

The Relationship with Faculty is More Important for Students' Learning and Well-Being Than the Relationship with Peers

Almut Elisabeth Thomas^{1*} , Marie Bilalovic¹, Manfred Herzog²

¹University of Teacher Education Carinthia, Department of Primary Education, Klagenfurt, Carinthia, Austria

²University College of Teacher Education Styria, Centre for Research Support, Graz, Styria, Austria

Corresponding author: Almut E. Thomas, University of Teacher Education Carinthia, Department of Primary Education, Klagenfurt, Carinthia, Austria. Email: almut.thomas@ph-kaernten.ac.at

Citation: Thomas AE, Bilalovic M, Herzog M (2024) The Relationship with Faculty is More Important for Students' Learning and Well-Being Than the Relationship with Peers. Int J Teach Learn Sci: IJTLS-106.

Received Date: 12 November, 2024; **Accepted Date:** 18 November, 2024; **Published Date:** 22 November, 2024

Abstract

Researchers from various theoretical backgrounds agree that high-quality social relationships are an indispensable prerequisite for high-quality learning motivation, mental health, and psychological well-being [1–5]. At the university, students can socialize with both faculty and fellow students, but relatedness with faculty (RF) and relatedness with peers (RP) can have different meanings for learning motivation and well-being. In this study, RF and RP of $N = 275$ university students were assessed in their first and third semester and their respective relevance in predicting autonomous motivation, academic procrastination, and affective well-being (positive and negative affect, and satisfaction with life) was examined. The main finding of this study is the great importance of RF for the outcomes associated with learning (i.e. autonomous motivation and procrastination), which, however, seems to change over the course of the study. Student well-being was predicted by RF and RP, with RF being more important for third semester students compared to first semester students. The findings of this study confirm the usefulness of considering the contributions of RF and RP to university students' learning and well-being and highlight research desiderata regarding changes in the importance of relatedness satisfaction for different outcomes that emerge over the course of study.

Keywords: self-determination theory; faculty, peers; social relatedness; well-being; academic procrastination.

Introduction

In their seminal work, Baumeister and Leary (1995) described the need to belong as a “fundamental human motivation” (p. 497) which affects much of what people do and how they feel. Since then, a lot of research from different traditions has confirmed and elaborated their findings (for an overview see 6). In the framework of Basic Needs Theory (BNT), which is one of the six mini-theories of Self-Determination Theory (SDT), social relatedness is considered one of three universal basic psychological needs, the satisfaction of which is vital for an individual's well-being and psychological health [5,7]. The positive effects of relatedness satisfaction as well as the negative effects of thwarting this basic need are significant. Educational psychology researchers found, for instance, that high-quality relationships with parents, teachers and/or peers positively affect students' autonomous motivation for learning, which in turn predicts achievement, persistence, and well-being [8,9]. Since the basic psychological needs are universal, the satisfaction of relatedness is important for people of all ages and therefore also for university students. For university students, lecturers as well as fellow students are essential components of their social environment. Relatedness satisfaction with members of the faculty (RF) may, however, have a different impact on students' motivation and well-being than relatedness satisfaction with peers (RP). Based on BNT [7], this study investigates differential associations of RF and RP on university students' autonomous learning motivation, academic procrastination, and general well-being.

BNT maintains that the satisfaction of three basic psychological needs, namely autonomy, competence, and relatedness is important for the development and maintenance of high-quality

motivation and well-being [10]. The need for autonomy reflects a longing to perceive oneself as the initiator of one's actions and behaviors, which corresponds to having an internal locus of control. The need for competence is satisfied when a person feels able to master the challenges ahead and to bring about desired changes. The need for social relatedness manifests itself in the longing for warm, trusting and supportive interpersonal relationships and the desire to belong to relevant social groups. Satisfaction of the three basic psychological needs fosters a whole range of adaptive outcomes, such high-quality forms of motivation in various situations and over the whole lifespan [11–13]. Within SDT, the Organismic Integration Theory, another mini-theory, describes different qualities of motivation, namely intrinsic motivation and various forms of extrinsic motivations. These motivations differ in the degree of self-determination, with more self-determined forms of motivation being seen as advantageous [14]. In this study, we examined two forms of motivation that are characterized by a high degree of self-determination: intrinsic motivation and identified regulation. Intrinsic motivation is considered to be the most self-determined form of motivation. It occurs when someone does what they actually like to do, and it is therefore associated with pleasant emotions [15]. Identified regulation, a form of extrinsic motivation that is also high in self-determination, occurs when a person wants to achieve something that is personally important to themselves [5]. As both intrinsic motivation and identified regulation are characterized by a high degree of self-determination, these two forms are summarized under the term autonomous motivation. Facilitating autonomous motivation is important, because highly self-determined forms of motivations are associated with various adaptive behaviors such as higher engagement, persistence, and achievement [16]. To the extent

that behaviors are regulated by more autonomous forms of motivation, they are associated with more positive experiences and greater psychological health and well-being [5]. Psychological well-being is a subjective evaluation of the quality of one's own life. It is present when both cognitive (e.g. life satisfaction) and emotional (e.g. affect) aspects are evaluated positively. Subjective well-being is seen as an indicator for optimal mental health [17–19]. The satisfaction of the basic psychological needs, and especially high-quality social relationships, can foster psychological well-being (17,20–22). For university students, León and Núñez [23] showed that relatedness satisfaction has an effect on their vitality and well-being.

Basic psychological needs satisfaction can also reduce negative outcomes, such as procrastination. Procrastination is defined as irrational postponing, delaying or putting off important learning tasks [24]. It often is regarded as a stable behavioral disposition [25]. Recent literature suggests, however, that procrastination is context- and task-related [24,26], and thus malleable. And although there is little research on this, evidence suggests that the more satisfied the three basic psychological needs are, the less individuals will procrastinate [27,28]. However, existing research suggests that the effects of relatedness satisfaction on procrastination may be rather small [27].

Like all basic psychological needs, relatedness is universal and there is no doubt that all people on earth, young and old, need valuable social relationships in order to thrive – and so do university students. In educational settings, students have social relationships not only with their teachers but also with their peers. For middle-school students, research shows that both, relatedness with their teachers and RP, have positive effects on their motivation, well-being, and academic outcomes [22,29,30]. Research also suggests that relatedness with teachers decreases with age and therefore may also be a better predictor of adaptive outcomes in younger students [31]. While several studies suggest that the positive effects of relatedness are larger for older students than for younger ones [8,32,33], a recent meta-analysis did not report changes in the strength of associations depending on the participants age [12]. That is, although relatedness with teachers may decrease with students' age, this does not necessarily reduce its importance [33]. Indeed, even for doctorate students, RF is meaningful and predicts adaptive behaviors, such as degree completion and short duration of studies [34,35]. Still, knowledge about the significance of RF for the development and maintenance of various adaptive and maladaptive outcomes in tertiary education is limited and little is known about the relative importance of RF and RP for university students' learning-related outcomes (autonomous motivations and procrastination) and subjective well-being. Since we are not aware of any research that investigates the predictive power of RP and RF together in university students, we designed the study to be exploratory. Although according to BNT, both RP and RF should predict autonomous motivation,

procrastination, and subjective well-being, their relative importance still needs to be analyzed. Furthermore, it is unclear whether the strength of the associations between basic needs satisfaction and autonomous motivations may change over time. Some research suggests that intrinsic motivation (as well as situational interest) is more vulnerable in unfamiliar situations than in familiar ones [36]. A development that is similar to how situational interest can develop into stable interest over time [37]. This would mean that in familiar situations intrinsic motivation is less strongly influenced by factors from the environment than in unfamiliar situations. In line with these research desiderata, our study aimed to answer the following research questions:

- (1) What is the relative explanatory power of RF and RP on indicators of university students' autonomous motivation, well-being, and procrastination?
- (2) Are there systematic changes in strength of association between relatedness satisfaction and university students' autonomous motivation, well-being, and procrastination?

Materials and Methods

Sample and Procedure

The sample consists of 275 university students (242 female) from the social sciences inscribed in a university college for teacher education in Austria. Students completed the questionnaire in their first and then again in their third semester. Students' mean age at the first assessment was $M = 20.94$ ($SD = 3.53$). The survey was conducted by the first author and took place as part of a course that was not led by the authors of the study. Students were informed about the aims of the study and participation was voluntary. No credits were given for participation.

Measures

RF and RP. These scales were designed to measure the extent to which students feel accepted favorably by the faculty (e.g., "I have good contact with the lecturers") and their favorable acceptance from and mutual support between students (e.g., "I feel accepted and valued by my fellow students"), respectively. RF was measured with four items and RP with three items. Both scales have successfully been used in other research projects [38,39].

Intrinsic motivation and identified regulation. Two subscales from the Scales for the Measurement of Motivational Regulation for Learning in University Students - SMR-L [40] were used for the assessment of intrinsic motivation and identified regulation. Intrinsic motivation and identified regulation were measured with three items each.

All items assessing RF, RP, intrinsic motivation, and identified regulation were to be answered on a 7-point rating-scale from not at all (1) to very much (7). Internal consistencies for these scales in the present study were between $\Omega = .65$ and $\Omega = .82$ (see Table 1).

Table 1: Descriptive variables, reliabilities, and latent correlations.

	<i>M</i> t1	<i>SD</i> t1	Ω t1	<i>M</i> t2	<i>SD</i> t2	Ω t2	1	2	3	4	5	6	7	8
1 RF	5.36	0.88	0.65	5.03	1.00	0.68		.51**	.54**	.41**	.30**	.54**	-.41**	-.11
2 RP	6.30	0.83	0.81	6.12	0.90	0.81	.73**		.24**	.29**	.28**	.22**	-.20**	-.07
3 IM	5.48	0.95	0.77	4.73	1.19	0.82	.59**	.29**		.79**	.27**	.74**	-.54**	-.16*
4 ID	6.08	0.89	0.73	5.66	1.01	0.72	.53**	.34**	.74**		.32**	.57**	-.28**	-.27**
5 SL	5.73	1.03	0.89	5.66	1.03	0.87	.18*	.38**	.21**	.31**		.27**	-.46**	-.28**
6 PA	2.91	0.66	0.75	2.33	0.76	0.76	.43**	.29**	.66**	.59**	.25**		-.38**	-.05
7 NA	0.87	0.54	0.73	0.98	0.72	0.83	-.29**	-.39**	-.30**	-.15	-.33**	-.30**		.19**
8 PC	2.74	0.67	0.91	2.84	0.76	0.94	-.46**	-.29**	-.38**	-.43**	-.31**	-.24**	.28**	

Note: RF = relatedness with faculty; RP = relatedness with peers; IM = intrinsic motivation; ID = identified regulation; SL = satisfaction with life; PA = positive affect; NA = negative affect; PC = procrastination; correlations at t1 are below the diagonal; * $p < .05$, ** $p < .01$.

Satisfaction with life. Satisfaction with life was assessed with the German version of Diener's satisfaction with life scale [18,41]. Students answered five items on a rating scale from strongly disagree (1) to strongly agree (7). Internal consistencies in the present study were $\Omega_{t1} = .89$ and $\Omega_{t2} = .87$ (see Table 1).

Positive affect and negative affect. For the assessment of positive and negative affect we used the German version of the Positive and Negative Affect Schedule (PANAS; 42,43). Of the total of 20 items, some had strong floor or ceiling effects, presumably because the affects surveyed are not relevant in a university environment. For the present analyses, we used only emotions that are relevant for learning during studies and accordingly showed good use of all categories. Positive affect was assessed with four items (i.e., "interested", "enthusiastic", "proud", "inspired") and negative affect with nine items (i.e., "distressed", "confused", "afraid", "upset", "ashamed", "nervous", "irritable") which are relevant in the context of learning. Answers were given on a rating-scale from not at all (0) to very much (5). Internal consistencies for these scales in the present study were between $\Omega = .73$ and $\Omega = .83$ (see Table 1).

Procrastination. Procrastination was assessed with a validated German short version of Lay's original scale [25,44] were items had to be answered on a rating-scale from extremely uncharacteristic (1) to extremely characteristic (5). Of the originally nine items three reversely formulated items were omitted, because their inclusion yielded unsatisfying psychometric results. One item had to be omitted, because of several unused categories. The remaining five items had internal consistencies of $\Omega_{t1} = .91$ and $\Omega_{t2} = .94$ (see Table 1).

Analyses

Although the data are longitudinal, we analyzed the data of each assessment separately. As different lecturers teach in the first, second and third semester, it is implausible that the relatedness satisfaction at time t1 would predict the results at time t2.

However, as the same students were surveyed at two points in time, the results from the two points in time are more comparable. Demographic characteristics were summarized using means, standard deviations, and Ω for all scales (see Table 1). There is a total of 179 (1.0%) missing values in the data. As Little's missing completely at random test [45] was not significant ($p = .388$) it can be assumed that the data were missing completely at random.

To investigate the differential contributions of RF and RP in the prediction of university students' autonomous motivation, well-being, and procrastination at the beginning and in their second year of study, two structural equation models (SEM) were estimated using diagonally weighted least squares (DWLS) estimation for ordinal data [46]. For the assessment of model performance, the following scaled fit-indices and cut-off values indicating adequate model-fit were used: (a) Comparative Fit Index ($CFI \geq 0.95$), (b) Tucker Lewis Index ($TLI \geq 0.90$), (c) Root Mean Square Error of Approximation ($RMSEA \leq 0.08$), and (d) Standardized Root Mean Squared Residual ($SRMR \leq 0.08$) (47,48). All analyses were performed with R Statistical Software (v 4.3.1, 49), the SEM were computed with the package lavaan (v 0.6.16, 50).

Results

Descriptive variables, reliabilities, and correlations of both samples are displayed in Table 1. The SEM for first-year students yielded adequate model-fit (Fig. 1; $\chi^2 = 628.328$, $df = 499$, $CFI = .975$; $TLI = .972$; $RMSEA = .032$; $SRMR = .060$) with all item-loadings $>.45$. Results show that RF positively predicts intrinsic motivation, identified regulation, and positive affect, and negatively predicts procrastination in first semester university students, whereas RP predicts satisfaction with life and negative affect. That is, RF essentially predicts variables strongly associated with learning (autonomous motivation and procrastination), while RP predicts aspects of well-being that are likely to be more strongly influenced by areas of life other than university learning (satisfaction with life).

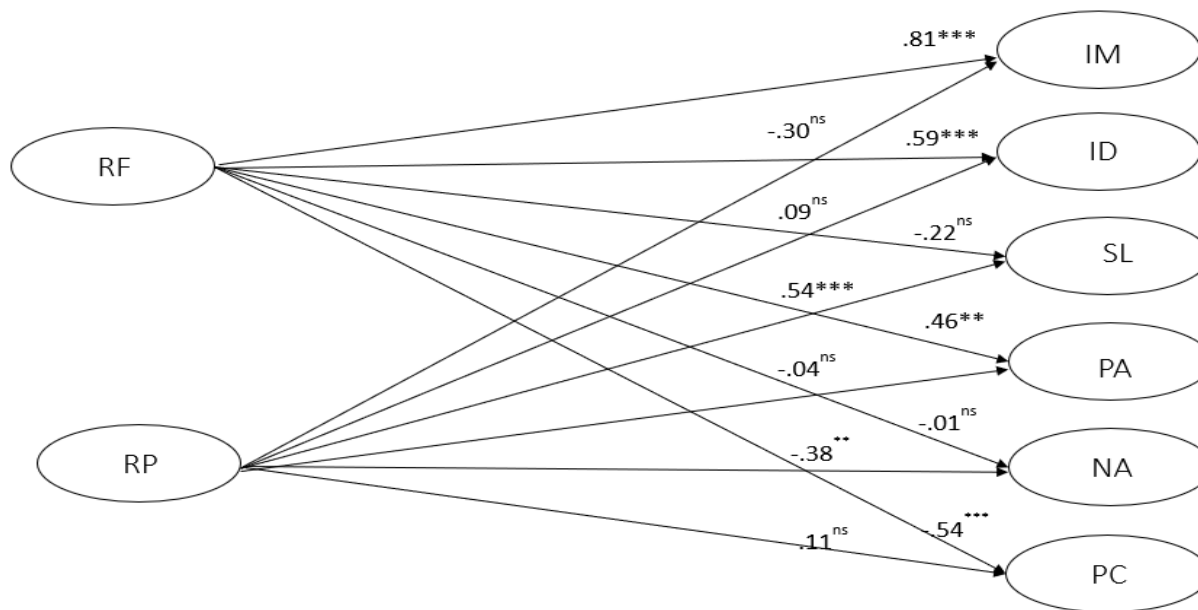


Figure 1: Structural equation model for first-semester students. RF = Relatedness with Faculty, RP = Relatedness with Peers, IM = Intrinsic Motivation, ID = Identified Regulation, SL = Satisfaction with Lief, PA = Positive Affect, NA = Negative Affect, PC = Procrastination; * $p < .05$, ** $p < .01$, *** $p < .001$.

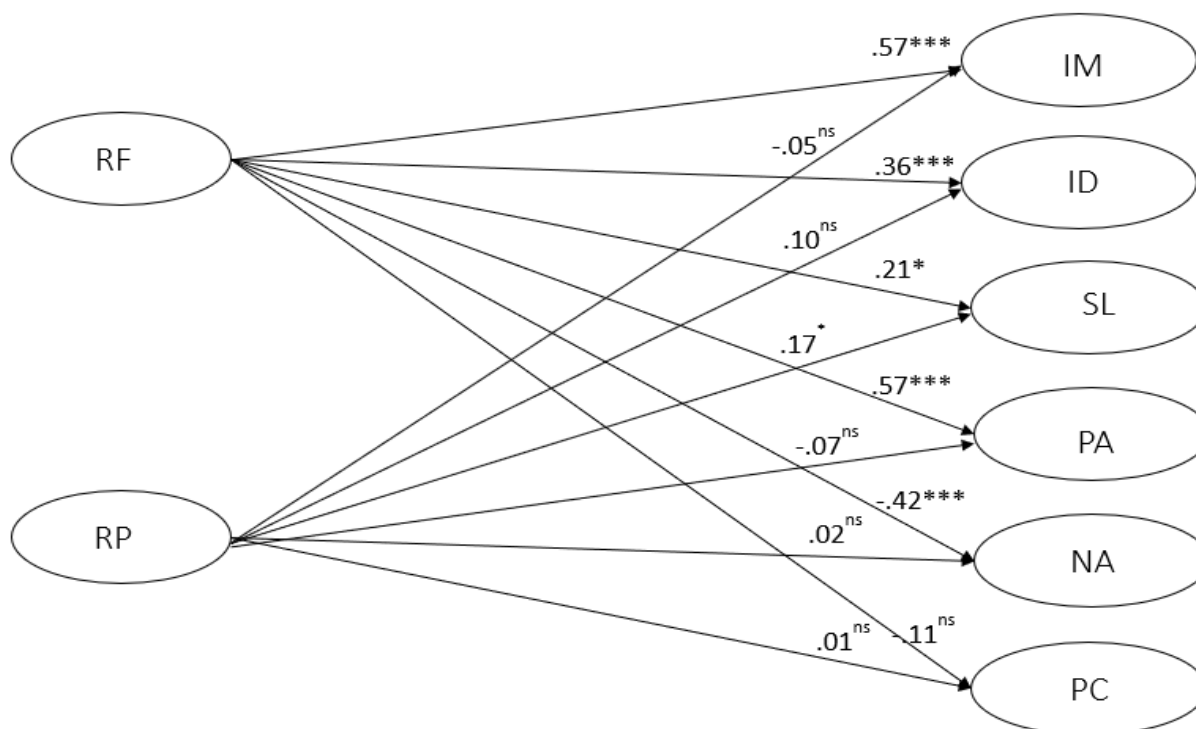


Figure 2: Structural equation model for third-semester students. RF = Relatedness with Faculty, RP = Relatedness with Peers, IM = Intrinsic Motivation, ID = Identified Regulation, SL = Satisfaction with Lief, PA = Positive Affect, NA = Negative Affect, PC = Procrastination; * $p < .05$, ** $p < .01$, *** $p < .001$.

The SEM for third-semester students also yielded adequate model-fit (Fig. 2; $\chi^2 = 725.982$, $df = 499$, CFI = .968; TLI = .964; RMSEA = .042; SRMR = .063) with all item-loadings $>.45$. Results for the third-semester students were similar to those for first-semester students: RF again positively predicts intrinsic motivation, identified regulation, and positive affect. However, in contrast to first-semester students, RF also predicted satisfaction with life, and negative affect for students in their third semester while the path for procrastination was non-significant. It is noteworthy that the path coefficients of RF for the variables that are strongly associated with learning

(autonomous motivations and procrastination) were smaller for students in their third semester than for students in their first semester, while the path coefficients for variables that measure well-being (satisfaction with life, positive affect, negative affect) were higher. In contrast to RF, RP was unable to predict the variables related to learning (autonomous motivations and procrastination) in either their first or their third semester. RP only predicted measures of well-being. While the associations for first-semester students were moderate, the importance of RP for all outcomes of third semester students was very low: only life satisfaction was significantly and to a small extent explained

by RP. Overall, it can be said that the importance of RF for learning is significantly higher than the importance of RP in both the first and third semesters of university. For subjective well-being, both RF and RP play an important role for university students in the first semester, but the importance of RF is significantly greater in the third semester.

Discussion

The aim of this study was to determine the relative predictive power of RF and RP for outcomes that are closely associated with learning and subjective well-being as well as differences between first- and third-semester university students in the strength of these associations. Previous research has shown that teacher-student relationships are important for numerous adaptive outcomes of their students [51]. Our research shows that even for university students, RF is very important and has – especially for beginners – a high explanatory power in understanding outcomes which are strongly associated with learning (intrinsic motivation, identified regulation, and procrastination). The great importance of RF for the learning of university students represents a major advantage of face-to-face courses compared to online learning environments, in which support of relatedness is often inadequate [52].

Results also indicate that the importance of RF shifts in the course of the bachelor's program. The path coefficients for intrinsic motivation and identified regulation were smaller for students in their third semester than for first-semester students and RF no longer predicted procrastination in third-semester students. This might indicate that autonomous motivations and procrastination are more susceptible at the beginning of a new education and become more trait-like and therefore less susceptible to external influences as the course of studies progresses. Other research showing that intrinsic motivation is more vulnerable in unfamiliar situations is in line with these findings [36]. Further research on the trait and state components of these constructs is urgently needed to be able to make more precise statements about the vulnerability of motivational variables in unfamiliar and familiar situations. To our knowledge, research on the susceptibility of motivation that also considers familiarity with the learning object as a moderator is still lacking.

The subjective well-being of first semester students is hardly predicted by RF. Only students' positive affect is associated with RF. That is, RF does not yet play a role in the life satisfaction of students in their first semester. However, this is different for students in their third semester. Our data suggest that the longer the course of study, the greater the importance of RF for the subjective well-being of students. We consider it likely that the contribution of study satisfaction to general life satisfaction increases as the course of study progresses, because studying at university is becoming an increasingly important part of life. This would explain why RF only predicts life satisfaction among students in their third semester, but not among first-year students.

In contrast to RF, RP did not predict outcomes related to student learning (i.e., autonomous motivation and procrastination) in either the first or third semester. Thus, our data suggest that, unlike RF, RP hardly plays a role in learning during higher education. It is, however, possible that for some students RP plays an important role in shared leisure activities with fellow students that compete with learning, so that a positive effect that

RP has on the learning motivation of other students is nullified. The missing correlations could therefore be due to the fact that RP is positively associated with learning motivation for some students and negatively for others. Li et al. [53], for example, showed that RP is associated with both place attachment among university students and increased alcohol consumption. This means that RP can have positive as well as negative consequences and can therefore affect different students differently. However, apart from Li et al. [53], we are not aware of any studies on the positive and negative effects of RP on learning motivation. It would therefore be important for further empirical studies to shed light on this topic. For first semester students' RP was predictive of satisfaction with life and negative affect, but not positive affect. The associations between RP and negative affect in first-semester students could be due to the fact that some students have not yet established friendships at the beginning of their studies and that the lack of such positive relationships favors negative emotions.

Interestingly, the associations of RP with the indicators of well-being (satisfaction with life, positive affect, and negative affect) were even lower in the third semester than in the first semester. The lack of importance of RP for students' emotions can be explained by the fact that learning at tertiary educational institutions often takes place in a form that does not allow students to participate much, for example as a lecture. In such a learning environment, relationships with fellow students play only a minor role and therefore have no effect on students' emotional state.

The results of this study raise several questions that should be clarified in further research. Firstly, the study indicates that RF is a very important factor for students' learning and subjective well-being. The great importance of RF and the relatively low importance of RP would have to be examined in further studies. The study also provides initial indications that the significance of RF and RP changes over the course of the study. For autonomous motivations in particular, it would be interesting to find out whether these can be influenced more strongly in unfamiliar situations than in familiar situations. In summary, it can be said that RF plays a very important role in students' motivation to learn, their learning behavior, and well-being, whereas the importance of RP is rather low. The great importance of lecturers for students' learning and well-being is certainly often underestimated but holds great potential for improving higher education.

References

1. Allen KA, Gray DL, Baumeister RF, Leary MR. The need to belong: A deep dive into the origins, implications, and future of a foundational construct. *Educ Psychol Rev.* June 2022;34(2):1133–56.
2. Baumeister RF, Leary MR. The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychol Bull.* 1995;117(3):497–529.
3. Keller H. Attachment. A pancultural need but a cultural construct. *Curr Opin Psychol.* April 2016;8:59–63.
4. Knee CR, Browne L. Relationships Motivation Theory. In: Ryan RM, Editor. *The Oxford Handbook of Self-Determination Theory.* 1. Aufl. Oxford University Press; 2023. S. 160–84.

5. Ryan RM, Deci EL. Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemp Educ Psychol*. April 2020;61:101860.
6. Gabriel S. Reflections on the 25th anniversary of Baumeister & Leary's seminal paper on the need to belong. *Self Identity*. January 2021;20(1):1–5.
7. Vansteenkiste M, Ryan RM, Soenens B. Basic psychological need theory: Advancements, critical themes, and future directions. *Motiv Emot*. February 2020;44(1):1–31.
8. Furrer C, Skinner EA. Sense of relatedness as a factor in children's academic engagement and performance. *J Educ Psychol*. 2003; 95:148–62.
9. Niemiec CP, Ryan RM. Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory Res Educ*. June 2009;7(2):133–44.
10. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol*. 2000;55(1):68–78.
11. Milyavskaya M, Koestner R. Psychological needs, motivation, and well-being: A test of self-determination theory across multiple domains. *Personal Individ Differ*. February 2011;50(3):387–91.
12. Slemp GR, Field JG, Ryan RM, Forner VW, Van Den Broeck A, Lewis KJ. Interpersonal supports for basic psychological needs and their relations with motivation, well-being, and performance: A meta-analysis. *J Pers Soc Psychol*. 2024; Available at: <https://doi.apa.org/doi/10.1037/pspi0000459>
13. Tang M, Wang D, Guerrien A. A systematic review and meta-analysis on basic psychological need satisfaction, motivation, and well-being in later life: Contributions of self-determination theory. *PsyCh J*. February 2020;9(1):5–33.
14. Pelletier LG, Rocchi M. Organismic Integration Theory: A theory of regulatory styles, internalization, integration, and human functioning in society. In: Ryan RM, Editor. *The Oxford Handbook of Self-Determination Theory*. New York, NY: Oxford University Press; 2023. S. 53–83.
15. Løvoll HS, Røysamb E, Vittersø J. Experiences matter: Positive emotions facilitate intrinsic motivation. *Zourbanos N, Herausgeber. Cogent Psychol*. December 2017;4(1):1340083.
16. Ryan RM, Deci EL. Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemp Educ Psychol*. January 2000;25(1):54–67.
17. Diener E, Lucas RE, Oishi S. Advances and open questions in the science of subjective well-being. Hall N, Donnellan MB, Herausgeber. *Collabra Psychol*. January 2018;4(1):15.
18. Diener E, Seligman MEP. Beyond money: toward an economy of well-being. *Psychol Sci Public Interest*. July 2004;5(1):1–31.
19. Park N. The role of subjective well-being in positive youth development. *Ann Am Acad Pol Soc Sci*. January 2004;591(1):25–39.
20. Baard PP, Deci EL, Ryan RM. Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *J Appl Soc Psychol*. October 2004;34(10):2045–68.
21. Hope NH, Holding AC, Verner-Filion J, Sheldon KM, Koestner R. The path from intrinsic aspirations to subjective well-being is mediated by changes in basic psychological need satisfaction and autonomous motivation: A large prospective test. *Motiv Emot*. April 2019;43(2):232–41.
22. Tian L, Tian Q, Huebner ES. School-related social support and adolescents' school-related subjective well-being: the mediating role of basic psychological needs satisfaction at school. *Soc Indic Res*. August 2016;128(1):105–29.
23. León J, Núñez JL. Causal ordering of basic psychological needs and well-being. *Soc Indic Res*. November 2013;114(2):243–53.
24. Steel P. The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychol Bull*. 2007;133(1):65–94.
25. Lay CH. At last, my research article on procrastination. *J Res Personal*. December 1986;20(4):474–95.
26. Wäschle K, Allgaier A, Lachner A, Fink S, Nückles M. Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. *Learn Instr*. 2014; 29:103–14.
27. Codina N, Castillo I, Pestana JV, Valenzuela R. Time perspectives and procrastination in university students: exploring the moderating role of basic psychological need satisfaction. *BMC Psychol*. January 2024;12(1):5.
28. Opendakker MC. Need-supportive and need-thwarting teacher behavior: Their importance to boys' and girls' academic engagement and procrastination behavior. *Front Psychol*. 2021; 12:628064.
29. Wentzel KR. Social relationships and motivation in middle school: The role of parents, teachers, and peers. *J Educ Psychol*. 1998;90(2):202–9.
30. Zimmer-Gembeck MJ, Chipuer HM, Hanisch M, Creed PA, McGregor L. Relationships at school and stage-environment fit as resources for adolescent engagement and achievement. *J Adolesc*. December 2006;29(6):911–33.
31. Goodenow C. Classroom belonging among early adolescent students: Relationships to motivation and achievement. *J Early Adolesc*. 1993;13(1):21–43.
32. Lynch M, Cicchetti D. Children's relationships with adults and peers: An examination of elementary and junior high school students. *J Sch Psychol*. March 1997;35(1):81–99.
33. Roorda DL, Koomen HMY, Spilt JL, Oort FJ. The influence of affective teacher-student relationships on students' school engagement and achievement: a meta-analytic approach. *Rev Educ Res*. 2011;
34. Baird LL. Disciplines and doctorates: The relationships between program characteristics and the duration of doctoral study. *Res High Educ*. August 1990;31(4):369–85.
35. D'Andrea LM. Obstacles to completion of the doctoral degree in colleges of education: the professors' perspective. *Educ Res Q*. 2002;25(3):42–59.
36. Thomas AE, Mueller FH. A magic dwells in each beginning? Contextual effects of autonomy support on students' intrinsic motivation in unfamiliar situations. *Soc Psychol Educ*. December 2017;20(4):791–805.
37. Krapp A. Basic needs and the development of interest and intrinsic motivational orientations. *Learn Instr*. October 2005;15(5):381–95.
38. Müller FH, Thomas AE, Carmignola M, Dittrich AK, Eckes A, Großmann N, u. a. University students' basic psychological needs, motivation, and vitality before and during COVID-19: A self-determination theory approach. *Front Psychol*. 2021;12. Available at: <https://www.frontiersin.org/article/10.3389/fpsyg.2021.775804>.

39. Müller FH, Thomas AE. Die Bedeutung der sozialen Einbindung für die autonome Motivation und das Wohlbefinden im Lehramtsstudium [The importance of social integration for autonomous motivation and well-being in teacher training programs]. In: Martinek D, Hoffmann F, Müller FH, Editor. *Motivierte Lehrperson werden und bleiben Analysen aus der Perspektive der Theorien der Persönlichkeits-System-Interaktionen und der Selbstbestimmung*. Münster, New York: Waxmann; 2018. S. 101–22.
40. Thomas AE, Müller FH, Bieg S. Entwicklung und Validierung der Skalen zur motivationalen Regulation beim Lernen im Studium (SMR-LS) [Development and Validation of Scales for the Measurement of Motivational Regulation for Learning in University Students]. *Diagnostica*. July 2018;64(3):145–55.
41. Janke, Glöckner-Rist. Deutsche Version der Satisfaction with Life Scale (SWLS). 2012 [8. April 2015]; Available at: <http://zis.gesis.org/DoiId/zis147>
42. Krohne HW, Egloff B, Kohlmann CW, Tausch A. Untersuchung mit einer deutschen Form der Positive and Negative Affect Schedule (PANAS) [Investigation with a German form of the Positive and Negative Affect Schedule (PANAS)]. *Diagnostica*. 1996; 42:139–56.
43. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: The PANAS scales. *J Pers Soc Psychol*. 1988;54(6):1063–70.
44. Klingsieck KB, Fries S. Allgemeine Prokrastination: Entwicklung und Validierung einer deutschsprachigen Kurzskaala der General Procrastination Scale (Lay, 1986) [General procrastination: development and validation of a German-language short scale of the General Procrastination Scale (Lay, 1986)]. *Diagnostica*. January 2012;58(4):182–93.
45. Little RJA. A test of missing completely at random for multivariate data with missing values. *J Am Stat Assoc*. December 1988;83(404):1198–202.
46. Bandalos DL. Relative performance of categorical diagonally weighted least squares and robust maximum likelihood estimation. *Struct Equ Model Multidiscip J*. January 2014;21(1):102–16.
47. Schermelleh-Engel K, Moosbrugger H, Müller H. Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods Psychol Res*. 2003;8(2):23–74.
48. Tucker LR, Lewis C. A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*. March 1973;38(1):1–10.
49. R Core Team. R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing; 2024. Available at: <https://www.R-project.org/>
50. Rosseel Y. lavaan: An R Package for Structural Equation Modeling. *J Stat Softw*. 2012 [7. August 2024];48(2). Available at: <http://www.jstatsoft.org/v48/i02/>
51. Ansari A, Hofkens TL, Pianta RC. Teacher-student relationships across the first seven years of education and adolescent outcomes. *J Appl Dev Psychol*. November 2020; 71:101200.
52. Durksen TL, Chu MW, Ahmad ZF, Radil AI, Daniels LM. Motivation in a MOOC: A probabilistic analysis of online learners' basic psychological needs. *Soc Psychol Educ*. June 2016;19(2):241–60.
53. Li M, Frieze IH, Nokes-Malach TJ, Cheong J. Do friends always help your studies? Mediating processes between social relations and academic motivation. *Soc Psychol Educ*. March 2013;16(1):129–49.

Copyright: © 2024 Thomas AE. This Open Access Article is licensed under a *Creative Commons Attribution 4.0 International (CC BY 4.0)*, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.