their opinion about the pictures can stimulate this intelligence. To activate students' spatial intelligence, Armstrong (2009) suggests visualization, color cues, picture metaphors, idea sketching, and graphic symbol. Through visualizations students are advised to close their eyes and picture what they study creating their own "inner blackboard" in their imagination. Color cues simply imply using a spectrum of colors to stimulate spatial intelligence of students and cater for the likings of students with higher indices of spatial intelligence. Immediately available to the teacher are chalks or markers whose different colors can be used to trigger the interest of those students who turn out to possess higher degrees of spatial intelligence. In picture metaphors different ideas are chosen to be expressed through images instead of words. An attempt has to be in place to establish some logical link between what is to be taught and some images or shapes with which students are already familiar with. Such a linkage is perceived to engage students profoundly in learning process. Students with high capacity of spatial intelligence might feel at home with sketching their ideas instead of outlining them through verbal devices. The teacher is expected to offer such an opportunity to foster students' thinking and learning through this strategy in particular with those students who have proven to possess strong spatial intelligence. To assist "spatially inclined" students, the teacher can support his lessons through accompanying pictures. As Armstrong (2009) argues to be the case, graphs—even those roughly drawn Ones—can play a significant role in benefiting a wider range of students and particularly facilitating the learning process of those who enjoy this specific proclivity.

As pointed out above, the role of spatial intelligence in learning can be explained by dual-coding theory (Paivo, 1986) which takes the formation of images equally important along with verbal association (Reed, 2010). Verbal and visual information are postulated to be processed in different ways and end up in separate representations (Sternberg, 2003). Explicit in this theory is the significance of associating words and their images in learning new concepts. Learning can take place either verbally or visually. But if linked, they can foster more learning, facilitate learning, or speed learning up (Reed, 2010). The importance attached to the role of spatial intelligence in learning calls for well-designed studies. This study was an attempt to examine the impact of replacing words by corresponding pictures in idiomatic expressions on learning the targeted idioms.
B. Learning Idioms

In all languages there exist phrases or sentences that can pose challenge to language learners and can hardly be understood literally. Even if you know the meaning of all the words in a phrase and understand all the grammar of the phrase completely, the meaning of the phrase can prove to be beyond your ken. A phrase or sentence which enjoys such features is classified as an idiomatic expression. Put differently, an idiom is assumed to be a phrase whose meaning differs from the meaning of its separate components (Celce-Murcia, 2001). One theme common among all definitions of idioms is that they are fixed expressions whose words, the order of their words, and their grammatical forms cannot be changed. Irujo (1986a) defines an idiom as “a conventionalized expression whose meaning cannot be determined from the meaning of its parts” (p. 2). Learning idioms is usually postponed until the learners develop their competence to some advanced level, though they are taken to be one of the basic components of language (Irujo, 1986a). Irujo argues that since there is a lack of appropriate materials on teaching idiomatic expressions they are more often postponed by teachers. There is now an emphasis on addressing this component of language from early stages of language learning due to the importance which attached to it and the keen interest of students in learning them (Irujo, 1986b). As Hussein, Khanji, and Makhzoomy (2000) pointed out, in contrast to syntax which has drawn a great deal of attention, idioms have been neglected in studies conducted. They attribute learners’ poor competence of English idioms primarily to this fact. The use of idioms is usually assumed to be a characteristic of advanced EFL learners.

Cacciari and Tabossi (1988) put forward the configuration model which highlights the role of literal meaning in constructing the figurative interpretations of idioms. According to the model, the language comprehension device processes the idiom literally, simultaneously with the emergence of its figurative interpretation. Idiomatic key, here, plays an important role. The notion of key has been defined by Tabossi and Zardon (1995) as the information in the string that has to be processed literally before the figurative meaning of an idiom can be activated. So the configuration model does not give priority to either literal or figurative meanings in idiom processing. A research study carried out by Wu (2008) demonstrated that English idioms associated with illustrations could enhance college students’ idioms understanding better.

As it was mentioned, recognizing the pictures is one of the fundamental characteristics of spatial intelligence. In fact, spatial intelligence, with its emphasis on illustrations and pictures, can be used as an important factor in learning idioms. Hence, presenting English idioms accompanied by visual stimuli is likely to facilitate learning idioms. Most idioms can be categorized into groups like fruits, body parts, animals, and numbers, and can be presented through the pictures called pictorial idioms. The present study is an attempt to investigate the effects of pictures and spatial intelligence of the learners of English on learning pictorial idioms. Based on the scope of this study, the following research questions were formulated.

1- Would using pictures instead of words in idiomatic expressions lead to improvements in learning English idiomatic expressions?
2- Would learners with different profiles of spatial intelligence benefit from pictorial idiomatic expressions differently?

III. Methodology and Results

A. Participants

The participants were 76 pre-intermediate Iranian learners of English who had been recruited from some language institutes in Ardabil, a city in northwest of Iran. They were female ranging from 13 to 21 years old and were bilingual in Azerbaijani Turkish and Persian. The participants were randomly assigned to two groups: an experimental group and a control group. Due to the fact that having this number of students in two classes was impossible, we divided the experimental and control groups each into three classes. Two experienced language teachers were trained to run the classes according to the conditions specified for the present study.

B. Materials

Most materials on English idioms available on the market are in black and white and are not topic-oriented. However, in this study, the pictorial idioms selected were colorful and were categorized according to different topics. The idioms used in this study were accompanied by pictures. For example, in the idiom let the cat out of the bag, a picture of cat was inserted into the idiom and replaced the word cat. The participants’ responses to a questionnaire (Appendix A) revealed that they preferred animal idioms over the other categories (e.g., fruit, body, or number). The items for checking spatial intelligence of participants were adapted from an MI questionnaire (Haley, 2004). This questionnaire was comprised of 40 items five of which examined the respondent’s spatial intelligence inclination (Appendix B). For each of the rest of the intelligences there were also five relevant items which were excluded for the present study.

The pretest prepared for assuring homogeneity of participating groups in terms of the dependent variable, i.e., targeted idioms, consisted of 20 multiple-choice items (Appendix C) whose Cronbach alpha was .68. The items were adapted from Solhi and Dargahi (2008). The questions were not pictorial and owing to the fact that the key word of every single idiomatic expression in this book is a picture, we had to replace the picture with the corresponding word in any single item chosen to be included in the pretest. The posttest was a parallel to the pretest and included 20 multiple-
choice items which were from among the idiomatic expressions worked on during treatment period—adapted from Solhi and Dargahi (Appendix D). Cronbach alpha computed for this test was .79.

C. Procedures

Prior to conducting the study, the questionnaires, the pretest, and the posttest were piloted with a small group of language learners of English who had a substantial degree of similarity with those learners who volunteered to participate in the main study. Following the pilot study, all members of the sample selected for the study were asked to indicate their preferences as to fruits, animals, numbers, or body parts. The participating individuals were randomly assigned to an experimental or a control group. Both groups filled in a spatial intelligence questionnaire based on which three subgroups were identified for each of the two groups specified for the study. Differently stated, the experimental group was comprised of high, moderate, and low spatial intelligence learners as was the case with the control group. The high spatial intelligence individuals were those who scored 7–10 on the spatial intelligence questionnaire in both groups; the moderate spatial individuals were those who scored 4–6; and those whose spatial intelligence scores ranged from 0 to 3 were labeled as the low spatial individuals. All subgroups involved in the study took a pretest which included 20 multiple choice items on animal idioms. A one-way ANOVA run on the data obtained from the pretest assured that the groups involved were homogeneous in terms of their idiomatic knowledge, $F = .88, p > .05$.

The treatment lasted for three months, two sessions a week. In each session, almost 10 idiomatic expressions were presented. At the beginning of each session, the participants in the experimental group, which was comprised of high, moderate, and low spatial learners, were required to read the pictorial idioms in pairs. They were asked to pay attention to the pictures inserted into the idioms and consequently to the literal meaning of the idioms. Then, they were required to work in groups to guess the meaning of the idioms collaboratively. Sometimes, they were able to guess the meanings. The pictures were cartoons which were assumed to activate the learners’ right hemispheres and nurture their spatial intelligence. Each session, the pictorial idioms were taught to the learners and the participants were asked to work in groups and run a conversation using those idiomatic expressions. This task lasted for 15 min. Then, the students were asked to act out the conversation in front of the class. At the end of the semester, the participants were supposed to know at least 250 idiomatic expressions. The participants in the control group were exposed to non-pictorial idioms. Finally, the posttest was administered to the experimental and the control groups. The scores obtained from the posttest were put into SPSS to be analyzed statistically.

D. Analyses and Results

In order to compare the scores obtained from the posttest of the control group with that of the experimental group, an omnibus $t$-test was conducted to investigate the possible difference between the two groups involved. Descriptive statistics for the two groups presented in Table 1, showed that the experimental group had higher mean ($M = 17.81$) in comparison to the control group ($M = 14.86$) on the posttest.

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics for the Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Experimental</td>
</tr>
<tr>
<td>Control</td>
</tr>
</tbody>
</table>

The results obtained from the $t$-test run indicated that there was a significant difference between the experimental and the control groups in their performance on the posttest, $t(74) = -6.42, p < .001$. One more independent samples $t$-test was carried out to compare the performance of the experimental group and the control group with low level of spatial intelligence on the posttest. There were eight students with low intelligence in the control group and four students in the experimental group. There was not a significant difference between the scores of the control group and those of the experimental group $t(10) = -3.9, p < .70$.

To compare the posttest of the control group and the experimental one with the moderate level of the intelligence, another independent samples $t$-test was run. There were 18 students with moderate spatial intelligence in the control group and 22 in the experimental group. There was a significant difference between scores of the control group ($M = 14.72, SD = 2.21$) and the experimental group ($M = 17.77, SD = 1.34$), $t(38) = -5.38, p < .05$. Another independent-samples $t$-test was conducted on the posttest of the control group and the experimental one with high level of spatial intelligence. There were 12 students with moderate intelligence in the control group and 12 in the experimental group. There was a significant difference in scores of the control group ($M = 14.75, SD = 3.10$) and those of the experimental group ($M = 18.58, SD = 1.24$), $t(22) = -3.96, p < .05$.

The second research question addressed the effect of spatial intelligence (low, moderate, and high) on learning pictorial idiomatic expressions of Iranian learners of English. The results obtained from the one-way ANOVA for the control group indicated that there was not a significant difference among the scores of the learners with low level of spatial intelligence ($M = 15.37, SD = 1.84$), the learners with moderate level of spatial intelligence ($M = 14.72, SD = 2.21$), and the learners with high level of spatial intelligence ($M = 14.75, SD = 3.10$), $F(2, 35) = .213, p > .05$. 

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TABLE 2.
DESCRIPTIVE STATISTICS FOR POSTTEST OF THE CONTROL GROUP

<table>
<thead>
<tr>
<th>Spatial Intelligence profile</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>8</td>
<td>14.37</td>
<td>1.84</td>
</tr>
<tr>
<td>Moderate</td>
<td>18</td>
<td>14.72</td>
<td>2.21</td>
</tr>
<tr>
<td>High</td>
<td>12</td>
<td>14.75</td>
<td>3.10</td>
</tr>
</tbody>
</table>

TABLE 3.
ONE-WAY ANOVA FOR THE CONTROL GROUP

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F-value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>2.60</td>
<td>2</td>
<td>1.30</td>
<td>.213</td>
<td>.809</td>
</tr>
<tr>
<td>Within groups</td>
<td>213.73</td>
<td>35</td>
<td>6.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>216.34</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To compare the performance of the experimental with the control group on the posttest, and to examine the possible effect of spatial intelligence on learning idiomatic expressions of the learners in the posttest of the experimental group, a one-way ANOVA for the experimental group was run. The results obtained from this test for the control group, as presented in Tables 2 and 3, indicated that there was a significant difference in scores of the learners with low level of spatial intelligence (M = 15.75, SD = .50), the learners with moderate level of spatial intelligence (M = 14.77, SD = 1.34), and the learners with high level of spatial intelligence (M = 18.58, SD = 1.24), $F(2, 35) = 7.62, p < .05$.

TABLE 4.
DESCRIPTIVE STATISTICS FOR POSTTEST OF THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>Spatial Intelligence profile</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>4</td>
<td>15.75</td>
<td>50</td>
</tr>
<tr>
<td>Moderate</td>
<td>22</td>
<td>17.77</td>
<td>1.34</td>
</tr>
<tr>
<td>High</td>
<td>12</td>
<td>18.58</td>
<td>1.24</td>
</tr>
</tbody>
</table>

TABLE 5.
ONE-WAY ANOVA FOR THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F-value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>24.18</td>
<td>2</td>
<td>12.09</td>
<td>7.62</td>
<td>.002</td>
</tr>
<tr>
<td>Within groups</td>
<td>55.53</td>
<td>35</td>
<td>1.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>79.71</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to compare the different pairs, S-N-K post-hoc tests were conducted. The results, presented in Table 6, indicated that the participants with high intelligence profile had significantly more improvement than the learners with moderate or low intelligence profile while the latter two groups did not differ from each other significantly. In fact, the difference between the high and the low levels was significant. However, the difference between the low and the moderate as well as the difference between the high and the moderate levels did not reach statistical significance.

TABLE 6.
LSD RESULTS FOR SPATIAL INTELLIGENCE

<table>
<thead>
<tr>
<th>Contrasts</th>
<th>Mean Differences</th>
<th>SD</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low vs. Moderate</td>
<td>-2.02</td>
<td>.68</td>
<td>.006</td>
</tr>
<tr>
<td>Low vs. High</td>
<td>-2.83</td>
<td>.72</td>
<td>.000</td>
</tr>
<tr>
<td>Moderate vs. High</td>
<td>-1.81</td>
<td>.45</td>
<td>.082</td>
</tr>
</tbody>
</table>

IV. DISCUSSION AND CONCLUSION

The first research question which was formulated for the present study addressed the influence of using pictures instead of words in English idioms on learning idiomatic expressions by Iranians EFL learners with high, moderate, and low spatial intelligence profile. The results of an omnibus $t$-test which was run on the data obtained from the groups involved showed that the group which received the pictorial idioms enhanced their idiom knowledge significantly more than the group which received the same set of idioms without pictures. This finding implies that using pictures along with words in idioms is likely to benefit L2 learners in enhancing their knowledge of idioms. This finding lends support to dual-coding theory (Paivo, 1986) which highlights the role of image formation along with verbal associations. In light of this theory we can substantiate the positive effect of teaching idioms through their relevant pictures; the group which was exposed to idioms along with pictures enjoyed the opportunity to associate words with their images in the targeted idioms. Such an opportunity to draw a link between words and images appeared to improve idiomatic knowledge to a significant extent. The outperformance of the experimental group versus the control group can also be related to the fact that pictures serve as a means to motivate language learners by boosting the attraction of the input materials (Male, 2007) and stimulating their aesthetic visual perception (Chiaverina, Scott, & Steele, 1997).

The comparison drawn between the subgroups with low profile of spatial intelligence in the experimental and control groups demonstrated that they did not differ in terms of their performance on idioms, though the subgroup in the experimental group received the pictorial idioms while the subgroup in the control group received idioms without any pictures. The pattern, however, turns out to change as we move on to compare the performance of subgroups with
moderate profile of spatial intelligence in the experimental and control groups. The subgroup with moderate profile of spatial intelligence enhanced their performance on idioms significantly more than the subgroup in the control group. The difference observed between the subgroups with high level of spatial intelligence proved to be statistically significant; the subgroup in the experimental group outperformed the subgroup in the control group. These findings can be explained in light of spatial intelligence of Gardner’s (1993) MI theory. As Armstrong (2009) asserts, pictures are likely to engage learners with high level of spatial intelligence more than those who do not enjoy a substantial degree of this inclination. In the current study those who had moderate and high profiles of spatial intelligence could benefit from receiving English idiomatic expressions more than those groups who had the same levels of spatial intelligence but were deprived of pictures along with idiomatic expressions delivered during treatment period.

Interestingly enough, introducing pictures along with idiomatic expressions could not bring about any significant improvement to the subgroup in the experimental group compared to the subgroup which did not receive pictures along with idioms. Juxtaposed with the findings of the subgroups with moderate and high profiles of spatial intelligence, this finding lends support to the claim that learners who possess higher levels of spatial intelligence are more likely to benefit from instructions which embed pictures appropriately in their syllabi (Armstrong, 2009). One of the interesting findings of the current study is that the three subgroups of the control group which received idiomatic instruction without any pictures had almost similar performance on the posttest which examined their knowledge of some of the idioms which had been taught to them during treatment period. Stated differently, the groups with low, moderate, and high profiles of spatial intelligence did not differ in terms of their idiomatic knowledge improvement at the end of the study. In the experimental group, however, the group which enjoyed high profile of spatial intelligence turned out to improve its knowledge of idiomatic expressions significantly more than the groups with low and moderate spatial intelligence profile. This finding is consistent with the postulations of MI theory.

The outperformance of the group with high spatial intelligence index can be explained with MI theory which postulates that learners with high profile of this intelligence would feel inclined towards pictures more than those who appear to possess lower degrees of it. The individuals in the experimental group who proved to be more picture oriented than others could benefit more from the pictorial idiomatic expressions. The pictures used instead of words in the targeted idioms seemed to have been rendered salient to those who outstood in the group in terms of their spatial intelligence. And the other groups labeled as low and moderate in terms of their spatial intelligence failed to benefit from pictures in developing their knowledge of idiomatic expressions. Viewed from another perspective, we can argue that those who had high levels of spatial intelligence in the experimental group could resort to non-verbal system to attend to pictures in addition to resorting to verbal system to attend to the words (Paivo, 1986) and subsequently benefit from pictorial idioms presented as input during treatment sessions more than those who can only resort to their verbal system due to not possessing high level of spatial intelligence.

By the same token since the control group did not receive any pictures along with the idiomatic expressions targeted no significant difference was observed among the three groups involved, although one of the three groups involved possessed high profile of spatial intelligence. Put differently, spatial intelligence proclivity of the high spatial intelligence group did not give them an advantage over the other subgroups since the input was not consistent with the intelligence in question.

Dual coding theory (Paivo, 1986) can also provide cogent argumentation for this part of the findings; since all the subgroups of the control condition, unlike the experimental condition, were provided with just verbal idioms they just activated their verbal system and possessing high spatial intelligence did not turn out to be of any advantage. All taken together, based on the findings of the present study we can argue that using pictures instead of words helps learners improve their idiomatic knowledge to a considerable extent simply because it attracts learners’ attention, interests them, and stimulates their aesthetic visual perception. When provided with pictures along with words, learners with high profile of spatial intelligence benefit from input more than those who possess low levels of this intelligence. Deprived of pictures, highly spatial learners lose the opportunity to push their abilities to their limits in learning new pieces of language. Pictures along with words make learners resort to verbal as well as non-verbal systems of attending to new pieces of input during learning which is in turn likely to lead to more learning.

APPENDIX A. QUESTIONNAIRE

You are going to learn a large number of idioms this semester.
Which group of idioms would you prefer to be taught?

Group 1:

Group 2:

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Group 3:
Group 4: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

APPENDIX B. SPATIAL INTELLIGENCE STATEMENTS OF THE 1ST QUESTIONNAIRE

Rate the statements from 0 to 2. (2= I completely agree, 1= I fairly agree, 0=I don’t agree).

--------I often see clear visual images when I close my eyes.
--------I like to draw.
--------When I go an address one, I can easily remember it.
--------I prefer looking at reading materials with lots of illustrations.
--------Films and pictures are really helpful for me to learn new things.

APPENDIX C. PRETEST

1. The man has a (hard and cold personality).
   (a) heart in the right place
   (b) change of heart
   (c) heart of gold
   (d) heart of stone

2. The man is beginning to (feel discouraged) because he cannot find a job.
   (a) search his heart
   (b) open his heart
   (c) lose heart
   (d) wear his heart on his sleeve

3. I had (a serious) talk with my friend about his girlfriend.
   (a) a heart-to-heart
   (b) a young-at-heart
   (c) a heavy-heart
   (d) a heart-of-gold

4. The man was (very sad) about his son's death.
   (a) wearing his heart on his sleeve
   (b) taking heart
   (c) losing heart
   (d) sick at heart

5. I had to (keep silent) although I disagreed with everything that the man said.
   (a) show my teeth
   (b) loosen my tongue
   (c) throw my voice
   (d) hold my tongue

6. I heard about the new store (from my friends).
   (a) by word of mouth
   (b) down in the mouth
   (c) gritting my teeth
   (d) living from hand to mouth

7. The name of the new book was (at the point that I could almost remember) but I still could not remember it.
   (a) by the skin of my teeth
   (b) as scarce as hen's teeth
   (c) on the tip of my tongue
   (d) holding my tongue

8. The platter of food in the front window (made me want to eat it).
   (a) put my foot in my mouth
   (b) melted in my mouth
   (c) said a mouthful
   (d) made my mouth water

9. I stopped work for an hour in order to (have a short sleep).
   (a) look like a million dollars
   (b) get forty winks
10. We talked to the employees (individually) when we learned of the serious financial problems in the company.
   (a) on all fours
   (b) all in one
   (c) one by one
   (d) one and the same

11. The actress was (wearing her best dress) at the charity concert.
   (a) all rolled up in one
   (b) a stitch in time
   (c) at sixes and sevens
   (d) dressed to the nines

12. I was (very happy) when I won a vacation trip during the winter.
   (a) on cloud nine
   (b) a nine-day wonder
   (c) dressed to the nines
   (d) one for the books

13. My father is (recovering) after he spent a week in bed because of illness.
   (a) back on his feet
   (b) six feet under
   (c) swept off his feet
   (d) light on his feet

14. My mother was (very eager to listen) when I began to talk about my holiday in England.
   (a) wet behind the ears
   (b) in her mind’s eye
   (c) turning a deaf ear
   (d) all ears

15. The city officials welcomed the group of foreign businessmen (warmly).
   (a) under their thumb
   (b) arm in arm
   (c) close at hand
   (d) with open arms

16. We did not have any milk (available) so we could not drink any coffee.
   (a) hands down
   (b) on the one hand
   (c) on hand
   (d) under my thumb

17. I (hope) that our team will win the championship again this year.
   (a) am crossing my fingers
   (b) am greasing my palm
   (c) rapped my knuckles
   (d) lost my grip

18. The man is (very lazy) and he makes everything worse when he tries to fix it.
   (a) living from hand to mouth
   (b) high-handed
   (c) all thumbs
   (d) burning his fingers

19. He is the (most important person) in his company.
   (a) holy cow
   (b) dog in the manger
   (c) alley cat
   (d) top dog

20. The girl never eats and is (very skinny).
   (a) skin-deep
   (b) broad in the beam
   (c) skin and bones
   (d) a bundle of nerves

APPENDIX D. POSTTEST

1. He’s always (restless).
(a) living from hand to mouth  
(b) high-handed  
(c) all thumbs  
(d) antsy
2. I have a feeling of anxiety.  
   (a) have butterflies in my stomach  
   (b) have a whale of a time  
   (c) flog a dead horse  
   (d) hold your horses
3. The (boss) ordered the killing.  
   (a) white elephant  
   (b) scapegoat  
   (c) big fish  
   (d) hen-pecked
4. What should I do with this (useless thing).  
   (a) night owl  
   (b) black horse  
   (c) early bird  
   (d) white elephant
5. Can you find me a job? I'm (not busy at all).  
   (a) as busy as a beaver  
   (b) as busy as a bee  
   (c) as busy as a hibernating bear  
   (d) as busy as a cat on a hot tin roof
6. The girl never eats and is (very skinny).  
   (a) skin-deep  
   (b) broad in the beam  
   (c) skin and bones  
   (d) a bundle of nerves
7. I prefer to stay at home. It's (very cold).  
   (a) lovely weather for ducks  
   (b) brass monkey weather  
   (c) under the weather  
   (d) fair-weather friend
8. My brother is (not brave). He's afraid of being alone.  
   (a) chicken-hearted  
   (b) as gaudy as a butterfly  
   (c) big fish  
   (d) as gruff as a bear
9. It's (suspicious). I don't believe it.  
   (a) fishy  
   (b) dyed-in-the-wood  
   (c) batty  
   (d) slow on the draw
10. We've got to sit down and talk (frankly  
    (a) turkey  
    (b) goose  
    (c) duck  
    (d) hen
11. He is as strong as a ………….  
    (a) donkey  
    (b) elephant  
    (c) horse  
    (d) cow
12. Jack is ………..-pecked. He's afraid of her wife!  
    (a) hen  
    (b) cat  
    (c) mouse  
    (d) goose
13. Our close friend is as poor as a church………..
14. My grandfather is as wise as a/an ………..
   (a) cat
   (b) eagle
   (c) fox
   (d) owl

15. The woman in the supermarket was as fat as a ……….
   (a) cow
   (b) elephant
   (c) pig
   (d) bear

16. My neighbor is the black ………..of the family.
   (a) goat
   (b) sheep
   (c) cat
   (d) dog

17. Nicole is as silly as a …………
   (a) goose
   (b) duck
   (c) hen
   (d) dog

18. She has a memory like a/an ……….. She's a number one the class.
   (a) fish
   (b) pig
   (c) elephant
   (d) bear

19. Don't shed ……….. tears.
   (a) crocodile
   (b) bear
   (c) wolf
   (d) snake

20. Don't count your ………… before they hatch.
   (a) hen
   (b) rooster
   (c) duck
   (d) chicken

REFERENCES


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