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Students' self-determined and integrative orientations and teachers' motivational support in a Japanese as a foreign language context

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ABSTRACT

To support students' motivation to learn a foreign language, teachers should understand the reasons why their students wish to learn the language and incorporate this information in their teaching practice. The survey of 128 Canadian learners of Japanese focused on three questions: What are students' orientations for wanting to learn Japanese, and how are these orientations interrelated? Do orientations differently predict learning engagement and academic outcomes on the one hand, and language community engagement, on the other? What aspects of teachers' support best facilitate students' self-determination and intercultural integrativeness? The results showed that self-determined orientations were the best predictors of learning engagement and academic outcomes, but cultural knowledge development and intercultural interaction best predicted Japanese community engagement. Students who perceived their teacher as supporting competence and relatedness also reported greater self-determination. These results underscore the motivational significance of self-related and integrative orientations for learning a foreign language, even in settings where there is little opportunity for interaction with members of the target language community. These findings emphasize that foreign language teachers can foster students' motivation by supporting their sense of competence, relatedness and cultural understanding, although these supports may differ in their importance depending on the students' level of self-determination.

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1. Introduction

There is a consensus among many researchers that motivation is a major factor for success in language learning, and befitting its central role, there is a growing body of theoretical writing and empirical research that strives to better articulate and understand this complex process (Mercer, Ryan, & Williams, 2012; Ushioda & Dörnyei, 2012). In recent years, much of this research has emphasized the importance of the self and identity in language learning motivation (e.g., Dörnyei, 2005; Norton, 2000; for recent overviews, see Csizér & Magid, 2014; Mercer & Williams, 2012). Although these newer frameworks provide

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new insight into motivation, there has been a simultaneous tendency to eschew older models of motivation that highlight the importance of intercultural understanding and of developing students' knowledge of the specific target culture. We argue that this trend fails to recognize that these concerns are an important aspect of many students' motivation for language learning, even in contexts where there is little opportunity for interaction with the target language community, as is the case for learning Japanese in some regions of North America.

Accordingly, this research examines motivation in light of one theoretical framework which outlines the role of the self in motivational processes, self-determination theory (SDT; Deci & Ryan, 1985; for an extended description of SDT in the language learning context, see Noels, 2009; Sugita McEown, Noels, & Chaffee, 2014), and another that emphasizes the importance of positive attitudes and a desire to interact and integrate with the target language community (Gardner, 1985, 2010). We examine whether these frameworks can usefully predict different kinds of variables (e.g., learning and language community engagement, academic outcomes). We also consider how teachers can enhance their students' engagement. We maintain that it is important that teachers understand the reasons why their students wish to learn the language and incorporate this information in their teaching practice. With this information, teachers can better foster students' motivation by supporting students' developing sense of self as users of the target language and their developing cultural knowledge and skills.

2. Self-determination and learning engagement¹

Recent models of language learning motivation posit an important role for the self, and one such model is self-determination theory (SDT; Deci & Ryan, 2012). As framed by Noels (2001a), any group of language learners can be described as holding a diversity of orientations, or reasons, for engaging in language learning. These orientations are important for understanding motivation because they indicate the purpose for and manner by which learners learn a language. Some orientations may be more predictive than others of motivated engagement in the learning process, and ultimately a diversity of linguistic and non-linguistic outcomes. Within the SDT framework, orientations provide an index of the extent to which a student is learning a language because learning that language is personally important and integral to their sense of self.

SDT assumes that if people feel that an activity is consistent with their sense of self and is helpful in achieving personally important goals, they will voluntarily choose to engage in that activity when given the opportunity (Deci & Ryan, 2012). With regard to language learning, then, the more a person feels that learning and using a language is congruent with other aspects of their life and can help them to reach personally relevant aspirations, the more motivated they will be to learn and use the language. This orientation is termed *identified regulation*, and is reflected in statements such as "I am learning Japanese because I think that it is good for my personal development".

Other learners³ might learn a language not because they personally think it is important for them to do so, but because they feel they ought to do so. They might feel that they should learn the language because other people, such as their teachers, parents or peers, have stressed the value of that language. Engaging in language learning helps them to avoid feelings of shame for not doing well or allows them to experience pride for meeting and surpassing social standards. This ego-oriented form of regulation is termed *introjected regulation*, and is reflected in statements such as "I am learning Japanese because I would feel embarrassed or ashamed if I did not know the language".

Still other learners may not have any personal reason for learning a language other than obtaining the benefits and/or avoiding negative consequences associated with learning or not learning the language. Once these contingencies are lifted, it might be expected that engagement in language learning would decline. Because the regulation of motivation is perceived to be controlled by circumstances external to the person in a case like this, this orientation is termed *external regulation*, and is typified by statements such as "I am learning Japanese solely because I want to complete an academic requirement".

These motivational orientations vary in the extent to which the regulation of action is self-determined. SDT proposes another motivational orientation that emphasizes that humans also have "an inherent tendency to seek out novelty and challenges, to extend and exercise our capacities, to explore, and to learn" (Deci & Ryan, 2000, p. 70). The process of learning a language could be experienced as being a pleasurable process in and of itself; a person might not necessarily feel that the activity is tied to their sense of self, but simply enjoy engaging in the activity for its own sake. Such a person would be expected to endorse the statement "I am learning Japanese because I enjoy it". This experience of *intrinsic motivation*, then, is distinct from the other more or less self-determined forms of regulation that are subsumed under the term extrinsic motivation. Like more self-determined forms of extrinsic motivation, however, intrinsic motivation is associated with activities in which one voluntarily engages and feels competent, and thus it can be described as a highly self-determined orientation.

In contrast with both intrinsic and extrinsic motivation, some people feel that there is really no good reason to learn another language. Such an experience might arise when a person feels that their efforts are disconnected from the desired consequences, or that they lack the capability to carry out the activity, or they simply do not value the activity. A person who feels *amotivated* in this way might endorse the following statement: "I don't know, I cannot come to understand why I am studying the language." For these people, learning another language is an aversive experience, which they may actively resist (cf., Norton, 2000). In sum, SDT suggests that learners can display a variety of orientations (or amotivation) when learning a language, and these orientations can be described as relatively internally or externally regulated depending on how integral the activity is to a person's sense of self.

Research shows that more self-determined motivational orientations are associated directly or indirectly with better learning engagement and academic outcomes including: metacognitive awareness (Spratt, Humphreys, & Chan, 2002;

Vandergrift, 2005), intention to persist and motivational intensity (Noels, 2001a; Noels, Clément, & Pelletier, 1999; Ramage, 1990), perceptions of autonomy, competence and relatedness (Carreira, 2012; Hiromori, 2003), task engagement and task performance quality (Ma, 2009), engagement in writing, listening, and speaking activities (Spratt et al., 2002; Tanaka, 2009), engagement in the target language community (Comanaru & Noels, 2009), frequent use of the language and higher speaking and reading proficiency (Ehrman, 1996; Goldberg & Noels, 2006; Noels et al., 1999, 2001; Vandergrift, 2005), and greater willingness to communicate (Nishida, 2012). Furthermore, students who report more self-determined reasons for language learning tend to have less anxiety, more positive attitudes toward language learning, and increased feelings of self-efficacy (Ehrman, 1996; Noels, 2001b; Schmidt, Boraie, & Kassabgy, 1996).

3. Integrative orientation and language community engagement

SDT orientations, however, do not explicitly cover one important set of reasons for language learning, which is the extent to which a student seeks to engage with the culture and community associated with the target language. This orientation is better captured by the notion of the integrative orientation as outlined in Gardner's (1985, 2010) Socio-Educational Model. The *integrative orientation* refers to an "openness to other cultural groups in general and a willingness or ability to adopt features of the other language group" (Gardner, 2010, p. 85). Conceptually, the integrative orientation would seem to be related to, but distinct from, some of the motivational orientations conceptualized in SDT. Among learners of second and heritage languages, Noels and her colleagues (e.g., Noels, 2001a, 2001b, 2005; Noels, Clément, & Pelletier, 2001) have shown that there was an overlap between the integrative orientation and more self-determined orientations; however, the SDT orientations tended to better predict aspects of motivation related to learning engagement, whereas the integrative orientation tended to better predict motivational aspects related to cultural and community engagement (see also Kimura, Nakata, & Okumura, 2001; Pae, 2008). Noels' distinction between (formal) learning engagement (focused on the dynamics of language learning per se, often in the classroom context) and community engagement (focused on intercultural interaction with members of the target language community) corresponds broadly with Gardner's (1985) distinction between formal and informal contexts and linguistic and non-linguistic outcomes that are associated with language learning.

Although the importance of the integrative orientation has received worldwide attention over many decades, several criticisms have been put forward about its validity and/or utility across learning contexts. Among these, the lack of applicability of the integrative orientation concept to foreign language (FL) contexts has been highlighted. Au (1988), Oller (1981), and Oxford and Shearin (1994) have argued that FL learners are surrounded by speakers of their own native language and have little opportunity for interaction with speakers of the target language. In such circumstances, it would be difficult for learners to develop a clear sense of the specific target language community, and so the relevance of integrativeness and intergroup attitudes for these learners is questionable. This argument is forwarded primarily with regard to learning English; in many cases where English is learned as a global language, no clearly defined Anglophone community exists into which language learners can integrate themselves (Dörnyei, Csizér, & Németh, 2006). As Lamb (2004) stated, whether learners have a favorable attitude towards English-speaking cultures may not be a relevant question any longer, as English is no longer associated just with Anglophone countries. Likewise, Ushioda and Dörnyei stated:

"A basic question we have begun to ask is whether it is meaningful to talk about integrative motivation in the case of English as target language, given the status of English as a global language, an international lingua franca, and a basic educational skill in more and more educational curricula." (Ushioda & Dörnyei, 2012, p.400)

The question still remains, however, whether the integrative orientation is relevant in other FL contexts where there are few native speakers of the target language in the immediate vicinity to the FL learners although there is a distinct community elsewhere. In such cases, the integrative orientation might be an important factor for learning engagement inside and outside the classroom, because learners can clearly imagine and be attracted to the target culture and communities despite the fact that there are few native speakers locally. As an example, Japan has a unique popular culture (e.g., manga, samurai, anime, sadou) that potentially attracts non-Japanese students who want to learn the Japanese language, even if learners have little opportunity to interact with Japanese speakers. Abe (2009) found that many learners studying Japanese in the United States were interested in learning more about Japanese culture in their courses. Her participants expected to learn about mannerisms, daily living in Japan, and differences between American and Japanese cultural practices. The students also reported that the study of the Japanese language stimulated their interests in Japanese culture. Given this possibility, it is important to examine the relation between the integrative orientation and the orientations as theorized by SDT, and to determine whether these orientations differentially predict engagement in the learning process and with the target language community.

4. Teachers' support of learners' motivation

Studies drawing on orientations theorized in both SDT and the Socio-Educational Model have extensively examined how they relate to the intensity of students' engagement in language learning and language proficiency and achievement (see Sugita McEown et al., 2014; for review). However, it is only recently that researchers have examined whether and how these might inform teaching practice. In fact, some scholars claim that theorizing and research about language learning has generally overlooked the importance of the teacher in the students' learning process (e.g., Bernaus & Gardner, 2008; Dörnyei & Csizér, 1998).

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To redress this lacuna, Dörnyei and Csizér (1998) introduced ten motivational strategies for language teachers based on diverse theoretical frameworks and a questionnaire study of English teachers in Hungary (similar studies were conducted in Korea, Taiwan, and Japan (Cheng & Dörnyei, 2007; Guilloteaux, 2013; Sugita, 2007). Subsequently Dörnyei (2001) elaborated over 130 theoretically and empirically based motivational strategies that teachers might use. One benefit of an approach in which many strategies are articulated by synthesizing diverse motivational theories is that they provide a range of tips that can be effective in teaching practice across a range of socio-educational contexts. As Dörnyei and Csizér point out "... no motivational strategy has absolute and general value because such strategies are to be implemented in dynamically changing and very diverse learning contexts, in which the personality of the individual learners and the teacher, as well as the composition and structure of the learner group, will always interplay with the effectiveness of the strategy." (Dörnyei & Csizér, 1998, p. 224) The point that a range of factors can influence learner motivation suggests that the teacher who wishes to foster student motivation must attend to the learner, the situation, the group dynamics, and the stage in the learning process in choosing strategies.

In observational studies examining the effectiveness of such motivational strategies on student motivation, Guilloteaux and Dörnyei (2008), Sugita and Takeuchi (2010), Sugita McEown and Takeuchi (2014) found some significant positive correlations between teachers' motivational strategy use and the students' motivated learning behavior. Likewise, Tsang (2012) found that some teachers' strategies have a role in students' motivation (see also Matsumoto, 2007). However, correlations between specific strategies and students' motivation are generally few and inconsistent. Bernaus and Gardner (2008) found that teachers' self-perceptions of their motivational strategies were not directly related to students' attitudes and motivation. Their research suggests that students' perception of their teachers' strategy use might better predict students' motivation than teachers' self-reported strategies (see also Radel, Sarrazin, Legrain, & Wild, 2010).

Building on the observation that students' inferences about their teachers may be more directly relevant to students' motivation than the teachers' specific behaviors (or self-reported behaviors), we suggest that students may form their impressions of teachers in a more holistic manner rather than focusing on teachers' use of specific strategies. An alternative explanation of the social and psychological process by which teachers' practice and students' motivation relate can be derived from SDT (see Noels, 2013; for an overview). According to SDT, from the initial introduction of the objectives of the course, through the choice of materials and the content and manner of instruction, to the assessments, students are more likely to evidence a self-determined motivational orientation when their fundamental psychological needs for autonomy, competence and relatedness are perceived to be supported by significant others⁴ in their social worlds, including the language teacher.

Autonomy-support represents a situation in which teachers offer choices to students so that students can pursue options that are personally relevant to them. Self-determination is undermined when instructors act in a controlling manner towards students, insisting that students comply with their demands and priorities. In many different educational contexts, teachers' autonomy-support has been shown to predict positive outcomes, including a more self-determined motivational orientation (Noels, 2005; Noels et al., 1999, 2000, 2001; Vallerand, 1983), greater engagement in schoolwork (Assor, Kaplan, & Roth, 2002), higher academic achievement (DeCharms, 1984; Flink, Boggiano, & Barrett, 1990), greater perceived competence (Deci, Betley, Kahle, Abrams, & Porac, 1981; Noels et al., 2001; Reeve, 2002; Ryan & Grolnick, 1986; Zhou, Ma, & Deci, 2009), a higher sense of self-worth and self-esteem (Deci et al., 1981; Harter, 1982; Ryan & Grolnick, 1986), and better well-being in academic contexts (Chirkov & Ryan, 2001).

Competence is developed through constructive and informative feedback and encouragement after failure, along with clear goals and well-structured guidelines (Reeve, 2002; Ryan & Deci, 2000; Vansteenkiste, Sierens, Soenens, Lucykx, & Lens, 2009). Some studies have demonstrated that supporting competence increases intrinsic motivation (Blanck, Reis, & Jackson, 1984; Deci, Vallerand, Pelletier, & Ryan, 1991; Harackiewicz & Larson, 1986; Hiromori, 2003; Otoshi & Heffernan, 2011; Vallerand, 1983). Importantly, it has been found that intrinsic motivation only increases when informative feedback (i.e., competence support) is accompanied by support for autonomy (Deci & Ryan, 1994; Fisher, 1978; Ryan, 1982; Ryan & Deci, 2000).

Relatedness, or interpersonal involvement, refers to support that is given to foster a sense of belongingness and connectedness to others inside and outside the classroom, including the teacher, and a sense of security in the learning environment (Ryan & Deci, 2000). Students whose teachers relate well to them tend to exhibit greater engagement, achievement, and well-being (Furrer & Skinner, 2003; Kochanska, 2002; Main, Kaplan, & Cassidy, 1985), a higher sense of autonomy (Ryan, 1991; Ryan & Belmont, 1991; Ryan & Lynch, 1989), and more self-determined types of motivation (Hiromori, 2003).

Some support for these findings in the language learning context comes from Noels (2001a), who found that, the more controlling American learners perceived their Spanish teachers to be, the less they experienced a sense of autonomy in language learning. Additionally, the more they felt that their teacher provided informative feedback that facilitated their learning, the greater was their sense of competence. Feelings of autonomy and competence in turn were related to more self-determined motivational orientations. Several other correlational studies of students of French, English, and German have likewise demonstrated the positive link between strong perceptions of autonomy, competence, and relatedness and more internalized reasons for language learning (Noels, 2005; Noels et al., 1999, 2000, 2001). That said, although there is empirical evidence for the idea that teachers can support students' motivation by promoting their autonomy, competence and relatedness, one might wonder whether other aspects of teaching practice related to developing an integrative orientation might also be important.

5. The study

The present study addresses three questions: (1) What are the motivational orientations of students who want to learn Japanese, and how are these orientations interrelated? (2) Do the orientations differently predict learning engagement and academic outcomes and language community engagement? (3) Which aspects of teachers' support best facilitate students' self-determination and integrativeness?

5.1. Participants

A questionnaire survey was conducted with 128 students (55% female) registered in language courses at two universities in a Canadian city where the number of native Japanese speakers was very small (representing .3% of a city of just over 800,000; Statistics Canada 2007). The participants' ages ranged from 18 to 35 years (M = 20.43 years, SD = 2.73), and all were either Canadian citizens or permanent residents (91.4% and 8.6%, respectively). Consistent with the multicultural characteristics of Canadian society at large, they reported a diversity of cultural backgrounds: 20.3% of the participants indicated that their cultural background was Canadian, 19.2% European or European Canadian (e.g., French, German, Italian, Ukrainian, etc.), 35.9% Chinese (e.g., mainland Chinese, Taiwan, Hong Kong), 5.5% East and Southeast Asian (e.g., Korean, Vietnamese, Malaysian, Indonesian, etc.), among others. Their first languages were varied, including English (53.1%), Chinese (39.1%), and Korean (6.3%). No participants spoke Japanese as a mother tongue or had a Japanese heritage background. All participants began to learn Japanese between the ages of 13 and 34 years (M = 18.27 years, SD = 2.87), and the years spent learning Japanese ranged from a few weeks to 6 years (M = 1.88 years, SD = 1.49). Most of the participants were enrolled in beginner or intermediate level courses (78.1% and 21.1%, respectively). Given the small demographic representation of Japanese in the city and the absence of heritage language learners in the sample, these participants can be described as "Japanese as a foreign language" (JFL) learners.

5.2. Materials

The questionnaire used in the present study consisted of sections concerning (1) motivational orientations, (2) learning engagement and academic outcomes, (3) Japanese community engagement, and (4) perceptions of the Japanese teachers' support for students' autonomy, competence and relatedness. Most of the measures originated from instruments used in previous language learning studies (see each subscale section below for references); they were presented in English and tailored to reflect the JFL context. Participants responded to the items by indicating on a 7-point Likert-scale ranging from 1 (strongly disagree/does not correspond at all) to 7 (strongly agree/corresponds exactly) how much each item corresponded with their language learning experience. Each section is presented below with the Cronbach's alpha (α) index of internal consistency.

5.2.1. Motivational orientations

A set of 32 randomly ordered items adapted to the Japanese context from Noels et al. (1999) assessed the motivation orientations. They included items to assess: (1) intrinsic motivation (10 items; e.g., For the pleasure I experience when surpassing myself in my Japanese studies; $\alpha = .92$), (2) identified regulation (6 items; e.g., Because I think it is a good idea to know some Japanese; $\alpha = .77$), (3) introjected regulation (5 items; e.g., Because I would feel bad if I didn't know the language; $\alpha = .83$), (4) external regulation (7 items; e.g., In order to get a more prestigious job later on; $\alpha = .91$), and (5) amotivation (4 items; e.g., I don't know; I cannot come to understand why I am studying Japanese; $\alpha = .72$). Interspersed among these items were 4 items to assess the integrative orientation (Gardner, 1985; e.g., Because it will enable me to better understand Japanese speakers' life and culture; $\alpha = .77$).

5.2.2. Learning engagement and academic outcomes

To assess behaviors indicative of learning engagement, 6 nine items were adapted from Gardner, Tremblay, and Masgoret's (1997) motivational intensity instrument (e.g., I really work hard to learn Japanese; $\alpha = .71$), and five items assessed intention to continue studying Japanese (e.g., I intend to stop learning Japanese [reversed]; $\alpha = .93$). In order to assess JFL achievement, four items were used for self-evaluation of Japanese competence (e.g., I write/read/understand/speak Japanese), from 1 (not at all) to 7 (excellently). The final course grades (%) were also obtained for those students who provided permission for the release of this information (n = 65). The correlation between the self-evaluation and the course grades was moderately positive (r = .39, p < .001).

5.2.3. Japanese community engagement

For engagement in the Japanese community, the frequency and quality of contact with native Japanese speakers, and Japanese use outside of the classroom were assessed with three single-item questions (i.e., During the past year, how much contact did you have with Japanese-speaking people outside of school? [Frequency of contact]; If you've had some contact with Japanese speakers during the past year, how pleasant was that contact? [Quality of contact]; During the past year, how often did you speak Japanese with Japanese speakers outside of school? [Language use]). The scalar response could range from 1 (none/

very unpleasant/never) to 7 (very frequent/very pleasant/always). Previous research by Comanaru and Noels (2009) has demonstrated the concurrent validity of these single-item indices.

5.2.4. Perceptions of Japanese teachers' motivational support

Items adapted from Noels et al. (1999) assessed students' perceptions of their Japanese teacher's support, including five items to assess the teacher as autonomy supportive versus controlling (e.g., My teacher makes me feel I have no choice about learning Japanese [reversed]; $\alpha = .72$), five items assessed informative feedback (e.g., My teacher provides me with constructive feedback on my Japanese; $\alpha = .91$), and 13 items assessed teacher's relatedness (e.g., My teacher sincerely cares about my attempts to learn Japanese; $\alpha = .97$). A high mean score indicates strong perceptions of autonomy support, informative feedback and relatedness support.

5.2.5. Open-ended questions

The questionnaire also included two open-ended questions. The responses were subjected to a content analysis directed by the theoretical frameworks guiding our research (see Hsieh & Shannon, 2005). The first question asked *why are you learning Japanese?* A total of 91% of the responses were considered valid responses to this question. The valid responses were categorized within the five SDT orientations (intrinsic motivation, identified, introjected, and external regulation, and amotivation), and in a second step, all responses were coded again with respect to the integrative orientation (present/absent).

The second question asked *what do your teachers do to encourage your interest in learning Japanese?* A total of 80% of the descriptions were valid responses. The valid responses were coded within SDT's three fundamental needs categories: autonomy support, support for competence, and support for relatedness. Since there were some answers that could not be categorized within these three categories, we developed a new category that seemed to capture a recurring theme in these remaining responses: support for cultural interests (i.e., providing information on the Japanese culture and fostering cultural interests).

For both content analyses, the responses were coded by the first author and two other coders, and 20% of the valid responses were used for the calculation of inter-rater reliability. The percentage of agreement for the first question was 84% and for the second question was 92%. Discrepancies in categorization were resolved through discussion between all coders. It should be noted that participants could describe multiple responses for each question and thus the number of responses is greater than the total number of participants.

5.3. Data analysis

The present objectives were to investigate: 1) the level of endorsement of motivational orientations and the relations between the orientations, 2) the prediction of the engagement and JFL achievement variables from the orientations, and 3) which aspects of teachers' support best facilitate students' self-determination and integrativeness. The endorsement of the orientations was assessed through ANOVA and through content analysis of the first open-ended question. The link between these two sets of variables (i.e., the five SDT orientations and the integrative orientation) was assessed through multiple regression analyses. The second question was evaluated through regression analyses of the relations between orientations and: (a) learning engagement and JFL achievement, and (b) Japanese community engagement variables. The third question was answered through ANOVA and regression analyses. In addition, content analysis examined the students' descriptions of their teachers' support (i.e., the second open-ended question).

5.4. Results

5.4.1. Endorsement of motivational orientations: analysis of variance (ANOVA)

Variations in the mean levels of the six orientations were examined with a one-way repeated measures ANOVA. Because Mauchly's test of sphericity was violated (Mauchley's W = .18, Chi-squared (14) = 209.14, p < .01), the Greenhouse–Geisser-corrected results are reported. These results showed a significant effect, F(3.21, 401.08) = 238.85, p < .01, and a very large effect size ($\eta_p^2 = .66$; see Bakeman, 2005.7). Post hoc Tukey tests showed that there were significant differences between almost all subtypes at the p < .01 level. As shown in Table 1, identified regulation was the most strongly endorsed orientation,

Table 1Means and standard deviations of orientations.

Orientations	Means	SD
Amotivation	1.57	.85
External regulation	4.04	1.76
Introjected regulation	1.90	1.03
Identified regulation	5.18	1.07
Intrinsic motivation	4.69	1.27
Integrative orientation	4.59	1.28

Note. N = 128.

followed by intrinsic motivation and the integrative orientation, which were equivalent to each other, and then external regulation. Introjected regulation and amotivation were equivalent and the least endorsed orientations.

5.4.2. Endorsement of motivational orientations: content analysis

A total of 217 descriptions of students' reasons for learning Japanese were coded. As shown in Table 2, the sub-type that was most frequently mentioned was intrinsic motivation, followed by identified regulation and then external regulation. Very few people indicated that they felt amotivated with regard to learning Japanese. These findings are consistent with the results of the ANOVA, such that intrinsic motivation and identified regulation were the most commonly reported orientations, mentioned in 75.7% of the responses. Taking the results of the ANOVA and content analysis together, as a group these students can be characterized as relatively self-determined in their orientation to learning Japanese, although there is inter-individual variation and individuals can endorse multiple orientations.

5.4.3. Relations between motivational orientations

We explored the relations among the integrative orientation and SDT orientations using standard multiple regression analysis with the integrative orientation as the criterion variable and the SDT orientations as the predictor variables. The results showed that combined SDT subtypes predicted a significant portion of the variation in the integrative orientation scores ($R^2 = .65$, F(5, 122) = 48.30, p < .001), such that intrinsic motivation predicted the integrative orientation most strongly ($\beta = .68$, p < .001), followed by external regulation ($\beta = .15$, p = .025). Amotivation negatively predicted the integrative orientation ($\beta = .17$, p = .004). Identified and introjected regulation, however, did not significantly predict the integrative orientation scores.

This analysis was followed up by content analysis of the open-ended responses to the question of why participants wanted to learn Japanese. This analysis indicated that many responses reflected aspects of the integrative orientation (Gardner, 2010), including interests in the Japanese culture and a feeling of wanting to get to know the people who speak Japanese. For example:

Example 1. The Japanese language and culture is something I've always wanted to learn ever since I was a kid. Living in Hong Kong (in the part where a lot of Japanese lived) has exposed me to a little bit of Japanese culture, language, food and I found it very interesting and appealing.

Example 2. I've always had the desire to learn a second language and the Japanese culture interests me the most. I love researching different parts of Japanese living, history, present. I find it thrilling to be able to use and understand the language.

These reasons reflecting an interest in knowing more about the culture and the Japanese people often included words such as "like/love", "interested in", and "enjoy learning" which correspond to intrinsic motivation, or "value", "it is important for me to …" which corresponds to identified regulation. We coded the responses for the presence or absence of the cultural integration theme and looked at the degree of overlap between the responses coded in terms of integrative orientation and intrinsic/extrinsic orientations. The integrative orientation would seem to best correspond with more self-determined reasons for language learning. More than 40% of the responses that were categorized as intrinsic motivation (32%) or identified (13%) regulation mentioned intercultural aspects, whereas none of the introjected and only 1% of the external regulation responses mentioned intercultural aspects. Thus, consistent with the regression results, the integrative orientation was most related to self-determined orientations.

5.4.4. Relations among orientations, learning engagement and academic outcomes and language community engagement

To answer the question regarding the predictive value of the intrinsic/extrinsic and integrative orientations, hierarchical multiple regression analyses were used to examine these orientations' relations with engagement variables. The predictor

Table 2Percentage of total responses for orientations and examples obtained from content analysis.

Orientations	Number of descriptions (%)	Examples						
Amotivation 4 (1.83)		Sigh, 6 credits of LOE in order to complete a BA. I really don't understand what is with the Faculty of Arts, Silly requirements i.e., LOE make linguistically challenged people like me and the rest of my friends, pretty upset to find out that the university values linguistic capability over academic achievement. Afterall, the ability to pick a language up is innate and not something that can be taught. Anyway, 日本語は好きじゃありませんですよ (I don't like lapanese).						
External regulation	35 (16.06)	I am learning Japanese because I would like to get a job with a Japanese car company as an accountant. There is a lot of money in Japan and I want it.						
Introjected regulation	14 (6.42)	To culture myself, prove to myself and others that it is something I can do, and provide me with status and a sense of intelligence.						
Identified regulation	60 (27.52)	I am learning Japanese because I want to broaden my cultural perspective. The sole prerogative is to speak various languages, hence Japanese is one of them.						
Intrinsic motivation	105 (48.17)	I found it interesting and fun. I just enjoy it. I have always been interested in anything Japanese. So learning the language seemed the next natural step.						

Note. Participants could provide multiple responses across categories.

variables included the five SDT orientation subtypes, which were entered on the first step, and the integrative orientation, which was entered on the second step.⁷ Separate analyses were computed for each of the criterion variables reflecting learning engagement and academic outcomes (i.e., motivational intensity, intention to continue learning Japanese, self-evaluations, and grades) and the Japanese community engagement (i.e., frequency and quality of contact with Japanese speakers and Japanese language use). Table 3 shows the result of regression analyses.

Regarding academic outcomes, the results showed that there are almost no differences between step 1 (SDT orientation subtypes) and step 2 (SDT orientation subtypes + integrative orientation) in terms of adjusted R^2 . This finding indicates that the SDT orientations could account for 16–44% of the variance in motivational intensity, intention to continue learning Japanese, and self-evaluation (indicative of a medium effect size; Cohen, 1988). Adding the integrative orientation to the equation did not significantly improve the prediction of these criterion variables. The beta coefficients from step 1 indicate that intrinsic motivation most consistently predicted motivation intensity, intention to continue learning Japanese, and self-evaluation. Identified regulation also predicted intention to continue learning Japanese. More autonomous orientations were thus stronger predictors for learning engagement and academic outcomes. The orientations did not directly predict course grades; however, a correlational analysis showed that course grades were correlated with motivational intensity (r = .27, p = .03) and intention to continue learning Japanese (r = .30, p = .02). This finding that the strongest predictor of achievement is motivation replicates much previous research (cf., Masgoret & Gardner, 2003), and it is consistent premise that the relation between orientations and achievement is mediated by learning engagement variables that reflect intensity of effort, attention, and persistence that students exert.

Regarding Japanese community engagement, the beta coefficients of step 1 showed that SDT orientation subtypes (particularly intrinsic motivation) predicted the three community engagement variables. However, on step 2, the SDT orientation subtypes and the integrative orientation explained a greater percentage of the variance in the criterion variables than at step 1 (SDT orientation subtypes alone) in terms of adjusted R^2 . Inspection of the beta coefficients at step 2 showed that intrinsic motivation no longer predicted the criterion variables, but instead the integrative orientation did, accounting for between 29% and 36% of the variance shared between the predictor and criterion variables. Frequency of contact was not predicted by any of the orientations, perhaps due to the few opportunities available to students.

5.4.5. Perceptions of teachers' support

The relations between students' motivational orientations and their perceptions of their teacher's autonomy, competence, and relatedness support were examined through correlational and standard regression analyses. To index internalized motivation, we computed a Relative Autonomy Index (RAI), such that each person's mean score for each motivational orientation was weighted in a manner to reflect the self-determination continuum (i.e., $RAI = (-2 \times Mean_{external\ regulation}) + (-1 \times Mean_{introjected\ regulation}) + (+1 \times Mean_{identified\ regulation}) + (+2 \times Mean_{intrinsic\ motivation})$; see Ryan & Connell, 1989). The RAI has been widely used to create a concise index of how internalized and self-determined participants' motivational orientation is (e.g., Chirkov, Ryan, Kim, & Kaplan, 2003; Noels, 2005; Rudy, Sheldon, Awong, & Tan, 2007).

To explore differences between self-determined and less self-determined students, we selected the top 30 and bottom 30 students based on their RAI scores. Three one-way ANOVAs compared these two groups on their endorsement of autonomy support, competence support, and relatedness support (see Fig. 1). The groups equally perceived their teachers as supporting autonomy, regardless of their level of self-determined motivation (autonomy: F(1, 58) = 2.53, p = .12, $\eta^2 = .04$). The two groups of students differed in their perceptions of relatedness- and competence-support, such that more self-determined students felt that their teachers provided more support for developing their feelings of relatedness and competence than did the less self-determined students (relatedness support: F(1, 58) = 10.24, p < .001, $\eta_p^2 = .15$ competence support : F(1, 58) = 14.72, p < .001, $\eta_p^2 = .20$). These effect sizes, which indicate that the students' level of self-determination accounts for 15% and 20% of the variance in relatedness and competence support, respectively, are moderately large (Brown, 2008).

To continue to explore students' perceptions of their teachers' motivational support, we analyzed the open-ended question 'what do your teachers do to encourage your interest in learning Japanese?' A total of 99 entries were identified as valid responses, although the number of responses differed between the two groups. Self-determined students reported 55 responses (63.21%) regarding teachers' support, and less self-determined students reported 32 responses (36.77%). We coded the valid responses according to the categories within three SDT psychological needs (autonomy support, relatedness support, competence support). The descriptions categorized in these three SDT needs accounted for 75.85% out of 99 responses. There were some statements that did not fit in any of the three categories. We thus developed one more category, 'cultural support', which represented support for fostering cultural interest. The responses for this category accounted for 24.13% of the valid responses. Typical descriptions found in each category are presented in Table 4.

To see if there were any differences between more and less self-determined students in the kinds of supportive behaviors they perceived from their instructors, the same top 30 and bottom 30 students based on the RAI were compared (see Fig. 2). Because of the difference across the groups in the number of descriptions provided, we compared the groups on the percentages of their valid responses that fell within each category. For both groups, competence and relatedness support seems to be more salient than autonomy support, and cultural support was midway. Although there appeared to be few differences between the groups in the perception of teachers' autonomy support, less self-determined learners reported a higher percentage of competence and relatedness support than did more self-determined learners, but self-determined learners reported a higher percentage of cultural support than less self-determined learners.

Table 3Results of hierarchical multiple regression analyses.

	Equations		Coefficients											
		Adjusted R ² step 2	R ² change	Intrinsic motivation		Identified regulation		Introjected regulation		External regulation		Amotivation		Integrative orientation
				β step 1	β step 2	β step 1	β step 2	β step 1	β step 2	β step 1	β step 2	β step 1	β step 2	β step 2
Learning engagement and acc	ademic outcon	nes												
Motivational intensity	.19***	.19***	.00	.36**	.29	01	01	14	16	.02	.01	24**	23*	.11
Intention to continue learning Japanese	.44***	.44***	.00	.27**	.30*	.40***	.40***	09	09	.06	.07	14*	14*	04
Self-evaluation	.16***	.17***	.01	.25*	.15	.11	.10	11	13	.06	.04	20*	18*	.16
Final course grade	.03	.02	.01	.22	.13	10	11	00	02	.07	.05	16	14	.13
Language community engage	ment													
Quality of contact with Japanese speakers	.06*	.08*	.03*	.30*	.11	00	01	.02	02	05	10	.01	.06	.29*
Japanese use with native speaker	.13***	.16***	.04**	.35**	.11	11	11	.15	.12	.07	02	12	06	.36*
Frequency of contact with Japanese speakers	.11**	.12**	.02	.32*	.16	15	15	.18*	.15	.08	.05	10	06	.24

Note. Step 1 = SDT orientations were the predictor variables. Step 2 = SDT orientations and integrative orientation were the predictor variables. *p < .05. **p < .01. ***p < .001.

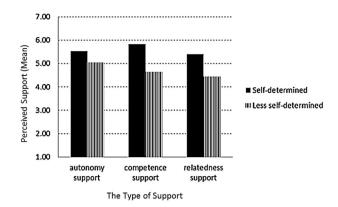


Fig. 1. Mean level of perceived support from teachers as a function of students' self-determination level and type of support.

5.5. Discussion

In this section, we discuss the results concerning: (1) variations in the endorsement of motivational orientations and their interrelations, (2) the prediction of the engagement and outcome variables, and (3) perceptions of teachers' support in terms of their support of autonomy, competence, relatedness and intercultural contact as a function of students' self-determination.

5.5.1. Motivational orientations of IFL students

Through analyses of quantitative and qualitative data, we found that the most endorsed orientations for learning JFL were intrinsic motivation and identified regulation and the least endorsed was amotivation. Similar patterns were reported in the studies using SDT framework across diverse learning contexts (e.g., Comanaru & Noels, 2009; Noels, Pelletier & Vallerand, 2000). Japanese is not a widely spoken language in this part of Canada and none of the students was a heritage learner. Moreover Japanese is a challenging language for English speakers to learn compared with more commonly taught languages

Table 4Students' descriptions of helpful teaching practice as a function of type of support.

Teachers' teaching practice	Examples
Competence support	(Teachers) offer a chance to speak in Japanese.
	Gives feedback so that we know what we've done wrong.
Relatedness support	I like her because she acts modestly and treats students with respect even though they talk during class and disrespect.
	He makes Japanese fun, encourages hard work and is understanding of life for students in general.
Autonomy support	He asks for opinion on exams, class stuff.
	What does my teacher do? What does he? Hum He lets the class do activities which are fun and let us walk around.
	Instead of just telling us the answers or talking to the class constantly, he gets us to think about what we have to say
	and then talk to our fellow classmates. Sensei (teacher) gets us to think instead of just listen.
Cultural support	When my teacher teaches a lesson in the textbook, he relates it to what he has seen or experienced in Japan. He
	explains the cultural differences between Japan and Canada so it feels as though I'm learning about Japanese culture as
	well as the language.

Note. Participants could provide multiple responses across categories.

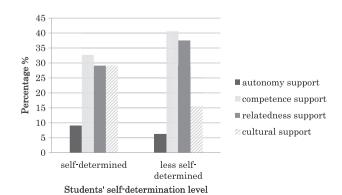


Fig. 2. Percentage of responses to open-ended question regarding teachers' support as a function of students' self-determination level and type of support.

in Canadian universities that are typologically more similar to English (e.g., French, Spanish, German). Given that there are few external exigencies requiring students to learn this complex language, it is perhaps not surprising that these Canadian students who voluntarily chose to study Japanese evidenced self-determination and little amotivation.

However, it is also true that we did not fully capture the full range of these students' motivational orientations by using only the SDT framework, since the integrative orientation was another strongly endorsed orientation. Moreover, although regression analyses and content analyses indicated a good deal of overlap between the integrative orientation and more self-determined orientations, the analyses regarding the predictive power of the two sets of variables suggest that these are distinct constructs. Gardner and Lambert (1972) argued that one way in which language learning is different from other subjects (e.g., math, science) is that intergroup relations between ethnolinguistic communities outside the classroom and attitudes towards the target language group can influence students' motivation. Thus, learners could potentially interact with and possibly identify with a target language community. Although other motivational theories such as SDT provide a good explanation of language learning motivation in the classroom context, it should be noted that this theory was not developed to explain language learning motivation specifically, but rather motivation more generally. It does not specifically reference possible intercultural issues that are unique to language learning, and so additional constructs to address this aspect are necessary.

5.5.2. Motivational orientations and learning and language community engagement

The results of the regression analyses showed that self-determined orientations better predicted learning engagement, and the integrative orientation better predicted language community engagement, which suggests that the self-determined orientations and the integrative orientation might reflect different motivational systems (Noels, 2005). Similar results were found in Noels' (2001a) study of Spanish language learners, where intrinsic motivation best predicted engagement in language learning, but the integrative orientation best predicted language community engagement (see also Noels, 2005). This pattern of findings suggests that an understanding of language learning motivation and its prediction are enhanced when SDT orientations are assessed along with the intercultural aspects, as represented by the integrative orientation.

As noted above, previous researchers have questioned the importance of the integrative orientation in contexts where the language is not widely spoken (e.g., Au, 1988; Dörnyei, 1990; Oller, 1981; Samimy & Tabuse, 1992). This critique has come primarily from researchers studying learners of English, often in contexts where the language is required by the students' program of study. Given that English is often a useful language in non-English localities for educational and occupational goals that are unrelated or only indirectly related to intercultural interaction with native English speakers, it is perhaps not surprising that an integrative orientation did not figure prominently in the responses of students in these contexts. However, in the present study and in other studies focusing on learners of Japanese in Australia (Matsumoto & Obana, 2001), and Japanese in the United States (Abe, 2009), students who showed greater intention to continue learning Japanese were interested in socio-cultural aspects of language learning and interacting with native speakers of Japanese. Thus, even in contexts where the possibility of intercultural interaction is limited and the language's immediate and long-term utility is less evident, such as Japanese in Canada, interest in the culture and in meeting people from that target society might well be an important motivational orientation.

5.5.3. The relations between students' orientations and perceived support from teachers

The present study adds to the growing body of research that considers whether and how teachers can influence students' motivation (Noels, 2001a, 2013). The more teachers were perceived to support the students' developing competence and, to a lesser extent, the more they were perceived to create a sense of relatedness among the class members, the more self-determined students were likely to be. It is noteworthy that somewhat different findings regarding the most important teacher-support variables were evident depending on whether an open- or closed-ended question was posed (and relatedly, whether qualitative or quantitative data were recorded). When asked to describe the things that their teachers did to support students' motivation, autonomy support was mentioned infrequently. With only these data, one might conclude that autonomy support was not important or that teachers were infrequently perceived as supporting students' autonomy. However, when asked directly, students' perceptions of their teachers' autonomy support were as strong as their perceptions of competence and relatedness support. It is perhaps not so surprising that aspects related to competence and relatedness are particularly salient, given that these two dimensions have long been argued to be the most salient dimensions in person perception and social cognition (Fiske, Cuddy, & Glick, 2007). When asked to spontaneously describe their teachers' qualities, these two dimensions may first come to mind as the most relevant criteria by which to assess their teachers.

That said, in neither case was autonomy support related to students' self-determination level. This finding that perceptions of the teacher as autonomy-supportive were not linked to students' self-determination is puzzling, particularly given SDT's claim that autonomy is critical to sustaining self-determined motivation. It is possible that this failure to find any relation between students' perceptions of autonomy support from their teachers and students' self-determination is related to the specifics of age group and/or the language learning context (cf., Sugita McEown et al., 2014). As adult learners, university students (at least in North America) perhaps infrequently encounter situations where their autonomy is compromised: university students can generally choose which courses (or sections of courses) to take, and drop out of courses if they do not resonate with their teacher's style. Particularly for these students who have voluntarily chosen to learn a language that is linguistically dissimilar to their own, they might already experience high levels of autonomy, and so there is not sufficient variability to predict learning and community engagement. Moreover, the teacher might not be the only, or at least not the

most important person, to support these adult students' motivation; people from outside the classroom might be more important. In sum, then, it may be that autonomy becomes a salient issue only when teachers are particularly controlling and/ or circumstances do not allow students to make autonomous decisions about their learning situation (see Chaffee, Noels, & Sugita McEown, 2014).

Another explanation is offered by Hiromori (2003), who examined high school learners of English in Japan, and likewise found that only competence and relatedness support predicted self-determined forms of motivation. He suggested that an autonomous classroom climate might affect motivation indirectly through learners' perceptions of being competent and interconnected with others. He concluded that offering these two kinds of supports to students could be a good practice for enhancing the FL learner's self-determined form of motivation.

The open-ended questions further revealed that a salient kind of support from teachers was cultural support. Teachers not only provided information about the target culture, but also provided insight into cultural differences and their personal experiences living in that society. This finding supports Abe's (2009) suggestion that incorporating cultural materials into the class creates positive change in students' attitudes toward Japanese culture and Janguage. This kind of support might enhance self-determination by making the language and culture more relevant and personally meaningful to the student, A comparison between more and less self-determined students showed that more self-determined students reported almost equivalent proportions of responses across three categories of teacher motivational support; competence, relatedness and cultural support equally fostered their motivation. In contrast, less self-determined students were more likely to report that their teachers affected their motivation through competence support, followed by relatedness, and relatively little cultural support. It is possible that the former group values cultural support as much as competence and relatedness support because they intend to travel to and interact with the Japanese community. The latter group may be less interested in integrating with the Japanese community (at least at this point in their development), and perhaps because of their lower level of competence they may be more focused on developing their linguistic skills and feeling more comfortable in the classroom. Some types of support, then, might be more important than others for some groups of learners, and ideally, a language instructor could tailor the language course to the students' diverse needs. To do this effectively, instructors must better understand the reasons why students enroll in a language course, and as appropriate, focus on developing the students' competence, relatedness, autonomy, and/or cultural knowledge.

6. Conclusion

A few limitations to the present research should be noted. First, as mentioned above, we did not find differences in perceptions of teachers' autonomy-support between self-determined and less self-determined students. Our measurements for teachers' autonomy-support represent only the extent to which teachers provide choices and options. Assor et al. (2002) indicated that ensuring the relevance of the options to the learner has more impact on the students' motivation than choice. Choice of itself is not necessarily beneficial for motivation and well-being; trivial choices that are irrelevant to the person can be overwhelming and demotivating (Reeve, Nix, & Hamm, 2003). Providing learners with options for what and how to learn are one way of creating an opportunity for them pursue their interests in their own way, but only if the options are designed with this objective in mind. Autonomy is an issue that has been widely investigated in language learning contexts (see Murray, Gao, & Lamb, 2011; for a recent overview), although its definition varies across researchers (Benson, 2006; Little, 1994). Thus, the conceptual and operational definitions of autonomy may need to be elaborated, and additional aspects of autonomy investigated in future research.

Second, our study was based on self-reports from the students. Although self-reflections on motivation are an important facet of motivated behavior, it would be useful to supplement this information with observations of behaviors. Because of the absence of data from teachers, including self-reports and observations of their behavior, we cannot confirm that whether perceptions correspond with the teachers' intended or actual behavior, and hence cannot fully determine the effectiveness of their teaching approach. To better understand the process by which the teachers' support and students' motivation are related, employing classroom research approaches that include verbal reports and behavioral observations of both teachers and students are necessary.

Despite these limitations, the present research shows that the notion of (inter)cultural integrativeness is an important construct for understanding the motivation of students of JFL, and possibly FL students in other, non-English contexts, above and beyond the self-related dynamics outlined by SDT. Interest in developing cultural knowledge and intercultural relations is a particularly important predictor of engagement in the target language community, even if that community is very small and opportunities for interaction are scarce. This finding would seem to underscore that the validity of the critique relating to Gardner's (1985, 2010) construct of an integrative orientation might be limited to the English FL context, where English is important for achieving local educational and occupational goals (rather than interaction with the target language community per se) and/or serves as a lingua franca for a globalized, multinational "community".

This research also suggests that it might be useful to analyze teachers' approach to motivating students in terms of autonomy, competence and relatedness support. Such a framework is able to differentiate students who are more or less self-determined and, indirectly, motivated to engage in language learning. Similar results were presented by Hiromori (2003), who focused on learners of English in Japan, a very different language learning context. These findings suggest that the SDT framework could inform both English and other FL instructors about how their practice can facilitate the internalization of the language into the self-concept. That said, at least in contexts where a target language group is clearly identifiable, this

framework for understanding teachers' motivational support could be supplemented by inclusion of cultural information, which possibly supports students' integrative orientation.

As researchers explore new contexts of language acquisition, it is appropriate that new models are forwarded to account for different motivational dynamics across these various contexts (Noels & Giles, 2009). At the same time it is important that we be careful not to "throw out the baby with the bathwater" (MacIntyre, MacKinnon, & Clement, 2009a, 2009b), and dismiss constructs that might be important for understanding motivation and how we might foster it among learners of FL. Instead we would agree with Lantolf (1996) that there is value in "letting all the flowers bloom". The research presented here underscores the value of newer approaches that emphasize the critical role of the self in motivational processes, as well as the value of older formulations that highlight the importance of cultural learning and intercultural relations.

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Endnotes

- 1. An anonymous reviewer pointed out that, in recent years, engagement has received a great deal of research attention from educational psychologists (for an overview, see Christenson, Reschly, & Wylie, 2012). Many models have been proposed; we employ the distinction between learning engagement and community engagement discussed by Noels (2001a, 2001b) because it is theoretically and practically important to language learning in ways that might not be true for other academic topics. Future research is needed to more fully explore the connections between learning and community engagement and other models of engagement.
- 2. For ease of exposition, we describe each orientation as if they pertained to individual differences between persons. It is important, however, to keep in mind that persons might espouse multiple orientations and that the orientations can vary depending on circumstances (i.e., the orientations are situated and contextually variable).
- 3. In language learning classes, "significant others" could include the teacher and also classmates, family members, members of the target language community, and others (likely depending on factors such as the students' age, the societal context of acquisition, and so on; Noels, 2009).
- 4. Because of suggestions that there may be differences in motivation across students from diverse cultural backgrounds, a series of *t*-tests compared students with and without an Asian language background across the study variables. Because few statistically significant differences were found, the Asian and non-Asian groups were combined in the reported analyses.
- 5. The items of Gardner's (2010) motivational intensity scale reference the effort expended in language learning in terms of the "the amount of work done, persistence, and consistency in focus" (p. 121). This construct and its measurement are similar to conceptual and operational definitions of behavioral engagement, which refers to "how involved the student is in the learning activity in terms of attention, effort and persistence" (Reeve, 2013, p. 579; see also Skinner, Kindermann, Connell, & Wellborn, 2009). Thus there is some consistency in the operational definitions of motivational intensity and behavioral engagement as outlined in various models in educational psychology.
- 6. The estimate of effect size called partial eta-squared (η_p^2) indicates the proportion of the variance shared between the factor and the dependent variable. Bakeman (2005) provides guidelines for interpreting η_p^2 in repeated measure ANOVA designs, such that .02 is a small effect, .13 is a medium effect, and .26 is a large effect.
- 7. The results of hierarchical multiple regression analyses, in which the integrative orientation was entered on the first step, and the SDT orientations were entered on the second step, yielded much the same results as those presented in this report. Details of these analyses are available from the first author.
- 8. Invalid answers were counted before analyzing the open-ended data. Thus this category (invalid answers) is not included in the analyses comparing students with different RAI scores (i.e., self-determined and less self-determined).