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# The Relation between Vocational Commitment and Need Fulfillment in Real Time Experiences in Clinical Internships

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## ABSTRACT



This study concerns the question how specific characteristics of real-time experiences relate to commitment change. The focus is on the real-time fulfillment of the basic needs: the need for competence, for relatedness and for autonomy. The research question was: “What is the relation between real time need fulfillment and commitment in psychology students during their practical internships?” The participants were 56 master students who did a five-month clinical internship in psychology. The participants wrote at least 19 weekly diary reports (in a period of 5 months) about the most important experience in their internship in that week, and in addition they filled in a short questionnaire. With a linear mixed model analysis, the relation was analyzed between need fulfillment and commitment on an individual and on a group level. The basic needs were found to be a relevant characteristic of experiences: need fulfillment or need frustration was described in by far most experiences. Experiences with a positive need fulfillment were related to higher levels of commitment strength than experiences that concerned frustration of need fulfillment, or that did not report need fulfillment. This pattern of relations was found in 90% of the individual participants. The experiences of the atypical 10% of the participants reflected a non-optimal relationship with their internship or supervisor.

## KEYWORDS

microlevel; identity;  
individual development

Most developmental identity theories that are rooted in Erikson’s (1968) conceptualization of (Bosma & Kunnen, 2001; Kroger & Marcia, 2011; Luyckx et al., 2006; van der Gaag, Albers and Kunnen, 2017) define identity formation as an individual’s trajectory of commitment development in different domains of life. Marcia defined commitments as the “degree of personal investment an individual exhibits” (Marcia, 1966, p. 551). In this paper, I address the development of vocational commitments, thus identity development in the domain of study and work. Optimally, this process starts with exploration of possibilities, emotions, values and preferences of oneself and of the affordances and restrictions of the context (Bosma & Kunnen, 2001; Kroger & Marcia, 2011). During the exploration process individuals develop notions of what is important for them, what helps them to know who they are, and what they want to do in their working life, resulting in the formation of commitments.

Most identity development takes place in the late adolescence and emerging adulthood (Arnett, 2007), thus during and shortly after the period of study. As a university teacher, I observed that especially the clinical internships seemed to be relevant for this process. For psychology students, a clinical internship is often an important and eye-opening experience in the development of their transition vocational commitment. Several studies (Brooks, 2014; Willis et al., 2019) have demonstrated that students’ identities change over the course of a professional internship. Experiences during the internship shape the students’ perspective on the work field and the vocational identity. During this learning experience, it is expected that a number factors contribute to students’ commitment. In

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this paper, I focus on proximal factors that play a role in the daily experiences of the students during their internships.

Traditionally, identity theory focuses on long-term development. It addresses identity development in late adolescence and emerging adulthood as a process of exploration and commitment formation that unfolds over years (Erikson, 1968; Luyckx et al., 2006; Marcia, 1966). In the last decades, the question arose how real-time experiences are related to this long-term development Theo A. Klimstra et al 2021. Identity formation is seen as a relational process that takes place in the continuous interaction between a person and the context. Several authors developed models of how commitments may emerge from these interactions (Bosma & Kunnen, 2001; Klimstra et al., 2010; Lichtwarck-Aschoff et al., 2008; Van Der Gaag, 2017).

However, empirical knowledge about the relation between real-time interactions and long-term identity development is still scarce. Exceptions are the studies of Klimstra et al. (2010) and Van Der Gaag (2017). In this study, I aim to add to this knowledge by studying how specific characteristics of real-time experiences relate to commitment development within individuals over time. Real-time experience is in this study operationalized as diary reports about a specific experience. There is increasing evidence that identity development is a so-called non-ergodic process (for elaboration of the concept of non-ergodicity see, for example, Fisher et al., 2018; Kunnen, 2012). In a non-ergodic process, the relations between two variables may differ within one person over time, as compared to the relation between the variables in a group. Moreover, there is evidence that relations between identity and other variables over time may differ for different individuals (Shirai & Kunnen, 2020; Van Der Gaag et al., 2016).

Because little is known about real-time identity development, one of the questions is which experiences are relevant in this development. In a previous study of Ten Hooft et al. (2018) we found, using interpretative phenomenological analysis, that the fulfillment of the three innate psychological needs as defined by Ryan and Deci (2000) is an important characteristic of identity relevant experiences in novice nurses. In their self-determination theory, Ryan and Deci state that the urge to develop an integrated sense of self is a central feature of who we are as individuals and the activity that is necessary for this natural developmental trajectory is intrinsically motivated. This intrinsic motivation is both driven by three innate psychological needs: The need for autonomy, the need to feel competent, and the need for relatedness. Fulfillment of these psychological needs is considered as a major factor influencing motivation and wellbeing (Ryan & Deci, 2000), and via motivation and wellbeing the experience of need fulfillment in the internship is an important factor in the students' feeling at home in their internship and committed to their future profession.

In this study, I therefore studied the relation between commitment strength and the fulfillment (or frustration) of the basic needs. The research question is thus: "What is the relation between real time need fulfillment and commitment strength in psychology students during their practical internships?" To answer that question I analyzed how commitment and need fulfillment relate to each other in the whole group, and an additional question whether the relations that were found are applicable to all individuals, or whether subgroups exist and if so, what characterizes these.

Firstly, I explored how often the need for competence, relatedness and autonomy play a role in the real-time experiences. I differentiated between need fulfillment and frustrated need. Next, I investigated the relation between the fulfillment of the need for competence, autonomy and relatedness in an experience, and the level of vocational commitment.

Hypothesis: I expect that need fulfillment is related to the highest commitment score, frustrated need to the lowest, and mixed fulfillment or no indication of need fulfillment in between these two.

Secondly, I explored the differences between participants. I explored whether the relation between commitment strength and need fulfillment and frustration that is found on a between person level is also found within each individual. I explored whether subgroups are found or whether there are atypical cases both with regard to the frequency of specific experiences, and with regard to the patterns

of relationships between the need experiences and commitment. I explored, by analyzing the described experiences, whether different subgroups or exceptional cases show specific characteristics.

## Method

### *Participants*

The participants were students who did a clinical internship in neuropsychology, developmental psychology, clinical psychology or forensic psychology. The (unpaid) internship lasts about 5 months (19–25 weeks), and takes 3–4 days each week. It takes place in the final semester of their master studies. Students have to apply for internships, and are supervised by both external and internal supervisors. The purpose of these internships is to give students hands-on experience and expose them to the types of jobs for which their degrees intend to prepare them for the job market. In general, students start with attending intakes, assessments and treatments, and gradually do more and more of these activities under supervision and finally independently. In the last weeks of the internship most students perform the tasks of a novice psychologist. During the introduction meeting for the internships students were asked to send a mail when they were interested in the study. Those who responded received additional information and an informed consent. Special care was taken to ensure that the author, who is also involved in teaching in this master period, was not aware of the identity of the participants. Participants received 40 Euro after finishing the first part of the study including the diary, and 20 Euro if they also filled in follow-up questionnaires. The study was approved by the Ethical Committee of Psychology of the University of Groningen. Participants did their internships in four different cohorts between 2016 and 2018. In total 88 participants started in the study. For the present study, I included only participants who filled in at least 19 weekly reports. As a result, 56 participants are included, 6 men and 50 women, with a mean age of 23.6 (range 22–37 year).

### *Design*

At the start of the research project, the participants were asked to fill in a questionnaire about background characteristics and their expectations of the internship. These data are not used in this study. Thereafter, they received a short questionnaire every week during the entire (approximately) five-month internship. The first question was an open question to describe the most relevant experience of their past week that in some way was related to their internship. The answer to this question is named “the diary entry”. The diary entry was used to assess (by coding) the need fulfillments in each experience. The diary question was followed by 10 closed questions. Five of these questions measured the strength of the commitment, and the five other questions were not used in this study. The questionnaire was sent by means of an e-mail with a link to a Qualtrics form. If a participant did not respond, he or she received an e-mail asking whether everything was okay and that we missed the response for that week. The selected participants filled in between 19 and 26 diaries. Following the internships more questionnaires were administered, but these are not included in this study.

### *Commitment strength*

The weekly commitment strength score is the average of the answer to five commitment items. The selection of these five items was based on definitions of commitment and on items stemming from two often used identity measurements: the U-MICS (Crocetti et al., 2008) and the GIDS (Bosma, 1992), and on the RECS-E, an instrument that was especially designed for micro-level assessment (Van Der Gaag et al., 2016). The participants used a slider from 1 (not at all) till 100 (very much) to answer the following questions: “Do you think this kind of job suits you?”, “Do you feel confident about yourself?”, “Do you feel you are in the right place in this internship?”, “Do you doubt whether this

kind of job suits you?” (reversely coded) and “To what extent do you identify yourself as a psychologist?”

### Need fulfillment

The need fulfillments were assessed by the coded described experiences. Each experience (diary entry) was coded according to a coding system (Kunnen & Krom, 2017). The coding system is developed for this study, but is based on a coding system that was developed and applied in previous research in novice nurses (Ten Hoeve et al., 2018). We removed a few characteristics that were specific for the nursing situation (like the relation with patients), and added characteristics that were special for the clinical internship situation: relation with the supervisor, and feeling regarding the job. Two coders applied this system in a subsample of the experiences, and differences in coding were discussed. This resulted in adjustments in formulation or in addition of examples in the manual. This procedure was repeated three times, until no consistent or obvious differences between the coders were found anymore. The inconsistencies that remained were due to ambiguous formulation of the experience or mistakes of the coders. A short training program with practice sets of diaries was developed to train three new coders. New coders practiced with these sets and discussed differences in coding with the first author, until agreement was reached. Only after this training they coded independently. The interrater reliability between these independent coders was found to be 86%, which was considered sufficient (Helfferich, 2017). As an extra check, after computing the reliability, we discussed the experience if one of the coders had doubts about a code. No structural and serious disagreements came up during this process. The system consists of 17 different codes, described in Table 1.

For each experience, it was coded whether each of the 17 characteristics were present (1) or absent (0). Experiences could receive multiple codes, if more characteristics were present, or no code if none of the characteristics were present. It was also possible that both the positive and the negative valence of a characteristic were coded for the same experience. For example, a participant could experience success in administering a test (Competence positive), but also feel sad because of a negative evaluation of the supervisor (Competence negative).

Based on the codes we classified each experience as reflecting either positive need fulfillment (the need was fulfilled), negative need fulfillment (the need was frustrated), mixed (both fulfillment and

**Table 1.** The codes that could be assigned to a described experience.

Label	Positive valence	Negative valence
Competence Development	Describes the experience of being competent, shows competence, describes positive feedback	Describes the experience of being incompetent, shows incompetence, describes negative feedback
Confidence	Describes the perception to have opportunities to learn and develop.	Describes the perception to have had no opportunities to learn and develop, or to experience stagnation
Control/autonomy	Expresses self-confidence concerning the experience	Expresses self-doubt and uncertainty concerning the experience
Relationship with supervisor	Expresses experience of autonomy and control over one's work and actions	Expresses experience to have no autonomy and no possibility to choose
Feeling of Fit	Expresses feeling appreciated, describing positive interaction with supervisor.	Expresses not feeling appreciated, describing negative interactions with the supervisor.
Feelings about job and profession <sup>a</sup>	Expresses the feeling to fit in the internship and the organization	Expresses the feeling not to fit in the internship and the organization
Chaos/work pressure	Expresses proud, pleasure or enthusiasm about working as psychologist	Expresses disappointment, worries about working as psychologist
	No code	Expresses the feeling to be overwhelmed or overloaded by the work
Label	Neutral code	
Coping <sup>a</sup>	Describes problem focused actions to deal with problems in the internship	
Future as psychologist <sup>a</sup>	Describes thoughts and feelings about working as psychologist in the future.	

<sup>a</sup>Not used in this study

frustration were described) or not relevant (need was not mentioned). The need for competence was determined for each experience by using the positive and negative codes for competence, confidence, and development. Score  $-1$  (frustration of the need) was given if one or more negative codes and no positive code were present, Score  $0$  (need not relevant) was given if there were no positive or negative codes, Score  $1$  (mixed) if both negative and positive codes were present, and Score  $2$  (need fulfillment) if there were one or more positive code and no negative codes. In the same way for each experience the need for relatedness was determined by using the positive and negative codes for relation with supervisor and feeling of fit. The need for autonomy was determined by using the positive and negative codes for control/autonomy, and the chaos/work pressure code, which is always negative.

In this way, we created time series for each individual of the level of commitment with range  $0-100$ , and for each of the three needs a time series consisting of the category scores frustrated need experience ( $-1$ ), no need experience ( $0$ ), mixed need experience ( $1$ ), and fulfilled need experience ( $2$ ). Altogether, the time series of the 56 participants resulted in 1234 single measurements.

### Method of analysis

We analyzed the frequency of the fulfilled, the frustrated, the mixed, and the no need experiences. We did this for each of the three needs. Next, we performed a linear mixed model analysis to assess the relation between need fulfillment and commitment on an individual and on a group level. In this model we compared the four need experience categories with regard to their mean commitment scores. Because the distribution was rather normal we did not choose for a generalized model. To correct for autocorrelation lag 1 we applied AR1, and we used a random intercept because the band width of the participants differed. For pairwise comparison we used the Least Significant Difference.

Individual analysis: We analyzed per need which participants had an atypical frequency distribution of positive and negative experiences. The individual relation with commitment strength was analyzed only for participants who had at least two positive and two negative need experiences. We compared the mean commitment score of these participants for positive and negative experiences per need. We investigated the diary experiences for the participants with an atypical pattern to get cues about what may be underneath the atypical developmental processes.

### Results

The code “need for competence” was assigned to 70% of the experiences (881 out of the 1234). Of these experiences, 686 (78%) were coded as positive, 109 (12%) as negative, and 86 (10%) experiences were mixed (Table 2). All 56 participants had at least one positive experience, negative experiences were found in the diaries of 30 participants, and 25 participants had mixed experiences in at least one experience.

As expected, experiences with negative need fulfillment had lowest commitment scores, and experiences with positive need fulfillment had highest scores. The mixed experiences were in-between, as were the experiences in which no need for competence was mentioned (Table 2).

**Table 2.** Mean commitment scores for experiences with negative, no need code, mixed, and positive competence scores.

Need for competence	n	Mean commitment	95% Confidence Interval	
			Lower	Upper
Negative	109	64.4	61.1	67.8
No code	353	70.1	67.0	73.2
Mixed	86	67.9	64.5	71.3
Positive	686	72.6	69.5	75.6

Total 1234.

In the paired comparison the differences between all four codes were found to be significant (Table 3).

The code “need for relatedness” was assigned to 13% of the experiences (165 out of the 1234). Of these codes, 127 experiences (77%) were positive, 36 (22%) were negative, and 2% were mixed (Table 4). Forty eight out of the 56 participants had at least one experience that concerned need for relatedness. Of these, 44 participants had at least one positive experience and 11 participants at least once a negative experience. Because a mixed need for relatedness was coded only twice, we did not include this code in the analysis.

The relation between the need for relatedness and commitment strength was positive, and the difference between positive, negative and no need reports were all significant (Table 5).

The code “need for autonomy” was assigned to 56 out of the 1234 diaries (5%). Of these codes, 41 experiences (73%) were negative, and 15 (27%) was positive. Mixed need for autonomy was not found (Table 6). Of the 56 participants, 31 had at least one code for need for autonomy, 13 participants had at least one positive experience, and 24 participants at least one negative experience. Because of these low numbers we could not perform multilevel analysis. The mean scores for commitment do show the same pattern as for the other needs: the experiences with the negative need for autonomy had lowest levels of commitment, and the experiences with a positive need for autonomy the highest levels.

**Table 3.** Pairwise comparisons between commitment scores for experiences with negative, no need code, mixed, and positive competence scores.

Need for competence	Paired with	Mean Difference	<i>p</i> -value	95% Confidence Interval	
				Lower	Upper
Negative	No code	−5.6	.000	−7.3	−4.0
	Mixed	−3.4	.002	−5.6	−1.3
	Positive	−8.1	.000	−9.7	−6.6
No code	Negative	5.6	.000	4.0	7.3
	Mixed	2.2	.016	0.4	4.0
	Positive	−2.5	.000	−3.5	−1.5
Mixed	Negative	3.4	.002	1.3	5.9
	No code	−2.2	.016	−4.0	−.4
	Positive	−4.7	.000	−6.4	−3.0
Positive	Negative	8.1	.000	6.6	9.7
	No code	2.5	.000	1.5	3.5
	Mixed	4.7	.000	3.0	6.4

**Table 4.** Mean commitment scores for experiences with negative, no need code, and positive relatedness scores.

Need for relatedness	n	Mean commitment	95% Confidence Interval	
			Lower	Upper
Negative	36	63.3	59.9	66.7
No code	1071	70.9	69.0	72.8
Positive	127	73.4	71.1	75.6

Total 1234.

**Table 5.** Pairwise comparisons between commitment scores for experiences with negative, no need, and positive relatedness scores.

Need for relatedness	Paired with	Mean Difference	<i>p</i> -value	95% Confidence Interval	
				Lower	Upper
Negative	No code	−7.6	.000	−10.5	−4.7
	Positive	−10.0	.000	−13.2	−6.9
No code	Negative	7.6	.000	4.7	10.5
	Positive	−2.4	.001	−3.9	−1.0
Positive	Negative	10.0	.000	6.9	13.2
	No code	2.4	.001	1.0	3.9



**Table 6.** Mean commitment scores for experiences with negative, no need score, and positive autonomy scores.

Need for autonomy	Count	Mean commitment	Standard Deviation	Coefficient of Variation
Negative	41	66.1	18.8	28.5%
No code	1178	71.0	14.1	19.8%
Positive	15	71.7	9.5	13.3%
Total	1234			

So, the hypothesis that there is a positive relation between positive need experiences and commitment strength can be confirmed for the need for competence and the need for relatedness, but not for the need for autonomy.

## Individual differences

We found that overall, negative need experiences related to lower levels of commitment than positive need experiences. We explored whether this pattern was found in each of the individual participants as well. We included only participants who had at least two positive and two negative experiences. For the need for competence 30 participants were included, and 90% of these participants showed this overall pattern in commitment scores. Three participants had higher commitment scores for experiences concerning frustration of the need for competence as compared to fulfillment of the need for competence. Concerning the need for relatedness, only three participants had enough data to analyze their individual pattern. Two out of these three showed the expected pattern of higher commitment scores for positive experiences. One participant showed an atypical pattern (Table 7). No participants had enough data concerning the need for autonomy to analyze individual patterns.

We analyzed the diaries in order to find salient characteristics in each of the atypical participants. All characteristics described below are salient as compared to most diaries.

Alma5 showed much self-reflection. She<sup>1</sup> was detailed in describing aspects in her functioning and the descriptions of competence situations have nuance, they are not simply described as positive or negative. She described mutual trust in relation with her supervisors. Half way through the internship she became overly tired, stopped for some days and gradually increased her work load again. Anba started her internship in a very positive and confident way. She was critical toward her supervisor and got as feedback that she was overly confident and overassertive. She did not agree with the negative competence feedback she got, and she saw many shortcomings in her supervisor and in the setting and the way the setting worked in general. Her experiences reflected mutual distrust between her and her supervisor and high trust in her own competence. In the last months she decided to focus on the period after the internship. She felt not motivated anymore, and not valued by the supervisor and the setting. Adat was very self-reflective. As Alma5, she described a lot of different aspects in her experience with lots of nuance. She showed much doubt about her fitting in the setting and her competence, and she experienced much global anxiety. Also for her, experiences were not simply positive or negative. The relation with her supervisor seemed good overall. Alex had a problematic relation with her supervisors. She felt she got too much negative feedback, and although she agreed

**Table 7.** Participants with an atypical relation between commitment and need fulfillment.

participant	Need	Valence	Number of experiences	Commitment level
Alma5	Competence	negative	2	67.6
Anba	Competence	positive	10	66.1
Adat	Competence	negative	2	85.6
Alex	Relatedness	positive	9	73.2
		negative	4	76.3
		positive	10	68.4
		negative	2	68.8
		positive	6	60.6

partly with the critics, she felt they were too negative and too harsh. She felt her positive performances were undervalued, and her weak points got all attention. Thus, the four participants showing an atypical relation between need and commitment were characterized by either differentiated descriptions of their experiences, or by enduring discrepancies between their own perceived competence and the supervisors' evaluations.

On group level, much more positive than negative experiences were reported for the need for competence and the need for relatedness. This distribution holds for most individuals, but not for all. Some participants have at least as many negative as positive experiences (Table 8).

Inma did not feel at home in her internship setting. She described several frustrating events concerning the interaction with clients. There were many problems in the organization. She did see own weak points, but felt not appreciated by her supervisor, and was not happy with the evaluation she got. In the last months, she gave up in some way, just focusing on reaching the end point. Nyfe did feel almost from the beginning that her internship did not fit. She did not like to go there, and did not feel happy. Her supervisor left half way the internship and she did not feel supported by her new supervisor. In the last months, she was motivated only by the idea that the end was near. Anba is described above.

Thus, all three participants with an atypical distribution of positive and negative experiences showed a lack of fit with the internship or with the supervisor, and all three lost their motivation for the internship.

## Discussion

The general aim of this study was to get more insight in the relation between everyday experiences and the development of identity on an intra individual level. Specifically, the relation between need fulfillment in real-time experiences and the strength of vocational commitments in internship students was examined. Need fulfillment or need frustration was described in by far most experiences. Experiences with a positive need fulfillment were related to higher levels of commitment strength than experiences that concerned frustration of need fulfillment, or that did not report need fulfillment. This holds for all needs, although the need for autonomy was described too infrequently to allow for statistical testing. So, the hypothesis that there is a positive relation between need fulfillment in real-time experiences and commitment strength can be confirmed for the need for competence and the need for relatedness. This finding fits with the theoretical assumption that need fulfillment is motivating and enhances wellbeing, and via these enhance the feeling of being in the right place, willingness to invest in the setting and the type of work. It also fits with studies that address the relation between need fulfillment and identity development on a developmental level, measuring more general constructs (La Guardia, 2009; Luyckx et al., 2006). Of course, as Luyckx et al. argue as well, this does not mean that the relation is simply unidirectional. It is plausible that also on a real-time level, feeling committed in turn increases the feelings of competence and relatedness. Most probably, it is a dynamic interaction between need fulfillment, feeling committed and the context.

The need for competence was described most often, in 70% of the experiences, and experiences concerning the need for autonomy were least frequent, 5% of the experiences. The need for relatedness was described in 13% of the experiences. The difference between the needs may be exaggerated somewhat because we used three coding categories for competence and two categories for the other needs, but because there was much overlap in the categories this is not a plausible explanation for the

**Table 8.** Participants with an atypical distribution of positive and negative experiences.

participant	Need	Number of positive experiences	Number of negative experiences
Inma	Competence	7	7
Nyfe	Relatedness	2	13
Inma	Relatedness	1	7
Anba	Relatedness	1	5

large differences. So the findings suggest that need for competence is the most important issue in internships for psychology students. This finding is at odds with the results from an earlier study with novice nurses (Ten Hoeve et al., 2018). In that study, we found that for the nurses, 28% of the reported experiences were about the need for relatedness, 19% concerned the need for competence, and 8% the need for autonomy. The difference between both studies may reflect the differences in aim and setting in both groups. For internship students, the main aim is to learn, and students realize they can fail for the internship. Most competence experiences concerned the evaluation (by the student or the supervisor) of client contacts, test administration and report writing. Students feel that in the internship they finally do “the real job” for the first time and see it as a test whether they can be a good psychologist. The nurses’ aim is of course also to perform well, but their focus was often on treating patients well, and on working together with other staff members. For them, it was not the first experience in the job. They described many interactional experiences with patients, colleagues, supervisors, physicians, etc. So, it seems that the relevance of the different needs may vary greatly, depending on the target group and the setting. The infrequent report of autonomy issues in the current study was found in the study of ten Hoeve et al. as well. Most probably, many novice nurses and internship students meet high challenges while still developing their skills, so that they often feel the need for supervision more than for autonomous work.

Most need experiences concerned need fulfillment, but that did not hold for the need for autonomy. Most autonomy related experiences concerned frustrated needs. This is partly due to the fact that one of the two codes contributing to the need for autonomy, chaos and work pressure, has a negative pole only. If we leave this code out, 15 experiences concerned need fulfillment, and 11 experiences concerned frustrated need for autonomy.

The second research question addressed inter-individual differences. Overall a positive relation between need fulfillment and commitment, and more positive than negative need-experiences, were found for most participants on the individual level as well. There were exceptions however. For about 10% of the participants the relation between needs and commitment was atypical, and also a small minority reported mainly frustrated need experiences. An analysis of contents of the diaries of these participants indicated that an atypical relation between needs and commitment was found in two participants who were very detailed and differentiated in their diaries. They did not describe situations in terms of good or failure, which probably means that the codes negative and positive did not match for them. The two other participants with an atypical relation were characterized by enduring discrepancies between their own perceived competence and the supervisors’ evaluations. The participants with many frustrated need experiences were characterized by a lack of fit between the participant and the internship setting or the supervisor, and by a loss of motivation.

Overall, these findings suggest that the relationships we found on a group level holds for almost all individuals, and atypical findings suggest often a bad fit between student and internship. The question whether the lack of fit caused atypical patterns, and/or vice versa, remains to be answered.

## Limitations and future research

This study has several limitations. Firstly, the number of measurements per participant was often too low to analyze the relation between need and commitment on an individual level. Denser time series would be helpful, but the main limitation there is that it is difficult to motivate participants for such a frequent data collection. Simpler measurements with closed questions could be an option. Secondly, we based the measurement of need fulfillment on free descriptions of the participants. On the one hand that is a strength, because we start from what is really relevant for the persons themselves. But a disadvantage may be that participants may not report everything that is relevant in an experience. Another option may be to assess need fulfillment directly, by asking the participants to rate their experience. In future studies, different measurements of need fulfillment can be compared.

Another limitation is that the analysis addressed one need at a time. It might be that for example, in the same diary the need for competence was frustrated, but the need for relatedness was supported. Such combinations may disturb the outcomes. Detailed content analysis could shed light on this issue.

Finally need fulfillment and need frustration were compared with regard to the level of commitment, and not with regard to the change in level. This latter approach would account for a more dynamic perspective, but a restricted scale was used, and changes in level are also dependent on the actual level: very low or high levels can change in one direction. For that reason, levels and not changes in levels were considered.

## Note

1. We refer to all participants as “she”, to take care that the few male participants cannot be recognized easily.

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## Data availability statement

The data that support the findings of this study are available on request from the corresponding author, E.S. Kunnen. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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