

AN EXAMINATION OF
ESL STUDENTS'
PERCEPTUAL LEARNING STYLES
—IS THERE A RELATIONSHIP BETWEEN STYLES
AND PREFERENCES FOR GROUP
AND INDIVIDUAL LEARNING?—

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Abstract

In this study, a number of hypotheses were tested which mirrored the examination of ESL learners' perceptual learning styles carried out by Reid (1987) and Melton (1990). Data were collected on 38 students from Japan, China and Korea who were studying intensive English in an Australian context. Students' variation in learning style preference was measured across a number of demographic variables including sex, age, length of time studying English and language background. In addition, in a unique examination of data obtained using Reid's (1987) Perceptual Learning Style Questionnaire, the four perceptual learning styles (auditory, visual, kinesthetic and tactile) were correlated with the same questionnaire's measures of group and individual learning.

It was found that preferences for certain perceptual learning styles correlated highly with preferences for group or individual learning. The current results have implications for lesson designers and educators who have sought to facilitate learning by matching teaching styles with the learning styles of their ESL students.

Introduction and Background

Researchers have identified a number of variables that help explain how students learn and process information differently. One factor which has generated considerable interest in the past two decades is students' learning styles. Learning styles is a concept originally taken from general psychology and is used to refer to the way in which people habitually deal with new information and solve problems (Lawrence, 1984). A widely quoted definition is also provided by Keefe (1979) who describes learning styles as "the characteristic cognitive, affective and psychological behaviours that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment" (p. 4).

Learning styles or cognitive styles, as they are often referred to, have been examined by researchers from a number of disciplines. Learning styles are important not only to linguists and researchers in second language acquisition but cognitive style is also a factor in many models and theories of psychological function. Each theory brings with it its own taxonomy and terminology and we are conse-

quently presented with a complex picture of learner interaction with the environment. Shipman and Shipman (1985) list 19 different dimensions of learning style, all of which have been used to investigate the broader 'learning styles' concept with varying degrees of success. One of the first examined and still relevant avenues of inquiry concerns 'perceptual' or 'sensory' learning styles. According to Ellis (1994), who has comprehensively reviewed studies done on perceptual learning modalities, while this area of learning style research appears to be promising, the concept of perceptual learning styles or sensory modality preference is not, however, a new one. Keefe (1987) reports that even before 1940 and perhaps as early as the late 19th century, researchers were concerned with the relationship between memory and oral or visual teaching methods. The early results were unreliable "no doubt due in part to the differences in the populations, learning materials, and test instrumentation that was utilized" (p. 6).

Research in perceptual learning styles received renewed interest from the mid to late 1970's. The area became even more popular in the 1980's when educators in the American public school system looked at learning styles as a way of improving the achievement of students in regular school subjects. The Dunn and Dunn Learning Style Model was particularly influential and stressed the value of teaching students through their individual learning style preferences. Dunn, Dunn and Price (1975) defined learning styles in terms of instructional environments and included what they called the 'physiological characteristics' of auditory, visual,

kinesthetic and tactile perceptual preferences. In a recent critique of research using the Learning Style Model, Dunn et al. (1995) conducted a meta-analytic validation (42 studies with a total of 3,181 students were collated and examined) and it was concluded that matching student styles with teaching styles may help students obtain 75% of one standard deviation higher in achievement scores.

In comparison with the wealth of research involving native English speakers, only a sparse amount has been done on ESL students. Reid (1987) argued that because ESL students come from a wide range of language and cultural backgrounds and bring with them a variety of ways to approach language learning some of the difficulties that teachers experience in instructing students may be caused by the use of methods and materials developed to suit the learning needs of native speakers. Reid (1987) recognized that research needed to be done on foreign students so that the non-native speaker could be better understood and classroom instruction could be adjusted for learning styles that were perhaps culturally influenced. Reid (1987) constructed and validated a self-report questionnaire for use with ESL students which she used to identify the learning styles of 1,234 non-native speakers of English. In this current study, Reid's survey instrument, the Perceptual Learning Style Questionnaire will be used.

Reid's (1987) research is acknowledged as being a comprehensive and reliable study of ESL students styles (see also Melton (1990) for a replication done of Reid's study using Chinese students); however the opportunity exists to re-

examine the treatment of data obtained from her questionnaire. Reid's questionnaire (1987) consisted of randomly arranged sets of five questions which gave a measure of students' preferences for their type of perceptual learning style. In Dunn, Dunn and Price's research (1975) only four perceptual learning styles were discovered. However in Reid's (1987) research, she reports on six learning style preferences, having included group and individual learning. In the discussion of her results, group and individual learning styles are treated in the same fashion as the four perceptual learning styles; that is, differences in the means of group and individual learning preference scores are tested for significance across a range of independent variables including language groups, length of time in the United States, major fields of study and the sex of the respondent. However, it is interesting to note that in a 1990 article "The Dirty Laundry of ESL Survey Research" Reid writes that "group and individual learning are not actually perceptual learning styles, but aspects of learning that I was also interested in measuring" (p. 325). Reid (1987) does not discuss why she labels group and individual learning preferences as learning styles and perhaps fails to take full advantage of the opportunity of a more complete analysis of her data.

The current study will investigate the perceptual learning styles of ESL students and has two major aims. The first is investigate whether learning styles differ among culturally or demographically different groups. If results similar to Reid's (1987) and Melton's (1990) can be found, then we add to the growing evidence of literature concerning the impor-

tance of learning styles. If teachers are to educate students in the most effective manner, then they may need to consider what teaching style and what classroom activities best take advantage of the particular learning style preferences of their students.

The second aim of the study is to examine the relationship between 'group' and 'individual' learning style preferences and the four sensory modalities (auditory, visual, kinesthetic and tactile learning). This may prove to be a revealing analysis with consequences for how we then treat learners with distinct learning style preferences. For example, in the first part of this study, in the analysis of individual learner variables, we may find that some students show a preference for say, auditory or tactile learning, but how can we use this? Classroom activities necessarily have an individual or group bias. When we want to plan activities to encourage the preferred type of learning, do we then have the students work individually or in groups? In the present study, the preferences for group and individual learning will be correlated with the four perceptual learning styles. This will allow us to investigate student preferences for group and individual learning in relation to their preference choice for particular perceptual learning styles. On the basis of an examination of the data relating to sensory modality preference alone, it may be possible to state whether activities should be designed with a group or an individual orientation; a result which would be valuable to designers of classroom activities.

Study Hypotheses and Variables

Analysis of a variety of demographic and individual variables may indicate how ESL students vary in their preferences for perceptual learning styles. Variables assessed in this study come from two sources: (1) the 'Perceptual Learning Styles Questionnaire' and (2) its attached 'Personal Details' section. Use of the Perceptual Learning Styles Questionnaire will give a measure of students' preferences for perceptual learning styles; these are auditory, visual, kinesthetic and tactile, as well as their preferences for group and individual styles of learning. In this experiment, these six variables will act as the dependent variables in the statistical design.

Information that is obtained through the 'Personal Details' section will act as the independent variables. Students' variation in learning style preferences will be measured across changes in their demographic and personal make-up. The effect of the following variables on perceptual learning styles will be examined: (1) sex of respondent, (2) age, (3) length of time studying English and (4) language background.

In addition, correlations among students' scores for the perceptual learning styles will be analyzed. Particular emphasis will be placed on whether scores for group and individual learning correlate with the four sensory modality preference scores. Thus it may be possible to state what kind of learning, group or individual learning, best suits learners with an auditory, visual, kinesthetic or tactile learn-

ing style.

Reid's exploratory research has been previously replicated by Melton (1990) who used Reid's Perceptual Learning Styles Questionnaire with Chinese nationals. Taken together, the results from these two studies suggest the following hypotheses for the current experiment: (1) learners will show the highest preferences for kinesthetic and tactile learning styles. (2) Learners will report group learning as a minor or negative learning preference. (3) Males will be more tactile and more visual than females. (4) Older students will have higher preferences for each of the four perceptual styles (auditory, visual, kinesthetic and tactile learning) than will younger students. (5) The longer the period of study or the longer the period of study in the foreign country, the higher the preference will be for an auditory learning style. In addition to the above, in which Reid and Melton were in agreement, one area of dissension also exists. Reid (1987) found that the longer the period of study, the lower preference means became for the perceptual learning styles (with the exception of auditory learning). Melton (1990), on the other hand, found the opposite result—that preference means increased with the period of study. This question will be examined in the current study. Finally hypothesis (6) can be made in relation to country groups; Japanese may be the least auditory and kinesthetic, Koreans the most visual and Chinese learners may show multiple learning styles.

Subjects

The participants in this study were all enrolled as full-time students in intensive English language courses in Australia (1996/97). By class level, students were rated from intermediate to post-intermediate level. Classes were visited at prearranged times in accordance with the class teachers' wishes. The data sample contained responses from 38 students; 14 Korean, 14 Japanese and 10 Chinese. Of the total, 21 were male, 17 female. Their ages ranged from 18 to 33, the mean age was 22.8.

The Questionnaire: Design and Procedure

The instrument used in this study is the Perceptual Learning Style Questionnaire (Reid, 1987). It is a 30-item questionnaire which asks students to indicate to what degree they agree with statements concerning their preferences for learning. A 5-point Likert Scale is used wherein students choose a response from "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree". The questionnaire examines six different constructs related to learning styles; students responses on the Likert Scale indicate their preferences for visual, auditory, kinesthetic, tactile, group and individual styles of learning. For each construct the questionnaire contains five randomized statements.

Reid's questionnaire items were developed largely from materials used for assessing the perceptual learning styles of native speakers of English, such as the Center for Innovative

Teaching Experiences Learning Styles Instrument (CITE) (Babich et al., 1975) and the Learning Styles Inventory (LSI) (Dunn et al., 1975). The questionnaire was validated with an experimental group of ESL students using the split-half method. An examination of the five questions for each of the learning style constructs shows that essentially the same idea is represented in differently worded statements. Reid (1990) notes that this method "helps to average out response idiosyncrasies thereby improving the validity of the measurement process" (p. 325). In comparison with surveys used to assess the learning styles of native speakers such as the extensively employed Learning Style Inventory (LSI), the Perceptual Learning Styles Questionnaire contains items of less structural complexity. In particular, the comparative dependent clause at the end of questionnaire statements has been eliminated, as have idiomatic expressions, difficult words and complex grammatical patterns. In the validation phase of the questionnaire's construction making the statements as simple and as clear as possible had a significant impact on the overall reliability coefficients for the instrument.

In the current study, the three page questionnaire was distributed to each student in the language class. Page one contained directions for filling out the questionnaire and a section of personal details, pages two and three consisted of the 30-item Perceptual Learning Style Questionnaire. Students were told to be mindful that the questionnaire should be filled out in relation to how the statements apply to their study of English. Students were asked to mark an X in the

appropriate column responding to how they felt about a particular statement and to make their responses relatively quickly. The student subjects were asked to respond to the survey questions without any prior knowledge of the purpose of the questionnaire. It was hoped students would thus respond to each question on its own merits. The questionnaire was completed by the majority of students within 12 to 17 minutes.

Results

Student responses to the personal details section and the Perceptual Learning Styles Questionnaire were collated and preference means for each variable were statistically analyzed. Analysis of variance was conducted and Type I error rate was maintained at $<.05$ for unlimited post-hoc comparisons using the Scheffe' test. In this study, Reid's classification system for reporting preference means for the learning styles will be used. Means of 13.5 and above qualify as 'major' learning styles—or those that are most preferred by the students; means of 11.5–13.49 are classed as 'minor' learning styles—those shown a limited preference by the students; and means of 11.49 or less are called 'negative' learning styles and are seen as those generally neglected or disliked by the student.

(1) Perceptual Learning Styles: Overall Means

The aggregate of all student scores for the six measures of learning style were calculated. Students in the current study have a major preference for tactile (13.89) and audito-

ry (13.87) learning styles, while visual (12.50), kinesthetic (13.34) and group learning (12.11) are minor styles. The individual learning style is the only negative learning style, having a mean of only 10.61.

(2) Sex of Respondent

The effect of the sex of the students on learning style preference was measured. Analysis of the group according to the sex of the respondent (Table 1) do not reveal any statistically significant differences. In fact, the group means are remarkably similar on a number of learning style measures. Preference for visual learning for males (12.43) is only slightly different from the female mean (12.59). As with Reid's (1987) study however, males show the highest preference for tactile learning (14.48). Tactile learning is reported here as a major learning style for males, but as a minor style (13.18) for females.

Table 1: Variation in Learning Style Preference According to Sex of Respondent

LEARNING STYLE	SEX	
	Male	Female
Auditory	13.86	13.88
Visual	12.43	12.59
Kinesthetic	13.24	13.47
Tactile	14.48	13.18
Group	12.10	12.12
Individual	10.48	10.76

(3) Age

For the current study, students were divided into three age groups. An 18 to 20 year old group (n = 12), a 21 to 23

year old group (n = 15) and those 24 or older (n = 11). Means for learning style preferences were then calculated and the data was analyzed. As was the case with Reid's (1987) study, no statistically significant results were found among the various age groupings.

(4) Length of Time Studying English

Separate analyses were performed which examined perceptual learning styles in relation to individuals' reported lengths of study in Australia and their length of English study in their own country. Table 2 reports the 'Total amount of English study', a figure produced by summing the data for these two measures.

Table 2: Variation in Learning Style Preference According to Total Amount of English Study

LEARNING STYLE	TOTAL AMOUNT OF ENGLISH STUDY		
	3 Years — 6.49 Years	6.5 Years — 8 Years	More than 8 Years
Auditory	13.14	14.00	14.54
Visual	12.86	12.09	12.46
Kinesthetic	12.71	13.09	14.23
Tactile	13.07	13.82	14.85
Group	12.00	11.55	12.69
Individual	11.07	10.00	10.62

The gradual increase in the auditory score suggests that learners may become more auditory in their learning style preferences as time goes by. Students studying English for more than 8 years reported auditory learning as a major learning style (14.54) as did students who had studied English for between 6.5 years and 8 years (14.00), while stu-

dents with less than 6.5 years saw it as a minor style (13.14). Similar trends were also present for kinesthetic and tactile learning, whereby overall preference means increased with time. While the change was not statistically significant, taken together, these results may suggest that learners with the greatest amount of time spent studying English develop the most number of major learning styles. This would reflect their ability to rely on a greater number of perceptual modalities for language input.

(5) Language Background

Students from the three language backgrounds, Japanese, Korean and Chinese were used in this study. Their preference for perceptual learning styles are shown in Table 3.

Table 3: Variation in Learning Style According to Students' Nationality

LEARNING STYLE	NATIONALITY		
	Japanese	Korean	Chinese
Auditory	13.93	14.00	13.60
Visual	11.29	13.14	13.30
Kinesthetic	13.64	12.79	13.70
Tactile	14.21	13.79	13.60
Group	11.07	12.57	12.90
Individual	11.29	9.79	10.80

Analysis of learning style preferences according to nationality showed results fairly consistent with the previous analyses. All three groups have shown major learning style preferences (above 13.50) for the two most popular styles, tactile and auditory learning. Similarly, they have also reported individual learning style as a negative learning

preference (below 11.5). For the remaining styles, some small differences were found. The Japanese were the most different, showing a negative preference for visual (11.29) and group (11.07) styles. For the same styles, Korean and Chinese students showed minor learning preferences (means between 11.50 and 13.50). An examination of the kinesthetic style shows that both Japanese and Chinese students chose kinesthetic learning as a major preference, while Korean students chose it as a minor preference. Variations between the group means are however relatively small and account for a difference of only one of Reid's categorizations (that is, from a negative to a minor learning style or from a minor to a major learning style).

(6) Correlation Analysis

Factors which were not classed as individual subject variables (those analyzed above), may have influenced students' responses. Regardless of demographics or culture, students may consistently give a high or low score for one variable which consistently corresponds with a high or low score on another variable. This effect is measured through correlation. An analysis of means may sometimes not produce significant results even when discernible patterns are occurring among the variables. Data from the current study was analyzed using Windows SPSS (Statistical package for the Social Sciences). As was predicted, students who preferred a group style of learning, did not prefer individual learning (group and individual learning had a negative correlation ($p < .001$)). In addition, auditory learning ($p < .001$), kinesthetic learning ($p < .001$) and tactile learning ($p < .05$) also show a

high correlation with group learning. In other words, students with a preference for group learning also prefer auditory, kinesthetic and tactile learning. Individual learning style had a slightly negative correlation with visual, auditory, kinesthetic and tactile ($p < .05$) learning styles.

Discussion of Research Hypotheses

Hypothesis 1: Findings by Reid (1987) and Melton (1990) suggested that overall, *learners would show the highest preferences for kinesthetic and tactile learning styles.* This hypothesis was partly supported by the current data. Overall, tactile learning was reported as the most preferred style of learning, however kinesthetic learning was not rated as highly as auditory learning.

Studies have shown that ESL teachers often take up to as much as two-thirds of class time in talking and asking questions (Ramirez, 1986). If ESL students' learning styles adapt to teacher instruction as suggested by Schmeck (1981), then for students, adopting an auditory style in most ESL classrooms would surely be advantageous. The current results suggest that students do prefer to use their auditory modality for learning. The popularity of tactile and kinesthetic preferences also fit well with the 'hands on', experiential approach to learning that is popular in some language classes. Overall, the results suggest that students may have a number of preferred styles which may suit a variety of instructional styles.

Hypothesis 2: *Group learning is a minor or negative preference for ESL learners.* This hypothesis was confirmed in the current experiment—group learning is reported as a minor preference. Oxford (1990) suggests that group, or cooperative learning as it is also known, is not often found to be a natural inclination of ESL students. Students from many different cultures, including Asian cultures, may be trained in regular schooling to be competitive. Without encouragement or specific training it seems students do not report a preference for group work (Reid, 1987).

However, for the current experiment, it should be noted that while group preference may be a minor preference, individual work is rated as a negative preference, the lowest of all the overall means. Analysis of correlation shows that group scores correlated negatively with individual scores ($p < .001$). This suggests that the majority of students were decided on whether they preferred group or individual learning. A particular student was therefore not likely to report low preference scores for both group and individual learning (as an examination of just the means may suggest). Further breakdown of the group and individual scores is needed to discover if a particular type of student can be found who prefers group or individual learning.

Hypothesis 3: *Males will be more tactile and more visual than females.* In the current results, tactile learning was the only style dimension that differed significantly according to the sex of the respondent. Males reported tactile learning as a major learning preference (14.48), females as a minor pref-

erence (13.18). The current result for tactile learning agrees with Reid's findings (1987). Unfortunately, Reid makes no suggestions as to why males in her study showed a preference for tactile learning. Perhaps traditional schooling in Asian countries and child upbringing in general maintains an old-fashioned regime where males are taught to build things from an early age and consequently develop a preference for tactile learning. Why girls experience with cooking and homemaking would not influence them in the same way is however, unclear.

Other research on sex differences and learning strategies has found that men may have a greater visual-spatial acuity (Nyikos, 1987, cited in Oxford, 1989) and are more visually oriented than women (Wittig and Peterson, 1979). Females, however, may use more cooperative learning strategies (Oxford, Nyikos and Ehrman, 1988). If these differences in learning strategy use were reflected in students' learning styles then we could expect males to have a higher preference for a visual learning style and perhaps females to show an inclination towards group learning. The current findings did not however, lend support to these arguments.

Hypothesis 4: *Older students will have higher preferences for each of the four perceptual learning styles (auditory, visual, kinesthetic and tactile).* This hypothesis was made based on trends reported in Reid's (1987) data. Mixed results in the current experiment make it difficult to draw conclusions regarding this hypothesis. Some confounding of the independent variables (age and language proficiency) also appear

to be present, which make it difficult to support Reid's hypothesis that older students develop and approach learning with a greater number of sensory modalities.

An alternative theory on development change in learning styles states that children and younger learners may progress from a preference for the kinesthetic sense to visual and eventually to an auditory/verbal sense in later years (Bruner, Oliver and Greenfield, 1966; Semple, 1982, cited in Oxford, 1990). Results from the current study however, do not support this theory either.

Hypothesis 5: *The longer the period of study or the longer the period of study in the foreign country, the higher the preference for an auditory learning style.* The results shown in Table 2 do seem to support the hypothesis that students' preference for an auditory style of learning increase marginally with the 'total length of time studying English'. An additional analysis which examined the change in perceptual learning style preference according to the 'period of study in the foreign country' did not, however, show any increase in preference for an auditory sense.

While Reid's data suggested that, in general, preference means for the learning styles would decrease with time, Melton suggested that they would increase. The current results (Table 2) clearly support Melton's findings. With the exception of visual learning, overall means have increased with overall time of study for the sensory learning styles of auditory, kinesthetic, and tactile learning. For students with more than 8 years of study, these styles represent major

learning styles (means over 13.5). This is an intuitively appealing result. The students with the longer period of study have probably come in contact with the greater number of teachers - who naturally would have exposed the students to a greater number of teaching styles. If the students do in fact adapt their learning styles to the environment, then evidence of greater flexibility and wider style preference on the part of these students is not a surprising result.

Hypothesis 6: (Language Background) *Japanese may be the least auditory and kinesthetic, Koreans the most visual and Chinese will have multiple learning styles.* If we compare the current experimental results with Reid's (1987) and Melton's (1990) findings, there are some similarities but also some discrepancies among the data. While Japanese learners seemed to differ the most in comparison with the other groups of learners—a result found by Reid, they were not the least auditory or kinesthetic group of learners. Reid reported that “Japanese speakers did not, as a group, identify a single major learning style; that may be why they as a group differed significantly in so many of the statistical analyses” (p. 98). An examination of Table 3 shows that the Japanese, in fact, seemed the most decided in their preference styles; three styles were chosen as major styles (auditory, kinesthetic and tactile) and three styles were chosen as negative styles (visual, group, and individual). The Japanese show as many major learning styles as do the Chinese—the group found to have the most number of styles by Reid and

Melton. From Reid's and Melton's studies it was also predicted that Koreans would be the most visual, however this finding was also not collaborated in the current results.

Overall, the results of the current experiment have shown that cultural groups have varied little in their learning style preferences. This result is surprising because numerous studies have shown that national origin affects style (and language strategy) use (Tyacke and Mendelsohn, 1986; Reid, 1987; Willing, 1987) and may even lead to differential gains in auditory comprehension (Politzer and McGroaty, 1985). Again it must be reiterated that more reliable predictions may have been possible if country group samples were larger.

As previously stated, Reid (1987) and Melton (1990) found that group learning was reported as only a minor or negative learning style by ESL learners. An examination of the breakdown of scores by nationality has also confirmed that the lack of preference for group work is consistent. No country group has reported group learning as a major style (see discussion of hypothesis 2).

Discussion of Correlation Analysis and Conclusion

In this study, the data obtained from using the Perceptual Learning Styles Questionnaire were subjected to a statistical analysis not performed by Reid (1987) or Melton (1990). In the initial stage of this study, it was planned to simply replicate Reid's experiment with ESL students in an Australian context. However, after doing the research and collating

some of the data it became clear that the means for group and individual learning styles were low. Despite the fact that this was also predicted by Reid (1987), the result seemed unusual because informal discussions with students that occurred after completion of the survey, when students were informed of the purpose of the study, indicated that most of them had an opinion about whether or not they liked group or individual learning. It was concluded that either the Perceptual Learning Styles Questionnaire may not have been accurately measuring the variables or that the students had not understood the questions asked of them. The small sample size in the current experiment proved to be advantageous, because a visual examination of the responses could be made. This examination showed that students' answers to the group and individual questions were polarized. That is, students had seemed to respond consistently, showing they had understood the questionnaire and that student scores for each of the dimensions were either quite high or quite low. Students with a preference for a group style of learning were reporting a dislike of the individual style and conversely, students who expressed a preference for the individual style did not show a preference for the group style. In fact, the visual examination of the data suggested several other trends may also have been occurring.

To test this hypothesis, a correlation analysis of the data was carried out. As previously reported, several statistically significant results were found. Group learning had a high negative correlation with individual learning; as expected,

students did have a clear preference for one style over the other. In addition, group learning significantly correlated with auditory, tactile and kinesthetic learning. Individual learning had a significant negative correlation with tactile learning. A trend in correlation was also found between preferences for individual and visual and individual and kinesthetic learning.

These results suggest that there may be a relationship between group and individual learning and students' preferences for perceptual learning styles that has not been previously examined. Students who preferred group work recorded high preferences for auditory, kinesthetic and tactile learning. Perhaps through group work, these students are best able to employ their stronger perceptual modalities for learning. Clearly, group work often involves interactive verbal exchange with others and input through the auditory channel is high. Tactile learners may enjoy the added stimulation of working with others when making or designing things in the classroom. Kinesthetic learners may show a preference for group work because they enjoy actively participating and learning through involvement. On the other hand, students who prefer individual work may dislike tactile learning, because tactile learning exercises in the classroom often necessitate working with others. Individual learners may show a tendency to prefer visual learning because visual learning strategies such as the use of flash cards have an emphasis on activities done by the individual.

One of the most fundamental decisions that teachers must make when organizing and facilitating classroom work con-

cerns the amount of time to be spent on group and individual work. In the general language syllabus in particular, some distinction can be made between times that allow for interaction and communication between individuals or in small groups and those times that require the student to work individually on personal projects or self-study. Most teachers would acknowledge that students display not only varying degrees of success in these activities but also varying degrees of willingness to participate. Some students are clearly less productive in group work than others, are reticent about joining in, and do not seem to enjoy or prefer to work in groups; on the other hand, some students do not adequately apply themselves when required to study alone. Teachers may wonder when students are asked to work alone and fail in their task. Is it because of the demands of the task or the fact that the student does not work well individually? Is it group work per se that interests some students, or do they enjoy group work because it gives them the opportunity to use their dominant perceptual learning styles?

It makes sense that when teaching activities and creating tasks that encourage the use of students' preferred perceptual learning styles, teachers should also think about the format; group or individual learning, that is most conducive to that particular style. For example, preference for auditory learning has shown a high correlation with preference for group work. This suggests that for auditory learners, discussions may work better than simple listening exercises from audiotapes. For visual learners, a greater use of hand-

outs, reading of resources for new information, and more individual work may be appropriate. For kinesthetic learners who favor group learning, an activity such as charades would be ideal if the students make their presentations in groups rather than individually. Tactile learners may similarly benefit from doing group activities. Activities such as sequencing of stories and arranging cut up sentences should be done in groups, not individually. Clearly, the current results on correlations between group and individual preferences for perceptual learning styles offer applications for lesson planning and design and contribute to our understanding of students' learning behaviors.

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