Title: E-learning: Reasons Students in Language Courses Don't Want To

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Abstract: Despite the widespread use of e-learning in higher education, little is known about the motivational orientations of learners who are required to use it. The current research explores the role of amotivation within the compulsory e-learning component of a blended learning course at one Japanese university. The investigation takes the form of three connected studies. In Study-I, the Academic Amotivation Inventory (AAI) was adapted to measure motivation for e-learning. In Study-II the adapted AAI was administered to students twice, five months apart (n=440). Latent Profile Analysis (LPA) was undertaken with lagged data points to test for latent groups and the stability of amotivational profiles across time. LPA indicated two latent groups: one clearly amotivated by the e-learning program and one "not amotivated". Longitudinal results indicated that the size of the two groups remained roughly consistent across the duration of the study. While the amotivational profile of the "not amotivated" group remained constant longitudinally, the amotivated group profile changed substantially. Students reported two key reasons for not engaging in their e-learning studies: low task-value and poor ability beliefs. In Study-III, interviews with 12 students were undertaken to add depth to the quantitative results. Implications for practice and future research are discussed.
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1 Introduction

The use of digital technologies in language education (hereafter referred to as “e-learning”) has undergone rapid development over its fifty-year history. Since its beginnings in behavioristic drill-and-practice software in the 1960s, e-learning has developed into highly sophisticated online applications that incorporate student-centered, socio-cognitive learning theories (Bax, 2003; Warschauer, 1996; Warschauer & Liaw, 2010).

While considerable hopes have been attached to e-learning, autonomous e-learning use has been found to result in high non-participation and attrition rates when the required human support is lacking, particularly for novice learners (Nielson, 2011). Substantial motivational problems persist with any form of independent study, regardless of whether it is traditional pen-and-paper homework or e-learning. Such problems are endemic to compulsory education in which students must take certain courses in order to fulfill departmental or institutional requirements, and are exacerbated when institution-mandated instructional frameworks fail to provide adequate support for effective education. These issues are addressed within the literature review.
Following a review of the literature, three connected studies are presented:

Study-I quantitatively explores the nature of amotivation within an e-learning context, Study-II examines the longitudinal change in amotivation profiles of students across a five-month gap, and Study-III qualitatively examines students’ reasons for not wanting to study online.

2 Literature Review

2.1 E-learning in Compulsory Japanese Higher Education

Faculty in Japanese higher education, as in the West, must often contend with low motivation to study and institution-wide curricular frameworks that are unfavorable for classroom-based language learning. Poor scheduling is a common problem. Effective language learning depends on frequent exposure to the target language; high intensity of exposure to the second language is conducive to the proceduralization of declarative knowledge and its subsequent automatization (DeKeyser, 2007, pp. 215-217). Not surprisingly, foreign language classes that are more closely spaced are more effective than those separated by large intervals (Serrano, 2011). E-learning, when combined with more traditional forms of independent study in a blended format, can effectively decrease intervals between study sessions and increase the total amount of time a student spends studying English over the week when compared with typical compulsory English courses.

Some 80% of higher education institutions across Japan have adopted a single commercial e-learning package, ALC NetAcademy, in an attempt to achieve this goal (ALC, 2011). Such initiatives have been met with limited success, due to not only lack of integration with the core curricula, but also lack of accountability. E-learning and classroom learning should ideally be tightly integrated in a blended approach, and
student progress should be tracked via a learning management system. E-learning integrated into a curriculum-wide blended learning format ensures that students are engaged in studying the prescribed content for, at a minimum, a certain amount of time every week.

Compulsory education is based on the premise that students lack autonomy in the selection of their courses. This forced nature of compulsory education places students, particularly those who attribute incompetence at English to a long history of failure in secondary schooling, at a severe motivational disadvantage even before setting foot in their first class. Investigating students’ reasons for not wanting to engage in e-learning makes it possible to identify at-risk students whose flagging motivation requires special attention, and to address the underlying issues that gave rise to their motivational orientations. These issues might then be addressed via face-to-face intervention and manipulation of the e-learning itself.

E-learning that further reduces student motivation to study is less likely to be effective in the long term (Chen & Jang, 2010; Lim, 2004). We therefore feel the reasons for students’ potential disengagement with e-learning deserve serious consideration, especially in compulsory educational contexts in which initial student motivation to learn the subject matter may be low.

2.2 The Research Context Through the Lens of Self-Determination Theory

The current research is carried out within the theoretical framework described by Self-Determination Theory and its mini theories (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000; Vansteenkiste, Niemiec, & Soenens, 2010). SDT describes an individual’s motivation as being dependent on the satisfaction of three innate psychological needs: relatedness, competence, and autonomy. The research context is a compulsory 20-week blended e-learning program that forms part of a year-long
compulsory English course. The vast majority of students participating in the English
program are of low English proficiency. The e-learning program, in addition to being
compulsory, currently offers no opportunities for social interaction with other
students. It therefore appears reasonable to assume that the students’ basic
psychological needs – autonomy and relatedness needs in particular – may not be
satisfied adequately in the current environment. According to Organismic Integration
Theory, the quality of student motivation may decrease in such contexts. In a worst-case
scenario, students may lose their motivation altogether, resulting in a shift into
the domain of amotivation within the SDT framework.

Our choice to measure amotivation is predicated on a concern cited by many
teachers in the current research context that despite its compulsory nature of the e-
learning assignments, students are often not motivated to complete them. In fact, at
the end of each academic semester, the number of non-completes for assigned e-
learning has raised doubts about its use as a tool for increasing study time. The issue
is particularly relevant for e-learning, like the system used in the current study, that
allows for cognitive presence, but lacks affordances for teaching and social presence.
Swain, Garrison, and Richardson (2009) argue that the integration of all three
elements is crucial for a high-quality, community-based educational experience.

When compared to distance learning and other e-learning contexts that lack a
physical classroom, teaching presence and social presence are more readily leveraged
in a blended format due to classroom interactions that are unmediated by technology.
However, the fact remains that e-learning itself is either a solitary activity or an
activity in which social interactions are fundamentally altered from those in the
classroom. Because amotivated students are likely to be less receptive to new
instructional modalities, and because the proliferation of e-learning is bound to
continue unabated in the future, the nature of student amotivation in regards to e-
learning is an important topic for a wide range of subjects and educational contexts. It
is particularly important for compulsory subjects, not only because they involve more
amotivated students, but also because, at the university level, they typically involve a
larger number of students. It seems likely that an increasing number of universities
will turn to e-learning in the future to support the education of such groups of students
in a cost-effective manner.

Finally, the current research is not primarily concerned with non-completes or
even low motivation, but the disengagement it may be causing. As the saying goes,
“You can lead a horse to water, but…”

2.3 Amotivation

Amotivation is perhaps the least researched aspect of the Organismic
Integration Theory continuum of motivation. It is defined most explicitly as a
dysregulation: a disconnect between behaviour and outcome. This lack of regulation
is hypothesized as chiefly being the result of poor ability beliefs and low valuation in
regards to a particular task.

Although everyone experiences amotivation at some point in their life, and it
is not difficult to recognize in others, the study of why someone is not motivated
seems to be less interesting than why someone is motivated. This is unfortunate, as
the conditions that cause individuals to lose motivation are, in many ways, far more
interesting and practical as topics of investigation. Human beings are naturally
motivated to learn. Educational research, however, has repeatedly demonstrated that
motivation decreases as students progress through formal education (Anderman &
Maehr, 1994; Eccles et al., 1993; Harter, 1981). Few researchers have sought to
understand the nature and effect of amotivation as a distinct construct, despite this
being a crucial issue facing formal education internationally. Understanding the nature of amotivation, however, may hold a key to improving student motivation in any compulsory context and therefore deserves considerably greater attention in educational psychology research. A small group of French Canadian researchers have made significant progress both in the measurement of educational models that include or center on amotivation (e.g., Ratelle, Guay, Vallerand, Larose, & Senécal, 2007; Vallerand, Fortier, & Guay, 1997; Vallerand et al., 1992, 1993) and its application to domains such as the environment (Pelletier, Dion, Tucson, & Green-Demers, 1999) and high school dropouts (Vallerand & Bissonnette, 1992). In addition to educational research with high school students, amotivation has recently been applied to students’ indecision regarding entry into higher education and their resulting persistence (Jung, 2013).

The Academic Amotivation Inventory (AAI), a multi-dimensional measure of students’ amotivation, has been developed, validated, and applied to the context of high school education in Canada (Legault, Green-Demers, & Pelletier, 2006). Follow-up research has cross-validated and confirmed the psychometric properties of the AAI (Green-Demers, Legault, Pelletier, & Pelletier, 2008). The AAI consists of four hypothesized reasons for not wanting to study, or dimensions of amotivation: value for the task, task characteristic, effort beliefs, and ability beliefs.

3 Study One: Dimensions and Presage Variables for Amotivation for E-learning

3.1 Methods

The e-learning system used by the students under investigation, called KSU myWord, was developed in-house in order to complement an institution-wide
vocabulary instruction curriculum. The instructional approach can be considered blended learning in that the content of myWord is directly connected to both in-class activities and other non-digital independent study required of the students. A series of twenty modules was administered over two semesters. Weekly progress was tracked via the Moodle learning management system (moodle.org).

The Academic Amotivation Inventory (AAI; Legault et al., 2006) was initially translated and adapted to the context of a Japanese e-learning program. As a pilot to the primary study, the inventory was tested with two large groups of students (n > 200) studying within two different e-learning programs (myWord and ALC NetAcademy). Large samples were necessary to enable the reliable use of dimensional analysis such as Exploratory and Confirmatory Factor Analysis (E/CFA).

In the primary study, the inventory was applied to students’ amotivation within a year-long e-learning program which is compulsory for roughly 1,500 first and second-year students. With a separate group of students the following year, short interviews were carried out to provide greater depth to our understanding of students’ level of engagement with the e-learning program.

Amotivation researchers have addressed environmental issues (Pelletier et al., 1999), high school dropout (Vallerand et al., 1997) and the importance of social support during high school (Legault et al., 2006). Whereas the AAI measures amotivation toward academics in a more global sense, our adaptation of the instrument measures the dimensions of amotivation at particular times (e.g., When I didn’t want to do myWord, it was because…). This is a legitimate approach to investigating amotivation because similar situation-specific approaches have previously been validated with other motivational constructs within SDT (e.g., McAuley, Duncan, & Tammen, 1989 ).
3.2 Participants

For the main study reported here, students \((n = 892)\) undertaking the compulsory e-learning program (KSU myWord) were asked to complete an online survey twice, five months apart. Surveys were completed during week five and fifteen of the 20-week study program, spread evenly over two 15-week semesters. As an additional means of exploring the sources of students’ amotivations, twelve students using the same e-learning were interviewed the following year (Study-III). Table 1 presents the initial and matched sample for the current research. Despite the compulsory nature of the course, the dropout rate (49.3%) between semester one and semester two was substantial \((n = 452)\).

*Table 1 about here*
3.2.1 Online Surveys

The amotivation surveys were administered online within the learning management system. Students were asked to complete the survey after finishing a set of weekly e-learning tasks. Students replied to items written in Japanese via radio buttons arranged in a six-point Likert scale. No more than four items were presented on the screen at once, and the order of the items was identical for each student. Care was taken to prevent items measuring a single dimension from being adjacent to one another. It took students approximately two minutes to complete the entire survey.

3.3 Quantitative Analyses

Initially, a well-respected instrument for measuring amotivation for study, the AAI, was adapted to the Japanese e-learning context and validated across two e-learning programs, with two separate samples. Within the main study, the adapted and validated inventory was employed to measure students’ e-learning use-related amotivation on two occasions five months apart. The resulting quantitative data were tested dimensionally with Confirmatory Factor Analysis (CFA), then the role of key background variables were examined.

All Structural Equation Modeling and Latent Profile Analyses were carried out within Mplus 6.1 (Muthén & Muthén, 1998-2011). During initial item development, an Exploratory Factor Analysis (EFA) pilot of amotivation items was undertaken. To determine the appropriate number of factors to extract, RMSEA < .05 (Browne & Cudeck, 1992) and Scree plot (Cattell, 1966) were then employed along with theory to determine the appropriate number of factors to extract.

Multiple fit indices were used to assess all structural models, in alignment with current quantitative approaches (e.g., Hu & Bentler, 1999). Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) were judged to be acceptable and excellent
if > .90 and > .95 respectively (McDonald & Marsh, 1990), while Root Mean Square Error of Approximation was judged to be acceptable and excellent if < .05 and < .08 respectively (Yuan, 2005).

3.4 Dimensionality of Online Amotivation

3.4.1 Exploratory Factor Analysis

As a pilot for the current study, the Academic Amotivation Inventory (AAI) was adapted and translated by one bilingual native speaker of English and back-translated by two bilingual native speakers of Japanese. Inconsistencies were settled through discussion (Brislin, 1980). The AAI consists of 16 items, four for each hypothesized dimension of amotivation. Students were asked to report the degree to which the items matched their reasons for not wanting to complete the weekly assigned e-learning. A rating scale of 1 (“totally does not match me”) to 6 (“totally matches me”) was employed for the inventory.

As an initial pilot, the inventory was used to measure students’ amotivation for working within two different e-learning applications: ALC NetAcademy ($n = 404$), which is widely used across Japanese higher education for vocabulary and grammar review, and KSU myWord ($n = 215$), an original vocabulary e-learning application developed at the research institution. For both pilot data sets, EFA was conducted and one through six factors where extracted and examined. Four factors were hypothesized to fit best, in alignment with the original AAI.

Inspection of the results indicated that while a four-factor extraction fit best. For both data sets (RMSEA, scree plot), for the ALC NetAcademy data set, two of the four task-characteristic items cross-loaded: loaded on a second latent variable with .15 of it primary loading (Worthington & Whittaker, 2006) – with the effort-belief and value-of-the-task factors. As a result, the task-characteristic items were removed from
a second EFA of the ALC NetAcademy data set. One through five were extracted in five EFAs, and consistent with the remaining hypothesized dimensions, three factors fit the data set best. The final three factors of students’ amotivation were measured reliably for both data sets: value of the task, effort beliefs, and ability beliefs.

3.4.1.1 Confirmatory Factor Analysis.

Confirmatory Factor Analysis of the final four-factor (ALC NetAcademy) and four-factor (myWord) EFA solutions from the pilot samples were conducted to test the exploratory results. CFA of the three-factor ALC NetAcademy data set was acceptable: CFI = .96, TLI = .95, RMSEA= .06 (90% C.I. .04 ~ .08). The modification indices of the myWord data set, however, suggested that one effort and one value-of-the-task item were correlated strongly with the task characteristic factor. The two items were removed and the three factor model then fit acceptably: CFI = .95, TLI = .93, and RMSEA = .06 (90% C.I. .04 ~ .08). These results clearly indicated that the task characteristic dimension may not be psychometrically sound and should therefore be adjusted or removed for future uses of the AAI in e-learning research contexts.

3.4.2 Main study

Based on the pilot results, the translation of one task-value item and one effort belief item were adjusted. All of the task characteristic items were rewritten to more closely reflect the specific tasks students face when completing the online learning. The original task characteristic items were quite general (e.g., “I felt that the myWord tasks were not good.”) and our new items were very specific in reference (e.g., “I didn’t like moving and manipulating objects on the screen.”). Please refer to the Appendix for a complete list of both the original and new items used in the study.
3.4.2.1 Confirmatory Factor Analysis of longitudinal inventory data.

The primary data for the current research consisted of two data points collected five months apart. Students completed the updated AAI for e-learning (see the Appendix) on two occasions following weeks five and fifteen of the online vocabulary study course. The dimensionality of both data sets was tested with CFA, which confirmed that the task characteristic variable was not a useful dimension of students’ amotivation. While the new items gave rise to a more reliable factor for the task characteristic variable, the factor itself correlated with ability beliefs and value of the task too strongly (i.e. > 0.9). Correlations greater than .9 have been cited in the literature as being a cut-off point for concerns regarding the multicollinearity of variables (Tabachnick & Fidell, 2007). As a result, the task characteristic scale was not employed in further analyses.

Table 2 presents the CFA loading for both samples of data collected for the main study. Fit for the two final three-factor models, from sample one and sample two, is presented in Table 3. Fit for models 1 and 2 were acceptable and good respectively. Finally, Table 4 presents the inter-correlations for the constructs within the two samples. Compared to data point one, both effort and ability correlated more strongly with value in data point two.

*Table 2 about here*
4 Study Two: Participant Centered Examination

4.1 Methods

The two data points were matched and then assessed for latent groups, employing Latent Profile Analysis. Latent Class Analysis (LCA; McCutcheon, 1987) is a person-centered approach to data analysis, which seeks to model the latent heterogeneity in a given population, based on a specified number of variables. Latent Profile Analysis (LPA), in contrast to LCA, only employs continuous variables, as is the case in the current study. Compared to more commonly employed statistical clustering techniques, which are exploratory in nature, LPA allows for a more flexible approach to group specification. A combination of likelihood-based tests and an information criterion allow for informed decisions to be made about the number of latent classes within a population. For the current research, two likelihood-based tests were employed to test the appropriateness of one extra group (e.g. three groups versus
two) Vuong-Lo-Mendell-Rubin (Lo, Mendell, & Rubin, 2001) and the parametric bootstrapped Likelihood Ratio Tests (BLRT; McLachlan & Peel, 2000). For Likelihood Ratio Tests (LRT), insignificance for a number of groups (e.g., three) suggests one less group may be a better fit to the data (i.e. two). In a recent Monte Carlo study that tested a number of statistics regularly employed for judging the number of classes in a data set, BLRT was found to be a very consistent indicator of classes across a range of models (Asparouhov & Muthén, 2012). Information Criteria (IC) were also examined for the current study: Bayesian Information Criterion (BIC; Schwartz, 1978) and Adjusted Bayesian Information Criterion (Sclove, 1987). All LPAs were conducted consistent with the latest suggested procedures for the use of Mplus (Nylund, Asparouhov, & Muthén, 2007).

4.2 Results and Discussion

The matched sample (Table 1) was employed for Latent Profile Analysis (LPA). In separate analyses, LPA was conducted on both the spring and fall data collections. Little empirical research upon which to base a hypothesis regarding latent groups in the population was available. Two groups, students who were amotivated to engage in the e-learning and students not meaningfully amotivated, were hypothesized as presenting the most practically explainable latent profile for the data.

For both samples, one through six groups were extracted based on students’ self-reported value of the task, ability belief, and effort belief dimensions of amotivation. The Information Criterion and likelihood tests were examined for indications of the most appropriate model of latent groups underlying the data. For both data sets, Bayesian and adjusted BIC continually dropped all the way from group one to group six and were therefore not useful indicators of underlying latent classes. For both of the samples, however, likelihood ratio tests, Vuong-Lo-Mendell-Rubin,
and parametric bootstrapped indicated that two groups fit the data better than three groups. The two-group models are present, in Table 5 and Figure 1.

*Table 5 about here*

*Figure 1 about here*

The LPA suggested that the two latent groups within our sample represents students who are clearly amotivated (group two) and those not amotivated students (group one). The group sizes indicate that initially and increasing over time more students were amotivated (sample one \( n = 245 \); sample two \( n = 257 \)) by the e-learning
than not (sample one $n = 195$; sample two $n = 182$). Table 5 indicates that students’
who were not amotivated to engage with the e-learning software exhibit remarkable
stability in their amotivational profiles. To the first decimal place, group one is
identical across the two samples, despite the fact that they were collected nearly five
months apart. In contrast, the profile of the amotivated group (group two) changed
significantly. Amotivation due to students’ lack of value and lack of ability each
increased substantially: Cohen’s $d = .86$, $p < .0001$; Cohen’s $d = 1.04$, $p < .0001$. At
the same time, students’ amotivation for effort-belief related reasons decreased ($p =
.0001$, Cohen’s $d = .77$). Students who did not value the e-learning software at the
start clearly valued it even less after 10 weeks of use, and students who do value it
from the start continue to do so even at the end of the 10 weeks. Evidently, repeated
experience with e-learning tasks cannot be expected to positively influence student
perceptions regarding the value of the e-learning. Amotivated students should be
identified as early as possible to allow for direct teacher intervention. Similarly, 10
weeks of e-learning use actually reduced students’ ability beliefs with regard to the
vocabulary e-learning. This may be due in part to the fact that the words were
changed every week. Students, while becoming more accustomed to the software, are
consistently confronted with new words, many of which they may not know. As a
result, they may never feel as though they are meaningfully improving. Finally, the
reduction in students’ amotivation with regard to their effort beliefs might be
interpreted as students adjusting to the use of the software and improving in their use
of it, even if the content is perceived to be difficult. This might explain why students
feel less amotivated by the effort necessary to engage in the e-learning.

Over the course of the 10 e-learning study sections, the number of amotivated
students actually increases, although marginally ($n = 245$ to $n = 257$), indicating that
students who find the e-learning above their ability and not worth their time at the
beginning, continue to be amotivated by its difficulty and perceived value five months
later.

5 Study Three: Qualitative Examination of Quantitative Findings

5.1 Methods

5.1.1 Interviews

To gain a qualitative perspective on the quantitative findings, short interviews
were conducted with twelve first- and second-year students in three separate classes in
a stratified purposeful sample; students representing a range of motivations toward the
e-learning (as perceived by their teacher) were selected with the intent of eliciting
unique characteristics of two or more subgroups. The interviews were conducted at
the end of the term after students had completed the eighth or ninth e-learning
assignment. All of the interviewees had engaged in the e-learning over the semester.
Although the interviewees were not themselves included in the primary survey data
(i.e., ad hoc to the quantitative study), their English proficiency level was
commensurate with the surveyed students.

Interviews were carried out during regular English class time. Both teachers
and students were informed that the research was being carried out in order to better
understand and therefore improve the students’ experience with the e-learning
materials. Eight of the twelve students interviewed answered a class-wide call for
volunteers and the remaining four students were asked to participate by the classroom
teacher.

Following a general explanation of the project and the interview process,
students were engaged in 10-minute semi-structured interviews. Interviews were
carried out in a nearby empty classroom after which students returned to their regular class. Each participating student received a voucher for a free lunch at the school cafeteria. Students were not informed they would receive a voucher until the interview was over.

5.2 Results and Discussion

The 10 interviews were carried out and transcribed in Japanese. Excerpts have been translated from the Japanese originals.

In alignment with the survey results on the dimension of ability beliefs, interviewees claimed to find the e-learning content relatively easy. Some students attributed this ease to their ability to reference their previously completed vocabulary notebook while completing the e-learning tasks:

“Since the words I wrote in my vocab notebook appear in the e-learning, I thought, I can probably do it if I do the notebook first.”

Others intentionally refrained from referencing their notebook:

“I didn’t think I’d learn the words if I referenced my vocabulary notebook, so I made a point of not looking at it while doing the e-learning.”

Some interviewees perceived the e-learning as requiring considerable effort to complete and attributed this effort to technological hurdles (e.g., “My eyes get tired when I use a computer,” and “I have to connect to the Internet, so from a convenience standpoint, it’s not convenient at all.”).

Yet, many of the interviewees seemed to have a generally positive impression of the e-learning and its utility, stating that it was instrumental in helping them pass their weekly vocabulary tests. However, their valuation of the e-learning seemed to be limited to what could be construed as some form of internalized extrinsic motivation: useful, but only for passing tests. Though it is impossible to determine from the data the specific types of values the participating students place on the e-learning, such
students are likely to be classified as having positive value beliefs in the amotivation survey results.

In contrast to such students who valued the e-learning, the survey data clearly indicates that more than half of the students found it of little or no value. These are the “at-risk” students whose motivations must be addressed in order to improve the quality of education. One interviewee took issue not with the e-learning per se, but with the institution’s approach to vocabulary instruction in general:

“I think speaking with foreigners would be a more effective way to study. I don’t know, it’s the same thing with the vocab notebooks, too. No matter how much you do it, it won’t amount to anything unless you are speaking English, so the e-learning isn’t really worthwhile.”

Another interviewee devalued the e-learning due to its format:

“Well, I think it’s useful for studying for tests, but since you have to keep doing new words week after week, you end up forgetting the stuff that came earlier. So I don’t think it’s good for long-term study.”

Both of the previous comments belie the common conception that low-proficiency students are “deadbeats” who generally lack motivation in all educational contexts. Instead, they suggest that students at this level do possess a desire to learn, but feel thwarted by a variety of conditions. This brief look at two student comments shows how some causes of student amotivation might be addressed. For example, students might be provided with more opportunities to practice their speaking skills using their newly learned vocabulary, and may additionally be instructed on a variety of ways in which speaking skills can be effectively practiced in lieu of conversing with native English speakers. Perceived issues with the e-learning format might be resolved by modifying the e-learning itself, and also by providing students with a greater range of study options within the e-learning.

While these qualitative findings appear to support the motivational aspect of the e-learning software being employed, it should be noted that the quotes above
represent students who persisted with their studies over the entire term. Recent
preliminary interview data gathered from students enrolled in a make-up English
course (for those who withdrew from or failed an English course in the previous year)
clearly suggest that valuations of the e-learning were more uniformly negative. Some
negative valuations came from the belief that more traditional independent study tasks
were simply more engaging and effective for learning. For example, the physical
process of writing on paper was perceived by some as crucial for the retention of
knowledge. As one student put it:

“It’s hard for me to learn the words using only the computer. I have to write
out [the words] by hand, I think.”

Japanese students learn to write kanji ideograms as children by writing them
repeatedly by hand, and penmanship is highly valued by Japanese society. This may
partially explain this preference for handwritten vocabulary study.

It is unclear whether the selected interviewees are representative of the larger
population of drop-out students. Although none of the interviewees specified e-
learning as a reason for dropping out, the evidence suggests their low valuation of the
e-learning results from a belief that different study methods are more effective and not
due to a lack of value placed on learning English in general. This is a promising sign
that more can be done to raise student motivation and also serves as an admonition
against stereotyping drop-out students as individuals who lack the capacity to think
deeply about their studies. A more comprehensive investigation of students who
dropped out of their regular English courses would help to shed light on the nature of
motivation for this most “at risk” subset of the student population.
6 Conclusions

Results from the current study have demonstrated that ability beliefs, effort beliefs and value of the task dimensions of students’ amotivation are reliable dimensions of students’ amotivation for studying within two different e-learning environments as well as one e-learning environment on two lagged occasions.

Latent profiling of the two lagged samples has demonstrated that in the current learning context two reliable latent groups of students exist: students who are regularly amotivated to engage with the e-learning software and students who are not. The latent profile for the not amotivated group of students was stable across the two data collections for all three dimensions of students’ amotivation. This stability suggests that students who are comfortable with the online learning at the start are unlikely to face motivation-related difficulties in the future. The motivational profile for the amotivated group, however, changed across the five months between the two data collections. Amotivated students’ value and ability-related reasons not to engage in the online learning substantially increased over the five months between data collections. For students who will need to complete weekly activities for two years in order to obtain course credits, our results are cause for considerable concern. The latent profiling approach taken within the current research might be a useful first step towards ensuring that students within an initially amotivated group do not continue to have their motivational profile degrade.

Once students are identified as amotivated, classroom interventions could be undertaken to improve students’ value for the online study component. For example, teachers might be encouraged or required to provide counseling to amotivated students. Since time constraints limit the amount of individualized attention teachers can provide, it is suggested that all students be reminded of the importance of e-
learning through videos and other supplementary motivational content integrated into
e-learning tasks. Repeated exposure to such content is expected to result in greater
effects on student motivation when compared to one-off counseling sessions.

Students’ perceived low ability might be mitigated by recycling content from
previous weeks to enable students to gain a greater sense of efficacy for their studies.
This could be achieved through integrating previously learned content into classroom
instruction and through structuring online tasks so that past content is reviewed more
frequently. Furthermore, making the online tasks accessible from mobile devices may
courage students to engage with the content more frequently and in shorter bursts
than is currently the case. Greater frequency of engagement over the week may in turn
allow for e-learning software designs that drive more sophisticated learning methods,
such as spaced learning.

While the current research was carried out within the context of online
vocabulary acquisition, the results and therefore suggestions are meaningful for
educators across a range of domains seeking to expand students’ targeted time-on-task
through online study. In particular, educators within academic domains, which
demand a significant amount of practice in addition to conceptual understanding (e.g.,
mathematics or applied disciplines like medicine, engineering and architecture), while
attempting to expand students targeted time-on-task online, need to be wary of
amotivational issues for e-learners. Even more than e-learning within regular degree
programs, the constantly expanding field of distance higher education, which employs
the Internet as its primary source of instruction, should give the current study’s results
consideration. While students with positive motivational profiles may be successful
despite being isolated in their studies online, students with poor initial motivational
profiles are unlikely to receive the kind of support and feedback they need to improve
their perceptions of competence, value for their learning and develop the ability to sustain the effort necessary to meaningfully engage with their studies.

7 Limitations and Future Directions

The primary limitation for the current research is that it was carried out at one Japanese university, within the singular context of learning a foreign language. Future research might replicate the current study in another learning domain to test the external validity of the current findings. In addition to language learning in other contexts, the authors would suggest that skill and practice-based academic disciplines, which might exploit e-learning as a means of extending “time on task”, are another key domain area for extending the results from the current study. A further limitation in the current study is that due to the correlational nature of the analysis, the small differences and effects observed with regard to amotivation and students’ failure to complete the compulsory online study could have been caused by factors other than amotivation. An experimental or more stringent correlational design, which accounts for a broader range of presage variables, is necessary to test this relationship.

Future research undertaken in a similar context and employing a comparable research design should include three key points. First, the current study needs to be replicated with a larger matched sample, and during the same year, a sample of students from both latent groups needs to be interviewed. Students who have dropped out of the course need to be included in any such sampling in order to be sure that the results are not biased towards the persistent and generally better motivated students. Second, four data points should be collected in order to assess the auto-lag and cross-lag effect of these three types of amotivation over time, both within general Structural Equation Modeling and latent curve analysis. Finally, in order to clearly understand
how group membership changes over time, latent transition analysis should be employed in future person-centered longitudinal analysis.

References

ALC. (2011). *Raifu saiensu eigo kosu ga tojo* [Introducing the life sciences English course].


Information technology and constructivism in higher education: Progressive learning frameworks (pp. 43-57). Hershey, PA: IGI Global.


### Table 6
Survey Items for Pilot Adaption of the Academic Amotivation Inventory

<table>
<thead>
<tr>
<th>Item type and number</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stem for inventory</strong></td>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>When I didn’t want to do myWord, it was because…</td>
<td></td>
</tr>
<tr>
<td>私がmyWordをしたくなかった時の理由は…</td>
<td></td>
</tr>
</tbody>
</table>

**Task characteristic items**

| TC1 | I felt the tasks in myWord were not good. |
| TC8 | I felt that navigating myWord was difficult. |
| TC12 | I had the impression that myWord was always the same kinds of tasks every time. |
| TC15 | I thought myWord was not stimulating. |

**Ability belief items**

| AB2 | I thought myWord was too difficult. |
| AB6 | I thought I didn't have what it took to do myWord well. |
| AB13 | I thought I didn't have the knowledge required to get a passing score in myWord. |
| AB16 | I thought the tasks comprising myWord surpassed my abilities. |

**Value of the task items**

| TV4 | I thought myWord was not important to me. |
| TV5 | I thought myWord was not valuable to me. |
| TV9 | I thought I had no good reason to do myWord. |
| TV17 | I thought myWord was boring. |

**Effort beliefs items**

| EB3 | I was not energetic enough to do myWord. |
| EB7 | I felt a bit lazy when it came to doing myWord. |
| EB18 | I couldn't seem to invest the effort required to do myWord. |
Table 7
Survey For Primary Study

<table>
<thead>
<tr>
<th>Item type and order in survey</th>
<th>Item and Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ability beliefs items</strong></td>
<td></td>
</tr>
<tr>
<td>AB1</td>
<td>I thought myWord was too difficult.</td>
</tr>
<tr>
<td></td>
<td>myWordは難しすぎると思ったから</td>
</tr>
<tr>
<td>AB14</td>
<td>I thought I didn't have the knowledge required to get a passing score in myWord.</td>
</tr>
<tr>
<td></td>
<td>myWordの合格点を得るための知識が十分でないとと思ったから</td>
</tr>
<tr>
<td>AB17</td>
<td>I thought the tasks comprising myWord surpassed my abilities.</td>
</tr>
<tr>
<td></td>
<td>myWordを構成する様々なアクティビティーは私の能力を超えていたと思ったから</td>
</tr>
<tr>
<td>AB7</td>
<td>I thought I didn't have what it took to do myWord well.</td>
</tr>
<tr>
<td></td>
<td>myWordを上手く使いこなせる素質がないと思ったから</td>
</tr>
<tr>
<td><strong>Effort beliefs items</strong></td>
<td></td>
</tr>
<tr>
<td>EB15</td>
<td>I didn't feel like doing myWord.</td>
</tr>
<tr>
<td></td>
<td>myWordをする気にならなかったから</td>
</tr>
<tr>
<td>EB18</td>
<td>I felt that doing myWord took too much time.</td>
</tr>
<tr>
<td></td>
<td>myWordをするための時間がかかりすぎたと感じたから</td>
</tr>
<tr>
<td>EB3</td>
<td>I was not energetic enough to do myWord.</td>
</tr>
<tr>
<td></td>
<td>myWordをする十分な気力がなかったから</td>
</tr>
<tr>
<td>EB9</td>
<td>I felt a bit lazy when it came to doing myWord</td>
</tr>
<tr>
<td></td>
<td>myWordをすることが少し面倒と感じたから</td>
</tr>
<tr>
<td><strong>Task characteristics (details) items</strong></td>
<td></td>
</tr>
<tr>
<td>TCd11</td>
<td>I didn't like the tasks that involve listening to the audio.</td>
</tr>
<tr>
<td></td>
<td>会話などの音声を聴くタスクが好きではなかったから</td>
</tr>
<tr>
<td>TCd13</td>
<td>I didn't like the tasks that require typing words.</td>
</tr>
<tr>
<td></td>
<td>文章などを入力するタスクが好きではなかったから</td>
</tr>
<tr>
<td>TCd16</td>
<td>I didn't like moving and manipulating objects on the screen.</td>
</tr>
<tr>
<td></td>
<td>myWordで画面上のものを動かしたり操作することが好きではなくかったから</td>
</tr>
<tr>
<td>TCd2</td>
<td>I didn't like having to click so many buttons.</td>
</tr>
<tr>
<td></td>
<td>myWordでたくさんのボタンをクリックしなければいけないことが好きではありません</td>
</tr>
<tr>
<td>TCd5</td>
<td>I thought the passing score of 90% was too high.</td>
</tr>
<tr>
<td></td>
<td>myWordの合格ラインが90%であることがあるすぎたと思ったから</td>
</tr>
<tr>
<td>TCd8</td>
<td>I didn't like that myWord had a time limit.</td>
</tr>
<tr>
<td></td>
<td>myWordに時間制限が設定されていることが好きではありません</td>
</tr>
<tr>
<td><strong>Value of the task items</strong></td>
<td></td>
</tr>
<tr>
<td>TV10</td>
<td>I thought I had no good reason to do myWord.</td>
</tr>
<tr>
<td></td>
<td>myWordをする十分な（もともと）理由がないと思ったから</td>
</tr>
<tr>
<td>TV12</td>
<td>I thought doing myWord didn't have much meaning for me.</td>
</tr>
<tr>
<td></td>
<td>myWordをすることは私にとってあまり意味がないと思ったから</td>
</tr>
<tr>
<td>TV4</td>
<td>I thought myWord was not important to me.</td>
</tr>
<tr>
<td></td>
<td>myWordは私にとって重要ではないと思ったから</td>
</tr>
<tr>
<td>TV6</td>
<td>I thought myWord was not valuable to me.</td>
</tr>
<tr>
<td></td>
<td>myWordを使うことは私にとって価値がないと思ったから</td>
</tr>
<tr>
<td><strong>General attitude toward PC learning item</strong></td>
<td></td>
</tr>
<tr>
<td>PCgen19</td>
<td>I don't like learning on computers.</td>
</tr>
<tr>
<td></td>
<td>パソコンで学習すること自体が好きではないから</td>
</tr>
</tbody>
</table>
Table 1

**Sample Makeup for the First Sample and Matched Sample in the Primary Study**

<table>
<thead>
<tr>
<th>Department</th>
<th>Sample one</th>
<th>Gender</th>
<th>Matched sample one and two</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>162</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commerce</td>
<td>178</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>164</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International</td>
<td>47</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>240</td>
<td>138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>science</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine arts</td>
<td>56</td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>120</td>
<td>141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>772</td>
<td>299</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>892</td>
<td>892</td>
<td>440</td>
<td>440</td>
</tr>
</tbody>
</table>
### Table 2

**Factor Loading For Data Point One And Two**

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample_1 Loading</th>
<th>Sample_2 Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability belief_1</td>
<td>.72</td>
<td>.68</td>
</tr>
<tr>
<td>Ability belief_2</td>
<td>.76</td>
<td>.78</td>
</tr>
<tr>
<td>Ability belief_3</td>
<td>.85</td>
<td>.74</td>
</tr>
<tr>
<td>Ability belief_4</td>
<td>.81</td>
<td>.81</td>
</tr>
<tr>
<td>Value of the task_1</td>
<td>.82</td>
<td>.82</td>
</tr>
<tr>
<td>Value of the task_2</td>
<td>.87</td>
<td>.86</td>
</tr>
<tr>
<td>Value of the task_3</td>
<td>.87</td>
<td>.87</td>
</tr>
<tr>
<td>Value of the task_4</td>
<td>.87</td>
<td>.81</td>
</tr>
<tr>
<td>Effort belief_1</td>
<td>.84</td>
<td>.82</td>
</tr>
<tr>
<td>Effort belief_2</td>
<td>.86</td>
<td>.78</td>
</tr>
<tr>
<td>Effort belief_3</td>
<td>.71</td>
<td>.70</td>
</tr>
<tr>
<td>Effort belief_4</td>
<td>.87</td>
<td>.83</td>
</tr>
</tbody>
</table>

**Note:** _1, _2, _3, _4 refer the item’s order within the subscale.
Table 3

*Fit Indices For All Three Latent Variables at Data Point One And Two*

<table>
<thead>
<tr>
<th>Sample</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>90 % CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 1</td>
<td>.96</td>
<td>.94</td>
<td>.06</td>
<td>.05 - .08</td>
</tr>
<tr>
<td>Sample 2</td>
<td>.97</td>
<td>.96</td>
<td>.05</td>
<td>.03 - .06</td>
</tr>
</tbody>
</table>
Table 4

*Correlation Matrix For Data Point One And Two*

<table>
<thead>
<tr>
<th>Value of the task</th>
<th>Ability belief</th>
<th>Effort belief</th>
<th>Ability belief</th>
<th>Effort belief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of the task-1</td>
<td>Ability belief -1</td>
<td>.72</td>
<td>.67</td>
<td>.58</td>
</tr>
<tr>
<td></td>
<td>Effort belief-1</td>
<td>.67</td>
<td>.58</td>
<td>.58</td>
</tr>
<tr>
<td>Value of the task -2</td>
<td>Ability belief-2</td>
<td>.85</td>
<td>.76</td>
<td>.58</td>
</tr>
</tbody>
</table>

*Note:* -1 and -2 refer to the spring and fall data collections respectively.
Table 5

*Two Latent Groups’ Membership Means and Standard Deviation*

<table>
<thead>
<tr>
<th>Time measured and latent construct</th>
<th>Means for the not Amotivated group</th>
<th>Standard Deviation</th>
<th>Means for the Amotivated group</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 1 value of the task</td>
<td>1.96</td>
<td>.12</td>
<td>4.29</td>
<td>.26</td>
</tr>
<tr>
<td>Sample 1 ability beliefs</td>
<td>2.14</td>
<td>.11</td>
<td>3.96</td>
<td>.20</td>
</tr>
<tr>
<td>Sample 1 effort beliefs</td>
<td>2.24</td>
<td>.09</td>
<td>3.84</td>
<td>.26</td>
</tr>
<tr>
<td>Sample 1 N-size</td>
<td>195</td>
<td></td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>Sample 2 value of the task</td>
<td>1.96</td>
<td>.12</td>
<td>4.51</td>
<td>.25</td>
</tr>
<tr>
<td>Sample 2 ability belief</td>
<td>2.08</td>
<td>.12</td>
<td>4.19</td>
<td>.24</td>
</tr>
<tr>
<td>Sample 2 effort beliefs</td>
<td>2.20</td>
<td>.09</td>
<td>3.67</td>
<td>.17</td>
</tr>
<tr>
<td>Sample 2 N-size</td>
<td>182</td>
<td></td>
<td>257</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1. Two Latent Class Profile Results For Spring Sample: 1) not Amotivated and 2) Amotivated Students
Highlights

- Identified and replicated (lagged five months) two groups of e-learners
- The “not amotivated” group profile was stable
- The amotivated group profile were less efficacious and valued the content less
- Qualitatively, students had practical reasons for low efficacy and value beliefs