An Exploratory Study of Japanese Engineering Students’ EFL Learning Motivation

Michael JOHNSON, Yoko JOHNSON

日本の工業大学におけるEFL学習者の学習動機についての調査

マイケル ジョンソン、ジョンソン 陽子

Abstract: This study examines Japanese engineering students’ English learning motivation over the duration of their academic careers with an instrument consisting of both open-ended and closed self-report items. The study found motivational peaks in the third years of junior high school, secondary school, and university, with motivational ebbs in the intervening periods of study. Higher levels of motivation were attributed to entrance examinations, positive features of the learning environment, future career preparation, and credit requirements, while drops in motivation were attributed to insufficient skills (self-evaluated), negative features of the learning environment, and a general dislike for, or lack of interest in, English.

Key words: language learning, English as a foreign language, motivation

1. Introduction

Learner motivation is a subject which concerns educators across virtually all levels and disciplines. It has been a particular concern to second and foreign language educators as studies have repeatedly linked language learning success with the intensity of a variety of motivational variables. Such findings have encouraged further inquiry into language learning motivation across an array of learning contexts, which in turn has yielded insights into the specificity of particular learning populations in terms of motivational profiles. This paper will present a preliminary study into language learning motivation in one such sub-population: Japanese engineering majors studying EFL (English as a Foreign Language). It will attempt to measure students’ EFL learning motivation over time with an instrument comprised of both open-ended and closed items. In tracing fluctuations in student motivation over the duration of their EFL learning histories, and analyzing these against the students’
own attributions for such changes, it is hoped that a preliminary sketch of this segment’s motivational characteristics can be ascertained, and that this data will aid in the development of a more detailed motivational survey.

2. An Overview of Relevant Literature

2.1 Motivation in Language Learning

Language learning motivation emerged as a distinct field of research inquiry with the early work of Robert Gardner and his associate Wallace Lambert (Gardner & Lambert, 1959, 1972). Their research established a social-psychological approach to language learning motivation which instituted a theoretical distinction between integrative and instrumental motivational orientations (1972). Within this dichotomy, the integrative orientation represented the learner’s affinity toward, and desire to interact with, the target language (TL) community, while the instrumental orientation represented the degree to which language learning motivation was driven by pragmatic or utilitarian purposes (Gardner & Lambert, 1972). Integrative motivation was also seen as superior in terms of producing higher proficiency in the TL. A variety of summative rating scales were developed by Gardner and Lambert to measure these orientations, ultimately resulting with the publication of the Attitudes and Motivation Test Battery (AMTB) (Gardner, 1985a, 1985b). Due to its good psychometric properties, and high internal validity, the AMTB quickly became the standard measurement for language learning motivational research (Dornyei, 2001).

However, despite its proven utility in producing reliable empirical data, a number of researchers grew increasingly dissatisfied by the limitations posed by the AMTB and the social-psychological approach. The integrative/instrumental dichotomy was first revealed to be insufficient by Ely (1986) who, in examining motivation in American university freshman studying Spanish, discovered the existence of a third motivational cluster, “requirement”, beyond the integrative/instrumental dichotomy. The superiority of the integrative motivational orientation was also challenged by Dornyei (1990), whose study of Hungarian EFL learners revealed that instrumentality can produce better language learning outcomes at particular proficiency levels. Skehan (1989), in investigating Individual Differences in language learning, challenged the practical value of the integrative/instrumental dichotomy, claiming it to be of little use in developing pedagogical interventions that would assist in increasing motivation in learners. Crookes and Schmidt (1991) captured, and expanded upon, many of these sentiments in a seminal article in which they identify two problems with the socio-psychological approach: the narrowness of its scope (in terms of focusing mainly on attitudes towards the target language community), and its failure to distinguish between cognition, motivation and affect, areas of distinct focus in psychological and educational
research. The authors argued that the dependency on a single research paradigm had left the 
issue of motivation in L2 learning still very much unresolved. They suggested a new approach 
that would draw upon research approaches from education and psychology, and that would 
focus on four areas: 1) the micro level (cognitive processing); 2) the classroom level 
(motivational techniques and activities); 3) the syllabus level (the interact between content 
and motivation); and 4) the informal level (comprising informal, out-of-class, and long-term 
learning considerations) (pg. 483). They offered a future research agenda which incorporates 
these factors, and is organized around a recursive process of description, analysis and 
theorizing. Subsequently, Oxford and Shearin (1994) and Dornyei (1994) similarly called for 
an expansion of L2 motivation research approaches. The former with a focus on integrating 
approaches from general, industrial, educational, and cognitive developmental psychology, 
and the later through the creation of a comprehensive motivational model which included 
language, learner and situational considerations. Both include consideration of intrinsic and 
extrinsic aspects of motivation which were adopted from Deci and Ryan’s (Deci & Ryan, 
1985; Deci, Vallerand, Pelletier, & Ryan, 1991) self-determination theory, a theory which has 
since become an essential element in many language learning motivational theories and 
models.

2.2. Motivation as a Dynamic Phenomenon

Accompanying the expansion of language learning motivation theory was a growing 
appreciation of the dynamic nature of motivation, and the need for this dynamism to be 
reflected in research (Crookes & Schmidt, 1991; Oxford & Shearin, 1994; Skehan, 1990). In 
particular, these authors observed that the cross-sectional nature of most 
social-psychological research resulted in motivation being represented as a static 
phenomenon. Responding to such criticisms, Gardner and MacIntyre (Gardner & MacIntyre, 
1992; Gardner & MacIntyre, 1993) broadened the Gardnerian model to account for an 
going dynamic flux between motivation and achievement, as they in turn stimulate, and are 
stimulated, by one another. Gardner and associates (2004) later recognized that language 
instruction variables also result in changes in language learners’ attitudes, motivation, and 
anxiety over time. Ushioda (1996), employing an innovative longitudinal and qualitative 
approach, revealed ongoing changes in learner motivation as they interact with factors within, 
and outside, the L2 context. Williams and Burden’s (1997) social constructivist framework 
reflected and expanded upon Ushioda’s findings. In their tripartite model they distinguished 
between initiating and sustaining motivation as they interact with, and within, the broader 
social context. Many of the ideas represented in the above process-oriented L2 learning 
motivational inquiry were integrated into Dornyei and Otto’s “Process Model of L2 
Motivation” (1998). With a pragmatic focus on developing motivational interventions, this
model was comprehensive in focus, and demonstrated the motivational influences on the execution of goal-directed behavior. The model is comprised of two parts, an Action Sequence, consisting of preactional, actional, and postactionable phases, and Motivational Influences, consisting of five tables of motivational types. Due to its comprehensiveness and pragmatic utility this model represents a theoretically advanced and useful approach to language learning motivation.

2.3 Japanese Learners and EFL Motivation

Research into EFL learning motivation in Japanese learners is reflective of the developments discussed in the literature above. A significant amount of research has been conducted into the major theoretical dichotomies (integrative/instrumental and intrinsic/extrinsic) (Berwick & Ross, 1989; J.D. Brown, Robson & Rosenkjar, 2001; Burden, 2002; Chihara & Oller, 1978; Hayashi, 2005; Kimura, Nakata, & Okumura, 2001; LoCastro, 2001; Matsuda, 2004; O'Donnell, 2003; Sawaki, 1997; Warrington & Jeffery, 2005; Yashima, 2002). However, despite the amount of attention these areas have received, research has tended to produce contradictory results. The conflicting nature of these findings reflects the complexity of motivation, particularly in terms of these dichotomies, and its specificity within both individuals and particular subgroups of learners.

One area of research which has produced more cohesive insight into Japanese EFL learner motivation involves motivational impediments resulting from past language learning experiences (Burden, 2002; Falout & Maruyama, 2004; Matsuda, 2004; O'Donnell, 2003; Warrington & Jeffery, 2005; Yamashiro, 2001). These studies reveal that many Japanese tertiary EFL learners suffer from language learning trauma arising out of negative language learning experiences in junior and senior high school, and that this trauma is carried forward into university study in the form of low self-esteem and negative self-appraisal. These negative experiences include being humiliated by teachers in the classroom, and suffering through grammar- and vocabulary-based pedagogies targeted at university entrance tests. Anxiety and demotivation have also been shown to arise from socio-cultural factors (R. A. Brown, 2004; Burden, 2002; McVeigh, 2001; O'Donnell, 2003). Japanese modesty norms, and a culturally-derived fear of making mistakes in front of others, have emerged as two cultural factors resulting in language learning anxiety and demotivation. Additionally, motivational issues are evident in student, and societal, perceptions of the importance of foreign language learning, and higher education in general. Both McVeigh (2001) and Burden (2002) observed that Japanese university students perceived Japanese higher education as having little value, and that these attitudes have resulted in student apathy (McVeigh 2001), as well as “fossilized learned helplessness” (Burden 2002). The modern Japanese social
perception of higher education being a “holiday” between the competitive “examination-hell” of secondary education and rigorous careers, likely contributes to the formation of these attitudes and orientations (Aspinall, 2005).

2.4 Japanese Learners and the Dynamic Nature of Language Learning
While most research into Japanese EFL learning motivation has been cross-sectional in nature, a number of studies provide insights into the changing nature of motivation over time in this segment of learners (Berwick & Ross, 1989; Hayashi, 2005; Matsuda, 2004; Sawyer, 2007). In these studies motivation was shown to peak in the third year of high school. This motivation is seen as instrumental in nature, and reflects students’ desire to perform well on university entrance tests in order to gain admittance into high-ranking universities, and eventually, to the expanded career options they represent. EFL learning motivation has been shown to be lowest in university, where, as discussed above, students exhibit anxiety, apathy, and learned helplessness. While motivational intensity remains low overall throughout university, it has been show to rise prior to tests, and when students have the opportunity to interact with foreigners (Matsuda 2004). However, as Sawyer (2007) observed, the trauma stemming from negative language learning experiences may be difficult to overcome with some students, and may result in permanent in demotivation.

3.1 The Study: Introduction and Goals
This study sets out to gather preliminary data on Japanese engineering students' EFL learning motivation. Specifically, it aims at gathering information on fluctuations in motivation in this segment of learners, and at describing reasons for these fluctuations with students’ own attributions. These goals will be pursued through the administration of a research instrument containing both open-ended and closed items. This study in not designed to provide a comprehensive longitudinal description of motivation in the sample, but rather provide some preliminary glimpses into areas that can be explored in subsequent research.

3.2 Method and Instruments
This study was carried out using a variation of Sawyer's English Learning Motivational History (2007). This instrument consists of a series of closed items requiring participants to self-report their level of motivation at various stages of their English learning histories (from junior high school through to the third year of university). Specifically, students are asked to identify their motivational level on a five point scale (very high - high - moderate - low - very low), and are asked to provide explanations/comments (if any) at each stage of inquiry. In Sawyer's original version, students were asked to report their motivation twice during each year, in March and in April. As this represents the beginning and end of the
Japanese school year, it represents one logical approach to measuring motivational change over the year. However, in the modified version used in this study the months were changed to April and December. This was done for two reasons. First, while measuring a single year from beginning to end provides insight into motivational change over that year, over a multi-year term the one-month differential between March and April represents a narrow window for motivational change to transpire. The author thought that motivation between March and April was unlikely to differ significantly in such a short period, and would thus be better reflected with a longer interval. Secondly, this study wanted to reveal more specifically the influence of entrance exams on motivational change (as discussed above, this has been identified as a significant motivational variable in number of studies). As entrance exams for Japanese high schools and universities are administered in January or February, it was thought that the time prior to this period would provide a better reflection of how these tests impact motivational level.

3.3 Participants

This study was administered to a group of 75 engineering students at a public university in northern Japan. The participants were third-year students in three separate English communication classes that were divided according to engineering specialty (Materials Science, Electrical Engineering, and Mechanical Engineering). Administration took place in the final class session of the semester and required approximately fifteen minutes to complete. Despite having studied English for nine years, most of the students would be considered false-beginners, with high-beginner to low-intermediate knowledge of English grammar and vocabulary, but possessing little or no communicative competence. The communication class in which this study was administered represents the last of eight mandatory English credits the students are required to take as part of the humanities breadth requirements for their undergraduate engineering degrees, and as such, represents the last English course most will be required to take in their scholastic careers.

3.4 Results

The results of the closed item portion of the study have been plotted in two descriptive graphs. Figure 1 depicts the frequency of responses in each category (very high, high, moderate, low, very low), while Figure 2 depicts the mean score of the whole sample (n=75) at each interval.

In Figure 1, instances of very high motivation can be observed peaking at J3-12, H3-12, and U3-4. High motivation increases similarly with peaks at U3-4, H3-4, J3-12 and J1-4. Moderate motivation is the most frequent response, characterizing the post-entrance
exam years of early high school and university. Low motivation rises and is sustained between H1-4 and H2-12, and again rises between U2-4 and U2-12. Very low motivation, while remaining low overall in terms of response frequency, peaked at J2-4, H3-12, and between U2-4 and U2-12.

Figure 2 depicts the mean score at each interval. A five point scale has been assigned to the responses as follows: very high (5), high (4), moderate (3), low (2) and very low (1). According to the graph, peaks in motivation occurred at J1-4, J3-12, H3-12, and U3-12, with J3-12 representing the mode at 3.5. Significant drops in motivation occurred approaching H1-12 and U2-12 intervals.
In the open-ended portion of the questionnaire students were asked to comment on reasons behind their motivational levels at each interval. Responses were subjected to content-analysis and categorized into twelve groups. According to the analysis, students attributed their motivational level at particular times to the following: Entrance Tests (ET), tests required for entering high school and university; Insufficient Skills (IS), a self-assessed lack of proficiency in, or understanding of, English; No Interest/Dislike (NID), an overall lack of interest in, or dislike for, English; Negative Learning Environment (NLE), aspects of the learning environment such as the teacher or class content that negatively impacted motivation; Positive Learning Environment (PLE), aspects of the learning environment such as the teacher or class content that positively impacted motivation; New Situation (NS), a desire to work harder due to a new learning situation such as entering junior high school or university; Success (SU): a self-assessed increase in proficiency, or external verification of learning (i.e. positive test results); Standardized Test (ST), preparation for standardized tests such TOEIC or EIKEN; Credits (CR), a desire to study only to obtain academic credits; Future Career (FC), consideration of the necessity of English in future careers; Lack of Time (LT): demands on time from major (engineering) studies which leave little or no time for English study; Given Up (GU), a feeling of not wanting to give any more time or effort to learning English, or that further effort will not result in success; International Orientation (IO), a desire to use English to speak with foreigners, or travel overseas. The total frequency of these responses, and their occurrence at each interval, are summarized in Figure 3.

The results obtained in the closed item section of the questionnaire clearly show fluctuations in the motivational level of learners over the duration of their English learning histories. The results of the open-ended items provide some explanatory insight into why these changes occur. Despite a relatively high number of students claiming a lack of interest in, and poor understanding of, English in their first year of study in junior high school, the overall motivational level at this interval is relatively high. This can be explained by the high number of responses indicating students’ willingness to apply themselves in the new subject and learning environment, as well as the relatively high number of students who appeared to have success in English at the early stages of learning.

It appears this early enthusiasm dissipates as motivation falls approaching J1-12 and stays low through to J2-12 (despite relatively high continued frequencies of success). The subsequent rise in motivation from J2-12 through to J3-12 appears to be driven by high school entrance exams (with ET at this interval receiving the second highest overall frequency response). Motivation drops following administration of entrance exams, and stays low until H2-12. In this period there is a marked increase in the number of students unsatisfied with
Figure 3: Summary of Response Categories

<table>
<thead>
<tr>
<th>Response</th>
<th>U3</th>
<th>U2</th>
<th>U1</th>
<th>H3</th>
<th>H2</th>
<th>H1</th>
<th>J3</th>
<th>J2</th>
<th>J1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>46</td>
<td>6</td>
<td>2</td>
<td>31</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>88</td>
</tr>
<tr>
<td>IS</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>10</td>
<td>11</td>
<td>66</td>
</tr>
<tr>
<td>NID</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>NLE</td>
<td>9</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>PLE</td>
<td>11</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>NS</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td>14</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>SU</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>13</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>ST</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>CR</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>FC</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>LT</td>
<td>5</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>GU</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>IO</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

aspects of the learning environment such as course content and teachers. There are also a significant number of students commenting that they had lost interest in English during this period. Motivation begins to rise again in H3-4 and peaks at H3-12, with a total of 46 responses claiming entrance exams as the main motivational factor in the third year of high school. Motivational levels in university mirror trends in junior and senior high school with high levels of initial motivation rapidly decreasing in the middle years of study, and then subsequently rising at the end of the last year examined. Like junior and senior high school, these high levels of initial motivation are attributed to students’ resolve to apply themselves in the new learning situation. The second year of study (U2) represents the lowest overall motivational level observed in the study, with students identifying negative aspects of the learning environment such as class content (particularly the study of grammar), and uninteresting pedagogical approaches, as demotivating. In the third year of university motivation rises again. However, in the absence of entrance tests, a range of other factors were identified as promoting motivation. These positive third-year factors included: a positive learning environment, particularly the opportunity to study English communication for the first time; studying for the TOEIC test; a realization of the utility of English in future
4. Discussion

The results of this study provide insights into the motivational characteristics of Japanese engineering students learning EFL, and serve to provide possible directions for future research. The most significant finding is the overwhelmingly instrumental/extrinsic nature of the sample’s motivation. This orientation appears to be driven mainly by the desire to succeed in entrance exams at various stages in their scholastic careers, to take standardized tests such as TOEIC, for career preparation, and for the attainment of university credits. This extrinsic/instrumental orientation is consistent with other examinations of this segment of learners, particularly Kimura et al. (2001). The goal-directed nature of motivation in this segment suggests that goal-setting theories (Locke & Latham, 1990; Schunk, 2001) might provide a fruitful area for future research with this group. Additionally, the apparent absence of integrative/intrinsic motivation is also an important characteristic of this segment of learners. Researchers need to examine the nature of this absence, and/or whether or not these characteristics are tied up in a more complex model of motivation where intrinsic/integrative and extrinsic/instrumental orientations become blurred within new global conceptions of the individual, work and academia (Dornyei, Csiser, & Nemeth, 2006; Lamb, 2004, Ushioda, 2006). Considering the fact that these engineering students are completing an internationally accredited engineering program, such a notion seems reasonable to explore.

Another important characteristic of this set of learners evident in the findings is the reoccurring emergence of demotivation over the course of their English-learning histories. According to student responses, these states emerge when they feel unsuccessful in their English studies, and when they evaluate the learning situation negatively. These findings mirror those of Falout and Maruyama (2004) who also revealed that low-proficiency Engineering students’ motivation was dependent on, among other variables, self-confidence, course content, and teachers. Similarly, teachers were also found to be a demotivating factor in engineering students’ EFL learning by Kimura et al. (2001). In contrast, a positive learning environment, particularly communication classes and interesting teachers, were identified as promoting motivation, as was success in the classroom. The positive and negative influences of success, learning environment, and past educational experiences on learning all conspire to suggest that expectancy-value theories such as self-efficacy theory (Bandura, 1977) and attribution theory (Weiner, 1980, 1986) would be another worthwhile area to examine in these learners. These could also be explored in references to goal-setting theories (see Heimerdinger & Hinsz, 2008). Furthermore, the strong apparent influence of course content and teachers presents an opportunity for experimental research concerning the effects of
materials and pedagogical approaches on motivation. Considering the sample’s strong extrinsic/instrumental orientation, a study comparing the effects of English for Specific Purposes materials and general EFL materials might provide further insights into the connection between class materials and motivation in these learners.

A further important finding in this study is the degree to which it reveals the dynamic nature of motivation in this segment. As Figure 2 reveals, the nine years represented in the study were characterized by repeated instances of falling and rising motivation. Considering these results, it is clear that future research into EFL learning motivation of this population of learners needs to account for its changing nature. The question, then, is how can this be achieved? Repeated administration of closed item instruments, such as questionnaires, is one approach. However, such instruments are limited to the variables delineated by the researcher. Open-ended items, on the other hand, might provide better insight into the full range of factors that might affect motivation over time. Long-term semi-structured interviews, such as those conducted by Ushioda (1996), appear to present a means for collecting motivational data at a richness and depth unobtainable by other methods. The advantages and disadvantages of these various research approaches suggest that a mixed-method approach, one which, for example, combines both summative rating scales and interviews, might provide the best opportunity for depicting the complex nature of EFL learning motivation as it changes over time.

Limitations

5. Conclusion

This preliminary study revealed that EFL learning motivation in Japanese engineering students fluctuated over the course of their academic careers. These findings reflect other process accounts of motivation, and speak to the limitations of treating motivation as a static phenomenon. The variables leading to fluctuations in motivational intensity and the resulting characteristics of learners at various stages over their English learning histories provide numerous areas of potential focus for future research.

6. Acknowledgements:

This paper is based on an earlier version presented at the 2010 Hawaii International Conference on Education, and published within the proceedings for that conference.

REFERENCES


Department of Psychology.


