

AN INSTRUMENTAL MOTIVATION IN LANGUAGE STUDY

Who Says It Isn't Effective?

R. C. Gardner and P. D. MacIntyre

University of Western Ontario

The major purpose of this study was to investigate the effects of integrative motivation and instrumental motivation on the learning of French/English vocabulary. Integrative motivation was defined in terms of a median split on scores obtained on subtests from the Attitude/Motivation Test Battery, while instrumental motivation was situationally determined in terms of monetary reward for doing well. The results demonstrated that both integrative motivation and instrumental motivation facilitated learning. Other results indicated that instrumentally motivated students studied longer than noninstrumentally motivated students when there was an opportunity to profit from learning, but this distinction disappeared when the incentive was removed. Both integratively and instrumentally motivated students spent more time thinking about the correct answer than those not so motivated, suggesting that both elements have an energizing effect. A secondary purpose of this study was to assess the consequences of computer administration of the Attitude/Motivation Test Battery. In this respect the results were most encouraging. Computer administration appeared not to detract from the internal consistency reliability of the subscales used, and moreover there was an indication that an index of reaction time to individual items might provide a way of identifying social desirability responding.

This research was facilitated by grant number 410-88-0158 from the Social Sciences and Humanities Research Council of Canada for research on the topic "Social Factors in Second Language Learning and Ethnic Relations." We would like to thank V. Galbraith and A. Young for their invaluable assistance.

Considerable research has demonstrated that attitudes and motivation play a role in the learning of a second language. Gardner (1985) summarized much of the literature dealing with this topic and discussed various conceptual, analytic, and theoretical issues associated with this area. A major feature of his socioeducational model of second language learning (see also Gardner & Smythe, 1975) is the proposition that attitudes play a role in language learning through their influence on motivation.

In the socioeducational model, the integrative motive is viewed as a constellation of attitudes and motivation involving various aspects of second language learning, with the prime determinant of achievement being the motivational component. Gardner (1985) stated that "motivation to learn a second language is influenced by group related and context related attitudes, integrativeness and attitudes toward the learning situation, respectively" (p. 168). He argued that many other variables might also be implicated in second language learning, including an instrumental orientation. "To the extent that it (an instrumental orientation) is a powerful motivator, it too will influence achievement, but the major aspect in it is not the instrumentality *per se* but the motivation" (p. 168). There is, therefore, a major distinction between orientations and motivation. Orientations refer to reasons for studying a second language, while motivation refers to the directed, reinforcing effort to learn the language.

The distinction between integrative and instrumental orientations is a common one in this field of research. An integrative orientation reflects an interest in learning another language because of "a sincere and personal interest in the people and culture represented by the other language group" (Lambert, 1974, p. 98), while an instrumental orientation emphasizes "the practical value and advantages of learning a new language" (p. 98). Although some studies have used orientation items as their major affective measures (see, for example, Chihara & Oller, 1978; Lukmani, 1972; Oller, Baca, & Vigil, 1977; Oller, Hudson, & Liu, 1977), this approach places too much emphasis on orientation. In the research that has demonstrated the importance of affective factors (see, for example, Gardner, 1985; Gardner & Lambert, 1972), it has been shown repeatedly that it is not so much the orientation that promotes achievement but rather the motivation. If an integrative or instrumental orientation is not linked with heightened motivation to learn the second language, it is difficult to see how either could promote proficiency.

Research that focuses only on orientations is faced with at least two conceptual difficulties. First, as might be expected, the integrative and instrumental orientations have been shown to be positively correlated with one another and indeed often contribute to the same dimension in factor analytic studies (Gardner, Smythe, & Lalonde, 1984). This seems reasonable since someone who is oriented to learn a language for integrative reasons might well recognize the instrumental value of learning the language and vice versa. Spolsky (1989) made a similar observation when he pointed out that there are many possible bases for motivation. He stated: "A language may be learned for any one or any collection of practical reasons. The importance of these reasons to the learner will determine what degree of effort he or she will make, what cost he or she will pay for the learning" (p. 160). Second, as demonstrated by Clément and Kruidenier (1983), there are many possible orientations depending on the linguistic/cultural context, and even the definition of integra-

tive and instrumental orientations differs in different settings. Thus, even if one finds that one orientation correlates higher with achievement than another (cf. Lukmani, 1972), there is little theoretical significance in the result.

A basic tenet of the socioeducational model is that the integrative motive facilitates second language acquisition because it reflects an active involvement in language study. This active component has been demonstrated in studies that show that, in addition to being more successful in learning a second language, integratively motivated students are more active in language class, are more likely to participate in excursions to the other cultural community when given the opportunity and to interact with members of that community when there, and less likely to drop out of language study in subsequent years (Gardner, 1983). This does not imply that an instrumental motivation would not also be effective. However, to date, there has been relatively little research conducted on an instrumental motive (as distinct from an instrumental orientation).

In order to study instrumental motivation in language study, it is necessary to establish a situation in which such motivation will be salient. One possible paradigm suitable for laboratory research was used by Dunkel (1948), though he did not use the term *instrumental motivation*. Dunkel was concerned with investigating the effects of motivation (among other factors) on learning Modern Persian. He offered rewards of up to \$4 for superior performance in the learning of grammar. Although this strategy tended to be associated with higher mean performance on the grammar test, the results were not significant, possibly because the study lacked sufficient power. Dunkel concluded: "One could then suggest that the observed differences might be educationally significant even if not statistically significant" (p. 103). Regardless of the results, that study does provide a useful methodology for studying the role of an obvious form of instrumental motivation on second language learning.

An analogue task has already been used to study the effects of attitudinal/motivational characteristics on second language learning. Gardner, Lalonde, and Moorcroft (1985) used an English/French paired associates learning paradigm and found that the rate of learning French nouns was faster for students with favorable attitudes and motivation as compared with those with less favorable ones (as defined by a median split on the Attitude/Motivation Index [AMI]). In addition, subjects above the median in language aptitude also learned faster than those below the median. Such results demonstrate that an analogue situation can be used to study the effects of various factors on second language learning.

The major purpose of the present study was to investigate the role of both instrumental and integrative motivations in language study by determining how they influenced the learning of 26 English/French word pairs. The instrumental motivation was situationally defined in terms of a \$10 reward offered randomly to one-half of the subjects if they achieved a superior level of success on the final trial of the learning task. The offer of an incentive can be viewed as a form of environmentally defined instrumental motivation. To the extent that this was a subject's sole reason for learning the material, it might also be considered as reflecting an instrumental orientation for that person, but to the extent that subjects were not asked this question, this cannot be determined. The point is then that this reflects an environmentally

defined form of instrumental motivation. Results obtained in this study support the generalization that it was, in fact, motivating for the participants.

Following Gardner (1985), an individual difference measure of integrative motivation was defined by aggregating scores on six attitude and motivation tests involving elements of integrativeness (Integrative Orientation, Attitudes toward French Canadians, and Interest in Foreign Languages), attitudes toward the learning situation, and motivation (Attitudes toward Learning French, Desire to Learn French). It was hypothesized that both instrumental and integrative motivations would influence the learning of second language material. It was also felt that the two different motivational states may have differing but unspecified effects on how subjects approached the task of learning the word pairs. Two measures of effort expended during the learning task were also investigated (Viewing Time and Study Time). Carroll (1962) argued that time devoted to learning was an index of motivation; thus, both measures seem ideally suited as indices of motivation in this context.

A secondary purpose of this study was to assess the feasibility of administering elements of the Attitude/Motivation Test Battery (Gardner, 1985) by computer since research has demonstrated that this approach may provide a means of identifying social desirability responding. A recent article by Hsu, Santelli, and Hsu (1989) reviewed much of this literature and concluded that deliberate faking tends to be associated with shorter latencies in responding to individual items. Their own results supported this conclusion. In the present investigation, rather than focus on faking, we were interested in determining how response latencies related to scores on the attitude/motivation measures, and whether the different instructions with respect to the learning task influenced either attitude/motivation scores or item response latencies.

METHOD

Subjects

Ninety-two introductory psychology students participated in this study in order to fulfill a course requirement. None of the subjects had studied French since their penultimate year of high school. The reason for using subjects who had not studied French for some time was not taken lightly. Given the materials to be learned, it was known on the basis of previous research (Gardner, Lalonde, & Moorcroft, 1985) that such individuals would not know any of the vocabulary items at the outset of the study, and that consequently the rate of learning would reflect factors operating in the learning task itself as opposed to transfer from previous knowledge. Since the major focus was on the effects that attitudes and motivation, on the one hand, and monetary rewards, on the other, had on the French vocabulary learning (and other relevant behaviors), such control seems mandatory. A possible criticism of this strategy is that since the individuals were not students of French, none could be said to be truly integratively motivated to learn French. This, however, would tend only to moderate any effects between those classified as integratively or not integratively motivated, thus making any significant effects for this factor all the more impressive.

Materials

There were two parts to this study. In the first part, subjects responded to items assessing eight different attitudinal/motivational characteristics adapted from Gardner, Lalonde, and Moorcroft (1985) as well as the trait of social desirability responding. These Likert items were presented in an individually determined random order on a Zenith microcomputer. The computer recorded both the individual's response and the time it took for the individual to make the response. The variables assessed, and their Cronbach alpha (α) reliability coefficients, were as follows:

1. Attitudes toward French Canadians ($\alpha = .88$). Ten items, five positively worded and five negatively worded, were presented. A sample positively worded item is "If Canada should lose the French culture of Quebec, it would indeed be a great loss." A high score reflected a positive attitude.
2. Interest in Foreign Languages ($\alpha = .79$). Five items expressing a positive interest and five a relative disinterest were administered. A sample item is "I enjoy meeting and listening to people who speak other languages." This test was scored such that high scores reflect a strong interest in foreign languages.
3. Desire to Learn French ($\alpha = .87$). This is a 6-item scale with equal numbers of positively and negatively keyed items. A high score denoted a relatively strong desire to learn French. A sample item is "I wish I were fluent in French."
4. French Use Anxiety ($\alpha = .86$). This 8-item scale had four positively and four negatively worded items. A high score indicated that subjects would feel anxious if called upon to use the French they knew. A sample item is, "When making a telephone call, I would get flustered if it were necessary to speak French."
5. Attitudes toward the Learning Situation ($\alpha = .72$). This 8-item scale included four items referring to French teachers in general and four referring to French courses. Half of the items were positively keyed and half negatively keyed in each case. A sample item is "French courses offer an excellent opportunity for students to broaden their cultural and linguistic horizons."
6. Integrative Orientation ($\alpha = .71$). Four items expressing the importance of learning French for integrative reasons were presented. A sample item is "Studying French can be important because it allows people to participate more freely in the activities of other cultural groups."
7. Instrumental Orientation ($\alpha = .68$). Four items expressing the importance of learning French for instrumental reasons were presented. A sample item is "Studying French can be important because it is useful for one's career."
8. Attitudes toward Learning French ($\alpha = .85$). This 6-item scale included three items expressing a positive attitude and three items expressing a negative attitude. A sample item is "I would really like to learn French."
9. Social Desirability ($\alpha = .23$). Three positively worded and three negatively worded items were adapted from Jackson's (1974) social desirability subscale of the Personality Research Form. Although they were presented in a True/False format in the original, they were presented in a Likert format in this study; this change might account for the low index of reliability.

In the second part of the study, subjects were given six trials to learn 26 English/French word pairs using the anticipation method. Testing was done by computer, which registered the amount of time they viewed the English stimulus word (viewing

time, VT), their actual French response (VOC), and the amount of time spent reviewing the English/French pair (study time, ST).

Procedure

Subjects were tested individually. On arriving at the laboratory they were informed that this study involved learning a series of English/French word pairs. Subjects were told that they were first going to be asked to respond to a series of items dealing with their opinions about a number of issues associated with learning French, such as their attitudes toward learning French, French use anxiety, etc. They were told that the items would be presented on the computer monitor, and that they were to give their immediate spontaneous reaction to each item by depressing the appropriate number key from 1 to 7 that indicated the extent to which they agreed or disagreed with each item.

Subjects were tested in one of two conditions. Those in the experimental condition were informed that they would be paid \$10 if they were successful in their learning of the English/French word pairs. Success was defined as 24 out of 26 pairs absolutely correct in form and spelling on the sixth trial. This was determined by the computer to eliminate any debate, and the number correct was displayed on the monitor at the conclusion of that trial. Subjects in the control condition were simply instructed to do their best.

During the learning task, a trial involved the administration of all 26 paired associates in the following manner. An English noun was displayed at the top of the screen, and below this the prompt, "Translation?" Subjects were instructed that they could view this for up to 10 seconds, or if they preferred they could move on by depressing the return key. The time spent considering each item constitutes the measure of viewing time (VT). They then typed the French translation including both the definite article and the French noun. If they did not know the answer they simply pressed the return key. At this point, the complete pair (English noun, French article and noun) were presented, and subjects could view them for up to 10 seconds, or move on by depressing the return key. This provided the index of study time (ST) for each item. The order of presentation was randomized separately for each trial. The computer recorded the viewing time, the French response typed by the subject, and the study time for each item, and then stored them in a fixed standard order. At the end of the sixth trial, the computer indicated the number that the subject had gotten correct (i.e., correct article and correctly spelled French noun). Those subjects in the experimental condition who achieved a score of at least 24 out of 26 were given \$10. Nine subjects achieved this criterion.

For the analyses involving number correct (VOC), a research assistant scored each item. Subjects were given 1 point for the correct article, plus 2 points for the correct noun (allowing for minor spelling variations) (cf. Gardner, Lalonde, & Moorcroft, 1985).

RESULTS

The major results of this study concern the effects of situationally based motivation (Instrumental Motivation) and individual-based motivation (Integrative Motivation)

on the learning of second language material. This was assessed by means of a $2 \times 2 \times 6$ analysis of variance. One factor was Incentive Condition (Reward vs. No Reward). Fifty of the 92 subjects, based on random assignment, were told that they would receive \$10 if they got at least all but two items correct on the last trial. This was considered to reflect an instrumental motivation to the extent that subjects were learning the vocabulary items simply for the monetary reward. The second between subjects factor was Integrative Motivation (High vs. Low) defined in terms of a median split within each Incentive group on the aggregate of the measures of Attitudes toward French Canadians + Interest in Foreign Languages + Integrative Orientation + Attitudes toward the Learning Situation + Desire to Learn French + Attitudes toward Learning French. Differences on this factor were considered to reflect differences in integrative motivation in that subjects in the high integrative motive condition had more favorable attitudes, etc., than subjects in the low integrative motive condition even though none of these students were studying French as part of their curriculum. The third factor was based on repeated measures, and it comprised the six trials of the learning task.

Three dependent measures were investigated. The major one was achievement on each trial (VOC). The second dependent variable of interest was the mean time spent on each trial studying the pairs when they were presented together (ST). The third dependent variable was the mean time spent viewing the English word before subjects attempted to type in the French equivalent (VT).

Vocabulary Acquisition

Significant main effects were obtained for Integrative Motivation, Incentive Condition, and Trials, with the general pattern of results being as expected. The effect for Integrative Motivation, $F(1, 88) = 4.48, p < .05$, resulted because subjects high in Integrative Motivation performed better overall ($M = 30.55$) than subjects who were low ($M = 25.61$), while that for Incentive Condition, $F(1, 88) = 10.56, p < .01$, occurred because those offered financial rewards performed better ($M = 31.77$) than those who weren't ($M = 23.69$). There were also significant learning effects across trials, $F(5, 440) = 414.81, p < .001$.

These main effects were tempered, however, by two significant interactions. The interaction between Integrative Motivation and Trials, $F(5, 440) = 3.35, p < .01$, is presented in Figure 1, where it will be noted that the rate of learning is steeper for subjects with a high level of Integrative Motivation than those with a low level. Simple contrasts between the two groups at each trial reveals, furthermore, that the differences are significant at Trials 3, 4, 5, and 6. The significant interaction between Incentive Condition and Trials (see Figure 2) is very similar, $F(5, 440) = 8.35, p < .001$. Again, contrasts between the two groups differed significantly beginning at Trial 3.

Study Time

Significant main effects were obtained for both Incentive Condition, $F(1, 88) = 22.84, p < .001$, and Trials, $F(5, 440) = 109.73, p < .001$. The effect for Incentive Condition

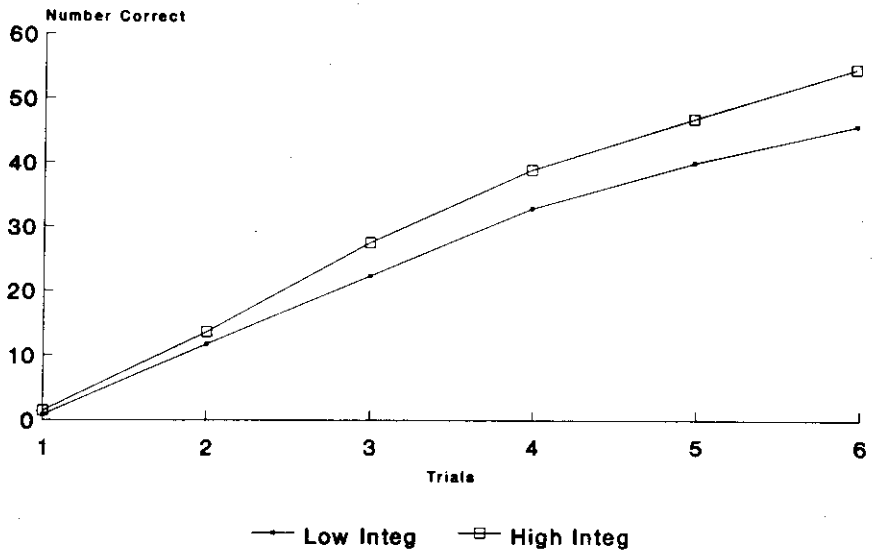


Figure 1. Number correct by Integrative Motivation and Trials.

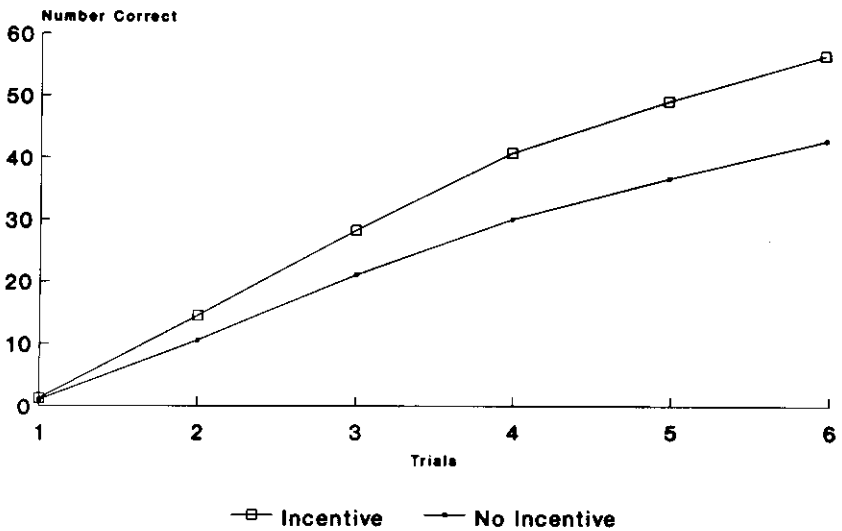


Figure 2. Number correct by Incentive Condition and Trials.

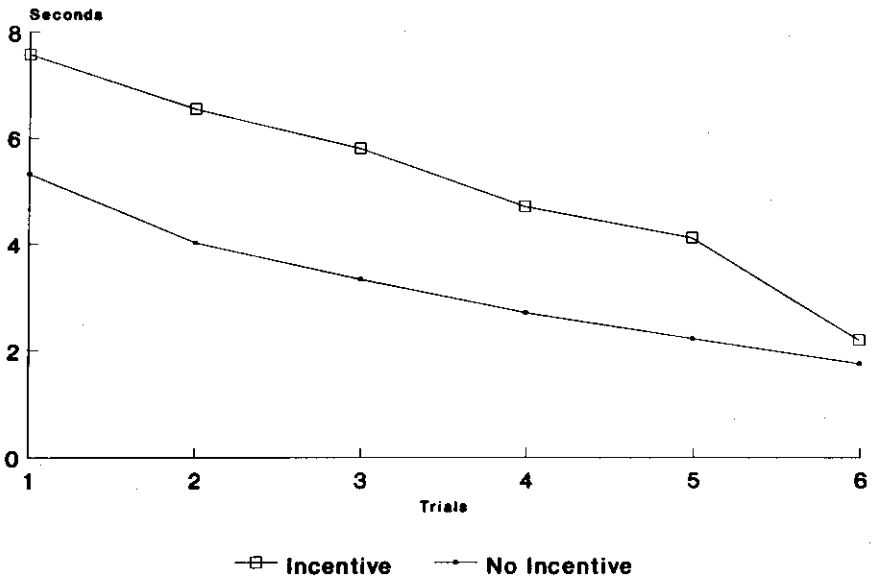


Figure 3. Study Time by Incentive and Trials.

occurred because overall those promised money for superior performance spent more time studying each pair ($M = 5.17$ seconds) than those with no reward ($M = 3.24$ seconds). The effect for trials resulted because subjects tended to spend less time studying the pairs as learning progressed. The interpretation of these two main effects is tempered somewhat, however, by the significant interaction between Incentive Condition and Trials, $F(5, 440) = 6.34, p < .001$. This interaction is presented in Figure 3. As can be seen, both the incentive group and the no incentive group evidence less study time as trials progress. Tests of means comparing these two groups at each trial indicate, however, that the incentive group spent significantly ($p < .05$) more time studying the word pairs on every trial but the last one, on which the two groups did not differ significantly.

Viewing Time

Significant main effects were obtained for Integrative Motivation, $F(1, 88) = 8.20, p < .01$; Incentive Condition, $F(1, 88) = 11.59, p < .001$; and Trials, $F(5, 440) = 41.40, p < .001$. Integratively motivated subjects spent more time ($M = 2.57$) viewing the English stimulus than those who were not so motivated ($M = 2.07$). Subjects who were promised a reward spent more time ($M = 2.59$ seconds) viewing the English stimulus than subjects who were not ($M = 2.00$ seconds). Moreover, the mean viewing times for the six trials were 2.69, 2.95, 2.56, 2.14, 1.92, and 1.64. Viewing time increased slightly from Trial 1 to Trial 2, but thereafter viewing time decreased as learning progressed. All but the difference between Trial 1 and Trial 3 were significant at the .05 level using post-hoc t tests.

In addition to these three analyses of variance, correlations were computed between each of the attitude/motivation and social desirability measures and the learning scores, viewing times, and study times for each of the six trials. Since there were two distinct groups, those in the Incentive Condition and those in the control group, the data were first standardized within groups before the correlations were computed to eliminate any effects attributable to groups. The resulting correlations are presented in Table 1.

As can be seen in Table 1, there were a substantial number of significant ($p < .05$) correlations involving vocabulary scores (VOC). Of the 54 correlations, 30 (56%) were significant. Moreover, the patterns are very consistent. Desire to Learn French and Attitudes toward Learning French (the two motivational components) were positively correlated with achievement for all six trials, while Attitudes toward French Canadians correlated significantly with Achievement on Trials 2 through 6. Moreover, Attitudes toward the Learning Situation resulted in significant correlations for Trials 3 to 6, French Use Anxiety correlated significantly (negatively) with vocabulary on Trials 1 to 3, and Integrative Orientation correlated significantly only with achievement on Trial 1. The patterns for the other variables (Interest in Foreign Languages and Instrumental Orientation) were not that meaningful, and the two significant correlations involving Social Desirability were not expected.

There were far fewer significant correlations involving Study Time (1 of 54) and Viewing Time (9 of 54) as might be expected given the results of the analyses of variance. For Viewing Time, four of the correlations involved Attitudes toward French Canadians (Trials 1-4), three involved Integrative Orientation (Trials 3-5), and two involved Attitudes toward Learning French (Trials 2 and 3).

Analysis of Attitude/Motivation Test Behavior

A secondary purpose of this study was to determine the implications of administering the Attitude/Motivation Test Battery by computer. Three questions were relevant to this study. One concerns the reliability of the subtests administered in this format, but the comparability of the reliability coefficients obtained in this study with those from other studies suggests that computer administration does not materially influence the internal consistency reliability of the measures. In fact, the reliability coefficients for this study were higher for seven of the eight measures than those reported by Gardner, Lalonde, and Moorcroft (1985) for a comparable sample. The median reliability for this study is .82, while it was .71 in the earlier study. Since some items were changed, this improvement in reliability cannot necessarily be attributed to the computer administration; nonetheless, it is clear that reliability is not lowered as a result of computer administration of the items. A second question concerned whether or not offering an incentive to do well in the learning task would influence scores on the various attitude and motivation measures or mean item latencies. Tests of the differences between the means using t tests failed to obtain any significant effect, indicating that the differing instructions did not influence individuals' attitudes or motivation or the latency in responding to attitude and motivation items (all $ps > .05$).

Table 1. Correlations of attitude/motivation subscales with behaviors on the learning task

	VOC1	VOC2	VOC3	VOC4	VOC5	VOC6	VT1	VT2	VT3	VT4	VT5	VT6	ST1	ST2	ST3	ST4	ST5	ST6
AFC	.13	.22*	.29**	.32**	.33***	.31**	.24*	.29**	.26*	.24*	.13	.09	.18	.16	.12	.07	.12	.09
IFL	.23*	.16	.22*	.15	.16	.15	.16	.17	.10	.11	.08	.05	.06	-.01	-.05	-.10	-.05	-.09
INT	.23*	.10	.17	.15	.19	.20	.06	.14	.22*	.29**	.22*	.20	.06	.02	.10	.05	.11	.03
D	.27**	.22*	.28**	.26*	.25*	.25*	.14	.14	.12	.07	.06	.01	.13	.08	.11	.07	.15	.09
ALF	.23*	.27**	.27**	.22*	.29**	.27**	.17	.25*	.22*	.19	.19	.12	.12	.08	.13	.08	.16	.07
ALS	.16	.17	.24*	.22*	.26*	.24*	.20	.18	.15	.20	.17	.13	.16	.16	.21*	.13	.14	-.04
FUA	-.44***	-.27**	-.21*	-.17	-.20	-.16	-.08	.04	-.01	-.07	-.04	-.09	.17	.12	.12	.15	.20	.19
INST	.19	.13	.21*	.15	.15	.14	.04	.15	.14	.12	.11	.15	.03	-.04	.03	.00	.10	.11
SD	.00	.19	.18	.21*	.25*	.18	-.15	-.12	-.02	-.06	-.10	-.09	-.03	-.03	.01	-.01	-.02	.05

AFC, Attitudes toward French Canadians; IFL, Interest in Foreign Languages; INT, Integrative Orientation; D, Desire to Learn French; ALF, Attitudes toward Learning French; ALS, Attitudes toward the Learning Situation; FUA, French Use Anxiety; INST, Instrumental Orientation; SD, Social Desirability; VOC1-VOC6, Vocabulary scores on Trials 1-6; VT1-VT6, Viewing time on trials 1-6; ST1-ST6, Study time on Trials 1-6. * $p < .05$; ** $p < .01$; *** $p < .001$.

The third question concerns the relation between speed of reaction to the attitude/motivation tests, including social desirability, and scores obtained on these measures. Correlations between speed of reaction to the items on a particular test and scores on that test yielded only two significant correlations. Subjects with high scores on the measure of French Use Anxiety had higher reaction times ($r(90) = .21$, $p < .05$), and subjects evidencing high social desirability had lower reaction times ($r(90) = -.32$, $p < .01$). Furthermore, the only measure to correlate significantly with Social Desirability was the French Use Anxiety scale ($r(90) = -.24$, $p < .02$).

DISCUSSION

A major finding in this study was simply that both motivating conditions, the individual difference of integrative motivation and the environmentally determined instrumental motivation established by means of financial inducements, influenced the learning of French vocabulary pairs. Subjects with higher levels of integrative motivation learned more words overall than did subjects with low levels, and those who anticipated a possible financial reward learned more than those who didn't. As indicated in Figures 1 and 2, these differences became more pronounced as learning progressed. These results support the generalization that motivation facilitates learning, and that by and large any factors that motivate an individual to learn will result in successful acquisition (cf. Gardner, 1985, p. 168; Spolsky, 1989, p. 160). That is, both instrumentally motivated and integratively motivated subjects learned better than subjects not so motivated.

Other results from this study help to clarify the processes by which such types of motivation facilitate learning. There was a significant difference in favor of subjects in the incentive condition in the amount of study time, suggesting that a monetary reward can motivate individuals to study longer (and also learn more). However, the interaction between Incentive Condition and Trials (Figure 3) is even more instructive. It will be noted that, although the subjects in the incentive condition studied significantly longer than subjects in the control condition on the first five trials, this difference all but disappeared on the sixth trial when the reward was no longer applicable, since subjects had either satisfied the criterion or had not. Once any chance for receiving the reward was eliminated, subjects in the incentive condition simply ceased applying any more effort. This, if anything, is a major disadvantage of an instrumental motivation.

Although integratively motivated subjects learned more than those not integratively motivated, there was no significant difference between these two groups on study time. This lack of a difference appears to question Gardner's (1985) conclusion that integrative motivation is effective because it causes individuals to work harder, though as reviewed by Gardner (1983) there is still a wealth of evidence supporting that generalization. In the real life context, integratively motivated students work harder, are more likely to participate in excursion programs, and are less likely to drop out of language study. Each of these findings support the active interpretation of integrative motivation. One possible explanation for not finding such differences in effort expended in the present study might be due to the fact that this is a laboratory

study, and perhaps the setting is somewhat artificial. Moreover, other evidence in this study does suggest that integratively motivated students are trying harder, as are those motivated by reward. The analysis of viewing time—that time spent by individuals considering the English stimulus before giving their response—indicated that integratively motivated individuals spent more time thinking about their response than subjects who weren't integratively motivated. Similarly, subjects who were in the incentive condition spent more time considering their responses. Both results support the "effort" interpretation of the results. Subjects who were motivated, either integratively or instrumentally, tried harder to think of the correct answer and apparently were more successful in finding it.

The results of the correlational analysis also help to clarify the nature of the roles of individual attitude and motivation attributes in second language learning. Individual differences in Desire to Learn French, Attitudes toward Learning French, and Attitudes toward French Canadians tend to correlate with French vocabulary acquisition at each trial (with the one exception). Furthermore, Attitudes toward the Learning Situation tends to relate to proficiency in the latter stages of learning (as if subjects were reminded of their earlier classroom experiences as the trials continued), while French Use Anxiety was significantly related (negatively) to achievement in the initial trials. Based on Tobias (1979) and MacIntyre and Gardner (1989), it seems reasonable to anticipate such correlations in the initial trials between anxiety and achievement. As trials progress, anxiety over the use of French would become less relevant. Finally, as expected from the arguments presented in the introduction, neither the integrative nor instrumental orientation scales were appreciable correlates in their own right. This is important because it demonstrates clearly that orientations may not relate to achievement while motivations do. It is not surprising, therefore, that studies that consider only the correlations between orientation and achievement often fail to find associations.

The few but nonetheless consistent correlations between some attitude measures and viewing time are also impressive. The major correlates of viewing time are Attitudes toward French Canadians, and Integrative Orientation—the only two measures that refer directly to the other language group. The absence of correlations with study time was not expected, but may be a function of the task at hand. It was our expectation (cf. Carroll, 1962) that study time would reflect motivation (as it certainly did in the distinction between the Incentive and Non-Incentive Conditions), but it did not relate meaningfully to the individual difference measures. It seems possible, however, that the demands of the task itself played a much more dominant role than any individual differences.

These results demonstrate, therefore, that both integrative motivation and instrumental motivation can influence second language learning. Both the individual difference factor of integrative motivation and the situationally determined one of instrumental motivation had consistent and meaningful effects on learning, and on behavioral indices of effort. This, despite the fact that the study was conducted in a laboratory setting. None of the students were actually enrolled in French language classes, and the measure of integrative motivation involved differences in a series of attitude and motivation scales that may not be as applicable to them as they would be

if the students were currently studying French. Even so, the results clearly confirm the role of attitudinal/motivational variables and incentives on second language learning. Generalizing these results to the language context seems fairly straightforward, and, if anything, one might expect that the effects would be even stronger in the classroom context. A major conclusion suggested from these results, therefore, is that both integrative and instrumental *motivation* can influence second language learning. This does not mean to imply, however, that integrative and instrumental *orientations* will necessarily influence learning. The important element is the motivation, not the orientation. Even in this study, the orientations were not particularly predictive of achievement, while the two forms of motivation were clearly so.

A question might be raised about the external validity of these results. That is, is it meaningful to generalize the results of this study to a real-life language learning context. Since the results of this study tend to agree with those of many studies that have investigated students in language classrooms, it seems meaningful to argue that they are generalizable. In this study as in others, individual differences in integrative motivation relate to achievement in the second language and to an index of effort expended in learning. The present study, however, introduces more control of the learning environment and prior characteristics of the students so that it is clear that the motivational factors influence actual learning as opposed to performance on an achievement test, for example, which could also reflect differences in prior knowledge, test-taking motivation, etc. Of course, it is possible that the effects of instrumental motivation may not generalize, though one would wonder why not. Presumably, because the time period is much longer and the task less circumscribed than that used in this study, any financial inducement might have to be larger, but it seems reasonable to expect that, to the extent that a monetary inducement was seen as instrumental by the students, comparable effects would be achieved. At least, this is the expectation that would derive from the socioeducational model of second language acquisition. Provided that a monetary reward has motivational properties, it would result in instrumental motivation, which would in turn effect high levels of achievement. Of course, to test the generalizability, actual research in a classroom environment would be required. Some context where language training leads to salary increments could provide a meaningful setting. If it were found that such students did perform well in such programs, but then failed to continue to make use of their skills once language training ended, this would provide further support for the notion that an instrumental motive will facilitate learning until the reward has been achieved, but then lose its potency.

The findings of this study also have implications for the socioeducational model of second language acquisition. First, they demonstrate once again that motivation—and in particular integrative motivation—facilitates second language acquisition. They show too that there is a big difference between orientations and motivation. They also help to point out a potential major distinction between integrative and instrumental motivation. Because integrative motivation has an attitudinal foundation in favorable attitudes toward the other ethnic community, other groups in general, and the language learning context, it is reasonable to expect it to have a continuing influence on language learning and use. To the extent that an instrumental

motive is tied to a specific goal, however, its influence would tend to be maintained only until that goal is achieved. This then could well be a major difference between integrative and instrumental motives, and one that warrants further investigation. On the other hand, if the goal is continuous, it seems possible that an instrumental motivation would also continue to be effective. To a considerable extent this is the point made by Spolsky (1989) in his analysis of the role that economic factors could play in promoting second language acquisition in some contexts.

The findings with respect to computer administration of the Attitude/Motivation Test Battery provide some information attesting to the utility of this procedure. The internal consistency reliability of the subtests were comparable to, or better than, those obtained with paper and pencil administration. Instructions concerning the financial advantages of doing well in the learning phase of the study had no effects on either the attitude/motivation test scores or the latency of responding to the items. Finally, there was some evidence that reaction time to individual attitude/motivation test items might reflect social desirability responding. Only one measure, French Use Anxiety, correlated significantly with Social Desirability. The correlation indicated that those who expressed low levels of anxiety were also those who tended to respond in a socially desirable fashion. Thus, the measure of French Use Anxiety might be viewed as one influenced by social desirability responding. If this is the case, its correlation with reaction time might similarly be interpreted as suggesting that those who respond faster seek to reflect a nonanxious state when contemplating using French. That is, one component of variation in French Use Anxiety scores is due to social desirability. This interpretation is strengthened by the finding that there is also a significant negative correlation between Social Desirability and reaction time to that test only. Such results suggest that one way of identifying social desirability responding in the Attitude/Motivation Test Battery is by considering how quickly individuals respond to the items. Future research is obviously required, but this is an exciting first step.

(Received 9 November 1989)

REFERENCES

- Carroll, J. B. (1962). The prediction of success in intensive language training. In R. Glaser (Ed.), *Training research and education* (pp. 87-136). Pittsburgh, PA: University of Pittsburgh Press.
- Chihara, T., & Oller, J. W. (1978). Attitudes and attained proficiency in EFL: A sociolinguistic study of adult Japanese speakers. *Language Learning*, 28, 55-68.
- Clément, R., & Kruidenier, B. G. (1983). Orientations in second language acquisition: I. The effects of ethnicity, milieu and target language on their emergence. *Language Learning*, 33, 273-291.
- Dunkel, H. B. (1948). *Second-language learning*. Boston: Ginn.
- Gardner, R. C. (1983). Learning another language: A true social psychological experiment. *Journal of Language and Social Psychology*, 2, 219-239.
- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. London: Edward Arnold.
- Gardner, R. C., Lalonde, R. N., & Moorcroft, R. (1985). The role of attitudes and motivation in second language learning: Correlational and experimental considerations. *Language Learning*, 35, 207-227.
- Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second language learning*. Rowley, MA: Newbury House.
- Gardner, R. C., & Smythe, P. C. (1975). Motivation and second-language acquisition. *The Canadian Modern Language Review*, 31, 218-230.

- Gardner, R. C., Smythe, P. C., & Lalonde, R. N. (1984). *The nature and replicability of factors in second language acquisition*. (Research Bulletin No. 605). Department of Psychology, University of Western Ontario, London, Canada.
- Hsu, L. M., Santelli, J., & Hsu, J. R. (1989). Faking detection validity and incremental validity of response latencies to MMPI subtle and obvious items. *Journal of Personality Assessment*, 53, 278-295.
- Jackson, D. N. (1974). *Personality research form manual*. Goshen, NY: Research Psychologists Press.
- Lambert, W. E. (1974). Culture and language as factors in learning and education. In F. E. Aboud & R. D. Meade (Eds.), *Cultural factors in learning and education*. Proceedings of the Fifth Western Washington Symposium on Learning (pp. 91-122). Bellingham: Western Washington State College.
- Lukmani, Y. M. (1972). Motivation to learn and learning proficiency. *Language Learning*, 22, 261-273.
- MacIntyre, P. D., & Gardner, R. C. (1989). Anxiety and second language learning: Toward a theoretical clarification. *Language Learning*, 39, 251-275.
- Oller, J. W., Baca, L., & Vigil, F. (1977). Attitudes and attained proficiency in ESL: A sociolinguistic study of Mexican-Americans in the Southwest. *Tesol Quarterly*, 11, 173-182.
- Oller, J. W., Hudson, A., & Liu, P. (1977). Attitudes and attained proficiency in ESL: A sociolinguistic study of native speakers of Chinese in the United States. *Language Learning*, 27, 1-27.
- Spolsky, B. (1989). *Conditions for second language learning*. Oxford: Oxford University Press.
- Tobias, S. (1979). Anxiety research in educational psychology. *Journal of Educational Psychology*, 71, 573-582.