EFL クラスにおけるインダストリアルデザインのフローエクスペリエンス

北海道言語文化研究 北海道言語研究会
No. 16, 15-23, 2018.

Exploring Flow Experiences in the EFL Classroom through Industrial Design

Michael JOHNSON

EFL クラスにおけるインダストリアルデザインのフローエクスペリエンス

マイケル ジョンソン

Abstract : This study set out to examine the influence of industrial design-themed English for Specific Purposes (ESP) instructional materials on the classroom engagement of Japanese engineering students learning English as a Foreign Language (EFL). It examined both general attitudes towards class content and engagement in a particular design activity. Data were collected via an open-ended item questionnaire administered in the final week of the semester, and a post-activity Flow State Scale. Results indicated an overall positive endorsement of learning English through industrial design-themed instructional materials due the interest and enjoyment the content invoked, and the positive experience of designing and sharing original designs. The short Flow State Scale was positively endorsed overall with results indicating that the autotelic, time transformation, task concentration, and goal orientation characteristics of the design tasks within the materials contributed to a state of flow in the EFL classroom.

Key words: Flow, EFL, ESP industrial design, motivation

1. Introduction

One of the enduring challenges facing foreign language educators is the production or selection of instructional materials that engage learners. For most instructors, instructional material selection is an intuitive endeavor, informed by both their past experiences and the inferred characteristics or needs of a particular cohort of learners (Spratt, 1999). Selection of instructional materials is of particular importance to foreign language learning as such materials have been demonstrated to have both motivational and demotivational influences on learners in the classroom. In particular, studies have shown Foreign Language Learning (FLL) motivation to be hampered by materials that are perceived to be poorly designed, inappropriate, or uninteresting (Arai, 2004; Falout & Maruyama, 2004; Falout, Elwood & Hood, 2009; Hamada & Kito, 2008; Ikeno, 2002; Kojima, 2004; Tsuchiya 2006). In contrast, instructional materials that are carefully designed, contain relatable or unique content, have a degree of perceived learner

control and personalization, and clearly outline goals and processes have been shown to encourage learner engagement (Davies, 2006; Hart, 2002; Stott, 2004).

Language learning materials have also been demonstrated to contribute to particularly high states of engagement and satisfaction in the FLL classroom. Drawing on Bloom's (1982) concept of Peak Experiences, whereby learning experiences contribute to a state of high affective and cognitive fulfilment, Matsumoto (2007) revealed that particular types of authentic materials contributed to states of peak learning in tertiary foreign language classes. Similarly, instructional materials have also been demonstrated to contribute to a state of "flow" in learners. Flow has been described as "the way people describe their state of mind when consciousness is harmoniously ordered, and they want to pursue whatever they are doing for its own sake" (Csikszentmihalyi, 1991 p. 6). Such moments generally occur whilst an individual is engaged in artistic, athletic or spiritual pursuits, but are also evident in peak language learning experiences (Egbert, 2003; Schmitt & Savage, 1992, Schmidt, Boraie & Kassabgy, 1996), particularly when attention is paid to content which is of particular interest to learners (Grabe & Stoller, 1997). In learning, flow has been described as the highest state of intrinsic motivation, achieved only when a number of factors dynamically align (Ceja & Navarro, 2009). Due to its elusive and transitory nature, flow is difficult to maintain and cannot be expected to be a permanent state in the classroom (Brophy, 2004). Rather, it is something that should be aspired toward through attention to learners' goals, interests, learning needs, and through giving learners control over activities (Egbert, 2003).

Drawing on this past research linking instructional materials with motivation, peak learning, and flow states, this study set out to examine how an industrial design-themed ESP class would be received by Japanese engineering students learning EFL. This is a population of learners that has been identified as being reluctant toward EFL learning (Nishizawa, Yoshioka, & Fukada, 2009), and a new curricular approach was viewed as one possible means to promote positive attitudes towards learning English and encourage classroom engagement. Industrial design was chosen for class content as it is a subject which underlies the practical commercial output component of engineering, and the hands-on nature of design was thought to align well with engineering students' leaning styles and preferences (Ehrman, 1996).

2. Methods

2.1 Participants

The participants in this study were all sophomores at an engineering university in Northern Japan. There was a total of 47 (N=47) participants of which 36 (N=36) were architecture and civil engineering majors, and 16 (N=16) were information technology, systems engineering, and computational intelligence majors. The two groups were enrolled in separate

General English classes, a four-skill elective English class offered as part of the foreign language requirements within the engineering program at their university. The proficiency level of the participants ranged from high beginner to intermediate.

2.2 Data Collection and Analysis

Data were collected via a Class Evaluation Questionnaire and the Short FLOW State Scale (SFSS) (Jackson, 2009). The purpose of the Class Evaluation Questionnaire was to gather student's overall impressions of the class and its specific units. It included open-ended items asking students their overall impression of the course, which units they liked and disliked and why, and solicited suggestions for design themes students though might be of interest to future class participants. The questionnaire also asked students to nominate their five most preferred, and least preferred, design units, and provide explanations where possible. The Class Evaluation Questionnaire was administered in the fifteenth and final week of the semester and took participants approximately 15 minutes to complete. Data collected from the questionnaire were recorded and open-ended items were coded and analyzed using two-step content analysis to establish broad initial themes before more refined response categories were developed.

The SFSS consisted of nine Likert scale items measuring dimensions of flow after a specific activity. Specifically, the nine items measured: challenge and skill balance, merging of action and awareness, clarity of goals, unambiguity of feedback, concentration on the task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience. The SFSS was completed in the tenth week of the semester following the final portion of the class where students developed their own original designs and shared them with their classmates. As this is an instrument measuring flow state at a specific time, as opposed to more general dispositional measures, its focus was on information pertaining to participants' flow state at the particular time they took part in a particular design activity.

2.3 Class Procedure and Design

The industrial design-themed ESP class was taught over a fifteen-week period. Each class followed a similar procedure developed around a distinct industrial design theme. Classes began with a schema setting general warm-up activity to activate prior knowledge of the topic. This was followed by a "Thinking about design" warm-up activity in which students could consider some general characteristics of design related to that week's theme. This was followed by technical vocabulary activities to familiarize learners with words necessary to understand a subsequent mini lecture on that week's design theme. The lecture was followed by comprehension questions, expansion activities, and additional technical vocabulary work with diagrams to provide learners with the

lexicon necessary to describe related products within the design genre being explored. Classes culminated with a design task in which students were provided time to sketch and label an original design which they later described in English to classmates in pairs or small groups.

3. Results

Responses from the first item of the Class Evaluation Questionnaire indicated that learners endorsed the class positively overall. A total of 63 comments were collected from participants of which 88.8% (n=56) were categorized as positive and 11.1% (n=7) were mixed. No expressly negative responses were provided by participants. Across the academic majors, architecture and civil engineering majors' comments were 80.6% (n=25) positive and 19.3% (n=6) mixed, while information technology, systems engineering, and computational intelligence majors' comments were 96.8% (n=31) positive, and 3.1% (n=1) mixed.

Table 1: Preference summary: Architecture and civil engineering majors

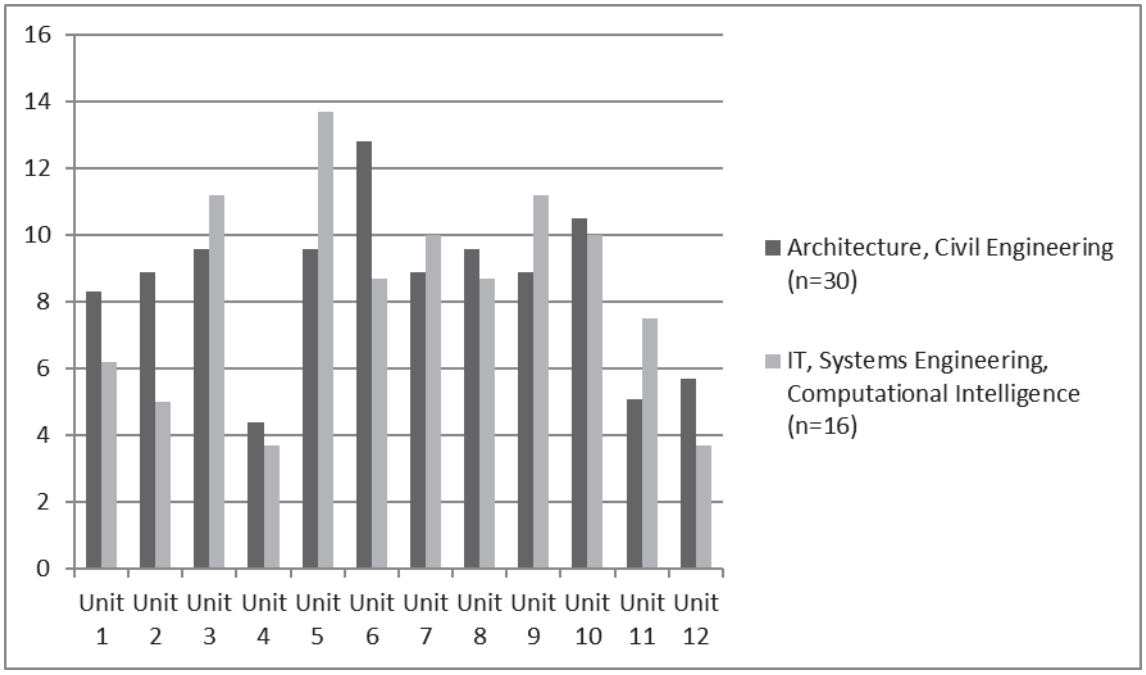
Positive (n=25) 80.6%	**Mixed (n=6) 19.3%**
enjoyed n=9	difficult 4
designing n=6	other formats 1
interesting 5	more grammar 1
good 5	
learned design 3	
easy to understand 3	
class style 3	
made me think 2	
authentic English 2	
learning English through design 1	
tasks 1	
appropriate level 1	

Table 2: Preference summary: Information technology, systems engineering, computational intelligence

Positive (n=31) 96.8%	**Mixed (n=1) 3.125%**
enjoyed n=9	difficult but novel n=1
design tasks n=5	
interesting n=5	
learning English through content n=4	
novelty n=3	
learn design n=3	
good n=2	

The three most frequently cited reasons for positive endorsement of the class across both cohorts of learners was the overall enjoyment students experienced, the design task associated with each lesson, and the over interest the class generated (see Table 1 and Table 2). Examples of these

responses came from one student who responded, “I enjoyed every time, it was different from any English class I have ever taken, for me, English is interesting now” (Student K4). An additional student explained, “it was enjoyable to design on your own, I learned about many new designs, I’m glad I took this class” (Student K9). Also highly endorsed were learning about design and learning English through design content. An example of this type of response was “studying English through learning about design was really interesting. I liked learning about designs and making my own designs” (Student J12). The most frequent type of mixed responses came from students who thought that the class was somewhat difficult, but also positive in particular ways. For example, one student commented “I thought it was hard at the beginning, but even if I wasn’t really interested in a topic, I enjoyed designing and learned a lot of new things, it was interesting” (Student J3). Another student similarly thought it was difficult but enjoyed designing and sharing designs with others, “I enjoyed thinking about my own designs, but it was difficult, then I enjoyed seeing other students’ designs” (Student K13).



Weekly Themes
1 chairs, 2 hats, 3 robots, 4 electric, 5 recycled homes, 6 snack design, 7 cell phones
8 towers & buildings, 9 vending machines vehicles 10 characters, 11 cars, 12 cardboard

Figure 1: Overall preferences across design theme units

Overall preferences for units shared both similarities and differences across majors (See Figure 1). The top 5 preferred unit topics for architecture and civil engineering students were units 6 (snack design), 10 (character design), 3 (robot design), 5 (recycled homes), and 8 (tower design); while for information technology, systems engineering, and computational intelligence majors the most preferred topic were: 5 (recycled homes), 3 (robot design), 9 (vending machine design), 7 (cell

phone design), and 10 (character design). The findings indicate that two out of five units were directly content related to the civil engineering / architecture major, while three out of five information technology preferences were related to their major.

Results of the Short Flow State Scale were quite similar across majors. The overall mean for all combined items for the architecture and civil engineering group was 3.9 (m=3.9), and the top four endorsed items were time transformation (item 8) (m=4.51, SD=0.80), autotelic experience (item 9) (m=4.37, SD=0.92), loss of self-consciousness (item 7) (m=4.07, SD=1.03), and task concentration (item 5) (m=4.03, SD=0.85). The overall mean for the IT, systems engineering and computational intelligence class was 4.03 (m=4.03) with the four most highly endorsed items being time transformation (item 8) (m=4.86, SD=0.35), autotelic experience (item 9) (m=4.73, SD=0.45), task concentration (item 5) (m=4.66, SD=1.33), and goal clarity (m=4.06, SD=0.72).

	Civil Eng/Arch			IT, Systems, CI		
S-FSS Dimensions	N	M	sd	n	M	sd
1. Challenge: skill balance	27	3.48	1.08	15	3.66	1.04
2. Merging of action and awareness	27	3.59	1.15	15	3.53	1.30
3. Clear goals	27	3.66	1.10	15	4.06	1.03
4. Unambiguous feedback	27	3.54	0.93	15	3.20	1.20
5. Concentration on the task at hand	27	4.03	0.85	15	4.66	0.72
6. Sense of control	27	3.85	0.81	15	3.66	1.17
7. Loss of self-consciousness	27	4.07	1.03	15	3.93	1.33
8. Transformation of time	27	4.51	0.80	15	4.86	0.35
9. Autotelic experience	27	4.37	0.92	15	4.73	0.45

Figure 1: Results of the S-FSS

4. Discussion

Recent research conducted by the author (Johnson 2012, 2013, 2014, 2015), and others (Gilmore, 2004, 2007; Guariento & Morley, 2001; Henry, 2007; Jarvis & Szymczyk, 2009) have indicated that learners respond to different instructional materials in distinct ways. Results of this particular study are encouraging as they seem to indicate a number of positive outcomes can be associated with the instructional materials examined, in particular industrial design-themed ESP materials, and their use with Japanese engineering students learning EFL.

The overall positive reception of the materials in terms of appealing to student interests and preferred learning styles is encouraging. These positive attitudes were reflected in comments

such as “It was my first time to learn about design in class, I enjoyed making my own designs each week, I enjoyed every week” (Student J14), and “it was very good thinking and designing while learning English” (Student K28). These comments reflect the importance of new or novel content as a means of stimulating interest and promoting positive attitudes towards learning (see Stott, 2004). In terms of learning style preference, student responses elucidated the power of design in promoting English learning, as one student commented, “more than a power point or lecture, through design I could get a feeling for English” (Student K3). Engineering students have been demonstrated to be more actively-oriented learners and to have more kinesthetic-oriented learning styles (Ehrman, 1996). In this study the participants appear to have embraced these characteristics of the design class. Students also commented that they enjoyed using their own ideas in creating their own designs. This aspect of the materials provided learners an element of control over the lesson content, something that has been further demonstrated to promote engagement (Egbert, 2003; Hart, 2002).

The strong positive endorsement of the S-FSS scale items indicated that the measured design task promoted a state of flow in the classroom. The particularly high endorsement of time transformation, autotelic experience, and loss of self-consciousness indicated that the students found the task both absorbing and intrinsically rewarding. Data collected from the open-ended items of the Class Evaluation Questionnaire support the notion that positive attitudes towards the design content and the nature of the design tasks themselves likely contributed to the high levels of affective and cognitive engagement demonstrated in the S-FSS results. In order for activities to promote a state of flow they must achieve a balance between skill and challenge where the individual feels they are optimally challenged (Csikszentmihalyi, 1991). Activities that are either exceedingly difficult, or too easy, fail to meet the optimal challenge condition. In the two classes examined in this study there was a range of proficiency levels, and some students stated that they found the class perfectly challenging, while other stated it was too difficult. Finding an optimum proficiency level and task difficulty balance in mixed-level classes is certainly difficult. However, instructors who are aware of this condition and the characteristics of their particular learners should strive to challenge learners appropriately to promote flow experiences in the language learning classroom.

5. Conclusion

The goal of this study was to examine the potential utility of industrial design ESP instructional materials on the EFL learning motivation and attitudes of Japanese engineering students. The overall positive endorsement of the class, and positive results of the S-FSS following a design task, indicate that the class design and content appealed cognitively and affectively to the target population of learners. Examination of a wider array of themes within

the suite of materials, as well as other engineering majors' engagement, is necessary to validate and expand upon the preliminary results reported here. It is hoped that this research will ultimately promote the development of Japanese engineers who are more globally-oriented and who positively embrace English as an engaging and necessary tool for their careers.

Acknowledgements

An earlier version of this paper was presented at the 15th Annual Hawaii International Conference for Education.

REFERENCES

Arai, K., (2005). *Why do learners lose their motivation?* Paper presented at the 31st JALT International Conference on Language Teaching and Learning, October 10, 2005, Shizuoka, Japan.

Bloom, B. (1982). *All Our Children Learning.* New York: McGraw-Hill.

Brophy, J. (2004). *Motivating students to learn* (2nd ed.). Mahwah, Lawrence Erlbaum & Associates.

Ceja, L. & Navarro, J. (2009). Dynamics of flow: A nonlinear perspective. *Journal of Happiness Studies*, *10*, 665-684.

Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience*. New York: Harper Row.

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York: Perseus Books.

Davies, A. (2006). What do learners really want from their EFL course? *ELT Journal, 60*(1), 3-12.

Egbert, J. (2003). A study of flow theory in the foreign language classroom. *The Modern Language Journal*. *87*(4), 499-518.

Ehrman, M.E. (1996). *Understanding second language learning difficulties*. Sage, Thousand Oaks, CA.

Falout, J., Elwood, J., & Hood, M. (2009). Demotivation: Affective states and learning outcomes. *System*, *37*(3), 403-417.

Falout, J., & Maruyama, M. (2004). A comparative study of proficiency and learner demotivation. *The Language Teacher, 28*(8).

Gilmore, A. (2004). A comparison of textbook and authentic interactions. *ELT Journal, 58*(4), 363-374.

Gilmore, A. (2007). Authentic materials and authenticity in foreign language learning. *Language Teaching, 40*, 97-118.

Grabe, W. & Stoller, F. (1997). Content based instruction. In M. Snow & D. Brinton (Eds.), *The content-based classroom: Perspectives on integrating language and content* (pp.5-21). White Plains, NY: Longman.

Guariento, W., & Morley, J. (2001). Test and task authenticity in the EFL classroom. *ELT Journal, 55*(4), 347-353.

Hamada, Y., & Kito, K. (2007). *Demotivation in Japanese high schools.* Paper presented at the JALT 2007 Conference, Tokyo.

Hart, N. (2002). Intra-group autonomy and authentic materials: A different approach to ELT in Japanese colleges and universities. *System, 30*, 33-46.

Henry, A. (2007). Evaluating learners' response to web-based, data driven, genre teaching materials. *English for Specific Purposes, 26*, 462-484.

Ikeno, O. (2002). Motivating and demotivating factors in foreign language learning: A preliminary investigation. *Ehime University Journal of English Education Research*, *2*, 1-19.

Jackson, S., Eklund, B., & Martin, A. (2010). The FLOW manual: The manual for the flow scales. Queensland: Mind Garden.

Jarvis, H., & Szymczyk, M. (2009). Student views on learning grammar with web- and book-based materials. *ELT Journal, 64*(1).

Johnson, M.P. (2012). Examining EFL motivation in Japanese engineering students. *Asian ESP Journal*, 8(*2*) pp.79-102.

Johnson, M.P. (2013). A longitudinal perspective on EFL learning motivation in Japanese engineering students. In M. Apple, D. DaSilva, & T. Fellner (Eds.), *Language learning motivation in Japan* (pp. 189-205). Bristol: Multilingual Matters.

Johnson, M. (2014). Assessing the impact of graded readers on non-English majors' EFL learning motivation. In *Proceedings of the 46th Annual Meeting of BAAL* (pp.199-210). London , Scitsiugnil Press.

Johnson, M. (2015). A qualitative examination of ESP materials and motivational engagement. *ESP Today: Journal of English for Specific Purposes at Tertiary Level*. 3(1) 83-98.

Kikuchi, K., & Sakai, H. (2009). Japanese demotivation to study English: A survey study. *JALT Journal, 31*(2), 183-204.

Kojima, C. (2004). Learners' reactions to a classroom activity. *The Bulletin of the Graduate School of Education of Waseda University*, *12*(1), 69-75.

Matsumoto, H. (2007). Peak learning experiences and language learning: A study of American learners of Japanese. *Language, Culture and Curriculum, 20*(3), 195-208.

Nishizawa, H., Yoshioka, T., & Fukada, M. (2009). The impact of a 4-year extensive reading program. In A. M. Stoke (Ed.), *JALT 2009 Conference Proceedings* (632-640). Tokyo: JALT.

Peacock, M. (1997). The effects of authentic materials on the motivation of EFL learners. *ELT Journal, 51*(2), 144-156.

Saito, S. (2007). Roles of content-based teaching and learning for non-English majors in an EFL context: Enhancing learner's motivation *Tokai Daigaku Kiyou Bungakubu, 88*, 103-108.

Schmidt, R., Boraie, D., & Kassabgy, O. (1996). Foreign language motivation: Internal structure and external connections. In R. L. Oxford (Ed.), *Language learning motivation: Pathways to the new century* (pp. 9-70). Honolulu: University of Hawai'i Press.

Schmidt, R. & Savage, W. (1992). Challenge, skill, and motivation. *PASAA*, *22*, 14-28.

Spratt, M. (1999). How good are we at knowing what learners like? *System, 27*(2), 141-155.

Stott, N. (2004). Familiarity breeds contempt: Reading texts from learners' own cultures does not necessarily guarantee recall. *TESOL Quarterly, 38*(2), 345-352.

Tsuchiya, M. (2006). Profiling of lower achievement English learners at college in terms of demotivating factors. *Annual Review of English Language Education in Japan 17*, 171-180.

Author's Information
Name: Michael Johnson
Faculty: Muroran Institute of Technology
Email: migjohns@mmm.muroran-it.ac.jp