

Structure also supports autonomy: Measuring and defining autonomy-supportive teaching in Japanese elementary foreign language classes¹

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Abstract: Recent discussions of autonomy have included the perspective that, as a basic human need across cultural environments, it includes not only choice but also personal endorsement of action. The present study focused on the cultural experience of autonomy-support in Japanese elementary school foreign language classes. Three studies were conducted to investigate how students understand autonomy-supportive teaching. In Study 1, exploratory focus groups defined cultural perspectives on autonomy-support and structure. Exploratory and confirmatory factor analysis indicated that clarity, pacing, and teachers' positive affect correspond to students' perception of supportive teaching. Study 2 investigated teacher support in relation to in-class engagement using longitudinal structural equation modeling. The results indicated a strong relationship between perceptions of support and classroom behavioral engagement, with stable effects over time. Study 3 longitudinally investigated teacher support in relation to students' perceptions of personal autonomy, relatedness, and competence need satisfaction. Findings show a strong positive relationship between teacher support and need satisfaction with high test-retest reliability. Discussion focuses on how autonomy need satisfaction is experienced in different cultures with differing social norms.

Key words: self-determination theory, autonomy-support, engagement, situated culture, education.

According to self-determination theory (SDT), internally directed motivation stems from the satisfaction of basic human needs, supported through the harmonious interaction of the individual and the environment (Ryan & Deci, 2002). While all motivational theories to some extent endorse the idea that the quantity of motivation matters, SDT posits that both

quantity and quality of motivation define outcomes (Vansteenkiste, Lens, & Deci, 2006). SDT research has shown teachers' support for students' autonomy, competence, and relatedness as a robust predictor of motivation, engagement, and achievement (Reeve, 2012).

At the same time, criticism regarding claims of the universality of SDT has been raised, most

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specifically the ability of autonomy to account for motivation in collectivist and socially interdependent societies (Markus & Kitayama, 1991). According to the cultural relativist (CR) paradigm, claims regarding autonomy and choice originating in Western independent societies may not be culturally applicable to Eastern collectivist societies (Iyengar & Lepper, 1999). These arguments question whether autonomy, choice, and self-endorsement (and thereby the benefits outlined by SDT) are appropriate in Eastern contexts. From CR arguments, motivational constructs from Western psychology may present differently in Eastern contexts (Markus & Kitayama, 1991).

Following this logic, however, the basic tenet of a theory may also still be sound while the implementation and surface phenomena differ. Perceptions of subjective self-referential experiences may diverge across cultures (Roth, Assor, Kanat-Maymon, & Kaplan, 2006). While choice may be an element of autonomy, it does not comprise the entirety of the construct (Katz & Assor, 2006). Many of the critical analyses of autonomy and self-determination have failed to address whether individuals personally endorse outside direction, or if action was coerced. Further, as SDT has been validated in Western settings, so too empirical research in this paradigm has shown autonomy-support as culturally valid in school contexts in Korea (Jang, Reeve, Ryan, & Kim, 2009), Japan (Yamauchi & Tanaka, 1998), and Taiwan (Hardre et al., 2006), and thus elements of self-determination appear to be connected with well-being and motivation across differing cultures and standards.

Both SDT and CR recognize that social and cultural expectations color how psychological phenomena are perceived, but differ in their interpretations of deep and surface phenomena. In order to investigate the nature of how autonomy may function in Asian collectivist educational settings, this study seeks to use insiders' perspectives, defined here as the subjective perceptions of cultural natives, to measure the experience of autonomy-support in Japanese schools.

Issues influencing autonomy in Japanese elementary education

Research involving Asian students has indicated that free choice may not always be desirable for motivating students, but rather that respect for authority may be more culturally acceptable (Iyengar & Lepper, 1999). Hofstede (1984) has indicated that many East Asian societies maintain a high acceptance of power and authority from above. Social norms in Asian contexts are often oriented toward hierarchy, and individuals in these societies may find acting on requests from superiors more agreeable than requests from friends (Hwang, 2012). Cultures such as those in Japan, China, Korea, and Taiwan have shown a greater orientation towards control from parents (Wang, Pomerantz, & Chen, 2007), indicating early socialization of this tendency. At the same time, this categorization does not necessarily represent the complexities of why individuals in these societies may accept top-down control. The phenomenon may stem from cultural norms of positive reciprocal relationships between social levels.

Confucian ethics considers the concept of *benevolent* (as opposed to tyrannical or oppressive) authority, and maintaining order and balance posits a need for authority figures to act with a view to the benefit of those lower in the social hierarchy (Chen & Farh, 2010). Within this paradigm, those above who are just, act in the interests of their subordinates, and attempt to harmonize are superior to those who coerce, are heavy-handed, or arbitrary. Teachers, parents, and leaders have an obligation to be authoritative, reasonable, and exert power in the interests of the subordinate; that is to say, authority must not simply be authoritarian and controlling.

While this is certainly not always the case in reality, this perspective may help to better understand the culturally socialized experience of autonomy in Confucian-related societies. Just as in SDT, East Asian cultural norms also indicate that the *quality* of interaction between teachers as authorities and students as subordinates must agree with the latter's personal orientations (Chen, Vansteenkiste, Beyers,

Soenens, & Van Petegem, 2013; Littlewood, 1999), even when the catalyst for action comes primarily from above. Asian learners also may feel more comfortable maintaining harmony with authority (Hau & Ho, 2010).

As with other East Asian countries, Japan also follows codes of Confucian ethics in hierarchical social relations to a greater or lesser extent (Hwang, 2012, pp. 207–213). Psychological interdependence between social levels is a well-documented phenomenon in Japanese culture (Doi, 1994). In accordance with the idea of benevolent authority, nurturing relationships between teachers and students are also central to the classroom environment, particularly in primary settings (Lewis, 1995).

The majority of elementary schools in Japan focus on fulfilling expected group and social roles (Cave, 2007), including vertical relationships. However, this acceptance of hierarchical inequality extends only so far as instructions and directions are not perceived as objectionable. Indeed, Japanese students have generally been known to react strongly, even violently, to authorities perceived to exert nonlegitimate power, even as early as elementary school (Kawakami, 1999). Thus, while respect for authority may be considered a virtue in Japanese society, the exercise of authority and control is couched in its ability to maintain order and smooth social relations.

As a result, the most successful elementary schools in Japan have been posited to be so not because of control from above, but due to the use of authority support of students' basic needs, met by building proactive discipline through classroom routines and rituals (Lewis, 1995). Schools create daily rituals such as cleaning to support students' sense of independent accomplishment, and teachers promote specific behavioral scripts to foster positive horizontal and vertical social relationships (Cave, 2007). These behavioral routines are often organized and directed by teachers as central authorities, although with a clear element of building student autonomy by the fact that teachers avoid micromanagement. While orientations may change toward more authoritarian control in secondary school (Nakata, 2009), elementary

teachers work towards exercising authority to satisfy basic psychological needs (Lewis, 1995).

Connected to the role of authority to oversee ritual and routine in Japan is the tendency to avoid and regulate uncertainty (Hofstede, 1984; Sorrentino & Roney, 2000). According to the original research by Hofstede, individuals vary on a scale of their desire for predictability or acceptance of ambiguous situations. Research has extended this theory to show that different cultures perceive different levels of threat in ambiguity, and therefore may be characterized as certainty- or uncertainty-oriented (Sorrentino & Roney, 2000). The socialization process in Eastern countries is often organized around regularity and parental direction (Wang et al., 2007), which may influence the development of this tendency. Accordingly, Japanese learners may thrive in less ambiguous, more certain environments compared with Canadians (Szeto, Sorrentino, Yasunaga, Kouhara, & Lin, 2011). In this research, increasing situational uncertainty through choice and independence from the group or central authority led to disengagement among Japanese university students.

Connecting these ideas, research applying SDT to classrooms in North America and Europe has also found a positive benefit for organization, clear explanation, and feedback from the teacher (Jang, Reeve, & Deci, 2010; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009). Within this framework, these concepts have been grouped together to find a latent variable titled *structure*. Providing students with both autonomy-support and structure has shown positive benefits for both affect and achievement. More recently, studies have found that even students in Western contexts benefit from an environment with structure and appropriate, though not excessive, autonomy-support (Furtak & Kunter, 2012). For these purposes, structure may be seen as the *form* of the lesson, autonomy-support the *quality*.

In order to better define the cross-cultural validity of self-determined motivation from a situated cultural perspective, research is needed to investigate the subjective experience of autonomy-support. In Western settings, support

for student autonomy has been operationalized in terms of providing choice, allowing and accepting students to voice ideas and opinions (including negative affect), appealing to interests, and providing rationales for activities (Reeve, 2012). However, following the CR perspective, structure may offer a salient point for comparison. Following from the above discussions of cultural norms, structure and autonomy-support in Japanese school settings may be demonstrated as clear, caring, and unambiguous authoritativeness, oriented towards the benefit of the student.

Research questions and overview of studies

To align with the needs of Japanese teachers and learners and provide insight into learners' perceptions of autonomy, this program of research aimed to create theoretically and culturally sensitive instruments for measuring autonomy-support and structure in teaching. The overriding question in this research was "How do Japanese elementary school students perceive the experience of autonomy-support and structure in their foreign language classes?" Using modifications of existing SDT instruments, studies measured students' in-class engagement and autonomy, relatedness, and competence need satisfaction as dependent variables in relation to positive teaching. Keeping with the concept of high certainty orientation as preferable for Asian learners, foreign language classes were selected as they offer a high uncertainty situation that may require management by a teacher or authority (Littlewood, 1999). Based on the assumption that Japanese students are more oriented toward certainty (Szeto et al., 2011), a high uncertainty situation may offer a better comparison to the novel situations provided by previous experimental settings (e.g., Iyengar & Lepper, 1999). Study 1 used student and teacher focus groups to qualitatively validate item translations and create new items for use in elementary foreign language classes. Study 2 measured the new scale in regard to students'

classroom behavioral engagement. Finally, Study 3 measured teacher behaviors in relation to need satisfaction.

All studies were granted approval by the Fukuoka University of Education Ethics Review Board. Local boards of education provided permission for the research, coordinating with school principals and teachers. All participating teachers and principals were informed of the scope and aims of the study before agreeing to sign permission forms.

Study 1

Study 1 Methods

Employing a bottom-up design, 4th-, 5th-, and 6th-grade students and teachers were first gathered in 12 two- to three-person 30-min focus groups both in and out of school in April 2012. A total of 12 teachers (9 female, 3 male) and 27 students (17 female, 11 male) participated. Researchers explained the psychological concepts of structure, autonomy-support, and behavioral engagement before giving participants cards with translations of items from previous research done in the SDT framework (Black & Deci, 2000; Jang et al., 2010) and asked about the appropriateness of the translations with regard to students' experiences in foreign language classes. Structure was explained as the way that teachers help students to understand the material and participate in class, and autonomy-support as the way teachers support students' positive emotions, feelings of value toward the subject matter, and personal desire to learn. Students and teachers were given examples of times in class when teachers might provide either of the constructs in question. Students were then asked to discuss specifically related incidents from their experience.

Groups discussed the wordings and reached consensus regarding the best expression of the concepts, and wrote the wordings on cards. Participants were asked to place the re-worded cards in two separate categories representing autonomy-support and structure, and place those they did not feel were appropriate or

Table 1 Zero-order correlations for the generated items with their English wordings

	1	2	3	4	5	6	7	8
1. My teacher's explanations were very long	–	.19	.30	.11*	.16	.10*	.16	.10*
2. My teacher gave clear explanations		–	.31	.27	.45	.27	.29	.34
3. The pace of the class was appropriate			–	.20	.33	.11	.29	.21
4. My classmates were actively involved in class				–	.32	.17	.17	.17
5. My teacher appealed to my interests					–	.25	.42	.38
6. My teacher gave a lesson with a clear goal						–	.29	.20
7. My teacher appeared to enjoy speaking English							–	.31
8. My teacher spoke a great deal of English								–

* $p < .05$, all other $p < .001$.

comprehensible in a discard pile. Wordings and factors were predetermined to be appropriate when more than half of the groups agreed and consistently categorized the items.

Following their foreign language class in early May 2012, 479 fifth-grade students (221 female, 244 male, 14 no response) then took the survey to test the instrument. The sample was randomly split in two for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA using maximum likelihood estimation and promax rotation as well as CFA were conducted in Stata 12 (StataCorp, 2011). Twelve individuals had cases of missing data, indicating roughly 2.5% of the total sample, and 1% of the total volume of data. Missing cases were handled using full-information maximum likelihood procedures.

Study 1 Findings

Teachers and students overwhelmingly indicated that some aspects from previous instruments were either unclear or did not match instructional practices in Japanese elementary schools. Several student groups noted that while they had heard the term “feedback” before, it was unclear, and even after clarification did not feel it matched classroom realities. Numerous items from existing autonomy-support instruments, such as “My instructor listens to how I would like to do things,” or “My instructor encouraged me to ask questions” were also found difficult to understand or inappropriate to the elementary context. Likewise, students found that aspects of autonomy-support such as providing choice, accepting

students’ negative affect, and encouraging questioning did not describe their experiences.

Based on the results of the focus groups, an eight-item measure was constructed for investigation (5 structure: length of explanation, clarity, pacing, peer engagement, English use; 3 autonomy-support: emotional support, teacher affect, clear lesson purpose). A 4-point Likert-type scale was chosen in keeping with previous work on upper elementary students (e.g., Skinner, Furrer, Marchand, & Kindermann, 2008).

As part of the exploratory factor analysis, a two-factor solution for autonomy-support and structure produced a Heywood case. Retesting the model indicated that autonomy-support and structure loaded on a single factor. Parallel analysis confirmed a single factor solution. The original two-factor model was tested with confirmatory factor analysis showing acceptable fit, RMSEA = 0.029, CFI = 0.996, TLI = 0.989, AIC = 4800.169. Internal reliability was poor, $\alpha = .58$ for both scales. Correlation between the two factors exceeded .95, indicating excessive similarity of construct (Tabachnick & Fidell, 2007). Superior fit was found in the one-factor solution, RMSEA = 0.023, CFI = 0.997, TLI = 0.993, AIC = 4798.769. Cronbach’s alpha for the single factor solution was acceptable, $\alpha = .72$. Three items, length of explanation, classmates’ involvement, and clear lesson goals indicated comparatively poor fit, and were indicated by students and teachers as unclear in follow-up interviews. These were subsequently removed. Table 1 displays the zero-order correlations

for the items with the final English wordings. The results suggested a single factor solution as the most parsimonious.

Study 1 Discussion

Factor analysis indicated evidence for a single factor comprising the autonomy-support and structure items created by student and teacher focus groups. While previous studies have shown the two factors as separate though highly correlated (Sierens et al., 2009), the student- and teacher-generated items loaded on a single factor. In line with previous SDT research linking structure and autonomy-support (Jang et al., 2010), Japanese elementary students may perceive both the form and quality of their lessons as linked. To confirm this hypothesis, Studies 2 and 3 were conducted to investigate the relationship of the new latent variable and other elements of self-determined motivation. In order to avoid ambiguity in naming the new latent variable, the measure will henceforth be called “supportive-structure.”

Study 2

The findings in Study 1 indicated that autonomy-support is indeed a comprehensible concept to students and teacher in collectivist Japan, but that its execution may differ from previously explored contexts. To test the external validity of this new measure, Study 2 investigated supportive teaching and student engagement. Previous studies have shown a link between autonomy-support, structure, and students' in-class engagement (Jang et al., 2010). Lee and Reeve (2012) showed engagement to be reliably measurable by both self-report and observation, making it ideal for testing motivational outcomes.

Study 2 Methods

Using the single-factor instrument refined from Study 1, this model tested the longitudinal influence of supportive structure on students' behavioral engagement. Behavioral engagement instruments came from those used by

Skinner et al. (2008), showing acceptable reliability, $\alpha = .73$. Consistent with Study 1, 4-point Likert scales were used.

In May and July of 2012, 344 fifth-grade students (150 female, 194 male) in western Japan completed surveys on two occasions. Surveys were tested with confirmatory factor analyses, followed by auto-lagged and cross-lagged longitudinal structural equation modeling. Based on previous research (Skinner et al., 2008), a reciprocal relationship between student engagement at Time 1 and teacher practices at Time 2 was hypothesized.

Data were analyzed using MPlus (Muthén & Muthén, 2012). To account for potential non-normality issues created by 4-point Likert scales, data was treated as ordered categorical (Carifio & Perla, 2007) and analyzed with robust weighted least squares (WLSMV). No error correlation procedures were used. Following standard procedure for SEM (Kline, 2011), model fit was determined to be acceptable if RMSEA < .08, CFI > .9, TLI > .9, or highly acceptable if RMSEA < .06, CFI > .95, TLI > .95.

Study 2 Findings

Supportive structure was found to strongly influence students' in-class engagement. Figure 1 shows the relationships between the variables longitudinally, while Table 2 shows the correlation matrix and descriptive statistics. At both times, supportive structure strongly predicted engagement, $\beta > .8$. Autolagged coefficients were similarly high, $\beta > .6$. The hypothesized reciprocal relationship between engagement in May and supportive-structure in July was not found. The strong correlation of the predictors in the model and the individual zero-order correlations, combined with the negative relationship between ratings of supportive-structure in May and engagement in July, indicate suppression effects. As in other studies of upper elementary children (Spinath & Steinmayr, 2008), the data all showed a negative skew, potentially explaining the high correlations. The fit for both the CFA and longitudinal models was highly acceptable

Table 2 Correlation matrix and descriptive statistics for Study 2

	1	2	3	4
1. Supportive-structure Time 1	–	.82	.55	.43
2. Engagement Time 1		–	.40	.58
3. Supportive-structure Time 2			–	.80
4. Engagement Time 2				–
<i>M</i>	3.35	3.35	3.35	3.35
<i>SD</i>	0.80	0.82	0.78	0.81
Cronbach's α	.73	.73	.73	.68

All correlations significant at $p < .001$.

(Kline, 2011), RMSEA = 0.025, CFI = 0.989, TLI = 0.987.

Study 2 Discussion

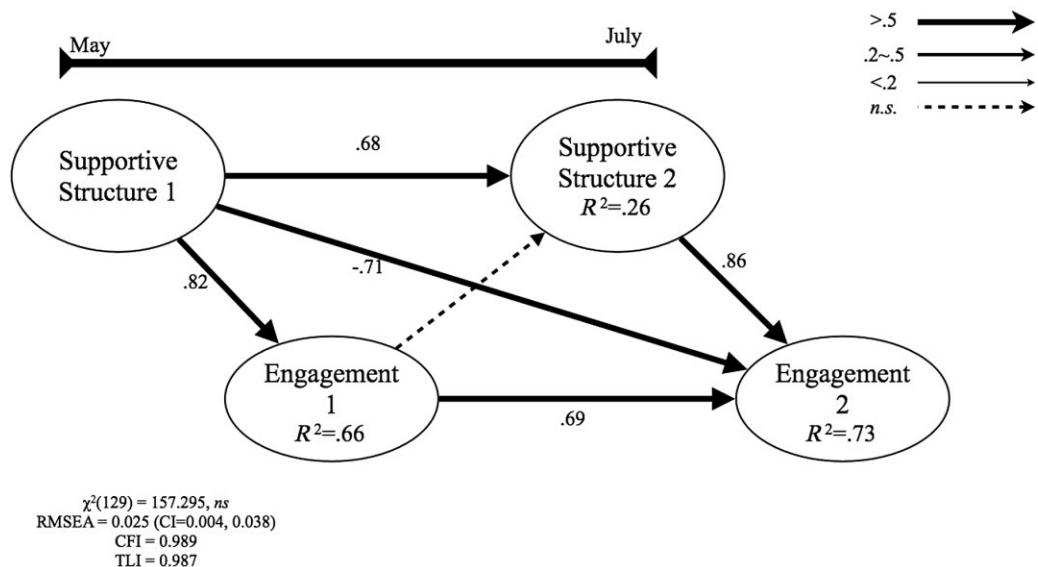
As predicted, teachers' supportive structure in this context influenced students' in-class behavioral engagement. The instruments demonstrated stable longitudinal reliability, and students answered items consistently. While this study indicates that students perceive clear, well-paced instruction to be engaging, it does not answer the question of whether it is perceived to be autonomy-supportive. In order to

answer the question of whether the supportive structure influences Japanese students' basic needs, Study 3 was conducted.

Study 3

Study 3 Methods

Study 3 tested the new instrument together with autonomy, relatedness, and competence (ARC) need satisfaction in October and December of the same school year. Following feedback from teachers after Study 2, one new item ("My teacher directed me as to what to do in class") was added to the scale. Figure 2 shows the hypothesized model. To measure need satisfaction in foreign language classes, a translation of the Activity Feelings Scale (AFS; Reeve & Sickenius, 1994) was used. Students responded to the anchor "In today's foreign language class . . ." reporting on autonomy ("I did what I wanted to do," "I chose what I did," "I was able to do what interests me," "I felt forced (negative)"), competence ("I felt confident in my English ability," "I felt my English was improving," "I felt capable of using English"), and relatedness ("I felt good working with my friends," "I felt like I grew

**Figure 1** Study 2 latent variable relationships and model fit.

closer to my classmates,” “I felt I was working with others as a team”). These scales have demonstrated theoretical and empirical validity in other studies involving Asian learners (e.g., Jang et al., 2009). In keeping with basic needs theory, the three basic psychological needs were treated as separate and specific to the particular situation. Satisfaction of a need in October was not hypothesized to influence satisfaction of another need in December. As need satisfaction is only salient to the individual, it should logically not influence teachers’ supportive structure at the second point in time.

At both times, 312 fifth-grade students (142 female, 170 male) in western Japan completed surveys. Surveys were again distributed directly following classes. As in Study 2, data were analyzed in MPlus with the same fit criteria cutoffs. Again, no error correlation procedures were used. Following the findings of left-side skew in Study 2, data was again treated as ordered categorical and analyzed using robust weighted least squares.

Study 3 Findings

In the second semester, the finalized items were used to measure students’ perceived ARC need

satisfaction. Figure 3 shows the relationships between hypothesized latent variables, while Table 3 shows the correlation matrix and descriptive statistics. Both confirmatory and longitudinal auto-lagged models showed acceptable fit. Supportive structure influenced ARC need satisfaction at both points. Teachers’ behaviors showed the strongest relationship with autonomy need satisfaction; indeed, the relationship between the two latent variables shows strong signs of multicollinearity. Longitudinally, competence at Time 1 had the strongest influence on competence at Time 2, while relatedness and autonomy demonstrated a weaker, although still significant, autoregressive influence over time.

Study 3 Discussion

The longitudinal model tested in Study 3 demonstrated the influence of supportive structure on students’ basic needs. Supportive structure strongly predicted need satisfaction, consistent with previous findings (Jang et al., 2009). The strongest relationship was found on students’ perceptions of autonomy; for all practical purposes in this context, teacher support appears to be perceived as nearly identical to autonomy

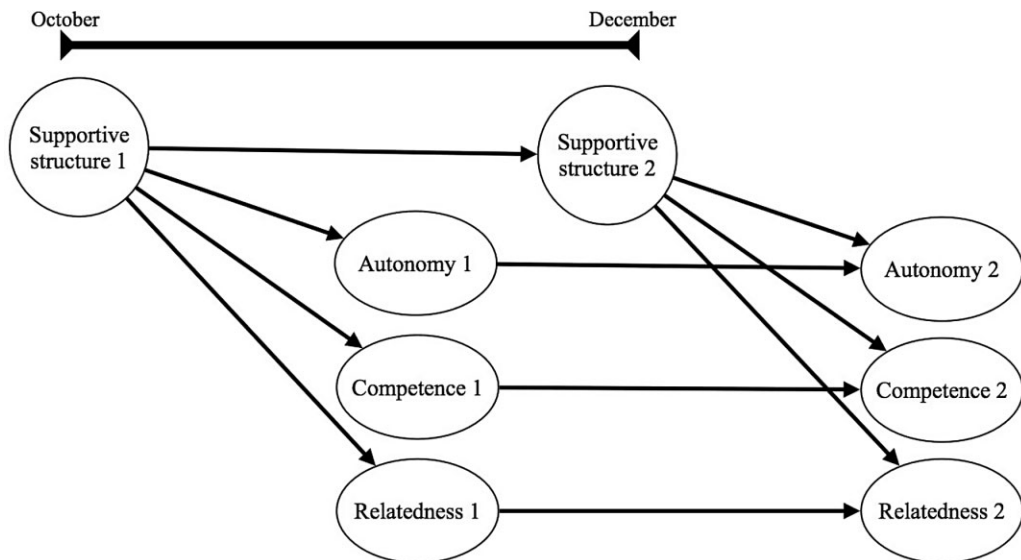


Figure 2 Study 3 longitudinal model.

Table 3 Correlation matrix and descriptive statistics for Study 3

	1	2	3	4	5	6	7	8
1. Supportive-structure Time 1	–	.91	.76	.81	.53	.68	.61	.67
2. Autonomy Need Satisfaction Time 1		–	.69	.73	.48	.67	.55	.61
3. Relatedness Need Satisfaction Time 1			–	.61	.40	.52	.57	.51
4. Competence Need Satisfaction Time 1				–	.43	.55	.49	.71
5. Supportive-structure Time 2					–	.96	.89	.74
6. Autonomy Need Satisfaction Time 2						–	.89	.78
7. Relatedness Need Satisfaction Time 2							–	.71
8. Competence Need Satisfaction Time 2								–
<i>M</i>	3.33	2.44	3.10	2.80	3.39	2.58	3.28	2.87
<i>SD</i>	0.80	1.10	0.89	0.89	0.75	1.13	0.81	0.89
Cronbach's α	.74	.58	.79	.77	.70	.63	.78	.76

All correlations significant at $p < .001$.

need satisfaction, further indicating how autonomy-supportive teaching functions differently in Eastern contexts. Within Japanese culture, internally endorsed action relates to the idea of the teacher as a benevolent and interdependent authority who manages uncertainty (Chen & Farh, 2010; Doi, 1994; Szeto et al., 2011). This echoes results found in China, where young people felt satisfied when their own interests aligned with their parents' wishes (Chen et al., 2013).

The extremely high correlation between supportive structure and autonomy deserves explanation. First, the same negative skew found in Study 2 was present in Study 3, which may conflate correlations. While this raises issues of discriminant validity between supportive structure and autonomy, the items contained clear differentiation of subject and focus (“my teacher” for the predictor latent variable, “I” for the outcome variable). The relationship between the two further shows

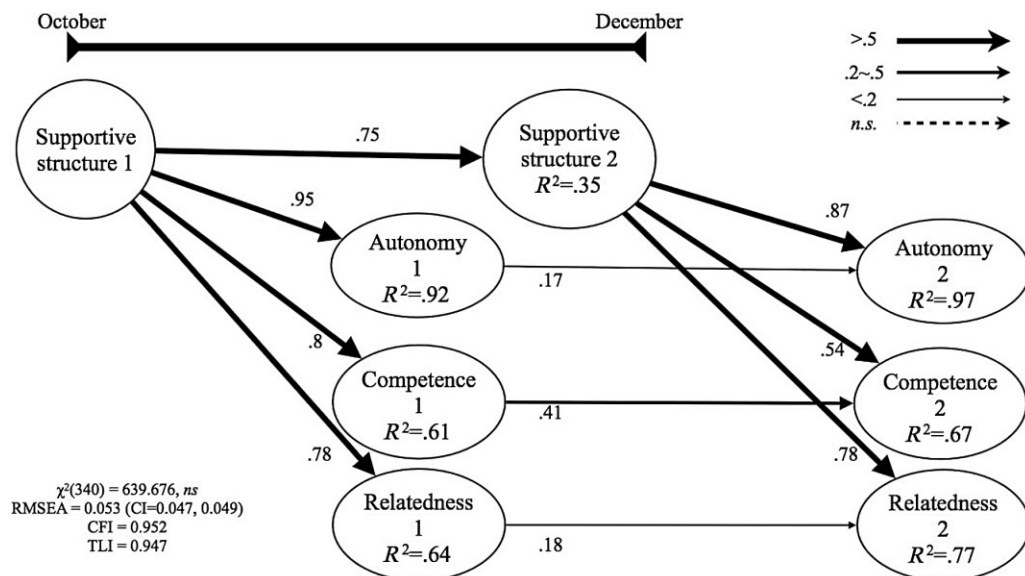
**Figure 3** Study 3 relationships and model fit.

Table 4 Final items and their factor loadings in each study

Final items	Exploratory factor analysis	Confirmatory factor analysis	Study 2 Time 1	Study 2 Time 2	Study 3 Time 1	Study 3 Time 2
My teacher gave clear explanations	.60	.72	.77	.73	.81	.75
The pace of the class was appropriate	.47	.55	.66	.55	.62	.63
My teacher appealed to my interests	.73	.72	.84	.83	.48	.62
My teacher appeared to enjoy speaking English	.55	.66	.73	.66	.74	.72
My teacher spoke a great deal of English	.41	.47	.48	.51	.45	.42
My teacher directed me as to what to do	–	–	–	–	.62	.63
Cronbach's α	.72	.72	.73	.73	.74	.70

how conceptually linked the two are; while competence and relatedness showed high but not extreme correlations with supportive-structure, autonomy satisfaction at both times was arguably indistinguishable.

Perceptions of supportive and structured teaching did not strongly vary over time, and were able to predict scores from one point to another. Students who believed themselves competent were more likely to hold this belief longitudinally, aligning with findings on the stability of ability beliefs (Bandura, 1997). At the same time, perceptions of autonomy and relatedness did not have predictive effects over time. This may stem from day-to-day changes in opportunities for personal engagement and students' interpersonal relationships. These results point to the valid functioning of the instruments in line with the theory that social interdependence and personal endorsement for action are highly linked in Japanese society.

General discussion

Following from the aims of the study, the findings here indicate how autonomy-support may function differently in the Japanese classroom setting. Answering the overriding research question, the results show that Japanese elementary students experience autonomy-support in foreign language classes

as a combination of clarity, direction, and emotional support. While in Western settings, autonomy-support is traditionally defined as providing opportunities for individual decision-making (Black & Deci, 2000), the socialization process in Japan towards focusing on the larger whole may blur the line of the individual decision maker, and individual engagement and personal endorsement of action may be keyed to group atmosphere and the benevolent intentions of a trustworthy authority.

Looking at the specifics of how Japanese students and teachers define and understand autonomy-support may help to explain the cultural differences. Table 4 displays the new items generated, their factor loadings at each point, and Cronbach's alpha statistics. The item loadings were consistent across time and showed acceptable reliability from each sample. Several of the items clearly relate to previous conceptions of autonomy-supportive teaching ("My teacher appealed to my interests," "My teacher appeared to enjoy speaking English,") while others more clearly resemble structure ("My teacher gave clear explanations," "The pace of the class was appropriate,") while further others seem more aligned with a controlling orientation ("My teacher directed me as to what to do"). These items, developed through bottom-up discussion of autonomy, structure, and their elements, indicate a key difference in how

Japanese children may perceive autonomy-supportive teaching in the potentially highly uncertain situation of foreign language classes, while at the same time supporting the findings from SDT that both the quality and form of classroom activities is important to build engagement and motivation (Jang et al., 2010).

While Study 1 initially agreed with the CR criticisms of SDT (e.g., Iyengar & Lepper, 1999), the results of Studies 2 and 3 agree with the conception of personal alignment and endorsement of one's actions even in interdependent collectivist cultures (Chen et al., 2013; Katz & Assor, 2006). Further evidence can be seen through how supportive structure strongly influenced both engagement and autonomy satisfaction, which relate to self-directed motivation (Lee & Reeve, 2012; Skinner et al., 2008). This provides a further argument for how autonomy may present in different fashions in different cultures (Katz & Assor, 2006; Roth et al., 2006). Based on the results of these three studies, the scales measuring supportive structure may be considered a form of autonomy-support applicable to the Japanese context.

Conclusions

The above studies demonstrate the value and relevance of SDT to Japanese classrooms, and may help to explain CR discussions questioning the value of choice and autonomous motivation in East Asian contexts. Although the instrument created here did not fully capture the whole range of teacher behaviors, having left out controlling behaviors in accordance with participating teachers' wishes for minimal surveys, the items generated by students and teachers based on previous instruments strongly influenced elements central to SDT, with a particularly strong correlation with autonomy.

While previous studies have found structure and autonomy-support to be different constructs in general education settings with secondary students (e.g., Sierens et al., 2009), this study indicates that, in foreign language classes, Japanese elementary students find clarity and

direction engaging and need satisfying. Although the terminology of autonomy-support may be subject to debate (e.g., Furtak & Kunter, 2012; Iyengar & Lepper, 1999), the underlying practices of providing an interesting and intelligible classroom environment influenced students' perception of autonomous participation and engagement to the extent that they appear inseparable.

These findings align with previous findings indicating that Japanese students prefer more certain learning environments (Szeto et al., 2011), one aspect of which may be clearly structured instruction. In appealing to Japanese students' certainty orientations, teachers may also support their autonomy by addressing them in culturally and socially expected fashion (Katz & Assor, 2006). The results should be interpreted carefully, as classes surveyed were limited to foreign language classes. While the overall patterns resemble those found in other settings (Chen et al., 2013; Jang et al., 2009; Szeto et al., 2011), more careful investigation beyond this cultural setting is necessary to make definitive conclusions regarding Japanese students' motivational orientations.

These results may help to resolve some of the ongoing paradoxes whereby East Asian learners show an orientation towards following authority (Iyengar & Lepper, 1999) while at the same time demonstrating the same deeper desire for self-determination as Westerners (Chen et al., 2013; Jang et al., 2009). The present results imply that, in more collectivist societies, feelings of self-determination are linked with the environment and Japanese students' perception of autonomy satisfaction may thus be satisfied by clear, intelligible, authoritative, and interesting instruction. Future studies in this field should investigate the mediating and moderating effect of certainty and authority orientations on East Asian students' self-determination.

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