



# The Nomological Network of Self-Management Strategies and Career Success

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## **Abstract**

### **Abstract**

Changes in the labour market require people to show more self-management than before if they want to succeed. The present research was conducted to analyze the nomological network of general self-management strategies (i.e., selection of goals; optimization as implementation of goal-pursuing behaviour), specific self-management strategies (i.e., career planning) and central indicators of career success, i.e. objective career success (pay, position), self-referent subjective success (career satisfaction), and other-referent career success (comparative judgement). In a large sample of professionals (N = 1185), we found in support of our hypotheses that the generalized strategy of optimization was linked to the domain-specific strategy of career planning, and that domain-specific career planning was directly linked to all outcome measures. The generalized strategy of optimization was directly linked to subjective success, but only indirectly to objective success. The link from self-management to subjective success was independent of objective success. Most interestingly, and in accord with our social comparison assumption, objective success was more closely linked to other-referent success than to self-referent success. Implications for career research and career counselling are discussed.

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The Nomological Network of Self-Management Strategies  
and Three Facets of Career Success

The job market is undergoing large-scale changes (e.g., globalization, declining job security), and individual occupational careers are changing as well. In I & O psychology a number of new constructs have been introduced to account for these changes, such as the concepts of *boundaryless career* (see Arthur, Khapova, & Wilderom, 2005; Arthur & Rousseau, 1996) and *protean career* (Hall, 2002). A common core in different conceptualizations of contemporary forms of occupational careers is the assumption that there is a high need for individuals to regulate their careers strategically (Allred, Snow, & Miles, 1996; Murphy & Ensher, 2001). Over the past decades, the focus of organizational socialization research, for instance, has shifted from a primary concern with the influence of organizational tactics on newcomers' adjustment (e.g., Van Maanen & Schein, 1979) to investigating the effects of individual actions, such as self-set career goals (e.g., Maier & Brunstein, 2001). This requirement to proactively manage one's career, however, is not restricted to job entry but comprises all career phases. Not surprisingly, therefore, there is a growing interest in conceptualizing individual career management from a self-regulatory perspective (e.g., King, 2004; Kossek, Roberts, Fisher, & Demarr, 1998; Vancouver & Day, 2005).

Within such a self-regulatory framework, the present research addresses the relationship between self-management strategies and career success. Self-management strategies of selecting goals and implementing them into behaviour are central components of self-regulation. If the above assumption on self-regulation and career advancement holds true, then self-management strategies should influence career success. The present research tests the influence of self-management strategies on career success. We are especially interested in

studying the influence of the level of specificity in assessing self-management strategies: Do people need career-specific strategies of self-management in order to pursue their careers successfully or are more generalized and content-independent strategies sufficient? Do general strategies influence more specific ones, which, in turn, influence career advancement?

For studying these questions, however, the complex concept of career success has to be addressed as well. What is career success? Is it money, position and/or promotions? Is it an individual's satisfaction with and positive evaluation of his/her career? In the present paper, we analyze three facets of career success (for overviews see Dette, Abele, & Renner, 2004; Hall & Chandler, 2005; Heslin, 2003, 2005; Judge, Cable, Boudreau, & Bretz, 1995; Nicholson & De Waal-Andrews, 2005; Ng, Eby, Sorensen, & Feldman, 2005). *Objective career success* reflects verifiable attainments like pay, position, and promotions. *Subjective career success* emphasizes the beholder's own evaluation of his/her career. Dependent on the comparison standard, i.e., self vs. others, it can be conceptualized as self-referent subjective success or other-referent subjective success (Dette, et al., 2004; Heslin, 2003). We will study whether strategies of self-management are related to all or only to some of these facets, and we will look at direct and indirect relationships between self-management strategies and the three facets of career success.

To summarize, the aim of the present research is an analysis of the nomological network of self-management and career success, with two specificity levels of self-management being related to three facets of career success. The findings should be relevant for theorizing on the determinants of different aspects of career success, for theorizing on the adequate level of specificity in measuring these determinants (e.g., Chen, Gully, & Eden, 2001), for the conceptualization of career success, and they should also be important for applied issues of career counselling and training.

*General and Specific Strategies of Self-Management*

*Self-Management.* Theories on self-regulation stress the importance of goal-selection (i.e., actively determining the goals an individual wants to or has to pursue, Locke & Latham, 2002) and of using efficient strategies for goal pursuit. Goal selection and pursuit are among the most central components of self-regulation (e.g., Zimmerman, 1998), and are both elements of *self-management*. Self-management can be analyzed on different levels of specificity. General strategies are methods of goal-selection and implementing goal-related behaviour independently of a specific content area and/or of a specific situation. Domain-specific strategies, in contrast, are goal-selection and goal-implementation strategies related to a specific content area and/or to a specific situation. Career-specific self-management strategies, for instance, would be to thoroughly plan one's career by selecting respective goals and to persistently pursue them. If it could be shown that general strategies are as strongly related to career success as more specific ones, then self-management training could focus on the generalized level. If, however, specific strategies are more related to career success than generalized ones, then it would be worth devising context-specific self-management training.

*General Self-Management Strategies.* A highly influential approach for analyzing general self-management has been the selection-optimization-compensation model by Baltes and Baltes (1990). These authors outlined that successful self-management requires both adaptive goal setting and the implementation of goal-pursuit strategies. They used the terms *selection* and *optimization/compensation* for characterizing these processes. Selection is necessary because our resources (e.g., time and energy) are limited, and only a certain number of goals can be successfully pursued at a time. Successful selection processes require simultaneously taking into account societal expectations, opportunity structures, as well as individual skills and competencies (Baltes & Baltes, 1990). Optimization describes processes

of goal-implementation, which are necessary to achieve higher levels of functioning. More precisely, optimization refers to activities that are implemented to acquire, refine, apply, and coordinate goal-pursuit strategies. Baltes and Baltes (1990) additionally introduced the concept of compensation, which is related to skills in counteracting developmental losses. We do not use this concept here because our present approach is not concerned with loss regulation.

*Career-Specific Self-Management Strategies.* Regarding the more specific level of career self-management, Gould (1979) has presented a *career planning model* that comprises setting oneself clear career-related goals (i.e., selection in the above terminology) and developing those action-related strategies that have to be undertaken to achieve them (i.e., optimization in the above terminology). The scale he developed is, however, one-dimensional and measures career planning without distinguishing between the aforementioned sub-constructs.

#### *Conceptualizing Career Success*

Definitions of *career success* refer to the accumulated work and psychological outcomes resulting from one's work experiences (Seibert, Kraimer, & Crant, 1997). In other words, career success refers to "the real or perceived achievements individuals have accumulated as a result of their work experiences" (Judge, Higgins, Thorensen, & Barrick, 1999, p. 621). Whereas organizations might be especially interested in objective career success (e.g., an individual's achievements in terms of pay, position, promotions, and performance), individuals might also be interested in subjective career success (e.g., a positive career-related self-evaluation). Objective career success has been operationalised by pay, promotions, and/or position (see Dette, et al., 2004; Ng, et al., 2005). Regarding subjective success, Heslin (2003) introduced the distinction between self-referent vs. other-referent

assessment. One instrument that is often used to measure self-referent career success is the career satisfaction questionnaire developed by Greenhaus, Parasuraman and Wormley (1990). They ask respondents to evaluate their career development against an – implicit – self-set standard. In other-referent assessment a person is asked to compare him-/herself with a significant other. It is surprising that such an approach has rarely been applied (see Dette, et al., 2004; Heslin, 2003), since people do not only evaluate their career success relative to their personal standards and aspirations, but also compare themselves with others. In his social comparison theory Festinger (1954) stated that especially in areas where the “social” reality has to be evaluated, people compare their actions and outcomes to those of other people. Heslin (2003), for instance, found that more than two-thirds of his respondents used other-referent criteria in determining their subjective success.

Although there are positive correlations between objective and subjective career-success measures, the size of correlations is moderate at best. As reported in a meta-analysis by Dette et al. (2004), objective career success shows an estimated correlation of .30 with self-referent subjective career success. Ng et al. (2005) reported a correlation of .30 between self-referent career success and salary, and a correlation of .22 between self-referent career success and promotions. Both meta-analyses suggest that objective career success and self-referent subjective success are positively interrelated but not interchangeable. In fact, Hall and Chandler (2005) outlined a number of examples to demonstrate when objective success does not lead to psychological success. If, for instance, a professional promotion confronts a person with new professional demands, this person might experience that he or she is yet not competent enough to deal with these affordances. In this case, objective success (as indicated by the promotion) might not be reflected in equally positive subjective evaluations.

*Self-Management and Career Success*

*General Self-Management Strategies.* General selection strategies are unrelated or only slightly related to self-referent subjective success (Abraham & Hansson, 1995; Freund & Baltes, 1998, 2002; Wiese, Freund, & Baltes, 2000, 2002), whereas general optimization strategies are. As shown in a number of studies with adults from various age groups, general optimization strategies are correlated with life satisfaction, domain-specific well-being, developmental success, job satisfaction, and the recollection of supervisors' ratings (e.g., Abraham & Hansson, 1995; Bajor & Baltes, 2003; Freund & Baltes, 1998, 2002; Wiese et al., 2000, 2002). There is a lack of studies, however, on the relationship between selection/optimization and objective career success as well as other-referent subjective success. Note that Bajor and Baltes (2003) in their study classified employees' subjective recollection of supervisors' ratings as an objective criterion. In our view, it might be more appropriate to classify this criterion as falling in between the subjective and objective success categories.

*Specific Self-Management Strategy of Career Planning.* Regarding objective career success, Gould (1979) showed career planning to be positively related to monthly salary and professional position, and Steffy and Jones (1988) found a positive association between career planning and income level. Wayne, Liden, Kraimer, and Graf (1999), however, failed to show a significant link between career planning and either the supervisor's assessment of promotability or the employee's actual salary increase. Regarding subjective success, Aryee and Debrah (1993) as well as Wayne et al. (1999) found that career planning was positively associated with self-referent career success. Following a meta-analysis by Ng et al. (2005), career planning appeared to be related to both objective career success (as indicated by salary and promotions) and self-referent subjective success (as indicated by career satisfaction), but



the correlation coefficients were somewhat stronger for subjective outcomes. There are no findings on career planning and other-referent subjective success.

*The Present Research: Overview and Predictions*

The present research was conducted to test the influence of general and specific self-management strategies on the above-mentioned three central indicators of career success. Previous research showed that general self-management, especially optimization of goal-pursuit strategies (Abraham & Hansson, 1995; Freund & Baltes, 1998, 2002; Wiese et al., 2000, 2002), as well as specific career planning (Aryee & Debrah, 1993; Gould, 1979; Steffy & Jones, 1988; Wayne, et al. 1999; see also Ng et al., 2005) is related to self-referent subjective career success. Findings on specific career planning and objective success are inconclusive (Gould, 1979; Steffy & Jones, 1988; Wayne et al., 1999). In addition, there is a lack of research on general strategies of self-management and objective success, there are no studies on both general and specific strategies of self-management and other-referent subjective success, there has been no research on links between general and specific strategies of self-management, and there are no studies on the joint relationship between general and specific strategies with objective and subjective career success measures.

*Research Questions and Hypotheses.* The present study was conducted to provide data on the aforementioned research gaps. First, we are concerned with the relationship between general and specific self-management strategies. They should be positively correlated such that people high in general self-management will not be low in specific career planning. However, we assume that the size of the correlations is only medium because the constructs are located on different levels of specificity.

- (1) The general strategies of selection and optimization are positively correlated with the domain-specific strategy of career planning.

Regarding the nomological network of self-management strategies and career success, several assumptions will be tested. Based on previous research we assume that the general strategy of optimization is positively related to self-referent career success. Extending these findings we assume that optimization is positively related to other-referent career success as well. In line with previous findings, however, there should be no correlation between the general strategy of selection and these subjective career success measures.

- (2) The general strategy of optimization is positively correlated with self-referent and other-referent subjective career success.

We further assume that the specific self-management strategy of career planning is positively linked to all three indicators of career success. We will also test whether the influence of career planning on subjective success is mediated by objective success or vice versa.

- (3) Career planning is positively correlated with objective and subjective career success (both self-referent and other-referent).

Finally, we will test the assumption that the general strategy of optimization is indirectly related to objective career success, mediated by the domain-specific strategy of career planning.

- (4) Mediated by career planning, the general strategy of optimization is indirectly linked to objective career success.

We assume that our three measures of career-success are positively correlated (see Dette, et al., 2004; Heslin, 2003; Ng et al., 2005; see Figure 1). We can only speculate on the size of these correlations. The measures of subjective success should correlate more strongly with each other than each of them with objective success. We also assume that objective career success is more strongly related to other-referent subjective success than to self-

referent one because a social – other-referent – comparison might be based more on “objective” criteria like pay or position than a self-referent comparison with subjective standards.

Insert Figure 1 about here

The data we used for studying our research questions were part of a larger research project on university graduates’ professional development that is based on a broad assessment of various psychological constructs (Abele, 2003; Cohrs, Abele, & Dette, 2006). Because we also knew participants’ *Grade Point Average* (GPA) and their *study duration* (number of semesters studied), we could include these performance measures into our analyses. We expected that the above posited relationships between self-management and career success should be independent of GPA and study duration.

#### Method

##### *Participants*

Participants ( $N = 1.458$ ) were professionals who had graduated from a large German university seven years earlier. They received a letter in which we asked them to fill out a questionnaire on career development. 86.8% of them ( $N = 1.265$  participants; 527 women, 738 men;  $M$  age = 34.30,  $SD = 2.22$ ) returned the filled-out questionnaire. At university, their majors had been law ( $n = 75$ ), arts and humanities ( $n = 125$ ), sciences ( $n = 164$ ), economics ( $n = 225$ ), engineering ( $n = 230$ ), medicine ( $n = 202$ ), and teaching ( $n = 244$ ). In fact, the sample was representative of the 1995/1996 graduates’ population of their university with respect to gender and study major (see also Abele, 2003). At the time of the present study, the participants worked in various occupational fields (private business: 63 %; civil services: 15.4 %; self-employed: 9.7 %), 5.5 % of the participants were in no employment (59 women and 11 men), and 6.3 % were on parental leave (79 women and one man). We omitted participants

on parental leave from further analyses because we had no data on these persons' income and responsibility status before they went on leave. Hence, the following analyses were conducted with  $N = 1185$  participants.

### *Measures*

As mentioned above, the present study is part of a larger project on career development (for more details see Abele, 2003). In the following we will only describe the instruments that are relevant for the present research questions. Means, standard deviations, and internal consistency coefficients of the measures (all presented in German) analyzed in the current study appear in Table 1.

Please insert Table 1 about here

*General Self-Management: Selection and Optimization.* We used the respective subscales of a questionnaire developed by Baltes, Baltes, Freund, and Lang (1999). Three items indicated selection (e.g., "I concentrate all my energy on a few things."), and three items indicated optimization (e.g., "I make every effort to achieve a given goal."). Participants answered each item on a 5-point rating scale (1 = *strongly disagree*, 5 = *strongly agree*). The coefficient alpha for optimization is rather low, though not substantially different from those reported by Bajor and Baltes (2003) and Wiese et al. (2002) who used the same three-item measure. It should be noted that the items measuring each of the two general self-management components (selection, optimization) were designed to tap into different facets of each component. For such heterogeneous subscales internal consistency might not be an optimal estimate of reliability (for test-retest coefficients see Freund & Baltes, 2002; Wiese et al., 2002).

*Specific Self-Management: Career Planning.* We measured career planning with a six-item scale developed by Gould (1979) and Wayne et al. (1999). Gould (1979) conceptualized

this scale as one-dimensional. A closer look at it, however, reveals that four items measure optimization strategies (e.g., “I have a strategy for achieving my career goals.”; “I know what I need to do to reach my career goals.”), and two items measure selection processes (e.g., “I don’t have clear career goals.”; “My career objectives often change.”; both reverse coded). The items had to be answered on 5-point rating scales (1 = *strongly disagree*, 5 = *strongly agree*).

*Objective Career Success.* Objective career success was measured by an index developed for the current study to be applicable to all participants and to involve different aspects of objective success (pay, right to delegate, project responsibility, and leadership position). We weighted the index to balance pay and responsibility status and composed it of the following criteria: (a) monthly pay before taxes (in eight equal steps from “less than €1,000” – approximately \$830 – to “more than €7,00”; coded from 1 to 8), (b) permitted to delegate work (0 = no, 2 = yes), (c) project responsibility (0 = no, 2 = yes), and (d) leadership position in terms of supervisor responsibility (0 = not a supervisor, 2 = supervisor with up to 20 subordinates, 4 = supervisor with more than 20 subordinates). Hence, the index could vary between 0 (low success) and 16 (high success). We tested the factor structure of our objective career measure by a confirmatory factor analysis (using Mplus; Muthén & Muthén, 2004). The results supported a one-factor structure ( $\chi^2[2] = 2.13, p = .34, RMSEA = .01, TLI = 1.00$ ). We assigned zero points to participants who had been without employment for at least three months before answering the questionnaire (these were 70 participants).

*Self-Referent Subjective Career Success: Career Satisfaction.* We measured self-referent subjective career success with a questionnaire from Greenhaus et al. (1990; five

items, e.g., “I am satisfied with the success I have achieved in my career.”). Participants answered them on a five-point rating scales each (1 = *strongly disagree*, 5 = *strongly agree*).

*Other-Referent Subjective Career Success: Comparative Judgement.* Pretests had shown that in our participants’ present stage of career former fellow students were a significant reference group for assessing one’s career success. We applied a one-item-measure: Each participant rated his/her own career success against the reference group of his/her former fellow students (“Compared with your fellow students, how successful do you think your career development has been so far?”) based on a 5-point rating scale (1 = *less successful*, 5 = *more successful*). Although one-item measures are often regarded as suboptimal, we assume that in the present case the single item clearly captures the essence of other-referent career success (e.g., Heslin, 2003).

*Grade Point Average and Study Duration.* In order to be able to analyze the hypotheses by simultaneously taking into account differences in study performance, we referred to data on participants’ grade point average (GPA) as well as their study duration. These data had been collected immediately after graduation (see Abele, 2003). We standardized both measures such that positive numbers indicated above average GPA and longer than average study duration and negative numbers indicated below average GPA and shorter than average study duration.

## Results

### *Preliminary Analyses*

*Gender.* Before conducting our main analyses, we first tested gender differences in all variables considered, since it is known that gender has a significant influence on individuals’ career development (Abele, 2003). There were no gender differences in GPA, study duration, selection, and optimization (all *ts ns*). The other variables differed between men and women

but the effect sizes were small, with objective career success being an exception. Compared to men, women had lower scores in career planning ( $M = 3.07$  vs.  $M = 3.25$ ;  $t [1183] = 3.36$ ,  $p < .001$ ,  $\text{Eta}^2 = .006$ ), other-referent subjective career success ( $M = 3.23$  vs.  $M = 3.48$ ;  $t [1183] = 5.05$ ,  $p < .001$ ,  $\text{Eta}^2 = .012$ ), and self-referent subjective career success ( $M = 3.51$  vs.  $M = 3.65$ ;  $t [1183] = 3.10$ ,  $p < .01$ ,  $\text{Eta}^2 = .007$ ). Most evidently, women had substantially lower scores than men in objective career success ( $M = 5.70$  vs.  $M = 8.41$ ;  $t [1183] = 12.84$ ,  $p < .001$ ,  $\text{Eta}^2 = .058$ ). These differences remained significant when study major was controlled.

*Career planning.* Whereas the scale developed by Gould (1979) and Wayne et al. (1999) had been treated as one-dimensional, we wanted to test whether we could establish a two-dimensional structure with career planning subdivided into selecting goals and implementing them. We computed a principal components factor analysis in order to test whether the components could be distinguished. This analysis revealed two factors with eigenvalues  $> 1$  (Factor I: eigenvalue 3.35, 55.8% explained variance; Factor II: eigenvalue 1.03, 17.2% explained variance). The first factor comprised all items related to optimization strategies. The second factor comprised both selection items, but one of them (“I don’t have clear career goals.”) had an equally high loading on the first factor. We therefore decided not to subdivide the scale into two components. We omitted the one item exclusively loading on the second factor (“My career objectives often change.”), and built a scale with 5 items (4 on goal implementation, 1 on goal selection). The scale characteristics displayed in Table 1 pertain to this 5-item version.

The correlations between GPA and study duration with our self-management variables (selection, optimization, career planning) were very low and far from significance. However, there were some significant correlations between GPA, study duration, and career success. Therefore, we decided to include GPA and study duration in our analyses.

*Hypotheses Testing*

We tested our hypotheses by means of structural equation modelling using *Mplus* (Muthén & Muthén, 2004). Structural equation modelling has several advantages: (a) the measurement model of the predictors can be included; (b) measurement errors can be taken into account; (c) the specific paths postulated can be tested; (d) besides providing the path coefficients, a series of overall fit indices can be reported that show how well the empirical data fit the theoretical model (Kline, 2005). The model was tested by Maximum Likelihood parameter estimates with robust standard errors.

Our model was comprised of four latent variables (i.e., selection, optimization, career planning, self-referent subjective career success) and of four observed variables (i.e., study duration, GPA, objective career success, other-referent subjective career success). Following recommendations in the structural equation modelling literature (Dwyer, 1983; Roberts, 1997), the latent variables were measured by three indicators each. In case of selection and optimization, these were the three items comprising the respective scale. For career planning and career satisfaction, the scales contained five items each. Hence, in both cases, we built two parcels (average of two items). We used the two parcels and the remaining single item as indicators of the latent variable. We treated objective career success as an observed variable because (a) we had already weighted the components of the index according to theoretical considerations (see above) and (b) we assumed that there are only a few measurement errors for the factual information comprising the index.

We tested direct paths from study duration, GPA, selection, optimization, and career planning to our three outcome measures. In addition, we tested direct paths from study duration and GPA to selection, optimization, and career planning. Finally, we tested directed paths from selection and optimization to career planning. We further tested indirect paths.



These were (1) the paths from study duration and GPA mediated via optimization or career planning to the outcome measures, (2) the paths from optimization and selection mediated via career planning to the outcome measures, (3) the paths from career planning mediated via objective success to the subjective success measures, and (4) the paths from career planning mediated via the subjective success measures to objective success. We allowed correlations between study duration and GPA, between selection and optimization, as well as between objective success, self-referent subjective success, and other-referent subjective success.

Figure 2 displays the resulting structural equation model.

Insert Figure 2 about here

The model had satisfying fit statistics ( $\chi^2/df = 3.83$ , CFI = .944, TLI = .928, RMSEA = .049), despite a significant chi-square,  $\chi^2(93) = 356.19$ ,  $p < .001$ , which was due to the large sample size. The model explained significant portions of variance for all three outcome variables: objective success,  $R^2 = .09$ ,  $p < .001$ ; other-referent subjective success,  $R^2 = .11$ ,  $p < .001$ ; and self-referent subjective success,  $R^2 = .07$ ,  $p < .001$ .

Looking at the performance measures (study duration, GPA), one can see that they mainly had an influence on other-referent subjective success such that both a better GPA ( $\beta = .10$ ,  $p < .001$ ) and a shorter study duration ( $\beta = -.08$ ,  $p < .001$ ) led to an increase in other-referent subjective success. Study duration also had an influence on objective success: Participants with shorter study duration were objectively more successful ( $\beta = -.08$ ,  $p < .01$ ). The analysis of indirect effects of GPA and/or study duration on the career success measures mediated via self-regulation strategies revealed no significant paths at all. In other words, the performance measures had an influence on career success, especially, other-referent

subjective success, but the effects of self-management are independent of these performance effects.

Partly supporting Hypothesis 1, optimization was linked to career planning ( $\beta = .35, p < .001$ ) but selection was not ( $\beta = .05, ns$ ). Supporting Hypothesis 2, optimization had direct paths to self-referent subjective success ( $\beta = .11, p < .01$ ) and to other-referent subjective success ( $\beta = .10, p < .001$ ). In accord with previous findings, selection had no direct paths to any of the dependent variables (objective success:  $\beta = .00$ ; self-referent subjective success  $\beta = -.01$ ; other-referent subjective success  $\beta = -.01$ ). As suggested in Hypothesis 3, career planning had direct paths to all of the three career outcomes (objective success:  $\beta = .28, p < .001$ ; other-referent subjective success  $\beta = .24, p < .001$ ; self-referent subjective success  $\beta = .20, p < .001$ , respectively). In order to test Hypothesis 4, we analyzed specific indirect effects of selection and optimization mediated via career planning on the three outcome variables. All indirect paths from optimization via career planning were significant (to objective success:  $\beta = .10, p < .001$ ; to other-referent subjective success:  $\beta = .08, p < .001$ ; to self-referent subjective success:  $\beta = .07, p < .001$ ). We also computed total effects, which were the sum of direct and indirect effects for optimization. These are .10 for objective success, and .18 for both self-referent and other-referent subjective success. As was outlined above, we also tested indirect paths from self-management to subjective success mediated via objective success, as well as indirect paths from self-management to objective success mediated via subjective success. None of these indirect paths were significant.

Finally we looked at the links between our three success measures. They were all positive. In accord with our assumptions, the link between both subjective measures was higher (.47) than the links between objective and subjective success. Most interestingly, and

in accord with our social comparison assumption, objective success is more closely linked to other-referent success (.32) than to self-referent success (.22). In fact, a comparison of the respective raw correlations (.42 vs. .28) shows that they significantly differ ( $z = 5.62, p < .001$ ; following a formula suggested by Steiger, 1980).

### Discussion

This research builds on the assumption that in modern labour markets individual career success requires strategies of self-management, which comprise self-set career goals and goal-pursuing behaviour. These strategies can be conceptualized on a more general level of self-management as well as in a very career specific way. Analyzing career success, however, requires a clear conceptual understanding of core success dimensions. We subdivided career success into objective career success (i.e., pay, responsibility level, position and status) and subjective career success. Following Heslin (2003), we further distinguished self-referent subjective career success (i.e., satisfaction with one's career) and other-referent subjective career success (i.e., evaluation in comparison to other people; here: comparison to former fellow students). The aim of the present research was an analysis of the nomological network of these facets of self-management and of career success.

With regard to self-management, as expected, general strategies of self-management (i.e., selection, optimization; Baltes et al., 1999) were positively related to career-specific self-management in terms of career planning (Gould, 1979; Wayne et al., 1999). Note, however, that the association between optimization and career planning was only of moderate size, and that the association between selection and career planning was even lower. In other words, optimization strategies show substantial congruence across different levels of specificity. In contrast, strategies of selecting desired goals seem to be only weakly correlated to each other if analyzed on different levels of specificity.

Regarding the three facets of career success, this is to our knowledge, the first study that systematically compared the relationship between objective success, self-referent subjective success, and other-referent subjective success. Most interestingly, the relationship between objective success and other-referent subjective success turned out to be much stronger than the relationship between objective success and self-referent subjective success. We suppose that participants based their judgement of other-referent subjective success on factual information, at least partly. If this is true, it seems plausible that the correlation between objective success – which is built from factual information (pay, position) – and other-referent subjective success is stronger than the correlation of objective success with self-referent subjective success. Self-referent success, operationalized as career satisfaction, does probably not have such a clear-cut factual basis. This might also explain the relatively low correlations between objective and subjective success found in former studies since most of them did not include other-referent subjective success evaluations. Therefore, we conclude that it is worth distinguishing different aspects of subjective success.

Concerning the postulated links between self-management strategies and career success, the generalized optimization strategy showed the hypothesized direct links to the subjective career success measures, but no direct link to the objective success measure, and the generalized strategy of selection had no effects at all. At the same time, as postulated, there was a direct link from career planning to all three measures of success. Most interestingly, the path from career planning to objective success was the strongest one ( $\beta = .33$ ). Finally, there were indirect links of optimization to all three outcome measures mediated via career planning. We assume that career planning strategies represent proximal predictors of objective career success, whereas the positive effects of general self-management strategies

extend their influence on objective career success via the implementation of respective domain-specific strategies. Generally, the influence of optimization strategies seems to be much stronger than the influence of selection strategies. This can be inferred from the comparison of the effects of selection and optimization as well as from the fact that the career planning scale was mainly composed of optimization statements. Overall, we conclude that (a) different levels of specificity self-management are interrelated but not interchangeable, and that (b) career-specific strategies are indispensable for objective career success, whereas with regard to subjective criteria, both generalized and domain-specific self-management strategies play a role. As indicated by the correlational findings, the effects were independent of participants' study performance (i.e., grade point average, study duration) suggesting that self-management has an impact on career outcomes beyond specific academic abilities.

Regarding the question of whether influences of self-management on subjective success might be mediated by objective success, or whether there are influences of self-management on objective success, which are mediated by subjective success, we found no mediation at all. Links from self-management to subjective success were not mediated by objective success, and links from self-management to objective success were not mediated by subjective success. This is a very important finding because it gives further evidence that objective and subjective success measures are interrelated but not interchangeable.

Summarizing, the present study suggests that general strategies of self-management (especially of optimization) have an influence on more domain-specific ones, and that the domain-specific strategies are directly linked to both objective and subjective outcomes. However, the direction of causality might also be reverse. Success could be a precondition of efficient self-management, and the more successful an individual is or feels, the more refined his/her self-management strategies will be. Our present cross-sectional design is not well-

suiting to answer questions of causality. Here, a longitudinal design would be preferable. However, as a first approximation and in an exploratory fashion we elaborated this possibility by computing a structural equation model with reversed paths, i.e., paths from the three success measures to the three self-management measures. The model fit turned out to be much worse than the one for the model described above. At a cross-sectional level it seems that the links from self-management to career outcomes fit the data better than the reverse links from success to self-management. This, of course, does not preclude that there are reciprocal influences between success and self-management which could be detected in a longitudinal perspective.

#### *Limitations and Directions for Future Research*

Clearly, the strengths of the present study are its analysis of different levels of aggregation, its integration of objective and two subjective outcome criteria, and its large sample. However, there are also limitations. One limitation is the cross-sectional data set. Future studies should attempt to further pursue the present questions based on a longitudinal design. Such studies could explicitly focus on the reciprocity between self-management and career success. Second, although it was advantageous to have a large and heterogeneous sample in terms of professions, all participants held a university degree and therefore were not random with regard to their career prospects. Consequently, future studies might include employees from different educational backgrounds and might systematically consider specific organizational career systems (Baruch & Peiperl, 2003; Sonnenfeld & Peiperl, 1988).

#### *Conclusion*

The present study contributes to our understanding of career success in terms of three important success dimensions (objective success, self-referent subjective success, other-referent subjective success) and to our understanding of the impact of self-management

strategies on these different success criteria. Our findings on the links between objective career success and the two facets of subjective career success, i.e., self-referent and other-referent career success, clearly suggest that models of vocational development could draw a more complete picture of individual evaluation processes if they included a three-dimensional conceptualization of career success. In addition, a closer examination of the different levels of self-management and their predictive power for objective and subjective career outcomes is not only desirable from a theoretical point of view but also with regard to its practical significance. From a theoretical point of view, the data suggest that both a more generalized level of assessment of self-management strategies as well as a more domain-specific assessment is warranted and necessary in understanding processes of self-regulation. Relevant both for theory and application, our present findings suggest that goal-selection is important, but it is less important *which specific* goals an individual selects but rather how he/she implements them. Optimization as acquisition, refinement, and application of goal-implementation strategies is of utmost importance. On an aggregated level, people should learn how to generally proceed in goal pursuit, and how strategies of goal pursuit can be acquired, refined, and applied. In a further step, these general strategies have to be adapted to specific life domains and situations. In other words, different contexts of goal pursuit need to be taken into account. Knowing optimization strategies *and* being competent in applying them to a specific context will lead to an optimal outcome both on an objective and a subjective level.

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Table 1

*Means, Standard Deviations, Internal Consistencies, and Intercorrelations (N = 1185)*

Variable	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5	6	7	8
1. General Strategy: Selection <sup>1</sup>	3.10	.87	.76	1.00	.15***	.11**	.09*	.02	.02	-.01	-.02
2. General Strategy: Optimization <sup>1</sup>	3.43	.73	.62		1.00	.27***	.18***	.17***	.08**	.00	-.05
3. Specific Strategy: Career Planning <sup>1</sup>	2.99	1.03	.86			1.00	.27***	.21***	.26***	.05	-.03
4. Self-Referent Subjective Career Success <sup>1</sup>	3.60	.76	.85				1.00	.54***	.28***	.06	-.09*
5. Other-Referent Subjective Career Success <sup>1</sup>	3.39	.83	-					1.00	.42***	.16***	-.14**
6. Objective Career Success <sup>2</sup>	7.39	3.75	.71						1.00	.07*	-.12**
7. Grade Point Average <sup>3</sup>	.05	.50	-							1.00	-.22***
8. Study Duration <sup>4</sup>	-.05	1.98	-								1.00

*Note.* <sup>1</sup>scale from 1 to 5; <sup>2</sup>scale from 0 to 16; <sup>3</sup>standardized to “0” is average, positive numbers: better than average; negative numbers: worse than average; 4

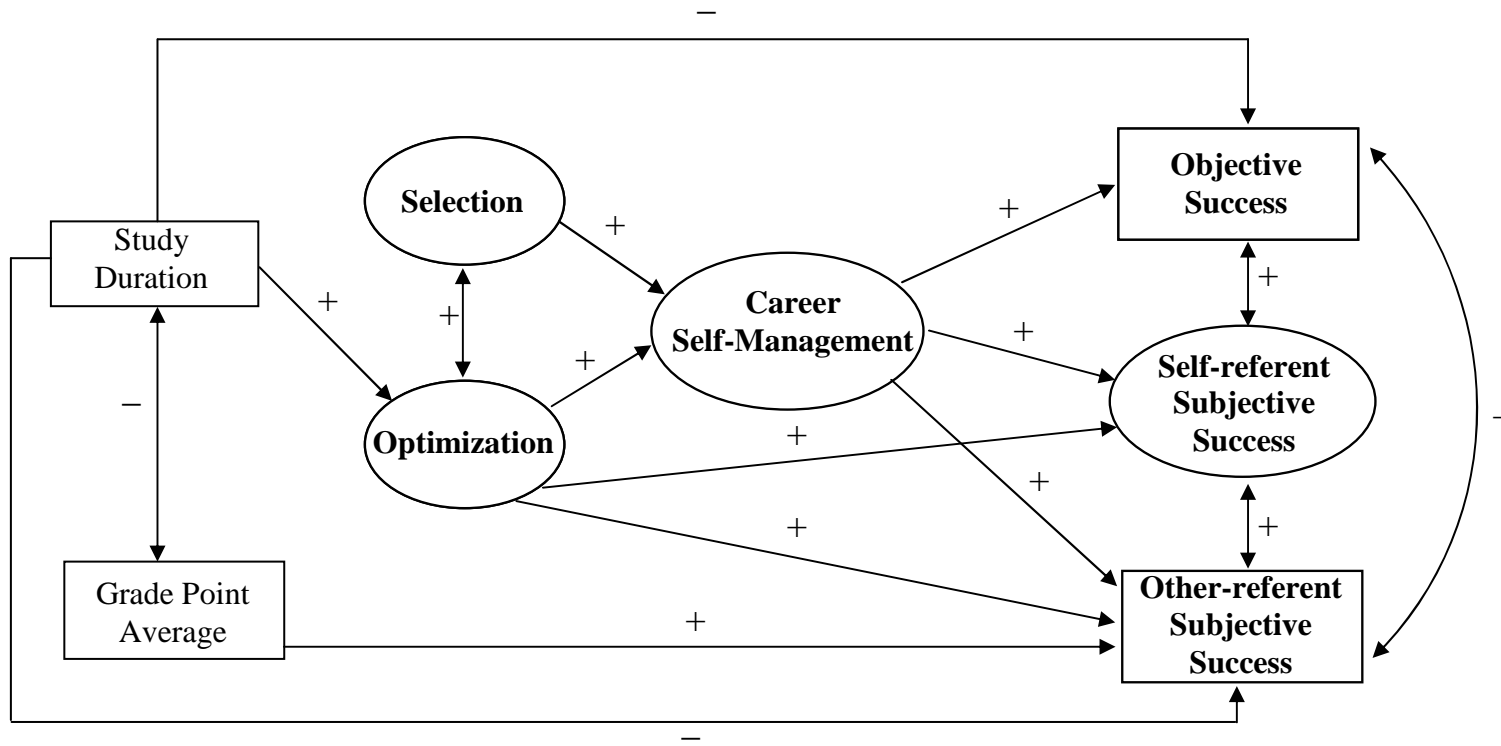
standardized to “0” is average, positive numbers is longer than average, negative numbers is shorter than average

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ .

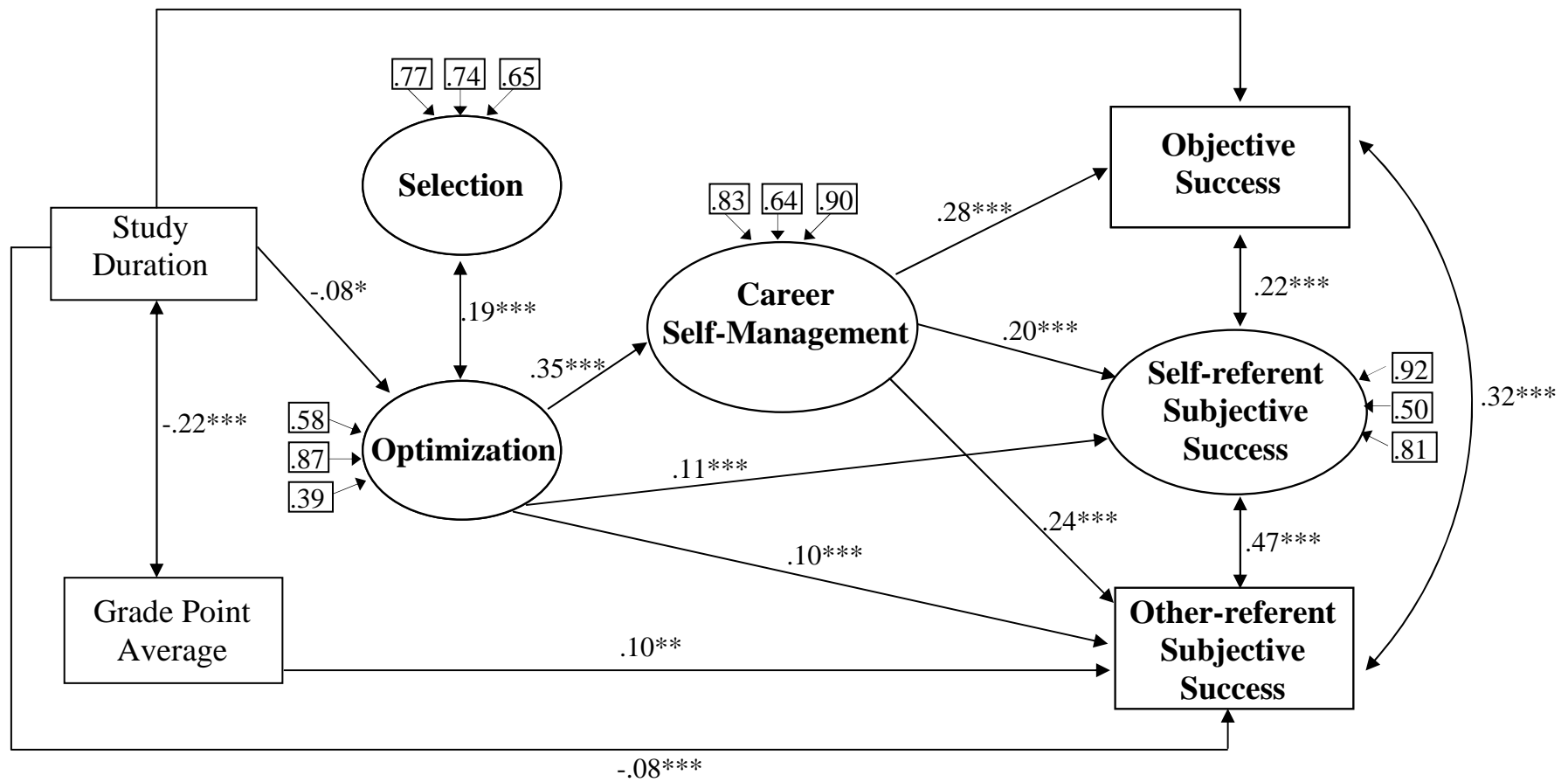
Figure Caption

*Figure 1.* Theoretical model: General strategies of self-management, specific strategies of career planning, and career success.

*Figure 2.* Structural equation model: General strategies of self-management, specific strategies of career planning, and three indicators of career success.







\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$