



European Journal of Educational Research

Volume 9, Issue 4, 1581 - 1589.

ISSN: 2165-8714

<http://www.eu-jer.com/>

Linking Social Relatedness with Motivational Goals and Bachelor Degree Aspirations of Vocational Students

Pattanun Nownaisin*

King Mongkut's University of Technology
Thonburi, THAILAND

Ravinder Koul

The Pennsylvania State University, USA

Komkrit Chomsuwan

King Mongkut's University of Technology
Thonburi, THAILAND

Chanut Poondej

Srinakharinwirot University, THAILAND

Thanita Lerdpornkulrat

Srinakharinwirot University, THAILAND

Received: May 24, 2020 • Revised: July 12, 2020 • Accepted: September 29, 2020

Abstract: This study conducted in Thailand examined the relationship between measures of social relatedness and motivational goal orientation as well as bachelor degree aspirations of vocational school students. Data were collected from students enrolled in a vocational school near Bangkok (n = 386). The analysis found that teacher support for students was the best predictor of students' adoption of mastery goals, school identification was the best predictor of students' adoption of performance approach goals, and peer involvement was the best predictor of students' adoption of performance avoidance goals. There was a significant interaction between school identification and peer involvement on the intention to pursue a bachelor degree. The researchers interpreted the results in terms of self-determination theory and discussed the implications of students' sense of relatedness to vocational school environment.

Keywords: *Social relatedness, motivational goals, bachelor degree aspirations, vocational students.*

To cite this article: Nownaisin, P., Koul, R., Chomsuwan, K., Poondej, C., & Lerdpornkulrat, T. (2020). Linking social relatedness with motivational goals and bachelor degree aspirations of vocational students. *European Journal of Educational Research*, 9(4), 1581-1589. <https://doi.org/10.12973/eu-jer.9.4.1581>

Introduction

For the purpose of the study reported in this paper, social relatedness has been defined in terms of school identification, indicating the extent to which students feel they are embedded in their school community (Fredricks et al., 2004; Wang & Holcombe, 2010), teacher supportiveness, representing students' feelings of closeness to and support from their classroom teachers (Gest et al., 2005; Pianta, 1994; Wentzel, 1999), and peer involvement, dictating students' feelings of belonging to a learning community fostered by activities such as group discussions and assignments and peer reviews. Sociocultural theories in education (Booker, 2006; Coates, 2005; Fredricks et al., 2004; Wentzel, 1997; Zepke, 2015; Zhao & Chang, 2019) posit that a sense of community will maximize student learning. Similarly, theories on human needs (Furrer & Skinner, 2003; Maslow, 1948; Ryan & Deci, 2000) say that student feelings of relatedness to school, teachers, and peers are important factors affecting student motivation, engagement, and classroom behaviors.

Socio-cognitive theories of motivation have interpreted academic outcomes in terms of achievement goals and proposed that "all actions are given meaning, direction, and purpose by the goals that individuals seek out" (Covington, 2000, p. 174). In general terms, achievement goals are defined as mastery goals that are inwardly focused on the mastery of a task together with personal improvement and performance goals that are outwardly focused on normative outcomes such as grades, rewards and other external evaluations as well as comparisons (Hyde & Durik, 2005). Performance goals have been differentiated as performance-approach goals that suggest the desire to be seen as excellent or superior to others and performance-avoidance goals that indicate the desire to not appear stupid compared with others (e.g., Church et al., 2001). A review of the literature conducted by Urdan and Schoenfelder (2006) found the consensus that a sense of classroom community and teacher support for student autonomy promoted more adaptive student motivation. Goodenow and Grady (1993) found that high sense of belonging and high

* Corresponding author:

Pattanun Nownaisin, King Mongkut's University of Technology Thonburi, Faculty of Industrial Education and Technology, Bangkok, Thailand.
✉ pattanun.now@mail.kmutt.ac.th



expectancy for success were significantly interrelated while Turner et al. (2013) reported that teacher support for student was positively related with mastery goals. Additionally, Levy-Tossman et al. (2007) showed that the quality of peer relationships among Israeli seventh-grade students was significantly associated with intrinsic motivation for learning. Likewise, Nelson and Debacker (2008) demonstrated that the quality of peer relationship and the characteristics of classmates among American sixth-, seventh-, and ninth-grade students were significantly related to the classroom motivation. Moreover, Ciani et al. (2010) suggested that explicit support for the autonomy and classroom community helped American high school students to focus on mastery goals.

“Sense of school relatedness” has been investigated with elementary and middle school students (Murdock, 1999; Roeser et al., 1996; Ryan & Patrick, 2001; Wentzel, 1997), adolescents in the early years of high school (Booker, 2006; Roeser et al., 1998), and college student populations (Anderman & Anderman, 1999; Chao, 2018; Freeman et al., 2007; Hurtado & Ponjuan, 2005; Won et al., 2018). Vocational students belong to the population that can benefit from the research in this domain because vocational programs conventionally start at the upper secondary school level when students often struggle with issues of identity in making transitions between academic school and vocational school (Erikson, 1968; Van Houtte & Van Maele, 2012). Vocational schooling is widely seen as less prestigious and less demanding than conventional academic schooling (Chong, 2014; King, 1993; Morris, 1996; Spruyt et al., 2015). Compared to students in academic schools, students in vocational schools report less positive peer relationships (Van Houtte & Van Maele, 2012) and feel less embedded in school (Smerdon, 2002).

The purpose of the study reported in this paper is to contribute to understanding what supports or undermines specific student outcomes. The study investigated the relative significance of three different measures of social relatedness—school identification, teacher support and peer involvement—on the motivational goal orientations and bachelor degree aspirations of vocational students. Because there is empirical evidence that certain goal orientations are associated with certain emotions (Seifert, 1995), we treat our measures of social relatedness as independent variables and measures of motivational goal orientation as dependent variables.

Theoretical framework and research questions

The theoretical premise for our study is drawn from the self-determination theory which proposes that individuals seek experiences that will hopefully fulfill the fundamental human need of relatedness (Deci & Ryan, 1985). The study reported in this paper is designed to address the following research questions:

- What are the associations between measures of social relatedness and the motivational goal orientations of vocational school students?
- What are the associations between measures of social relatedness and the intention of vocational school students to pursue a bachelor degree?

Methodology

Educational context

In Thailand, the educational system in schools comprises six years of primary education followed by three years of lower secondary education (seventh, eighth, and ninth grades), and three years of upper secondary education (tenth, eleventh, and twelfth grades). Compulsory education ends with grade 9 after which students are streamed into a general academic track or into a vocational track. Vocational programs are offered in manufacturing industries, agriculture, home economics, arts and crafts, commerce and business administration, fisheries, textile, tourism and hospitality, information technology, accounting, and occupational training in the automotive and gem and jewelry industries. Some vocational schools in Thailand at the upper secondary level also offer academic programs in science and technology to encourage vocational students to go on to college and pursue higher education (Mala, 2016; Thai Ministry of University Affairs, 2019). The goal of these curricular initiatives is to raise vocational students’ aspirations to attain a bachelor degree. Our study was conducted in such a school.

Participants

We used convenience sampling to collect survey data from students enrolled in a vocational school near Bangkok, Thailand. There are approximately 586 students enrolled in twelve classes in this school. Our sample consisted of 386 students (males = 67.9%; females = 32.1%) from six randomly selected classrooms. Before participation in our survey study, we informed the students that their responses to our survey would be kept confidential. The survey items, which were written in Thai, assessed “gender”, “school identification”, “teacher support” and “peer involvement in the classrooms”, “achievement goal orientation”, and “intention to pursue a bachelor degree”. We used the “forward and backward translation” procedure described by Brislin’s (1980) and two-way Thai-English bilingual translations of each survey item to ensure its content validity.

Measures

We used a self-report method to assess student perceptions. Table 1 presents the original source of each construct, number of items in each construct, and Cronbach's Alpha values.

Social relatedness: Our measure of school identification was borrowed from Wang and Holcombe (2010) and Eccles et al. (1993). School identification was measured in terms of a sense of belonging to school and value for schooling based on Cabrera et al. (1992), Eccles et al. (1993), and Wang and Holcombe (2010) (sample item: 'I feel like I belong to the school I go to now'). Our measures of teacher support and peer involvement based on McRobbie and Tobin (1997) and Urdan (2004) were tested in a prior study by Koul et al. (2012). We assessed student relationship with teachers in terms of teacher support (sample item: 'In vocational classes, my teacher cares about my work') and student relationship with peers in terms of peer involvement (sample item: 'In vocational classes, I discuss my ideas with others'). We used a five-point Likert scale (1 indicating 'strongly disagree' and 5 indicating 'strongly agree').

Table 1. Measurement scales and reliability estimates of scales (Cronbach's Alpha values) (n = 386).

Scale	Number of items	Sources	Scales	Cronbach's Alpha
Social relatedness				
School identification	5	Cabrera et al., 1992; Eccles et al., 1993; Wang and Holcombe, 2010	5	.68
Teacher support	7	Koul et al., 2012; McRobbie and Tobin, 1997; Urdan, 2004	5	.93
Peer involvement	4	Koul et al., 2012; McRobbie and Tobin, 1997	5	.84
Motivational goal orientation				
Mastery goals	4	Koul et al., 2011.	5	.85
Performance approach goals	3		5	.91
Performance avoidance goals	2		5	.81

Personal motivational goal orientation: Measures of personal motivational goal orientation were adapted from Koul et al. (2011). We used four items to assess mastery goal orientation (sample item: 'I feel satisfied when I learn new things in my vocational education class'), four items to evaluate performance approach goal orientation (sample item: 'I feel very good when I can show that I am excellent in my vocational education class'), and two items to measure performance-avoidance goal orientation (sample item: 'My main goal in my vocational classes is to avoid looking stupid'). We used a five-point Likert scale for all items (1 indicating 'strongly disagree' and 5 indicating 'strongly agree').

Bachelor degree aspirations: We acquired student intention to pursue a bachelor degree by asking, "Do you intend to complete college degree?", Yes or No.

Analysis

We used SPSS and AMOS (IBM version 21) to conduct descriptive analysis and to test the validity and reliability of each construct with the vocational student population. We screened the data for missing values, outliers, and distribution properties by checking skewness and kurtosis values. The skewness and kurtosis values should be below absolute values of 3.0 and 8.0, respectively (Kline, 1998). Examinations of the skewness and kurtosis variables showed that the skewness values ranging from -.318 to -1.133 and kurtosis values ranging from -.127 to 2.776 were both within the recommended values. Since each variable was normally distributed, we used maximum likelihood estimation as an appropriate statistical estimation method and conducted a series of confirmatory factor analyses to establish the discriminant validity of our measures of social relatedness and motivational achievement goal orientation. Hierarchical regression analysis was used to examine the influences of measures of social relatedness on motivational goal orientation. Logistic regression analysis was employed to investigate the effects of three different measures of social relatedness on the intention to pursue a bachelor's degree. In the results of the logistic regression model, we reported both Nagelkerke R square and Cox and Snell's R square values.

Results

Confirmatory factor analyses

The cross-sectional nature of our study made it vulnerable to common method bias. Therefore, we checked for common method bias by performing Harman's one-factor test (Podsakoff & Organ, 1986) and found that no single factor could explain a significant proportion of the total variance. Confirmatory factor analysis was designed to ensure that the hypothesized factor structure of social relatedness and achievement goal orientation scales together with sub-scales fit the data collected reasonably well. As shown in Table 2, a series of confirmatory factor analyses were conducted to establish the discriminant validity of the measures of social relatedness and achievement goal orientation. Results

revealed that the three-factor models for social relatedness (“school identification” and “teacher support” and “peer involvement”) and three-factor model for achievement goal orientation (“mastery goal orientation” and “performance approach goal orientation” and “performance avoidance goal orientation”) fit the data significantly better than the alternative models. Table 1 shows reliability estimates with all alpha values close to or greater than .70. The analysis results indicated the construct validity of the measures.

Hierarchical regression models were used to examine the degree to which gender, school identification, teacher support, and peer involvement predict mastery, performance approach, and performance avoidance goal orientations. Tables 3-5 present the results of the hierarchical regression analyses. Among the measures of social relatedness, teacher support, school identification and peer involvement were the best predictors of mastery goal orientation, performance approach goal orientation, and performance avoidance goal orientation, respectively.

Table 2. Results of measurement models for measures of social relatedness and achievement goal orientation (n = 386).

Model	χ^2 (df)	CFI	TLI	SRMR	RMSEA	ECVI
Social relatedness						
Three-factor model (SI/TS/INV)	253.468 (84)	.950	.937	.0380	.072	.845
Two-factor model I (SI and TS/INV)	808.256 (89)	.787	.749	.1110	.145	2.260
Two-factor model II (SI/TS and INV)	920.511 (89)	.754	.710	.1142	.156	2.552
Two-factor model III (SI and INV/TS)	803.356 (89)	.789	.751	.1109	.144	2.248
One-factor model (SI and TS and INV)	1005.048 (90)	.730	.685	.1174	.163	2.766
Motivational goal orientation						
Three-factor model (MA/PA/Pav)	68.982 (32)	.984	.978	.0377	.055	.299
Two-factor model I (MA and PA/Pav)	1187.053 (34)	.511	.353	.2084	.297	3.192
Two-factor model II (MA/PA and Pav)	525.467 (34)	.792	.724	.1977	.194	1.474
Two-factor model III (MA and Pav/PA)	219.528 (34)	.921	.896	.0629	.119	.679
One-factor model (MA and PA and Pav)	1344.620 (35)	.445	.286	.2176	.312	3.596

Note. CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardized root mean square residual; RMSEA = Root mean squared error of approximation; ECVI = Expected cross-validation index. SI = School identification; TS = Teacher support; INV = Peer involvement; MA = Mastery goal orientation; PA = Performance approach goal orientation; Pav = Performance avoidance goal orientation

Table 3. Summary of hierarchical regression analysis for variables predicting mastery goal orientation (N = 386).

Variable	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Gender	-.09	.06	-.07	-.11	.06	-.10	-.07	.05	-.06
School identification				.34	.05	.37**	.18	.04	.19**
Teacher support							.37	.05	.42**
Peer involvement							.15	.05	.15**
R ²		.005			.14			.38	
F for change in R ²		1.98			56.64			72.64	

Note: *p < .05, **p < .01

Table 4. Summary of hierarchical regression analysis for variables predicting performance approach goal orientation (N = 386).

Variable	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Gender	.18	.11	.09	.12	.10	.06	.14	.10	.07
School identification				.63	.08	.39**	.56	.08	.35**
Teacher support							.41	.10	.26**
Peer involvement							-.19	.10	-.12
R ²		.007			.16			.20	
F for change in R ²		2.74			64.92			9.40	

Note: *p < .05, **p < .01

Table 5. Summary of hierarchical regression analysis for variables predicting performance avoidance goal orientation ($N = 386$).

Variable	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Gender	-.14	.14	-.05	-.16	.13	-.06	-.04	.11	-.01
School identification				.37	.10	.18**	-.04	.09	-.02
Teacher support							.56	.11	.29**
Peer involvement							.79	.11	.37**
R^2		.00			.04			.35	
F for change in R^2		1.02			12.76			89.14	

Note: * $p < .05$, ** $p < .01$

A logistic regression model (Table 6) was applied to evaluate the degree to which gender, school identification, teacher support, and peer involvement predict intention to pursue a bachelor degree (1 = Yes; 0 = No). In Step 3, peer involvement was the only significant predictor of intention to pursue a bachelor's degree (Nagelkerke R^2 value equaled .09 and Cox and Snell R^2 value equaled .04 (Odds ratio = 3.75)). In the final model (Step 4), school identification and interaction between school identification and peer involvement were significant predictors of intention to pursue a bachelor's degree (Chi-square = 20.28, $df = 5$, $p < .01$). The Hosmer-Lemeshow statistic indicated a good fit ($p < .05$). Nagelkerke R^2 value was .13 when Cox and Snell R^2 value were .06. The classification results showed that 90.8% of the cases were correctly classified. Figure 1 shows the interaction plot between school identification and peer involvement on bachelor degree aspirations of vocational students. Table 6 presents the odds ratios, which suggest that the odds of intention to pursue a bachelor degree increases significantly for those who reported low school identification and low peer involvement.

Table 6. Results of logistic regression analysis: Predictors of intention to pursue a bachelor degree ($N = 386$)

Predictors	Regression coefficient (B)				Odds ratio
	Step 1	Step 2	Step 3	Step 4	
Constant	2.78 (.58)	2.56 (1.31)	-.23 (1.70)	20.89 (8.79)	
Gender	-.40 (.39)	-.40 (.40)	-.27 (.41)	-.42 (.42)	.66
School identification (SI)		.06 (.31)	-.31 (.36)	-5.95 (2.34)*	.00
Teacher support (TS)			-.34 (.41)	-.42 (.43)	.66
Peer involvement (INV)			1.32 (.42)**	-3.89 (2.13)	.02
Interaction (SI x INV)				1.41 (.58)*	4.10

Note: Standard errors are in parentheses. In Step 3, Nagelkerke R^2 for the model is .09 when Cox and Snell R^2 are .04. In Step 4, Nagelkerke R^2 for the model is .13 when Cox and Snell R^2 are .06. In Step 4, classification table shows that 90.8% of the cases were correctly classified. Intention and no intention to pursue a bachelor degree were coded as 1 and 0, respectively. * $p < .05$, ** $p < .01$, *** $p < .001$.

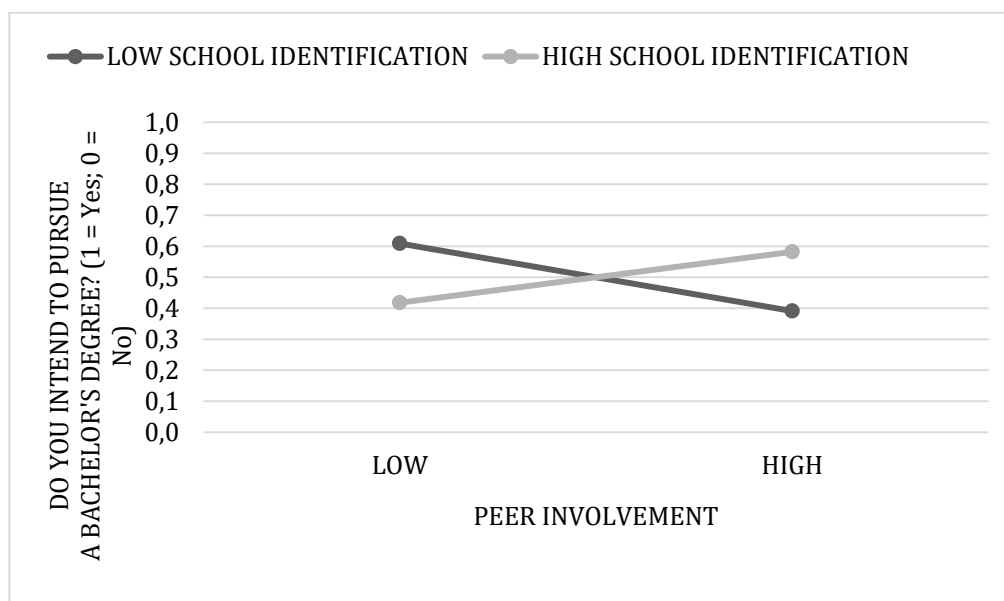


Figure 1. Interaction plot between school identification and peer involvement on bachelor degree aspirations ($N = 386$).

Discussion

Positive identification with school is an indicator of a good psychological fit between the developmental needs of the student and the learning environment (Eccles & Roeser, 2011; Wang & Holcombe, 2010). In our study with vocational students in Thailand, we found that strong identification with school was significantly and positively associated with strong teacher support and more peer involvement in the classrooms. This finding suggests that classroom climate plays a role in fostering a sense of positive identification with school.

The strong positive relationship found between teacher support and mastery goal orientation is consistent with prior empirical evidence (Anderman & Anderman, 1999; Won et al., 2018). In accordance with the prediction of self-determination theory (Ryan & Deci, 2000), the evidence shows that emotional and instructional support given by the teacher are associated with feelings of emotional security, which are believed to facilitate the adoption of mastery goals or the innate value of learning and self-improvement (Won et al., 2018). Prior research findings on the predictors of performance goals have been varied and inconsistent (Anderman & Anderman, 1999; Won et al., 2018). For example, Anderman and Anderman (1999) reported that middle school students' sense of school belonging was associated negatively with performance or ability goal orientation but Won et al. (2018) showed that college students' peer involvement was associated positively with performance goal orientation. We found positive association between school identification and students' adoption of performance approach goals, and positive association between peer involvement and students' adoption of performance avoidance goals. Our study is the first to report relationships between multiple measures of social relatedness and performance approach as well as avoidance goal orientations with a population of vocational students.

Past research linked peer involvement with intention to pursue a college degree, and college persistence with retention (Lerdpornkulrat et al., 2018; Pascarella & Terenzini, 2005). Our study found a significant interactive effect between peer involvement and school identification on bachelor degree aspirations of vocational students. Additionally, higher levels of peer involvement were positively associated with bachelor degree aspirations when school identification was high. However, higher levels of peer involvement were associated negatively with bachelor degree aspirations when school identification was low. What can explain this finding?

Institutional policy and organizational structures like streaming into academic and vocational programs were shown to have motivational consequences such as changes in students' ego orientations (Butler, 2008), and contribute to pro- and anti-school attitudes (Van Houtte & Van Maele, 2012). Such motivational consequences may help explaining the different or counterintuitive outcomes of social relatedness found among the students in our study. Our findings support differentiation-polarization theory (Ball, 1981; Van Houtte, 2006), which posits that differentiating students on the basis of academically-oriented value systems is polarizing and leads to the creation of student groups characterized by pro-school and anti-school attitudes. Our finding that students with low school identification and low levels of peer involvement reported the highest levels of bachelor degree aspirations could suggest a feeling of being misplaced in vocational school environment. Therefore, our study highlights the importance of considering the consequences of educational stratification practices on learning environment, social relatedness, and motivational outcomes.

Conclusion

The study reported in this paper was designed to investigate an underrepresented context in learning environment research. Our findings contribute to a deeper understanding of the relationship between social relatedness and motivational goals and bachelor degree aspirations of vocational students. The findings also highlight the importance of affective dimensions of student learning motivation. Future research could examine the predictive validity of school-level factors, both cross-sectionally and longitudinally, and the extents to which the context of vocational and academic schooling enhance social relatedness and support positive student outcomes.

Recommendations

Self-determination theory posits that social context has emotional, behavioral and cognitive significances (Furrer & Skinner, 2003; Lizzio et al., 2011; Ryan & Deci, 2000). Findings from our study in Thailand support the idea that social relatedness to the school and in classrooms is a key psychological mechanism impacting student motivation and engagement. In addition, deeper knowledge of motivational consequences linked with social relatedness in the context of vocational and academic learning environments would help policy makers and teachers to better address the complexity of students' learning experiences. The quality of learning environment has drawn increasing attention from researchers, policy-makers and international organizations (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2012). Professional development for teachers could benefit from more discussion of the impact of the learning environment quality on student outcomes. Moreover, our findings provide evidence that our measures of social relatedness including school identification, teacher support and peer involvement are something different and non-interchangeable.

Conventional policy rationale for streaming students into academic and vocational programs is that tracking enables schools to structure and organize learning environments to empower schools and teachers to better provide

appropriate learning opportunities to students with diverse abilities and interests (Kulik & Kulik, 1992). Our findings underscore the idea that the consequences of educational policies and practices are impacted by broader social values and perceptions (Van Houtte, 2006). Furthermore, our results provide evidence supporting why the motivational consequences of tracking shall be a fruitful focus for learning environment research.

Limitations

This study has limitations. Firstly, some of the reliability estimates are less than exemplary. Additional validation studies will increase confidence in the reliability and validity of our measures. Secondly, the design of this study is based on self-reported data. Our findings that link social relatedness with motivational goals and bachelor degree aspirations of vocational students do not establish cause-and-effect relationships between the measured constructs. Finally, the study was not designed to investigate the moderating effect of school type (vocational versus academic) on the relationship between measures of social relatedness and student outcomes. Thus, we suggest a future research to explore the potential influences of the academic and vocational contexts on psychosocial beliefs and student outcomes.

References

- Anderman, L. H., & Anderman, E. M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology, 24*(1), 21-37. <https://doi.org/10.1006/ceps.1998.0978>
- Ball, S. J. (1981). *Beachside comprehensive: A case-study of secondary schooling*. Cambridge University Press.
- Anderman, L. H., & Anderman, E. M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology, 24*(1), 21-37. <https://doi.org/10.1006/ceps.1998.0978>
- Ball, S. J. (1981). *Beachside comprehensive: A case-study of secondary schooling*. Cambridge University Press.
- Booker, K. C. (2006). School belonging and the african american adolescent: What do we know and where should we go? *The High School Journal, 89*(4), 1-7. <https://doi.org/10.2307/40364222>
- Brislin, R. W. (1980). Cross-cultural research methods. In I. Altman, A. Rapoport, & J. F. Wohlwill (Eds.), *Environment and culture* (pp. 47-82). Springer.
- Butler, R. (2008). Ego-involving and frame of reference effects of tracking on elementary school students' motivational orientations and help seeking in math class. *Social Psychology of Education, 11*(1), 5-23. <https://doi.org/10.1007/s11218-007-9032-0>
- Cabrera, A. F., Castaneda, M. B., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *The Journal of Higher Education, 63*(2), 143-164. <https://doi.org/10.1080/00221546.1992.11778347>
- Chao, P.-C. (2018). Using self-determination of senior college students with disabilities to predict their quality of life one year after graduation. *European Journal of Educational Research, 7*(1), 1-8. <https://doi.org/10.12973/eujer.7.1.1>
- Chong, T. (2014). Vocational education in Singapore: Meritocracy and hidden narratives. *Discourse: Studies in the Cultural Politics of Education, 35*(5), 637-648. <https://doi.org/10.1080/01596306.2014.927165>
- Church, M. A., Elliot, A. J., & Gable, S. L. (2001). Perceptions of classroom environment, achievement goals, and achievement outcomes. *Journal of educational psychology, 93*(1), 43. <https://doi.org/10.1037/0022-0663.93.1.43>
- Ciani, K. D., Middleton, M. J., Summers, J. J., & Sheldon, K. M. (2010). Buffering against performance classroom goal structures: The importance of autonomy support and classroom community. *Contemporary Educational Psychology, 35*(1), 88-99. <https://doi.org/10.1016/j.cedpsych.2009.11.001>
- Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in Higher Education, 11*(1), 25-36. <https://doi.org/10.1080/13538320500074915>
- Covington, M. V. (2000). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of Psychology, 51*(1), 171-200. <https://doi.org/10.1146/annurev.psych.51.1.171>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer.
- Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence, 21*(1), 225-241. <https://doi.org/10.1111/j.1532-7795.2010.00725.x>
- Eccles, J. S., Wigfield, A., Harold, R. D., & Blumenfeld, P. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development, 64*(3), 830-847. <https://doi.org/10.1111/j.1467-8624.1993.tb02946.x>
- Erikson, E. H. (1968). *Identity: Youth and crisis*. W.W. Norton & Company.

- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109. <https://doi.org/10.3102/00346543074001059>
- Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of belonging in college freshmen at the classroom and campus levels. *The Journal of Experimental Education, 75*(3), 203-220. <https://doi.org/10.3200/JEXE.75.3.203-220>
- Furrer, C., & Skinner, E. (2003). *Relatedness to social partner measure*. PsycTESTS Dataset. <https://doi.org/10.1037/t42455-000>
- Gest, S. D., Welsh, J. A., & Domitrovich, C. E. (2005). Behavioral predictors of changes in social relatedness and liking school in elementary school. *Journal of School Psychology, 43*(4), 281-301. <https://doi.org/10.1016/j.jsp.2005.06.002>
- Gizir, S. (2019). The sense of classroom belonging among pre-service teachers: Testing a theoretical model. *European Journal of Educational Research, 8*(1), 87-97. <https://doi.org/10.12973/eu-jer.8.1.87>
- Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *The Journal of Experimental Education, 62*(1), 60-71. <https://doi.org/10.1080/00220973.1993.9943831>
- Hurtado, S., & Ponjuan, L. (2005). Latino educational outcomes and the campus climate. *Journal of Hispanic Higher Education, 4*(3), 235-251. <https://doi.org/10.1177/1538192705276548>
- Hyde, J. S., & Durik, A. M. (2005). *Gender, competence, and motivation*. Guilford Press.
- King, K. (1993). Technical and vocational education and training in an international context. *The Vocational Aspect of Education, 45*(3), 201-216. <https://doi.org/10.1080/0305787930450302>
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. The Guildford Press.
- Koul, R., Lerdpornkulrat, T., & Chantara, S. (2011). Relationship between career aspirations and measures of motivation toward biology and physics, and the influence of gender. *Journal of Science Education and Technology, 20*(6), 761-770. <https://doi.org/10.1007/s10956-010-9269-9>
- Koul, R., Roy, L., & Lerdpornkulrat, T. (2012). Motivational goal orientation, perceptions of biology and physics classroom learning environments, and gender. *Learning Environments Research, 15*(2), 217-229. <https://doi.org/10.1007/s10984-012-9111-9>
- Kulik, J. A., & Kulik, C.-L. C. (1992). Meta-analytic findings on grouping programs. *Gifted Child Quarterly, 36*(2), 73-77. <https://doi.org/10.1177/001698629203600204>
- Lerdpornkulrat, T., Koul, R., & Poondej, C. (2018). Relationship between perceptions of classroom climate and institutional goal structures and student motivation, engagement and intention to persist in college. *Journal of Further and Higher Education, 42*(1), 102-115. <https://doi.org/10.1080/0309877X.2016.1206855>
- Levy-Tossman, I., Kaplan, A., & Assor, A. (2007). Academic goal orientations, multiple goal profiles, and friendship intimacy among early adolescents. *Contemporary Educational Psychology, 32*(2), 231-252. <https://doi.org/10.1016/j.cedpsych.2006.06.001>
- Lizzio, A., Dempster, N., & Neumann, R. (2011). Pathways to formal and informal student leadership: The influence of peer and teacher-student relationships and level of school identification on students' motivations. *International Journal of Leadership in Education, 14*(1), 85-102. <https://doi.org/10.1080/13603124.2010.482674>
- Mala, D. (2016). *Over: 14,000 vocational teachers needed urgently*. Bangkok Post. <https://www.bangkokpost.com/learning/advanced/1021089/ovec-14-000-vocational-teachers-needed-urgently>
- Maslow, A. H. (1948). "Higher" and "lower" needs. *The Journal of Psychology, 25*(2), 433-436. <https://doi.org/10.1080/00223980.1948.9917386>
- McRobbie, C., & Tobin, K. (1997). A social constructivist perspective on learning environments. *International Journal of Science Education, 19*(2), 193-208. <https://doi.org/10.1080/0950069970190205>
- Morris, P. (1996). Asia's four little tigers: A comparison of the role of education in their development. *Comparative Education, 32*(1), 95-110. <https://doi.org/10.1080/03050069628948>
- Murdock, T. B. (1999). The social context of risk: Status and motivational predictors of alienation in middle school. *Journal of Educational Psychology, 91*(1), 62-75. <https://doi.org/10.1037/0022-0663.91.1.62>
- Nelson, R. M., & DeBacker, T. K. (2008). Achievement motivation in adolescents: The role of peer climate and best friends. *The Journal of Experimental Education, 76*(2), 170-189. <https://doi.org/10.3200/JEXE.76.2.170-190>
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. Jossey-Bass.

- Pianta, R. C. (1994). Patterns of relationships between children and kindergarten teachers. *Journal of School Psychology, 32*(1), 15-31. [https://doi.org/10.1016/0022-4405\(94\)90026-4](https://doi.org/10.1016/0022-4405(94)90026-4)
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531-544. <https://doi.org/10.1177/014920638601200408>
- Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (1998). Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school. *Development and Psychopathology, 10*(2), 321-352. <https://doi.org/10.1017/S0954579498001631>
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88*(3), 408-422. <https://doi.org/10.1037/0022-0663.88.3.408>
- Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal, 38*(2), 437-460. <https://doi.org/10.3102/00028312038002437>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Seifert, T. L. (1995). Academic goals and emotions: A test of two models. *The Journal of Psychology, 129*(5), 543-552. <https://doi.org/10.1080/00223980.1995.9914926>
- Smerdon, B. A. (2002). Students' perceptions of membership in their high schools. *Sociology of Education, 75*(4), 287-305. <https://doi.org/10.2307/3090280>
- Spruyt, B., Van Droogenbroeck, F., & Kavadias, D. (2015). Educational tracking and sense of futility: A matter of stigma consciousness? *Oxford Review of Education, 41*(6), 747-765. <https://doi.org/10.1080/03054985.2015.1117971>
- Thai Ministry of University Affairs. (2019). *Education statistics*. <http://www.info.mua.go.th/info>
- Turner, J. C., Gray, D. L., Anderman, L. H., Dawson, H. S., & Anderman, E. M. (2013). Getting to know my teacher: Does the relation between perceived mastery goal structures and perceived teacher support change across the school year? *Contemporary Educational Psychology, 38*(4), 316-327. <https://doi.org/10.1016/j.cedpsych.2013.06.003>
- United Nations Educational, Scientific and Cultural Organization. (2012). *A place to learn: Lessons from research on learning environments* (UIS Technical paper No. 9). <http://uis.unesco.org/sites/default/files/documents/a-place-to-learn-lessons-from-research-on-learning-environments-2012-en.pdf>
- Urdan, T. (2004). Using multiple methods to assess students' perceptions of classroom goal structures. *European Psychologist, 9*(4), 222-231. <https://doi.org/10.1027/1016-9040.9.4.222>
- Urdan, T., & Schoenfelder, E. (2006). Classroom effects on student motivation: Goal structures, social relationships, and competence beliefs. *Journal of School Psychology, 44*(5), 331-349. <https://doi.org/10.1016/j.jsp.2006.04.003>
- Van Houtte, M. (2006). School type and academic culture: Evidence for the differentiation-polarization theory. *Journal of Curriculum Studies, 38*(3), 273-292. <https://doi.org/10.1080/00220270500363661>
- Van Houtte, M., & Van Maele, D. (2012). Students' sense of belonging in technical/ vocational schools versus academic schools: The mediating role of faculty trust in students. *Teachers College Record, 114*(7), 1-36.
- Wang, M.-T., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal, 47*(3), 633-662. <https://doi.org/10.3102/0002831209361209>
- Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology, 89*(3), 411-419. <https://doi.org/10.1037/0022-0663.89.3.411>
- Wentzel, K. R. (1999). Social-motivational processes and interpersonal relationships: Implications for understanding motivation at school. *Journal of Educational Psychology, 91*(1), 76-97. <https://doi.org/10.1037/0022-0663.91.1.76>
- Won, S., Wolters, C. A., & Mueller, S. A. (2018). Sense of belonging and self-regulated learning: Testing achievement goals as mediators. *The Journal of Experimental Education, 86*(3), 402-418. <https://doi.org/10.1080/00220973.2016.1277337>
- Zepke, N. (2015). Student engagement research: Thinking beyond the mainstream. *Higher Education Research & Development, 34*(6), 1311-1323. <https://doi.org/10.1080/07294360.2015.1024635>
- Zhao, R. B., & Chang, Y. C. (2019). Students' family support, peer relationships, and learning motivation and teachers fairness have an influence on the victims of bullying in middle school of Hong Kong. *International Journal of Educational Methodology, 5*(1), 97-107. <https://doi.org/10.12973/ijem.5.1.111>