INTRODUCTION

Following the call for more university graduates, the proportion of university students is continuously growing (OECD, 2017). There is, however, a significant number of students who are struggling at university. Data from several countries show that many students are suffering from mental illnesses (Germany: Grobe & Steinmann, 2015; UK: Thorley, 2017), while other research has found low motivation and high dropout rates among university students (Baker, 2017; Heublein et al., 2012). Higher education degrees are not just beneficial to graduates’ income and mental health (OECD, 2017). These individuals’ dropout rate is also of societal relevance, as research also provides evidence that societies’ economic growth is predicted by the number of graduates (Holland et al., 2013).

The current research aimed to further the understanding of the preconditions of students’ well-being and academic success. We tested the assumption that students’ sense of belonging to the university (i.e., the experience of a positive relationship to the university and/or its members) predicts well-being, motivation, and dropout intention. Moreover, we assumed that the development of this sense of belonging depends substantially on the high versus low fit between students’ self-construal and perceived university norms.

The fit between dignity self-construal and independent university norms: Effects on university belonging, well-being, and academic success

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Abstract
Universities struggle with students’ low well-being and high dropout rates. High (compared to low) fit between students’ self-construal and perceived university norms might help to prevent these problems. A strong dignity self-construal (i.e., the understanding that one’s worth is independent of others) is adaptive if university norms stress independence. The more a university norm is perceived as stressing independence, the better the fit for students with a strong (vs. weak) dignity self-construal. Thus, if students with a strong dignity self-construal perceive a university norm as stressing independence, they should develop a greater sense of belonging to the university and, in turn, experience higher well-being, more motivation, and lower dropout intention. A longitudinal study with two measurement points conducted with students from 18 universities (N = 719) provided support for these predictions. This underlines the relevance of the fit between student and (perceived) school characteristics for the higher education sector.

KEYWORDS
academic success, dignity self-construal, motivation, Person-environment fit, sense of belonging, well-being
norms—following the logic of the Person-Environment fit (P-E fit) framework (Caplan & Harrison, 1993; Edwards et al., 1998). In a longitudinal study among students from 18 universities, we examined whether a better P-E fit between students’ dignity self-construal (i.e., the understanding that one’s worth is independent of others) and the perception of independent university norms predicts students’ well-being, academic motivation, and dropout intention, via sense of belonging to the university. Thereby, the current research contributes to the understanding of the impact of social psychological factors on some of the challenges university students are currently facing. This knowledge might potentially help alleviate these well-being, motivation, and attrition problems, simultaneously supporting the individual and society.

1.1 | P-E fit between perceived independent university norms and dignity self-construal

Effects of the fit between individuals and their environment (or their perception of this environment)—so-called P-E fit effects—have long been studied in personality and organizational psychology (e.g., Endler & Magnusson, 1976; Kristof, 1996). In social psychology, they recently had a revival in the context of regulatory fit effects (Higgins, 2005; Sassenberg & Hamstra, 2017). All these fields share the assumption that higher P-E fit contributes to individuals’ well-being and motivation and prevents dropout (e.g., Chatman, 1989; Edwards & Shipp, 2007; Kristof, 1996; for a meta-analysis see Verquer et al., 2003). Therefore, it seems likely that the P-E fit has similar effects in a university context, where it has not been applied to the same extent as in the before-mentioned domains. But what are relevant person and environment characteristics in a university context?

A common feature of universities is that they require independence and focus on the comparison between students. Universities assess performance at the individual level and use this performance as a criterion to regulate access to master programs. In addition, outstanding students receive scholarships, and universities compete for the best students. Furthermore, university education demands initiative, self-guidance, and thus independence regarding opinions and decisions from students (Bryde & Milburn, 1990). More recently, the public debate in Germany (where the current research was conducted) has been characterized by many complaints about the reduction of students’ degrees of freedom, and a lower need for independence as outcomes of the Bologna process (e.g., Hendriks, 2012; Kuhn, 2016). At the same time, the perception that independence is essential for success at universities is still dominant in the public perception of universities (i.e., among students: Luetzelberger, 2014; and in the media, e.g., Meyer-Guckel, 2015).

In sum, this suggests that independence is most likely perceived to be a core element of university norms, though potentially to varying degrees depending on the competitiveness of the degree program and the specific curriculum (e.g., competitive individual assignments vs. collaborative learning projects).

This demand for independence resonates well with individuals high in independent self-construal (Stephens et al., 2012; Tibbetts et al., 2016). Students with a higher independent self-construal perform better in independent tasks than students with a lower independent self-construal (i.e., first generation students and students from families with low SES). In the current research, we aim to go beyond this finding in two ways. First, we focus on a different (though related) aspect of the self-construal, namely dignity self-construal. Second, we focus on the relationship of P-E fit with the development of students’ sense of belonging to the university over time, as well as their well-being, academic motivation, and dropout intention.

Why did we focus on dignity rather than independence? Research has often categorized Eastern cultures as interdependent or collectivist, and Western cultures as independent or individualistic. A more nuanced approach seems to be more adequate. The North American culture and many North-West European cultures are better characterized by dignity (Kim & Cohen, 2010). The dignity ideal suggests that each human being possesses an equal intrinsic value which is inalienable and independent of others’ evaluations. Dignity cultures value the freedom from external constrains (i.e., liberty). This is also what differentiates dignity cultures from other independent cultures. For instance, in cultures in which individuals live on the edge of survival, independence implies the freedom over others (e.g., to exert one’s will; for a more detailed discussion, see Kim & Cohen, 2010). Thus, dignity as a core cultural value—and the resulting dignity self-construal of members of a culture—is able to more precisely capture the commonalities between North-West European and North American cultures, compared to the broader concept of independence. Accordingly, as the research focused on a North-West European (to be more precise: German) university context, the current research used dignity self-construal: a culturally bound interindividual difference regarding the origin of people’s self-esteem.

Taken together, having a strong dignity self-construal means believing that one’s self-worth depends exclusively on one’s own judgment and cannot be taken away by others (Ayers, 1984; Kim & Cohen, 2010; Leung & Cohen, 2011). Consequently, the self-esteem of an individual high in dignity self-construal should be independent of others’ judgment. Moreover, a stronger dignity self-construal should also render individuals’ opinions and academic decisions more independent from those of others. This independence of self-esteem and, relatedly, of attitudes and decisions of individuals high in dignity self-construal, should resonate well with independent university norms (high P-E fit). Self-determined academic decisions and independence regarding opinions is exactly what independent university norms ask for. However, if individuals high in dignity self-construal perceive the norm of their university as not stressing independence, they should experience a low P-E fit.

High versus low P-E fit describes a (mis-)match between students and their perception of the university. Importantly, the extent of match or fit is likely to have a wide range of implications. Low fit will lead to negative experiences ranging from misunderstandings to rejection experiences, whereas high fit will at least result in a smooth
interaction with the organization but might also facilitate integration and performance as well as other positive experiences. Over the course of time these positive or negative experiences might accumulate in the psychological consequences, which we discuss in the next section.

1.2 Consequences of P-E fit: sense of belonging and beyond

The following lines of research suggest that the sense of belonging to a university can be undermined by experiencing a low fit between one’s own self-construct and the perceived norm of the university, whereas experiencing a high fit should bolster this sense of belonging. According to a study by Mok et al. (2016), for instance, the sense of belonging of high school students with a minority background depends on their fit with the norms in their class. Moreover, research has repeatedly shown that P-E fit correlates with organizational identification, satisfaction with the supervisor and colleagues, as well as group cohesion (for a meta-analysis see Kristof-Brown et al., 2005). From these findings, we predict that the more university norms are perceived as stressing independence, the more individuals high (but not those low) in dignity self-construal will develop a stronger sense of belonging to the university over time (Hypothesis 1). Sense of belonging is a very proximal outcome of experienced P-E fit and in that sense it serves as indicator of P-E fit in the current study.

Well-being: Low fit between individuals and the norm of their group leads to negative affect, stress, and lowered well-being (Sassenberg et al., 2011). In the university context, students’ fit with the norms of fellow students and of the university major predicts well-being (Sagiv & Schwartz, 2000; Sortheix & Lönnqvist, 2015; for similar findings in organizations see Maslach & Leiter, 1997). Given that the sense of belonging has a positive impact on well-being (for a review see Baumeister & Leary, 1995), and that a positive relationship with a social group often promotes well-being by acting as a buffer against stress (Scholl et al., 2019; Tay & Diener, 2011; Walton & Cohen, 2011), the sense of belonging might play a key role in these effects. We therefore expect that a stronger sense of belonging predicts higher well-being (Hypothesis 2a). Moreover, we assume that perceived independent university norms will assert an indirect effect on well-being in those high (but not those low) in dignity self-construal via sense of belonging to the university (Hypothesis 3a).

Academic motivation: Educational and vocational research has shown repeatedly that P-E fit correlates with engagement and motivation (Eccles et al., 1993; Maslach & Leiter, 2008). Task persistence and intrinsic motivation are particularly likely to suffer when there is no fit between students’ values (e.g., the way they approach learning) and the achievement norms predetermined by the context (e.g., setting of competitive vs. competency oriented goals; Elliot & Harackiewicz, 1994). According to self-determination theory (SDT; Deci & Ryan, 2008), the sense of belonging (i.e., need for relatedness) might also play a key role in intrinsic motivation. SDT argues that the sense of belonging facilitates intrinsic motivation because in a socially supportive learning environment, students feel free to pursue their personal interests (Deci et al., 1991; Niemiec & Ryan, 2009). In line with this reasoning, research has demonstrated that minimal belonging positively influences schoolchildren’s academic motivation (e.g., Furrer & Skinner, 2003; Hamre & Pianta, 2005). This led us to the hypothesis that a stronger sense of belonging is associated with stronger academic motivation (Hypothesis 2b). Together with Hypothesis 1 this implies that the perception of a university norm asking for independence asserts an indirect effect on academic motivation via sense of belonging to the university when dignity self-construal is high as opposed to when it is low (Hypothesis 3b).

Dropout intention: Not surprisingly, P-E fit is also associated with persistence of individuals in the respective environment (Caplan, 1987; Holland, 1997; Kristof, 1996). Individuals who experience a low fit between their strategies and the organizational demands have higher turnover intentions (Hamstra et al., 2011), and ethnic minority college students who feel a low fit between their values and the university environment show stronger intentions to drop out of the college (Gloria et al., 2005; Gloria & Kupries, 1996). Again, the sense of belonging might play a key role in these effects because a sense of belonging and social identification generally render dropping out less likely (Ellemers et al., 1997; Ng, 2015). For instance, Morrow and Ackermann (2012) found that students experiencing a sense of belonging to the student community were less likely to consider quitting their degree program. In line with this notion, we predicted that sense of belonging to the university is negatively related to dropout intention (Hypothesis 2c). Moreover, an indirect effect of perceived university norms on dropout intention via sense of belonging to the university should occur for individuals high (but not for those low) in dignity self-construal (Hypothesis 3c).

1.3 The present research

The aim of the present research was to increase insight into the preconditions of students’ well-being, motivation, and dropout intention. To this end, we applied the P-E fit framework to the university context to examine (a) whether students’ dignity self-construal and the perceived independent university norms interact in their influence on students’ sense of belonging to the university and (b) whether students’ sense of belonging to the university in turn predicts students’ well-being, motivation, and dropout intention. More precisely, we hypothesized that the more university norms are perceived as stressing independence, the more individuals high (but not low) in dignity self-construal will develop a stronger sense of belonging to the university (Hypothesis 1). The sense of belonging to the university in turn predicts better well-being, stronger motivation, and lower dropout intentions (Hypotheses 2a–c). Combining these predictions, we also assume that the fit between perceived independent university norms and dignity self-construal predicts well-being, motivation, and dropout intention via sense of belonging (i.e., indirect effects, see Figure 1 for an overview of these hypotheses).
First evidence for these effects and the resulting model has been provided by a cross-sectional study that was conducted at a single university (Suhlmann et al., 2018). Given that this was a cross-sectional study, it left open more questions regarding causality and it did not target the development (i.e., change) of sense of belonging over time. Moreover, the relationships found in that study may be an outcome of the specific features of that single university in which the study was conducted. Therefore, we aimed to replicate that study with a much more sophisticated design to provide stronger evidence for the model underlying both Suhlmann et al. (2018) and the current study. To this end, we conducted a longitudinal study with two measurement points including students from 18 different universities.

2 | METHOD

Seven hundred and nineteen native German undergraduate students of different degree and study programs (e.g., Bachelor, Master or comparable) from eighteen German universities participated in this two-wave longitudinal online survey (56% female, one person did not indicate his/her sex, $M_{age} = 23.02$, age range 17–46 years).\(^1\)

There was a six-month period between T1 and T2, and students who participated in both waves were reimbursed with a 10 Euro voucher for an online store. In addition, after having participated in T1, students took part in a lottery where they could win one of ten 50 Euro vouchers for an online store.

Two hundred and fifteen additional students with Chinese or Turkish roots likewise participated in this study, but were not included in the current analysis. This was due to potential confounds, such as language difficulties and visible minority status, affecting their sense of belonging to the university and its downstream consequences. Moreover, the dignity self-construal associated with Western cultures might not be that prevalent in or relevant for these non-Western minority groups. These issues should apply less to students with a German university entrance degree. For this reason, we also calculated our main analyses including this group ($N = 847$).

The resulting model revealed effects of a similar or even larger size for all hypotheses (for a depiction of the resulting model see Figure S2 in the supplementary material). For the sake of consistency with Suhlmann et al. (2018), all analyses reported below only rely on students of German origin.

There was a 17% attrition rate from T1 to T2. T-tests comparing those who did not take part at T2 with those who took part in both waves revealed that students who did not take part at T2 showed a lower sense of belonging to the university ($M_{T1only} = 4.84$, $SD = 0.93$, range: 2.29–6.86; $M_{T1&T2} = 5.05$, $SD = 0.83$, range: 1.57–7.00), $t(162.71) = 2.30, p = .023, d = 0.25$, lower well-being ($M_{T1only} = 3.33$, $SD = 0.56$, range: 1.48–4.00; $M_{T1&T2} = 3.55$, $SD = 0.41$, range: 1.52–4.00), $t (147.79) = 3.98, p < .001, d = 0.45$, lower motivation ($M_{T1only} = 4.80$, $SD = 0.93$, range: 2.17–6.50; $M_{T1&T2} = 5.00$, $SD = 0.96$, range: 1.42–7.00), $t (717) = 2.13, p = .034$, $d = 0.21$, a higher intent to drop out of university ($M_{T1only} = 2.19$, $SD = 1.50$, range: 1–7; $M_{T1&T2} = 1.80$, $SD = 1.25$, range: 1–7), $t (157.07) = -2.66, p = .009$, $d = 0.30$, and were older ($M_{T1only} = 23.63$, $SD = 3.20$, range: 18–37; $M_{T1&T2only} = 22.89$, $SD = 3.19$, range: 17–46), $t (715) = -2.34, p = .020, d = 0.23$. There were no other differences between the two samples, all $t$s($T1<T2$)<1, $p$s$ >0.3$. Given that the attrition rate was low, differences between both groups were small in size (except for well-being), and the range was not restricted in the final sample, we conclude that the attrition is not likely to bias the analysis substantially.

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\(^1\)The research data for the current study is available at http://dx.doi.org/10.23668/psycharchives.2797. The data analyses scripts can be found at http://dx.doi.org/10.23668/psycharchives.2796.

\(^2\)Degrees of freedom vary due to correction for unequal variance.
2.1 Procedure

Fifty-four German universities with more than 10,000 students were contacted. Eighteen universities invited Bachelor and Master students to participate in a study on ‘German university culture’ by sharing the link to the online questionnaire from the university website or via e-mail. To increase the number of participants, we additionally posted the link on university specific pages and to student groups via Facebook.

After receiving information about the study and data treatment as well as providing consent, students completed the questionnaire, which included measures beyond those relevant for the present hypotheses (see Table S1 in the supplementary material for a complete list of assessed concepts). For the longitudinal analyses, responses of each participant for both measurement waves were matched via the e-mail address.

2.2 Measures

All measures were assessed on a 7-point scale (strongly disagree—strongly agree) unless otherwise indicated. All measures were scored in a way that higher values indicate a stronger manifestation of the concept (see Table 1 for descriptive statistics and bivariate correlations).

Dignity self-construal was measured with six items ($\alpha_{T1} = 0.72$; $\alpha_{T2} = 0.73$) from the Inalienable Worth Scale (Leung & Cohen, 2011; e.g., ‘How others treat me is irrelevant to my worth as a person’) and the Others’ Approval subscale of the Contingencies of Self-Worth Scale (Crocker et al., 2003; e.g., ‘I don’t care what other people think of me’). A combination of both scales was used to be able to capture all relevant aspects of dignity self-construal (for a similar approach see Suhlmann et al., 2018). To the best of our knowledge, there is no well-established measure of dignity self-construal.

Perceived independent university norms consisted of two items adapted from the culture measure (Stephens et al., 2012, e.g., ‘My university expects me to work independently’, Spearman-Brown $\rho_{T1} = 0.66$; $\rho_{T2} = 0.83$).

Sense of Belonging to the University was measured with seven items ($\alpha_{T1} = 0.73$; $\alpha_{T2} = 0.78$) adapted from the Psychological Sense of School Membership Scale (Goodenow, 1993; e.g., ‘Other students of my university like me the way I am’). The original scale was shortened, using three criteria: We excluded items that were only suitable for minority (rather than minority and majority) students, items only suitable for high school (rather than university students), and redundant items. In the results section we use “university belonging” instead of “sense of belonging to the university” to improve the readability.

Well-being was measured by the 25 item-version of the Hopkins Symptoms Checklist (HSCCL-25; $\alpha_{T1} = 0.92$; $\alpha_{T2} = 0.94$; Hesbacher et al., 1980; Nettelbladt et al., 1993). Participants had to indicate how often during the last week they had experienced specific depressive (e.g., ‘feeling blue’) and anxiety symptoms (e.g., ‘heart pounding or racing’). Response options ranged from 1 (not at all) to 4 (extremely) and were recoded so that higher values indicate higher well-being.

Academic motivation was measured with 12 items of the Academic Motivation Scale ($\alpha_{T1} = 0.84$; $\alpha_{T2} = 0.82$; Vallerand et al., 1992). Participants indicated the degree to which different intrinsic response options to the question ‘Why do you go to university?’ applied to them (e.g., ‘Because I experience pleasure and satisfaction while learning new things’). Response options ranged from 1 (does not correspond at all) to 7 (corresponds exactly).

Dropout intention was assessed by asking whether the student considered dropping out from the present degree program. Response options ranged from 1 (no, never) up to 7 (yes, daily; based on Vallerand et al., 1997).

2.3 Analysis strategy

The data were analysed with a path analysis model in Mplus version 7.3 (Muthén & Muthén, 1998-2015). The collected data represent a clustered data structure, due to the sample being obtained from eighteen different universities. As such, we used Robust Maximum Likelihood estimation with cluster robust standard errors (type = complex), with university as cluster variable (for a justification of this approach see McNeish et al., 2017). Full Information Maximum Likelihood estimation was used for the treatment of missing data.

Given that the relations between university belonging and the three outcome variables—well-being, motivation, and dropout intention—are well studied, we tested these relations within T2. On the other hand, the key interaction effect of perceived independent university norms and dignity self-construal on a change in the sense of university belonging (T2 controlling for T1) was tested between measurement points to gain insights about the temporal ordering of this effect. The P-E fit interactions were computed by multiplying the z-standardized variables perceived independent university norm and dignity self-construal. We allowed for correlations between the independent variables as the interaction term was the product of the two independent variables. Similar to Suhlmann et al. (2018), we allowed for a direct path of both students’ dignity self-construal on well-being, and perception of independent university norms on academic motivation. To enhance the model fit, we also allowed for a direct path from students’ dignity self-construal on dropout intention based on suggestions by a modification index. Not including this path in the model does not make the predicted path insignificant. Moreover, given that a stronger dignity self-construal implies independence from others’ judgment in a positive as well as in a negative sense, a higher dignity self-construal should lead to resilience against negative social experiences (e.g., conflicts, see Beersma et al., 2003 for a similar argument). In line with this, and consistent with the current finding, Thomas and Lucas (2019) found that dignity self-construal predicts turnover intentions negatively. The added, originally not expected, path is thus consistent with our theoretical framework and the literature.
### TABLE 1  Pearson's correlations and descriptive statistics for all variables

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| (1) Dignity Self-Construal T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (2) Dignity Self-Construal T2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (3) Perceived Independent University Norms T1 | -0.10** | -0.01 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (4) Perceived Independent University Norms T2 | -0.26** | -0.06* | 0.60** |  |  |  |  |  |  |  |  |  |  |  |  |
| (5) University Belonging T1 | 0.08* | 0.05 | 0.02 | -0.06 |  |  |  |  |  |  |  |  |  |  |  |
| (6) University Belonging T2 | -0.10** | 0.03 | 0.15** | 0.27** | 0.57** |  |  |  |  |  |  |  |  |  |  |
| (7) Well-being T1 | 0.33** | 0.23** | -0.08* | -0.22** | 0.32** | 0.22** |  |  |  |  |  |  |  |  |  |
| (8) Well-being T2 | 0.27** | 0.24** | -0.05 | -0.10** | 0.31** | 0.29** | 0.69** |  |  |  |  |  |  |  |  |
| (9) Academic Motivation T1 | 0.11** | 0.01 | -0.10** | -0.24** | 0.25** | 0.04 | 0.16** | 0.16** |  |  |  |  |  |  |  |
| (10) Academic Motivation T2 | -0.11** | -0.06 | 0.18** | 0.24** | 0.20** | 0.32** | 0.03 | 0.07 | 0.52** |  |  |  |  |  |  |
| (11) Dropout Intention T1 | -0.10** | -0.03 | 0.03 | 0.15** | -0.22** | -0.08 | -0.40** | -0.23** | -0.38** | -0.26** |  |  |  |  |  |
| (12) Dropout Intention T2 | -0.16** | -0.10** | 0.04 | 0.14** | -0.26** | -0.18** | -0.49** | -0.48** | -0.28** | -0.24** | 0.62** |  |  |  |  |
| (13) Sex T1 (1 = male; 2 = female; 3 = other) | -0.18** | -0.15** | 0.10** | 0.11** | 0.04 | 0.03 | -0.04 | -0.03 | 0.11** | 0.12* | -0.11** | -0.05 |  |  |  |
| (14) Age T1 (in years) | 0.01 | -0.02 | 0.05 | 0.04 | 0.03 | 0.04 | -0.05 | -0.03 | -0.06 | 0.03 | 0.12** | 0.04 | -0.05 |  |  |
| (15) Semester T1 | -0.13** | -0.05* | 0.04 | 0.11** | 0.02 | 0.08* | -0.09* | -0.01 | -0.17** | 0.04 | 0.13** | 0.11** | -0.02 | 0.40** |  |
| Mean | 3.92 | 3.78 | 6.15 | 5.82 | 5.02 | 4.83 | 3.51 | 3.51 | 4.97 | 4.72 | 1.87 | 1.91 | 1.57 | 23.02 | 4.74 |
| Variance | 1.08 | 0.79 | 0.65 | 1.25 | 0.72 | 0.78 | 0.20 | 0.22 | 0.91 | 0.76 | 1.68 | 1.83 | 0.25 | 10.21 | 8.13 |
| Range | 1.17–6.50 | 1.67–6.67 | 1.50–7.00 | 1.00–7.00 | 1.57–7.00 | 1.86–7.00 | 1.50–4.00 | 1.88–4.00 | 1.42–7.00 | 1.33–7.00 | 1.00–7.00 | 1.00–4.00 | 1.00–46.00 | 1.00–20.00 |

Note: Note. N = 719 *p ≤.05; **p ≤.01.
The resulting model was also tested with demographic variables as predictors of each outcome variable, which is common practice in many fields. Finally, our data allowed us to gain (at least some) more insights about the causal relation between the variables in our model. To this end, we conducted two multiple regression analyses in Mplus separately for each path in the model (Hypotheses 2a–c). First, we regressed the outcome at T2 (i.e., well-being, academic-motivation, and dropout intention) on this concept at T1 and university belonging at T1 to test the causal direction predicted by our model. Second, we regressed the university belonging at T2 on university belonging at T1 (separately) on each outcome variable at T1 (i.e., well-being, academic-motivation, and dropout intention) to test for the causal order opposite to what we predicted (for more information about this analysis see supplementary materials).

We conducted separate regressions rather than testing all relations in one model, to test the relation between the concepts across time independently of the other predictors that might partial out variance and thereby reduce the size of the path for one but not for the other causal direction (i.e., each outcome was separately regressed on belonging and belonging was separately regressed on each outcome, rather than each outcome being separately regressed on belonging but belonging being simultaneously regressed on all three outcomes). This test was not included for Hypothesis 1, because it would have required predicting an interaction term. This does not capture a meaningful psychological concept as the product variable is merely operationalizing the interaction effect.

3 | RESULTS

3.1 | Preliminary analyses

The predictors dignity self-construal, perceived independent university norms, and university belonging varied almost across the range of the scales. Therefore, the sample seemed to be sufficiently diverse. Unsurprisingly, university norms were perceived to emphasize independence, which stresses (in line with our arguments above) the importance of dignity self-construal. Most importantly for the current analysis, the correlation between dignity self-construal at T1 and perceived independent university norm at T1 was low ($r = -0.10$). Thus, the precondition for entering them simultaneously as predictors in a regression (together with the interaction between them), which is required to test Hypothesis 1, is fulfilled (see Table 1 for descriptive statistics).

3.2 | Hypotheses testing

The overall fit of the predicted model was good $\chi^2 = 37.81, df = 9, CFI = 0.95, RMSEA = 0.07$ (see Figure 2). Therefore, the interpretation of single paths of the model was justified. The model indicated that students’ university belonging (T2 controlled for T1) was significantly predicted by the perceived independent university norms ($B = 0.11, SE = 0.03, p = .002; 95\%-CI [.040; .169]$) and by dignity self-construal ($B = -0.12, SE = 0.03, p < .001; 95\%-CI [-.176; -.067]$). More importantly, we expected and found a significant interaction of perceptions of independent university norms (T1) and students’ dignity self-construal (T1) on university belonging (T2), while controlling for university belonging (T1) ($B = 0.09, SE = 0.04, p = .035; 95\%-CI [.006; .170]$). Consistent with Hypothesis 1, simple slope analyses showed that for high dignity self-construal, higher independent university norms predicted a stronger university belonging at T2 (+1 SD: $B = 0.19, SE = 0.07, p = .004; 95\%-CI [.061; .325]$). This relation was not found for those low in dignity self-construal (−1 SD: $B = 0.02, SE = 0.03, p = .628; 95\%-CI [-0.050; 0.082]$, see also Figure 3; for a discussion of the somewhat surprising allocation of the two regression lines in the figure, see below). The predictors account for 37.1% of the variance of university belonging at T2, $R^2 = 0.371, SE = 0.04, z = 8.79, p < .001$.

![Figure 2](image_url)
The fit between dignity self-construal and independent university norms: Effects on university belonging, well-being, and academic success

In line with Hypothesis 2a, we found that change in university belonging (from T1 to T2) was positively related to the students’ well-being at T2 ($B = 0.16, SE = 0.02, p < .001; 95%-CI [0.115; 0.207], R^2 = 0.168, SE = 0.02, z = 8.62, p < .001$). Moreover, in line with Hypothesis 2b, we found that change in university belonging (from T1 to T2) had a similar positive relationship with motivation at T2 ($B = 0.29, SE = 0.04, p < .001; 95%-CI [0.209; 0.375], R^2 = 0.119, SE = 0.04, z = 3.45, p = .001$). Finally, in line with Hypothesis 2c, change in university belonging (from T1 to T2) had a negative relationship with students’ dropout intention at T2 ($B = −0.29, SE = 0.08, p < .001; 95%-CI [−0.438; −0.146], R^2 = 0.071, SE = 0.02, z = 3.23, p = .001$).

In line with Hypotheses 3a–c, perceived independent university norms at T1 asserted an indirect effect on well-being at T2 ($B = 0.03, SE = 0.009, p = .001, 95%-CI [0.013, 0.049]$), academic motivation at T2 ($B = 0.06, SE = 0.03, p = .030, 95%-CI [0.006, 0.107]$) and dropout intention at T2 ($B = −0.06, SE = 0.03, p = .041, 95%-CI [−0.110, −0.002]$) via change in university belonging (from T1 to T2), for students with a strong dignity self-construal ($± 1 SD$) at T1. These indirect effects were not observed for students low in dignity self-construal at T1 ($± 1 SD$); well-being at T2: $B = 0.003, SE = 0.006, p = .636, 95%-CI [−0.008, 0.013]$; academic motivation at T2: $B = 0.005, SE = 0.010, p = .634, 95%-CI [−0.015, 0.024]$; dropout intention at T2: $B = −0.005, SE = 0.010, p = .620, 95%-CI [−0.024, 0.014]$).

Beyond the main focus of the current research (and the P-E fit approach), the dignity self-construal and the independent university norm asserted direct main effects on well-being, dropout intention, and motivation. To be more precise, we found a direct positive effect for perceived independent university norms at T1 on students’ academic motivation at T2 ($B = 0.12, SE = 0.02, p < .001; 95%-CI [.079; 0.170]$). In addition, students with a higher dignity self-construal at T1 had a stronger well-being at T2 ($B = 0.15, SE = 0.02, p < .001; 95%-CI [.101; 0.193]$) and a weaker dropout intention at T2 ($B = −0.28, SE = 0.05, p < .001; 95%-CI [−0.381; −0.182]$) at T2. These more specific results are consistent with earlier work (Suhllman et al., 2018) suggesting that independent norms may in particular relate to (institutional) motivation, while personal dignity construal relates more to personal well-being type variables. We also tested a path analysis model in which university belonging at T1 was controlled for all criterion variables, thus also for the dependent variables well-being, academic motivation, and dropout intention. This altered model led to the same conclusions regarding the hypotheses (for details see Table S3 and Figure S5 in the supplementary material).

### 3.2.1 Controlling for Demographics

We tested an additional model adding gender, age, and year of studies (semester) as covariates to the model reported before. This model showed an acceptable model fit ($\chi^2 = 76.15, df = 21, CFI = 0.92, RMSEA = 0.06$) and likewise provided evidence for Hypothesis 1 (dignity x university norm interaction at T1: $B = 0.08, SE = 0.04, p = .05$), Hypothesis 2a (well-being at T2: $B = 0.16, SE = 0.02, p < .001$), Hypothesis 2b (motivation at T2: $B = 0.29, SE = 0.04, p < .001$), and Hypothesis 2c (dropout intention at T2: $B = −0.30, SE = 0.08, p < .001$). Supporting Hypotheses 3a–c, for students with a strong ($± 1 SD$, all $ps < 0.05$) rather than weak dignity self-construal ($− 1 SD$, all $ps > 0.5$), perceived independent university norms asserted an indirect effect via university belonging on well-being, motivation, and dropout intention.

### 3.3 Testing for (Reversed) causality between university belonging and the outcome variables

In the separate analyses we tested Hypotheses 2a–c; university belonging (T1) correlated positively with well-being (T2, $B = 0.05, SE = 0.02, p = .01$), whereas well-being (T1) did not correlate with university belonging (T2, $B = 0.01, SE = 0.14, p = .92$). Moreover, stronger university belonging (T1) predicted lower dropout intentions (T2, $B = −0.19, SE = 0.04, p < .001$), but dropout intentions (T1) did not predict university belonging (T2, $B = 0.04, SE = 0.03, p = .17$). Finally, there was a trend indicating that higher university belonging (T1) predicted stronger motivation (T2, $B = 0.08, SE = 0.04, p = .05$), but higher motivation (T1) predicted lower levels of university belonging across time ($B = −0.11, SE = 0.05, p = .02$; for more details about the analyses see Table S4–S6 in the supplementary material). In all four cases covering Hypotheses 2a–c, there was evidence (in case of motivation only a trend) for the causal order we assumed and no evidence for the reversed causal order. Even though these analyses by no means provide conclusive evidence regarding causality, they nonetheless support the causal order we assume in our model (Figure 1).

### 4 Discussion

The current research aimed to contribute to the understanding of the sources of deficits in well-being, motivation, and dropout intention among university students. To this end, we examined the
impact of the fit between students' dignity self-construal and independence norms (the perception of a university's demand that their students strive for independence) on sense of belonging to the university, and in turn on well-being, motivation, and dropout intention. A longitudinal study with two measurement points showed that in line with Hypothesis 1, higher perceived independent university norms led students with a higher (but not lower) dignity self-construal to develop a lower sense of belonging to the university. In turn, a change in sense of belonging to the university positively predicted well-being and motivation, and negatively predicted dropout intention, thus providing evidence for the positive effects of university belonging predicted in Hypotheses 2a–c. Taken together, these effects resulted in the indirect effects of fit between perceived independence norms and dignity self-construal predicted in Hypotheses 3a–c. Earlier research on P-E fit in the university context either focused on performance (Stephens et al., 2012) or used a cross-sectional design investigating a single university (Suhlmann et al., 2018). Using a longitudinal design and a sample from 18 different universities, this study was the first to show that P-E fit affects students' sense of belonging to the university and in turn, highly relevant outcomes of well-being and academic success across time and universities. The fact that the explained variance of the outcome variables ranges from 7% to 17% underlines this conclusion.

The model we proposed (Figure 1) makes assumptions about the causal relation between variables. On the whole, the analyses we report support these assumptions. However, the conclusions that can be drawn about causal relations based on the current correlational data are clearly limited. Here additional experimental research would allow us to take a step forward. In addition, controlling for potential third variables which might cause predictors and outcomes would also be beneficial.

Interestingly, the students with a strong dignity self-construal who perceived strong independence norms at their university did not reach a level of university belonging higher than that of students low in dignity self-construal (see Figure 3). In other words, students high on both dimensions who should have experienced the strongest fit did not report the strongest sense of belonging to the university. There are four potential explanations for this pattern of results. First, the reported effects are controlled for by the autocorrelation of sense of belonging to the university, thus mainly capturing the change in sense of belonging to the university rather than the absolute level. The fit just might not lead to a change in sense of belonging. However, ruling out this explanation, the pattern looks very similar when the auto-correlation is not included in the analysis. Second, and more likely, the effect is a result of experiencing a low fit between the student's self-construal, which is based on dignity as a specific form of independence, and the norms of the university, which are perceived to stress independence much less. This might result in a feeling of low fit which undermines the sense of belonging to the university, while it might be that a feeling of high fit simply does not boost the sense of belonging to the university. A similar argument and finding have been put forward for the fit between group members’ goal striving strategies and group norms regarding these strategies. In this context, low fit led to a negative relation to one's own group (e.g., disidentification), whereas high fit did not facilitate social identification (Hamstra et al., 2015). Given that we did not measure positive and negative aspects of students’ relation to their university separately, this explanation is highly speculative. Third, it could also be argued that individuals with a high dignity self-construal are less likely to develop a strong sense of belonging to the university in the first place (which is consistent with the main effect we found of dignity self-construal on university belonging); the mechanisms underlying the data pattern deserve attention in future research. Finally, the pattern might be partly an outcome of the fact that we included students at different stages of their studies. Students in master programs might already have developed a stable sense of belonging at T1 which would have worked against change (i.e., the results we found among those with a low dignity self-construal). For this reason, other P-E fit research has only considered people at the early phase of their membership in an organization (e.g., Sassenberg & Scholl, 2013). No matter what actually caused the current pattern of results, it should be noted that the P-E fit effect in the current study was rather produced by those experiencing a misfit between their self-construal and the university norms than by those experiencing a fit.

Given the recent discussions about the replicability of psychological research, it is important to stress that the current study replicates our own earlier work (Suhlmann et al., 2018) with two small differences. First, the final model here included a direct path from dignity self-construal to dropout intentions, in contrast to the model in Suhlmann et al. (2018) in which this pathway was never tested for. Our hypotheses neither excluded such a path nor were they by any means concerned with the main effects of dignity self-construal. Based on the P-E fit framework, they focused on the interaction between dignity self-construal and perceived independent university norms. Therefore, we consider this difference as very minor. Second, the pattern of the interaction was driven by low fit in the current study (discussed in the preceding paragraph), whereas it was driven by low and high fit in the earlier study (Suhlmann et al., 2018). Here, further research is needed to draw a final conclusion (as mentioned above).

Another question for further research is whether dignity self-construal and university norms remain unrelated over time or whether they converge. One might argue that university norms assert an impact on self-construal and over the years students might adapt to the environment. This would suggest that relevant aspects of the self-construal should increasingly correlate. However, it might also be the case that the self-construal remains stable and university norms do not assert an influence on it.

### 4.1 Strengths and Limitations

The longitudinal design presents some strengths over existing work. First, we were able to test for the predictions over time (controlling for the concept at T1) and to test for the reversed
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causal order. Even though the conclusions about causality that can be drawn from such a design are still limited, this is a substantial advance in comparison to the earlier study testing the current hypotheses (Suhllmann et al., 2018). However, ideally one would aim for a three-wave longitudinal study assessing each step of the model in a separate wave.

Similarly, the longitudinal design allows conclusions to be drawn about the impact of fit between self-construal and perceived university norms on changes in the sense of belonging to the university. In this context, doing a third wave to test the effects of sense of belonging to the university on well-being, motivation, and dropout intention over a longer time frame would have been desirable. However, given that the causal effects of sense of belonging have been well documented (Baumeister & Leary, 1995), we deemed this to be less relevant.

Another strength of the current study is that it involved students from 18 different universities. For pragmatic reasons, similar research is often conducted at one single university or at very few institutions, but there is the risk that the documented effects are driven by the specific context of that university (e.g., the competitive climate at an elite university). Given that we were able to collect data from students at a broad range of diverse universities, it can clearly be ruled out here that generalizability of the results is at stake.

In addition, the range of outcome variables assessed, namely well-being as a health indicator, as well as academic motivation and dropout intention as indicators for academic success, is a strong point of this study. The findings demonstrate the broad relevance of P-E fit and sense of belonging to the university. Sense of belonging to the university is clearly a resource that helps students cope with academic and other life problems.

A limitation of the current research is that it focused on sense of belonging to the university, whereas earlier research has taken a broader approach to belonging and also assessed authenticity (Jansen et al., 2014). Future research might extend the current model by also testing the impact of P-E fit on authenticity and its implications on well-being, motivation, and dropout intentions.

4.2 | Implications

The current study clearly demonstrates that the P-E fit approach is also a productive framework for research in higher education, given that we have shown that high compared to low fit leads to a more positive development of university belonging. There are a number of implications for the higher education sector. First, universities (would) do well to offer differently structured programs that stress diverse kinds of norms appealing to the different self-construals of the students, so avoiding that some students experience low fit. This will ensure that students with different construals develop a sense of belonging to the university, which in turn promotes notable student outcomes. It is important to note that we have studied perceived rather than actual norms. Therefore, the universities would not need to offer degree programs with different norms, but they would need to take care that norms can be perceived differently (i.e., fitting for students with different self-construals). Second, universities could consider students’ varying self-construals by offering diverse classes, programs, or projects (collective projects, competitive vs. cooperative styles) to students with different predominant self-construals. The current research has focused on the fit between dignity self-construal and perceived independent university norms, but it is also likely that students with other predominant self-construals (e.g., interdependence or honor-related) will better respond to a perceived university norm that represents a fit with their self-construal (Smith et al., 2014). Finally, universities should care about students’ sense of belonging because (this) belonging predicts a number of relevant outcomes. Actions that facilitate students’ sense of belonging to the university are likely to increase well-being and academic success.

5 | CONCLUSION

Considering the fit between perceived university norms and students’ self-construal is useful to understand students’ well-being and academic success. A low fit between perceived independent university norms and students’ dignity self-construal undermines their sense of belonging to the university and in turn their well-being and motivation. In addition, it contributes to a higher dropout intention. This implies that students might benefit from searching for a degree program that fits their self-construal. Thus, universities would be well advised to (a) design degree programs that allow students with diverse self-construals to adjust their norms or (b) offer interventions that help students with different self-construals cope with the given norms (Tibbetts et al., 2016). Further research is definitely needed to replicate the current findings before recommendations can be formulated for the higher education sector. Nonetheless, the current research contributes to a growing body of literature suggesting that university norms crucially contribute to students’ low well-being and academic success.

ETHICS STATEMENT

This research was conducted ethically, responsibly, and legally. Results are reported openly and honestly. The submitted work is original, not (self-)plagiarized, and has not been published elsewhere. This research has been approved by the ethics committee at the Knowledge Media Research Center/Leibniz-Institut für Wissensmedien (Tübingen, Germany).

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CONFLICT OF INTEREST

None of the authors experienced a conflict of interest.
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