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## Individual's Patterns of Commitment, Resilience and Subjective Well-being of Prospective Physical Education Teachers

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*Abstract: To a greater or lesser extent, specific combinations of commitment, resilience and subjective well-being represent favorable individual resources in order to cope with professional demands. Prior studies have identified different patterns of these behaviors and experiences. The present study deals with the question whether these patterns are also identifiable in prospective physical education (PE) teachers. In addition, differences between physical education students and sport students with other career goals are examined. Lastly, the study concentrates on the existence of specific gender related differences within the group of student teachers. For this purpose, 851 sport students were interviewed. The results of the Latent Profile Analysis refer to a solution with four profiles which could be verified with the help of a discriminant analysis. Comparing the proportion of the profiles according to different courses of studies, significant differences are detected. Gender differences with regard to the distribution of identified profiles could not be found.*

### Introduction

In Western industrial nations, school teachers have to accomplish complex tasks with multiple objectives under varying conditions (Oesterreich, 2015; OECD, 2005). For example, teachers must contribute to the fulfillment of the educational responsibility of schools, they must be experts on their subjects, they must individually convey knowledge and skills to all students, and they must interdisciplinarily nurture metacognitive, motivational and social competencies (Hüber & Käser, 2015). In doing so, teachers must be able to productively handle uncertainties and unscheduled events in the classroom with regard to in-class activities, the achievement of intended learning objectives as well as actual failures. In addition to these more general aspects which place pressure on all teachers, PE teachers must deal with further stress factors such as noise exposure and low levels of appreciation, as well as higher demands concerning the organization of in-class activities (Oesterreich, 2015). Thus, especially from a perspective considering health implications, a well-developed ability to deal with demands, i.e. psychological self-regulation, is very significant. In addition to this perspective, different authors postulate that self-regulation in dealing with demands is also relevant concerning the quality of teaching (Klusmann, Kunter, Trautwein & Baumert, 2006; Klusmann, Kunter, Trautwein, Lüdtke & Baumert, 2008; Maslach & Leiter, 1999; Oesterreich, 2015). Consequently, it is important that the ability of prospective teachers to deal with stress is examined during teachers' course of studies and, if possible, is modified and stabilized within curricular and extra-curricular measures.

If behavioral patterns and experiences of students concerning the handling of demands are known, it is easier to assess how they deal with them and which resources they have at their disposal for this purpose (Künsting, Billich-Knapp & Lipowsky, 2012). In German-speaking areas, the AVEM-questionnaire (“*Arbeitsbezogenes Verhaltens- und Erlebensmuster*”, i.e. work-related behavior and experience patterns) provides an instrument with which data concerning these factors in professional contexts can be collected (Schaarschmidt & Kieschke, 2007). The questionnaire focusses on a holistic view of individual resources which on the one hand contribute to dealing with stress, and on the other hand abet the development of stress (Klusmann et al., 2006). The fact that people do not only differ in terms of the intensity of their characteristics, i.e. quantitatively, but also in terms of the unique constellation of characteristics, i.e. qualitatively is taken into account using this approach (Schröder & Kieschke, 2011).

The test is by now being more frequently conducted with students, especially with prospective teachers in their studies (Künsting et al., 2012; Nolle, 2013). The respective studies are useful in adapting the test instructions as well as modifying the items to fit the application context. On the whole, the results show rather adverse self-regulation patterns in prospective teachers; there are, however, also differing results (Oesterreich, 2015; Römer, Appel, Drews & Rauin, 2012; Römer, Drews, Rauin & Fabricius, 2013; Rothland, 2011; Schaarschmidt, 2005; Schröder & Kieschke, 2006). Furthermore, to our knowledge, there are only single and sporadic subject-specific findings (Martin, 2012; Nussbeck & Spahn, 2013). Thus, the study at hand takes this lack of information as its starting point.

In the present investigation we use the AVEM to empirically identify different patterns of commitment, resilience and subjective well-being by applying latent profile analysis to a sample of 851 PE students of teaching related and non-teaching related courses of study. Next we compare the profile proportions concerning the two different study programs. The reason for this comparison is the question whether students actually exhibit unfavorable prerequisites for their professional activities, as suggested by the hypothesis of negative selection (Roloff Henoch, Klusmann, Lüdtke & Trautwein, 2015). This study furthermore intends to examine to what extent gender related differences appear within the group of prospective PE teachers. The advantage that comes with an early identification of possible future risks is identifying deficits in dealing with demands so that recommendations for intervention can be given. Before symptoms occur, these recommendations can be applied. As a matter of fact, it is much more effective to utilize one’s resources than to intervene when disorders emerge (Kieschke & Schaarschmidt, 2008).

## The AVEM Typology

For decades, researchers have measured the harmful psychological or physical effects of work on people’s health. Meanwhile

*current research has gone beyond the mere identification of problems and disorders. For example, the salutogenetic approach of Antonovsky (1987) suggests taking into account personal and social resources as supporting and buffering factors. Here, the affected person is perceived as an active element in dealing with professional demands and strains rather than a passive victim of the circumstances (Kieschke & Schaarschmidt, 2008, p. 430).*

An instrument that had been designed to gather self-report data about personal resources in dealing with demands is the AVEM questionnaire. The instrument is based on the idea that a human being is mentally healthy if he or she is able to meet the challenges in everyday life actively, but still relaxed, has a positive attitude towards himself or herself and

one's own possibilities of action, pursues the own goals, feels a sense in his or her actions and feels socially accepted (Schaarschmidt & Kieschke, 2007).

With the help of the AVEM questionnaire, the three features commitment, resilience and subjective well-being can be measured by means of eleven scales (see Tab. 1). The forms of separate dimensions, however, are less effective to predict health risks than to offer information on the configuration of characteristics across the dimensions.

*For example, high professional commitment in itself does not constitute a health risk. If, however, a tendency to high professional commitment is coupled with an impaired coping capacity [i.e. resilience], then this combination of two traits may set the individual at a higher risk for developing health problems in the future [...] (Kieschke & Schaarschmidt, 2008, p. 431).*

Via a cluster-analysis of the eleven dimensions, Schaarschmidt and Kieschke (2007) identified four distinct patterns. From a perspective based on health-psychology, these patterns constitute a range of profiles from favorable to high-risk profiles<sup>1</sup> (Schaarschmidt, 2006). The four profiles according to Schaarschmidt (2006) are: (1) The healthy-ambitious pattern, (2) the unambitious pattern which, from a health-based perspective, both exhibit favorable behavior and experience patterns, (3) the risk pattern in the sense of overexerting oneself, which is also referred to as excessively ambitious pattern, as well as (4) the risk for burnout pattern, which, according to Schaarschmidt (2006), is at high risk of burnout. Different behavior and experience patterns make up the basis of these four profiles, which, as stated by Schaarschmidt and Fischer (2008), can be described as follows:

- (1) People who can be classified as belonging to the healthy-ambitious pattern, can be characterized as ambitious. They attach high, but not excessive importance to their work and exhibit average values in the dimension "readiness to exert themselves" and simultaneously exhibit a slight increase in the dimension "striving for perfection". Furthermore, it is significant that people belonging to this pattern are highly capable of distancing themselves. They are less likely to give up after failures and offensively deal with difficulties. Furthermore, they are characterized by inner peace, feelings of success, high satisfaction with life and are likely to experience support from their social structures. The pattern "in and of itself does not guarantee a good teacher, but it can be assumed that this profile possesses the optimal conditions to actualize their knowledge and competencies, pedagogical beliefs, and intentions" (Kieschke & Schaarschmidt, 2008, p. 431).
- (2) In contrast to the characteristics of the healthy-ambitious pattern, people belonging to the unambitious pattern "restrict their effort at work to what is absolutely necessary" (Kieschke & Schaarschmidt, 2008, p. 431). They attach lower importance to their work and exhibit lower levels concerning their occupational ambitions, their readiness to exert themselves and their readiness to strive for perfection. Simultaneously, people belonging to this pattern exhibit a high capability of distancing themselves and have high levels of inner peace and balance. "The tendency towards resignation is rather low which further indicates that low commitment in the work environment is not tantamount to despair and resignation" (Kieschke & Schaarschmidt, 2008, p. 431). They exhibit average to low values regarding offensive problem coping strategies as well as in their experiences of social support. Even though they experience relatively

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<sup>1</sup> The patterns are identified in specialist literature both as personal resources and as stress experiences. This difficulty in classification can be understood as a result of the circular understanding of the perception of occupational demands and the way these demands are dealt with: If the AVEM patterns are regarded as the results of being confronted with occupational demands, then they must be understood as a resulting further demand. Because this further demand, however, in turn influences how new situations are dealt with, the pattern then must be understood as a personal characteristic, i.e. as a resource (Oesterreich, 2015).

little professional success, people belonging to this pattern assert that they have a positive attitude towards life. This “is probably not primarily derived from success at work [...]. Although they possess positive psychological health, perhaps their low commitment to work is not what we might desire, especially among school teachers” (Kieschke & Schaarschmidt, 2008, p. 431).

- (3) A characteristic of the excessively ambitious patterns is excessive commitment. People belonging to this pattern attach high importance to their work, and exhibit high values regarding their readiness to exert themselves as well as their readiness to strive for perfection. At the same time, they exhibit lower values for inner peace in comparison to the healthy-ambitious and unambitious patterns, and exhibit the lowest values regarding their capability to distance themselves. They have relatively high values concerning their tendency to give up when faced with failure, their offensive problem coping strategies and their experience of professional success. However, people belonging to the excessively ambitious pattern exhibit rather low values regarding their satisfaction with life and they report experiencing only little social support. In sum, high commitment is not coupled with adequate resilience and does not seem to be rewarding “which set the individual at a high risk for developing health problems” (Kieschke & Schaarschmidt, 2008, p. 432).
- (4) People who attach low importance to their work and who have low professional ambitions are categorized as belonging to the fourth pattern, i.e. the risk for burnout pattern. These people exhibit average to low values concerning their readiness to exert themselves and their readiness to strive for perfection. Simultaneously, they exhibit a high tendency to give up when faced with failure and they exhibit low levels of offensive problem coping strategies. They can be described as being dissatisfied with life, have low levels of inner peace and experience little professional success. They have moderate values concerning their capability to distance themselves and report experiencing moderate social support. “This type is characterized by exhaustion, the experience of excessive challenge, and resignation. Similarities to the burnout syndrome described by Freudenberger (1974) and Maslach (1982) are obvious” (Kieschke & Schaarschmidt, 2008, p. 432).

Kieschke and Schaarschmidt (2008, p. 432) refer to a connection between the four profiles of behavior and physical indicators of responses to both strain and relaxation, mental and physical problems, the number of sick days per year as well as desire for early retirement. From a health-based perspective, especially the healthy-ambitious pattern is evaluated as a favorable factor, whereas the excessively ambitious pattern as well as the risk for burnout pattern are considered as high-risk patterns concerning the health of teachers. Attention should be paid to the high risk pattern because

*[w]hile both are characterized by high physical disturbances (headache, neck and backache, cardiovascular disease, digestive problems), [...] [the risk for burnout pattern] individuals exhibit higher levels of psychological complaints (exhaustion, decreased self-esteem, experiences of insufficient achievement) than [the excessively ambitious pattern] [...] (Kieschke & Schaarschmidt, 2008, p. 432).*

In contrast, the unambitious pattern is significant in terms of the occupational motivation. Qualitative and quantitative differences between the high-risk patterns should be taken into account.

## Empirical Findings for Prospective Teachers

Current studies show varying results for prospective teachers concerning the distribution of these four patterns. Rothland (2011) showed in one study, that 68% of prospective teachers do not exhibit profiles that may be detrimental to their health. Of these 68%, 35% can be classified as belonging to the healthy-ambitious pattern, while 33% can be classified as belonging to the unambitious pattern. However, of the remaining study participants, 16.5% were classified as belonging to the excessively ambitious pattern and 15.5% to the risk for burnout pattern. Nolle (2013) reported similar findings concerning the distribution to high-risk and low-risk patterns. In contrast, however, other research also reports much more adverse frequency distributions for prospective teachers. Künsting et al. (2012), for example, showed that 51.2% of prospective teachers exhibit a high-risk profile. When drawing such comparisons, however, the applied analysis method (Oesterreich, 2015) as well as the composition of the study sample must be considered. Künsting et al. (2012), for example, only surveyed first-semester students and conducted a latent profile analysis.

Gender related differences are assumed as well as confirmed to some extent in different empirical papers. There are gender-specific attribution tendencies when faced with failure. Women more often attribute failure internally, i.e. to personal factors, than men. Furthermore, women's behavior is more strongly influenced by social motives than men's behavior (Schaarschmidt, 2005). Thus, influences on the regulation of behavior in demanding situations are conceivable. Rothland (2011) as well as Künsting et al. (2012) concordantly showed that male students exhibit unambitious patterns significantly more often than their female fellow students. The female students, however, more often exhibit the excessively ambitious pattern. Inconsistent findings can be identified concerning the other two patterns.

There currently seems to be scarcely any studies that examine the individual patterns of behavior and experience of prospective teachers from a subject-specific perspective (Cramer, 2012; Nussbeck & Spahn, 2013). Martin's (2012) study showed for the subject PE that, of the surveyed 125 prospective PE teachers from Paderborn, 71% did not exhibit a profile that posed a risk to their health. 31% belonged to the healthy-ambitious pattern, while 40% belonged to the unambitious pattern. 11% of the surveyed students exhibited the excessively ambitious pattern and 18% exhibited the risk for burnout pattern. In another study, Meier (2015) examined the distribution of the different patterns for teacher trainees with the subject PE in a longitudinal study. The first point of data collection took place at the beginning of the second phase of teacher training and thus – in the most cases – immediately after the students completed their university study program. The study thus provides a further reference point for the distribution of the pattern for prospective PE teachers. In contrast to Martin's findings (2012), the majority of students were placed in the healthy ambitious pattern. In a comparison of the genders, Meier (2015) reported that female graduates more often exhibit adverse constellations concerning their affiliation to the excessively ambitious pattern ( $d = 0.26$ ). This corresponds to cross-domain findings.

## Study

This study intends to examine whether different patterns of commitment, resilience and subjective well-being as defined by Schaarschmidt and Fischer (2008) can be identified for PE students. This is of significance in this respect because previous subject-specific surveys categorized the different patterns via the algorithm designed by Schaarschmidt and Fischer (2008). It is important to note in this regard that van Dick and Wagner (2001) showed that the composition of patterns established via a new cluster analysis could greatly differ

from those clusters that were categorized using the algorithm from the reference sample. This finding thus leads to the question whether the norm-profiles can be applied to PE students.

Furthermore, most subject-specific and usually also the subject-independent studies have used the original instrument so far. Thus, this might carry a certain risk that reference points from outside university life, such as part-time jobs, could (gradually) influence the responses to the items (Künsting et al., 2012). In order to alleviate this problem, the instrument was adapted to the application context on the item-based level and was examined by factor analysis.

Moreover, a comparison between PE students who plan to become school teachers and students with other career goals is also intended for this study. Particularly prospective school teachers should have favorable self-regulation mechanisms at their disposal in order to deal with demands, especially considering that the teaching profession is nationally and internationally viewed as one of the most demanding professions (Boeger, 2005; Çelebi, Krahe & Spörer, 2014; Evers, Brouwers & Tomic, 2002; OECD, 2005; Oesterreich, 2015; Schaarschmidt & Kieschke, 2007; Schaefer, 2012). In addition to this health-based perspective, it is also important to bear in mind that empirical findings also indicate a correlation to the quality of teaching. The results of the study conducted by Klusmann et al. (2006) show that teachers who were classified as belonging to the healthy-ambitious pattern were evaluated more positively by students concerning the pace of student-teacher-interaction than teachers that belonged to one of the other patterns. Furthermore, students report that the classes taught by healthy-ambitious pattern teachers are more cognitively challenging and more strongly promote student independence than classes taught by teachers at risk of burnout. Specifically for PE teachers, Oesterreich (2015) also found evidence for this correlation. However, the results differ depending on the dimension of quality of teaching and those surveyed (students and teachers, respectively).

Based on the findings concerning gender-specific differences in later phases of their professional development, this study seeks to examine whether these gender-specific differences between male and female prospective sport teachers can already be identified during their studies at university (Meier, 2015; Weigelt, Lohbreier, Wunsch, Kämpfe & Klingsieck, 2014). It is assumed that students who study sport perceive, experience and evaluate the demands they are faced with depending on their own personal characteristics (Rudow, 1994) and that they develop different profiles of behavior and experience. Thus, different patterns should be distinguishable. Distinct groups of people as defined by the typology by Schaarschmidt and Fischer (2008) are expected to be identifiable. Due to the lack of comparative studies, no hypotheses can be made concerning the potential differences in the distribution of pattern in the two subgroups of sports students (PE students and other sport students with different career goals). Due to the findings of Meier (2015) concerning gender-specific differences, it is surmised that female PE students exhibit a higher involvement with their work and lower resilience. It is not expected, however, that – as it is the case in subject-independent studies – male PE students exhibit higher percentages in the unambitious pattern, i.e. higher motivational deficits, in comparison to their female fellow students (Künsting et al., 2012).

### **Sample**

851 sports students from four German universities were surveyed (33.3% female, 66.7% male). The students were 21.11 years old on average and 94.1% of them were currently in their first to fourth semester. In this sample, 225 students reported that they were

enrolled in a student teaching program. Of these prospective teachers, 37.9% were female and 62.1% were male.

### Instrument

In order to collect data on the students' personal resources in dealing with demands placed on them by their study program, a modified version of the AVEM-questionnaire was used. The original wording of the items was adapted to the context of the survey based on Nolle (2013) (see Tab. 1). A five-level Likert scale was used, ranging from 1 = strongly disagree to 5 = strongly agree.

On the basis of a confirmatory factor analysis via Mplus 7.4, items with a factor loading lower than .05 were excluded (Urban & Mayerl, 2014). For the further analysis, only scales with at least 3 items were used (Urban & Mayerl, 2014). The resulting model fit can overall be considered as acceptable to good ( $\chi^2/df = 1653.048/657$ , RMSEA 0.042, CFI 0.913, TLI 0.902). For a good model fit, the quotient derived from the  $\chi^2$ -value and the degree of freedom should be less than or equal to 2.5 (Homburg & Baumgartner, 1995) or less than or equal to 3 ( $\chi^2/df \leq 3$ ) (Homburg & Giering, 1996). The quotient with a value of 2.5 indicates a good model fit ( $1653.048/657 = 2.5$ ). The quality criteria RMSEA, CFI and TLI on the whole indicate a good model fit (Geiser, 2011; Wentura & Pospeschill, 2015). The root mean square error of approximation (RMSEA) should be at least  $\leq 0.05$  (Geiser, 2011; Moosbrugger & Kelava, 2012). Additionally, according to Weiber and Mühlhaus (2014), values  $\geq 0.90$  indicate a good model fit in the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI).

Scale	Example Item
Subjective Importance of Study Program [SI]: Value of studies in personal life	My study program is currently the most important purpose in my life.
Professional Ambition [PA]: Striving for professional advancement	I strive to reach higher professional goals than most others.
Readiness to Exert Oneself [RE]: Readiness to use personal resources to fulfill university demands	If I have to, I work until I am exhausted.
Striving to Perfection [SP]: Aspiration concerning quality and reliability of own performance	Everything I do needs to be perfect.
Ability to Distance Oneself [AD]: Ability to psychologically recover from university demands	When problems arise in my studies, they bother me all day.
Tendency to give up when faced with Failure [TG] Tendency to resign oneself to failures and give up easily	I cannot cope with failure well. (-)
Offensive Problem Solving [OP]: Active and optimistic view of challenges and occurring problems	Failure can wake new energy in me.
Inner Peace and Balance [IP]: Experience of psychological stability and inner balance	I do not get worked up easily.
Experiences of Success at University [ES]: Satisfaction with achievements at university	My experiences at university have been full of success so far.
Satisfaction with Life [SL]: Satisfaction with the whole life situation beyond just university life	I have every reason to look optimistically forward to my future.

**Table 1: Scale Overview and Example Items (modified according to Schaarschmidt (2006))**



**Method**

In order to identify work-related behavior and experience patterns on the basis of latent indicator variables, a latent profile analysis was conducted using the program Mplus 7.4. By doing a latent profile analysis, groups of people with specific characteristics profiles are identified, whereby the traits within one group are as similar as possible, while the different groups (i.e. profiles) are clearly distinguishable from one another (Geiser, 2011; Künsting et al., 2012). Using this method, the probability with which a person belongs to a certain profile is calculated (Künsting et al, 2012). In order to circumvent the problem of the local maxima, the quantity of starting value sets was set at 1000 and the quantity of iterations was set at 20, following the suggestion made by Künsting et al. (2012). The 100 starting value sets with the highest loglikelihood-values were selected until the convergence criterion was reached (Geiser, 2011; Künsting et al., 2012). Models with up to six different profiles were calculated. The descriptive indices AIC (Akaike Information Criterion), BIC (Bayesian Information Criterion) and ssaBIC (sample size adjusted BIC) were used to evaluate these models. Using the lower value was the preferred solution, as this indicates a high model quality (Geiser, 2011). Furthermore, measurements using the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMRT), the Lo-Mendell-Rubin adjusted likelihood ratio test (LMRAT) and the bootstrap likelihood ratio test (BLRT) were consulted as well. These tests compare the profile solutions to each other: A model with G profiles is tested against a model with one profile fewer (G-1) (Geiser, 2011). A significant value shows that the model G represents the empirical data statistically significantly better than the model with one profile fewer (G-1) (Geiser, 2011; Künsting et al., 2012). In order to ensure the stability of the solution, a discriminant analysis was additionally conducted. Differences in the distribution of the patterns regarding the different study programs and the genders were examined using a Chi<sup>2</sup>-test in SPSS.

**Results**

The analysis shows that different profiles can be identified. A statistical comparison of the different models – in compliance with Nylund, Asparouhov and Muthen (2007) as well as Geiser (2011) – suggests a solution with four profiles, especially because the levels of significance of the Vuong-Lo-Mendel-Rubin-Test (VLMRT) ( $p = .025$ ) and the Lo-Mendell-Rubin adjusted likelihood ratio test (LMRAT) ( $p = .026$ ) indicate a four profile solution (see Tab. 2). Nylund, Asparouhov and Muthen (2007) as well as Geiser (2011) recommend considering the BIC-value as well as the BLRT-value in the selection of the profiles. In this case, these values do not provide any distinct evidence. Taking into account the fit indices as well as other content-related criteria, the solution with four profiles was selected.

Profile	AIC	BIC	ssaBIC	<i>P</i> VLMRT	<i>P</i> MRAT	<i>P</i> BLRT	< 1%	< 5%	< 10%
2	17299.093	17446.232	17347.785	0.0000	0.0000	0.0000	0	0	0
3	16875.836	17075.186	16941.806	0.2026	0.2055	0.0000	0	0	0
4	16620.486	16872.046	16703.733	0.0249	0.0257	0.0000	0	0	0
5	16505.515	16809.286	16606.040	0.7853	0.7870	0.0000	0	0	2
6	16408.066	16764.047	16525.869	0.2075	0.2079	0.0000	0	0	1

**Table 2: Fit Indices for the Model Quality of Solutions with 2 to 6 Profiles (Groups). Annotation: The columns titled < 1%, < 5% and < 10% indicate how many of the extracted profiles include less than 1%, 5% and 10% of the sample, respectively (Künsting et al., 2012).**

The discriminant analysis yielded three significant discriminant functions ( $p < .0001$ ; Wilks  $\lambda$ : .116, .434, .966) which were conducive in distinguishing the groups from one another. The canonical discriminant function coefficient indicates that the scales “Ability to Distance Oneself” (.33), “Readiness to Exert Oneself” (.32), “Professional Ambition” (.31), and “Subjective Importance of Study Program” (.28) are most significantly involved in the differentiation of the profiles. Overall, the discriminant analysis gives evidence for a high stability of the solution.

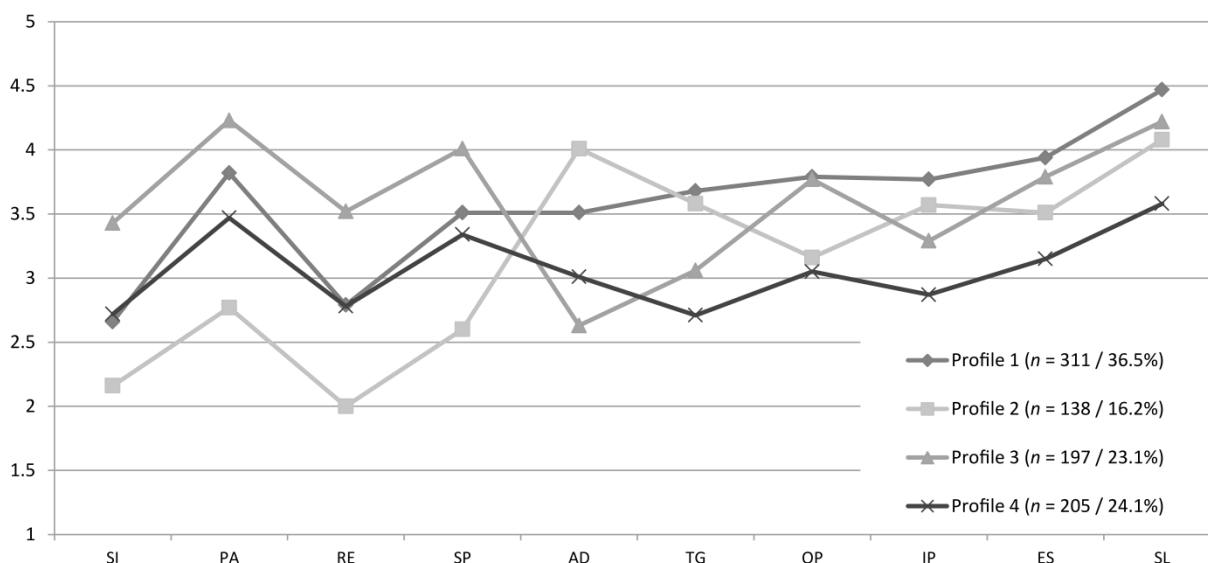
A comparison of the profiles (see Fig. 1) to the patterns identified by Schaarschmidt and Fischer (2008) shows that profile 1 most strongly corresponds to the healthy-ambitious pattern. As in Schaarschmidt and Fischer (2008), this profile exhibits high values on the scales “Inner Peace and Balance”, “Experiences of Success at University”, and “Satisfaction with Life”. Despite exhibiting high values concerning their involvement with their work, students belonging to this profile exhibit a high values in their ability to distance themselves as well as in offensive problem solving. This profile deviates from the healthy-ambitious pattern as defined by Schaarschmidt and Fischer (2008) concerning the students’ tendency to give up, as this profile features a higher tendency to give up when faced with failure.

Compared to the other three profiles, profile 2 most closely indicates the unambitious pattern. This profile displays the lowest values concerning the subjective importance of the study program, the students’ professional ambitions, their readiness to exert themselves, and their readiness to strive to perfection. The profile exhibits the highest values on the scales „Ability to Distance Oneself” and “Satisfaction with Life”. Deviating from Schaarschmidt and Fischer (2008), students belonging to this profile exhibit high values concerning their tendency to give up when faced with failure.

Profile 3 most closely reflects the excessively ambitious pattern in comparison to the other profiles. In contrast to profile 2, profile 3 is characterized by high values on the scales “Subjective Importance of Study Program”, “Professional Ambition”, “Readiness to Exert Oneself”, and “Striving to Perfection”. People belonging to this profile exhibit the lowest values concerning their ability to distance themselves. Results which deviate from Schaarschmidt and Fischer (2008) can be seen in the low to average values on the scale “Tendency to give up when faced with failure” and in the elevated values concerning on the scale “Satisfaction with Life”.

Compared to the other profiles, profile 4 most closely corresponds to the risk for burnout pattern. People classified as belonging to this profile exhibit low values on the scales “Offensive Problem Solving”, “Inner Peace and Balance”, “Experiences of Success at University”, and “Satisfaction with Life”. In contrast to Schaarschmidt and Fischer (2008), students belonging to this profile exhibit average values rather than low vales on the scales “Subjective Importance of Study Program”, “Professional Ambition”, and “Striving to Perfection” (dimensions of involvement with work). People belonging to this profile furthermore exhibit the lowest tendency to give up when faced with failure. The patterns described by Schaarschmidt and Fischer (2008) could thus essentially be replicated.

When examining the distribution of the surveyed students among the different profiles, it becomes apparent that 36.5% of the students can be categorized as belonging to profile 1 and 16.2% to profile 2. 47.2% are likely to exhibit a risk pattern in the sense of overexerting oneself, whereby 23.1% can be categorized as belonging to profile 3 and 24.1% to profile 4.



**Figure 1: The four profiles on the ten AVEM scales. Annotation: SI = Subjective Importance of Study Program; PA = Professional Ambition; RE = Readiness to Exert Oneself; SP = Striving to Perfection; AD = Ability to Distance Oneself; TG = Tendency to give up when faced with Failure; OP = Offensive Problem Solving; IP = Inner Peace and Balance; ES = Experiences of Success at University; SL = Satisfaction with Life**

A comparison of the different study programs (student teaching programs vs. non-student teaching programs) showed that the distribution to the four types is significantly different depending on their study program ( $\chi^2 = 8.25, p = .041$ ). More students in a student teaching program exhibit a pattern comparable to Schaarschmidt and Fischer’s (2008) healthy-ambitious or unambitious pattern, respectively, than students that are not enrolled in a student teaching program. The opposite is true for the distribution of the students to the other two profiles (see Tab. 3). The  $\chi^2$ -test shows that the distribution of students in student teaching programs does not significantly differ regarding the students’ genders ( $\chi^2 = 4.54, p = .209$ ).

	sports students with a career goal outside school	PE students	women	men
Profile 1	35.6%	39.1%	31.8%	43.9%
Profile 2	14.5%	20.9%	20.0%	21.6%
Profile 3	24.1%	20.4%	24.7%	17.3%
Profile 4	25.7%	19.6%	23.5%	17.3%

**Table 3: Distribution of the students to the different profiles sorted by study program ( $N = 851$ ) and by gender for the subgroup of students in student teaching programs ( $n = 224$ )**

## Discussion

This study makes a contribution to research into the pressures and demands placed upon university students. It intends to examine from a subject-specific perspective, whether the profiles as suggested by the typology defined by Schaarschmidt and Kieschke (2007) can be identified in prospective PE teachers. A modified version of the AVEM-questionnaire, adapted to the application context of university study programs, was used for this examination. In line with Künsting et al. (2012), four profiles could be replicated via latent

profile analyses. From a health-based perspective, they reflect favorable to adverse experiences and behavior patterns.

The Chi<sup>2</sup>-test reveals significant differences ( $\text{Chi}^2 = 8.25, p = .041$ ) in the distribution of patterns with regard to the study program. The descriptive results show students enrolled in student teaching programs more often exhibit profiles which, from a health-based perspective, display more favorable experience and behavior patterns than their fellow students who are not enrolled in student teaching programs. All things considered, prospective teachers exhibit favorable prerequisites for professional success. They reveal a higher proportion of the healthy ambitious pattern, and a lower proportion of the burnout pattern. The healthy-ambitious pattern in contrast to the risk for burnout pattern is positively associated with psychological health and with quality of instruction (Klusmann et al., 2006, Oesterreich, 2015). Consequently, the existing assumptions of a negative selection of prospective teachers (Roloff Henoch et al., 2015) cannot be supported for the examined factors. This is in line with the findings of Roloff Henoch et al. (2015, p. 46), who “did not find any empirical support for the negative selection hypothesis in terms of cognitive and personality characteristics in Germany.”

However, it should be noted that the hypotheses concerning the distribution of genders could not be confirmed on basis of the Chi<sup>2</sup> Test. Still, when looking at the demographic data regarding the different patterns, female students in teaching programs show higher percentages in profile 3 and additionally also in profile 4 than their male counterparts. Attention should be paid to this finding because of two important considerations. First, because it leads to the conclusion that female teachers have less personal resources [referring to an appropriate relation of commitment, resilience and subjective well-being] for dealing with the demands of their profession while at the same time often bearing the double burden of managing the job and a family. Second, the result is relevant for the quality of teaching at those types of schools that have a high percentage of female teachers, because persons with excessively ambitious pattern and risk for burnout pattern are more likely to show reduced teaching quality (Klusmann et al., 2006). In the German school system, the majority of teachers at primary schools, where important fundamentals for further education have to be established, are female. In line with our expectation, men do not exhibit considerable motivational shortcomings (profile 2). This appears to be specific for prospective sport teachers, as prior studies revealed higher amounts of the unambitious pattern for male students in comparison to female students (Künsting et al., 2012).

### **Limitations and Research Desiderata**

It needs to be restrictively noted, however, that research on the correlation between these profiles and resulting health threats is currently a desideratum. Schaarschmidt and Fischer (2008) were able to provide empirical evidence for the correlation between the coping patterns identified by them via cluster analysis and resulting health threats. Nevertheless it needs to be noted that, though the four profiles identified in this study largely concur with the patterns identified by Schaarschmidt and Kieschke (2007), there are also differences: Deviations from the patterns identified by Schaarschmidt and Fischer (2008) can be seen in the values concerning the tendency to give up when faced with failure in all four profiles. People belonging to profiles 1 and 2 exhibit higher values on this scale, whereas students belonging to the risk patterns in the sense of overexerting oneself rather exhibit lower values. Furthermore, the values for satisfaction with life are higher in profile 3 than in profile 2. Students belonging to profile 4 exhibit average values on the scales “Subjective Importance of Study Program”, “Professional Ambition”, and “Striving to Perfection”, even

though, in accordance with Schaarschmidt, lower values would have been expected. A cause for this deviation may be seen in the methodology (Oesterreich, 2015), as distinct parallels can be drawn to the results of other authors who similarly conducted a Latent Profile Analysis (Künsting et al., 2012). Furthermore, the scale “Social Support” was not included in the profile analysis due to the factor loading of single items.

Regardless of the necessity of examining the correlation between the identified regulation patterns and the health-related characteristics of students, the question arises as to the prognostic validity of the results concerning health threats to students in their later professional lives. Negative implications are not only conceivable for the individual, but also from a societal perspective, such as the risk of absenteeism due to health problems or even the risk of early retirement from professional life. Furthermore, possible correlations between the regulation patterns and the quality of teaching also need to be noted. Whether patterns that are collected during the course of study are stable and inter-contextual requires further empirical research. Quite plausible is that the commitment to the course of study is not congruent with the commitment to the later profession. One explanation for this might be that student teachers often perceive some courses as only partially or not at all related to their future job content and demands (Terhart, 2009). Findings from another study with prospective PE students underpin this explanation (Fischer, in preparation). A further desideratum can also be seen in the empirical examination of the relevance of profiles concerning the competences that need to be acquired during students’ academic studies. Very interesting is the question whether differences in quality and quantity of the usage of university learning opportunities, especially between students of the unambitious pattern and students with a different pattern, can be proved. Künsting et al. (2012) show differences in learning-related variables such as learning objective orientation and learning strategies between the healthy-ambitious pattern and the excessively ambitious pattern in comparison to the unambitious pattern and the risk for burnout pattern. Additionally, the authors found out that student teachers of the unambitious pattern had significantly lower average grades in their educational studies during their first years of study than students of the excessively ambitious pattern. These findings could not be confirmed for students with different school subjects.

### **Practical Implications**

Even if the results do not refer to a negative selection, they present an indication for the relevance of goal-orientated advisory services and intervention offers for students who study physical education in the teacher training program. Special focus must be paid to those students who belong to the risk for burnout pattern. With regard to the actual development of different offers, the fact that each pattern has favorable and unfavorable behavior patterns as well as resources should be considered. A consideration of individual types as well as a dimensional analysis should be included in any assistance provided.

In this context, the question arises whether a deficit-orientated method with a starting point at lesser distinct resources or whether a strength-based approach is meaningful. Many intervention programs start with approaches in the pedagogical-psychological context which are less pronounced or more readily available and for which special educational needs must be determined (Çelebi et al., 2014). Although the majority concerns in-service teachers (Schaefer, 2012), proficient efficacy could be reached through a series of changes of behavioral patterns and of thought processes of assistance programs. The interventions often use the mediation of time and self-management strategies as well as on target setting

technologies. Both seems to be particularly important, because various requirements are addressed to teachers.

Furthermore it needs to be noted that, in the context of setting objectives concerning professional behavior, prospective teachers' pedagogical motives concerning their choice of study program and profession are highly relevant (Fischer & Bisterfeld, 2015). The realization of these motives may, however, be limited due to the basic practical conditions of the school system. Thus, it is prudent to promote prospective teachers' ability to set realistic goals in the context of academic teacher education programs. If realistic goal setting is not promoted, frustration and overextension are likely to occur in the later career.

Specific interventions regarding student teachers come to the conclusion that a combined intervention, which starts with weaknesses as well as with strengths, achieves positive effects. Çelebi et al. (2014) figure out that the amount of the excessively ambitious and risk for burnout profiles can significantly be reduced in favor of the healthy-ambitious pattern without a massive increase of the unambitious pattern. This fact matters because the motivational deficits which come along with this pattern recommend implications regarding the use of learning opportunities for the professional development of future physical education teachers. The program is based on the identification of weaknesses and strengths and the development of an action plan for the work in both areas. These and other interventions should be part of the curriculum for teacher training programs.

In addition, it also seems pertinent to critically – and empirically – examine the feasibility of the normative expectations set towards teachers in matters of educational policy. From the perspective of universities, it should be examined whether didactic and curricular demands are consistently addressed in teacher education programs. In Germany, lecturers are often trained for different areas concerning sports other than PE. Thus, they may have an understanding of PE which differs from current subject-didactic conceptions and curricular specifications.

By identifying profiles of behavior and experience through the dimensions of commitment, resilience and subjective well-being, person-centered starting points for academic teacher training programs are uncovered concerning the professional and resource-oriented development of prospective PE teachers. These starting points furthermore provide implications for the self-reflection of educational institutions and teachers. This study thus makes a valuable contribution to teacher education research.

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