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B.Sc. Public Governance across Borders

Basic Need Satisfaction with Public Sector Internships and Career Aspiration of Students

A Self-Determination Theory Approach

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Abstract

This thesis examines motivation within an internship in the public sector and the resulting consequences for career aspirations. Self-Determination Theory (SDT) is applied to frame the argument, that internship programs which contribute to the satisfaction of the basic needs for competence, relatedness and autonomy alter autonomous types of motivation.

A cross-sectional research design was used to test the model. The quantitative approach was grounded on web-based survey data of 48 university students. Results showed that students' basic needs were rather satisfied. The average student displayed moderate autonomous motivation and most likely wanted to work in the public sector.

Multiple regression analysis indicated that the satisfaction of the respective basic needs contributes in relatively equal terms to autonomous motivation. However, the expected consequence of enhanced public sector career aspirations could not be confirmed. Correlation analysis showed that career aspiration was linked with a multidimensional pattern of motivation which ranged from controlled to autonomous types of motivation.

The framework of the SDT was deemed suitable to explain autonomy in motivation. Results underline the importance of considering both, autonomous motivation in an internship but also extrinsic incentives that can enhance career aspirations.

Keywords: Self-Determination Theory, Basic Need Satisfaction, Motivation, Internship, Public Sector

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1. Introduction

The public sector faces growing demands of service delivery, transparency and budgetary pressures. To tackle these challenges, well performing public institutions are in need of highly motivated and talented personnel (Currstine et al., 2007). Particularly against the background of shrinking labor supply due to the demographic change it needs to manifest itself as an attractive employer and get a deeper understanding of factors that help to successfully retain and motivate employees (Ritz & Waldner, 2011).

However, this study does not concentrate on employee motivation but on the motivation of potential future employees. The focus is on interns who make a practical experience in a potential future job environment. Internships as defined by the German Federal Ministry of Labour and Social Affairs (2011, p. 6f) are a form of experimental learning which has a qualifying and an orientational function. On the one hand, it aims to integrate and enhance theoretical skills gained during studies with their practical application in a professional setting. On the other hand, it can help to define professional career aspirations in an informed and self-determined manner. The primary stakeholders involved in an internship are the students, universities and hosting organizations. For students, an internship can have the purpose of satisfying a degree requirement, acquire practical experience and to get a deeper understanding of the functioning of an institution (Hamilton & Pajari, 1997, p. 205). For the hosting organization, internships are a valuable method for recruiting and training university students (Holzer & Rabin, 1987). It is assumed that students engage in an internship in the public sector if they already have the general aspiration to serve the public and link their personal activities with the general public interest. If institutions are not able to recognize the underlying attraction to policy making, compassion and commitment to the public interest, students could be discouraged (Perry, 1996). Positive impacts of the internship on career aspiration are dependent on several factors which include autonomy, colleagues, working culture and the quality of the mentorship by the supervisor (Lam & Ching, 2007; McCaffery, 1979). This paper focusses on students motivation in the internship as it is likely to have an impact on the socialization and the aspiration to follow a career in the public sector. If the intern is motivated in his internship it is expected that the aspiration to pursue a career in the public sector is maintained or even increased. Internship programs are not always positively perceived by the participant, which can lead to reduced interest in public institutions and careers with the state (Henry, 1979; Oldfield, 2000).

Given the need for highly motivated staff also in the future, it is important to assess factors which increase motivation. This paper examines whether the framework of the SDT applies to explain if autonomous motivation in an internship is enhanced by the satisfaction of the needs for autonomy, relatedness and competence. The three basic needs must be satisfied to produce a sense of well-being and integrity (Ryan & Frederick, 1997). Consequently, it is assumed that their satisfaction plays a major role in determining the type of motivation in an internship and therefore the aspiration to pursue work in the public sector (Gagne & Deci, 2005). The application of this macro-theory helps to draw elaborated conclusions on the effects of basic needs satisfaction and assessing the importance of either of the three on the type of motivation in the internship and subsequently the aspiration to work in the public sector.

2. Scientific and Social Relevance

Existing literature on internships focuses on the fields of medicine (Holzberg, 1961; Paul et al., 2011) and business (Lord et al., 2011). This paper contributes to the considerable but expandable research in the public sector (e.g. Davy, 1959; Finkle & Barclay, 1979; Oldfield, 2000) and adds to existing literature by engaging in deductive theory testing. Previous studies examine the relation of family, gender and career goals (Robinson et al., 2015). In the paper at hand, it is assessed whether the theoretical framework of the self-determination theory is an adequate instrument to explain motivational processes and arising career aspirations in an internship. Deci and Ryan (2000) found that basic need satisfaction predicts the degree to which the pursuit of goals will correlate with positive well-being and good performance. They advocate that intrinsic goals and motivation are more compatible with basic need satisfaction and result in greater well-being than extrinsic motivation. This study supports research conducted within the framework of SDT the assumptions also hold in the setting of a public sector internship. Individual and organizational factors that influence the type of motivation students exhibit in their internship are considered. This is done by switching between the individual and institutional level by looking at the type of motivation of the participant and his or her basic need satisfaction which is contingent on the environment. Further, two scales which are based on SDT, the Basic Psychological Needs at Work Scale (BPNWS) and the Extrinsic and Intrinsic Motivation Scale (WEIMS) are tested for their applicability to students in internships.

Regarding social relevance this study aims to analyze and suggest elements that enhance autonomous motivation. To ensure structured and beneficial learning and the satisfaction of all parties in a feasible manner, it is crucial to assess the perceptions of internship programs (Ko & Sidhu, 2012). For organizations that want to host students, an internship is often connected with high costs. As benefits of having interns often only gather in the long run, organizations are reluctant to finance adequate programs (Bassi & Ludwig, 2000). Regarding the public sector in Germany, the Federal Ministry of the Interior (BMI) (2016) recognizes the need for instruments such as job security, fair pay and family friendly working conditions to be able to compete with the private sector. This is especially important in the face of the demographic change and an already comparably high average age of German public employees of 45,8 in 2014 as calculations of the BMI (2016, p. 162) show. Against the background of the shrinking talent pool, securing skilled personnel has to remain on the public agenda to preserve a competitive and efficient civil service which is capable of acting. Earlier studies have shown that there is a lack of ambitious students who regard the public sector as a desirable working environment (Chetkovich, 2003). The BMI (2016) already launched some initiatives to make the public sector more attractive. However, the positive impact internships could have in the recruiting of new personnel, has not been considered. It is crucial to determine factors that intrinsically motivate students to retain talents that identify themselves with the values and goals of the public sector and enhance the achievements of the organization's goals. By determining if basic need satisfaction drives interns, programs can be tailored so that assignments and rewards support needs and aspirations (Tella et al., 2007). This is especially important as moderate exposure to challenging tasks could remove negative images and inspire people to work in the public sector. However, unprepared exposure and consequent negative experiences could prevent the best graduates from pursuing careers in the public sector (e.g. Holzer & Rabin, 1987; Lavigna & Hays, 2005).

2.1 Research Question

Motivation is likely to have an impact on the working aspiration. Therefore this study defined and elaborated on factors that contribute to motivation in an internship in the public sector. The factors that shall be examined are basic need satisfaction in the areas of competence, relatedness and autonomy in the working environment. According to SDT, these basic needs determine the type of a person's motivation (Deci & Ryan, 1985). This study aims to answer the following descriptive research question:

What is the effect of different types of motivation within an internship in the public sector on public sector career aspirations of university students?

An implied explanatory subquestion that has to be answered before being able to measure and interpret the motivation of interns is:

How can different types of motivation within an internship be explained?

Satisfaction of competence, relatedness and autonomy in the internship are the independent variables. The dependent variable is the type of motivation which ranges between a-motivation and intrinsic motivation. This variable is assumed to be a mediator between basic needs satisfaction in the internship and the aspiration to pursue a career within the public sector.

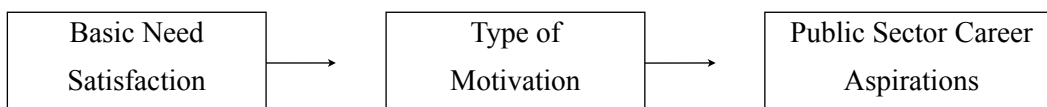


Figure 1: Causal Diagram of the Research Question

3. Theoretical Framework

3.1 Basic Need Satisfaction

To be able to ameliorate programs it is of great value to determine aspects of social context which foster the internalization and integration of values in the internship. The SDT, which was developed by Deci and Ryan (1985), suggests that a profound understanding of the direction of commitment and motivation can only be achieved by studying the satisfaction basic needs. According to Ryan and Deci „a basic need, whether it be a physiological or psychological need, is an energizing state that, if satisfied, conduces toward health and well-being but, if not satisfied, contributes to pathology and ill-being“ (2000, p. 75). In earlier studies, needs are seen as individual differences. People are expected to have different strengths of particular needs (e.g. Hackman & Lawler, 1971) which are assumed to have a hierarchy (e.g. Maslow, 1943). Proponents of the SDT do not focus on the distinction of different types of needs but rather the satisfaction of three predetermined basic needs which are considered crucial for the functioning of people in optimal ways. Further, a differentiation between needs and desires is made. According to SDT, basic needs are something that is shown to be empirically connected to a persons' health and growth, whereas a desire which in previous theories could be considered a need is not associated with these outcomes (Kasser & Ryan, 1996). The three basic needs are assumed to be universal and innate in every human being which makes the theory suitable for the application for research in different cultures and points in time. They are as follows:

1. Competence, which includes the achievement of challenges and the capability to reach desired goals (Skinner, 1995). Interns as newcomers to the particular work environment might already feel less competent than their colleagues. If they are assigned feasible tasks and their feeling of competence is fostered, it might lead to enhanced intrinsic motivation.
2. Autonomy requires the individual to feel that he can choose, initiate and direct his own actions (Deci & Ryan, 2010). According to SDT, a working environment that supports the interns feeling of personal initiative increases motivation.
3. Relatedness involves mutual respect and good relations with others (Baumeister & Leary, 1995). Good relations at the workplace and the feeling of belonging to a social entity would lead to greater occupational socialization (McManus & Feinstein, 2014) and the motivation to work at the institution.

Deci and Ryan suggest (2000) that intrinsic motivation is supported by basic need satisfaction. Therefore this study further aims to assess the type of motivation that is associated with the degree of basic need satisfaction.

3.2 Types of Motivation

Motivation, as defined by Ryan and Deci, is „to be moved to do something“ (2000, p. 54). Interns who are inspired by the goals and values of their organization and feel activated to work for the institution can be considered motivated. The authors found that conditions, which support basic need satisfaction, enhance intrinsic motivation (Ryan & Deci, 2000). In research, motivation has been considered as the stimulus for the effort people will attribute to an activity (Chantara et al., 2011). In this paper, motivation was studied within the framework of SDT. This theory has already been applied to explain motivation in different contexts, such as education, relationships, organizations and life goals (Deci & Ryan, 2000). It has proven helpful in meta-analysis and empirical work. The theory goes beyond the traditional intrinsic-extrinsic dichotomy of motivation and makes a distinction between different types of motivations and their consequences (Gagne & Deci, 2005). The concern is not with the quantity of motivation but rather with the quality which depends on the reason people take action and pursue distinct goals. Performance and the quality of the experience differ if an intern is motivated by external rewards such as job security and payment rather than being inspired by the values and goals of the institution (Ryan & Deci, 2000). Gagne and Deci (2005) illustrate different types of motivation with the self-determination continuum (see figure 2). This continuum ranges from a-motivation, which is the absence of the intention to act, to intrinsic motivation that is the drive to engage in an activity for its inherent satisfaction and therefore inherently autonomous. Extrinsic motivation which refers to taking action because of a separable outcome is located in between these extremes. Unlike other approaches SDT subdivides extrinsic motivation into four different types according to their degree of autonomy. Motivational contingencies and the level of autonomy are assumed to be the result of integration and internalization of the requested behavior (Ryan & Deci, 2000).

1. Extrinsic motivation is the least autonomous and externally regulated. Performance in an internship is contingent on external demands or rewards.
2. Introjected regulation is moderately controlled. It involves performance to demonstrate ability and maintain pride. The significance of tasks in an internship is understood but not fully accepted.

3. Identified motivation is characterized by moderate autonomous motivation. Interns consciously value their responsibilities and recognize the activity as important even though it might not be intrinsically compelling.
4. The most autonomous type of extrinsic motivation is integrated. Regulations and tasks are assimilated to the own goals and values. It is similar to intrinsic motivation but differentiates itself as action still arises due to an instrumental value (Gagne & Deci, 2005).

Deci and Ryan (2000) concluded that a working environment that supports basic need satisfaction enhances autonomous motivation. Autonomous motivation, in turn, promises to support well-being and performance (Baard et al., 2004). Therefore the primary focus of this study shall be on antecedent of autonomy in motivation. However to get a more complete and detailed picture, this research concentrates on both overall autonomy in motivation and the multidimensional pattern of the different types of motivation presented in SDT. Empirical findings by Gagné et al. (2010) supported this multidimensional structure indicating that there are many different underlying reasons to work that contribute to the overall motivation.

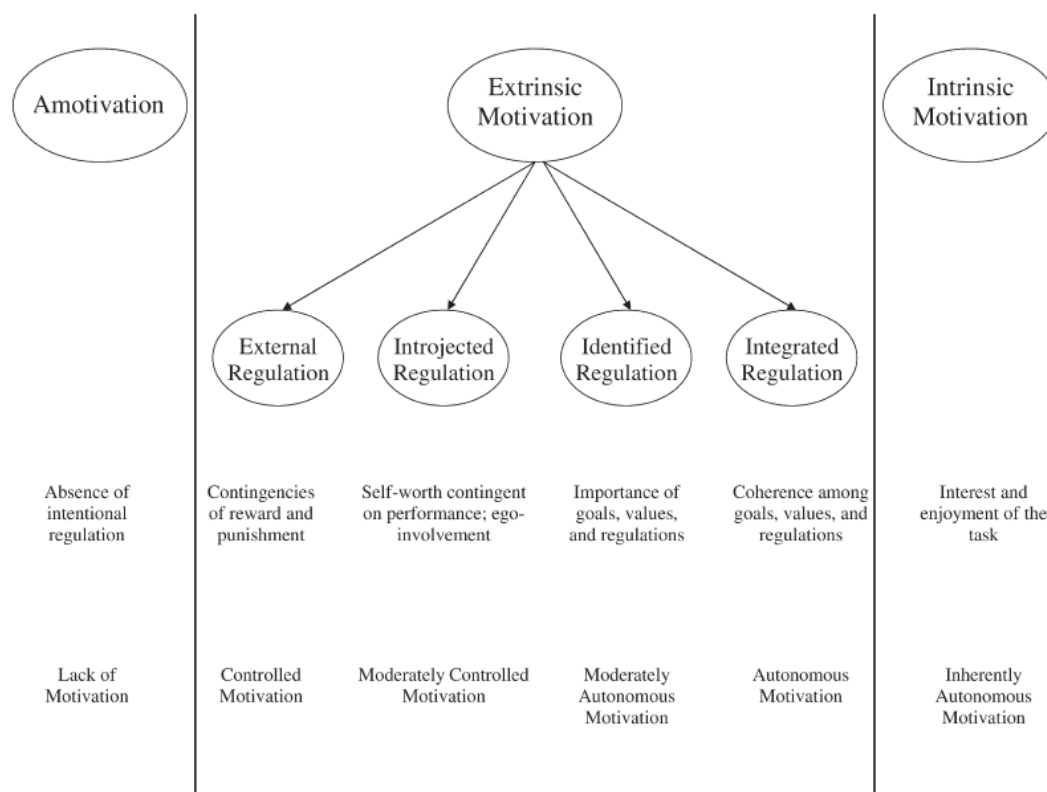


Figure 2: The self-determination continuum as illustrated by Gagné and Deci (2005). It depicts the different types of motivation as postulated by SDT and the essence of underlying motives. The position of each type within the continuum represent the inherent degree of autonomy.

3.3 Career Aspiration

Career aspiration can be considered an individual and particular desired career choice. In earlier research, this variable has been treated as very significant for students' future work experiences (Wang & Staver, 2001). Deci and Ryan (2008) understand aspirations as something that is contingent on the degree to which

basic needs have been satisfied versus frustrated. According to SDT, people will aspire goals that allow for the satisfaction of their basic needs. McManus and Feinstein (2014) found that basic need satisfaction in an internship accounts for socialization with the working area. Deci and Ryan (2000) showed that an environment where basic need satisfaction is promoted, strengthens aspirations to pursue goals related to the particular environment. Sheldon and Elliot (1998) found that autonomously motivated aspirations were linked to a greater personal dedication and a higher chance of goal achievement. Further studies found that a more intrinsic type of motivation supported higher performance evaluation, better psychological adjustment, health and well-being (e.g. Baard et al., 2004; Vansteenkiste et al., 2004) which could support the aspiration to pursue a career where such experiences were made. Moreover, clearer goals and a better understanding of conditions to attain these goals narrow energy and motivation (e.g. Deci & Ryan, 2000). Motivation about an internship that builds up on basic need satisfaction would therefore support actions taken to attain public sector career aspirations. Even though theory does not provide a clear direction of this relationship it is assumed as a working hypothesis that the more autonomous the motivation the higher public sector career aspirations will be. It is believed that people who are more autonomously motivated hardly have a reason not to pursue a career in the public sector as they will experience greater well-being and perform better. People who are not autonomously motivated but feel controlled in their action will more easily turn to the private sector where they expect extrinsic rewards such as higher pay. This pattern is suspected to apply to the different types of motivation as well. Autonomous types of motivation are assumed to be correlated with public sector career aspirations, whereas the opposite should be the case for controlled types.

3.4 Hypotheses

The following probabilistic hypotheses which are oriented at the framework of the SDT shall be put to a test by examining basic needs satisfaction, the type of motivation and career aspirations of students doing an internship in the public sector.

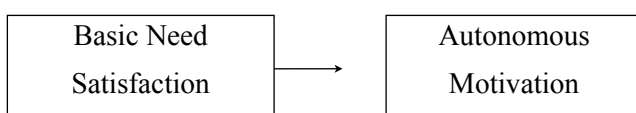


Figure 3: Hypothesis 1

H1: A higher level of basic need satisfaction leads to a more autonomous level of motivation in an internship.

H1.1: A high level of basic need satisfaction correlates positively with autonomous types of motivation and negatively with controlled types of motivation.

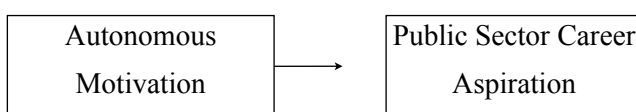


Figure 4: Hypothesis 2

H2: A more autonomous level of motivation in the internship has a positive impact on the aspiration to pursue a career in the public sector.

H2.1: Autonomous types of motivation correlate positively with public sector career aspirations whereas controlled types of motivation correlate negatively with public sector career aspirations.

4. Methodology

4.1 Research Design

SDT is the framework which was used to assess basic needs satisfaction and the type of motivation of interns. As the theory has already been put to a test in various research environments, it can be assumed that the underlying assumptions of this study are reliable (Ryan & Deci, 2000). To assess factors of basic need satisfaction, the type of motivation in an internship in the public sector and the resulting public sector career aspirations a quantitatively driven approach was applied. The larger framework of quantitative data was supplemented by a mixed methods approach with qualitative data obtained from additional comments (Creswell, 2013). As opposed to proponents of the incompatibility thesis this research assumes that methodological triangulation, by using closed and open questions gives a more detailed and balanced image of the topic. Hence, one can control the results and be more confident about the outcomes (Howe, 1988). However, the response rate for additional comments was very low, which is why this paper is only based on the quantitative data obtained.

A correlational research design with no differing manipulation of the units or the environment was applied. This prevents ethical difficulties that could arise if participants were treated differently (Dooley, 2009, p. 163f). Further, a cross-sectional design where data is measured at one point in time was used. It is recognized that results could differ in another moment. However, the purpose of this study, namely to determine the prevalence of a relation between the variables, is met by this type of correlational study. By engaging in a randomized controlled study or a cohort study, identified association could, later on, be considered in more detail (Dooley, 2009, p. 119).

Different methods to assess motivation as for instance peer-rating (Landy & Farr, 1980) and observation (Kanfer & Heggstad, 1997) were considered. In the end, it was decided to obtain the individual-level data via self-reported measures. Limitations of this method include participants that indicate deviant behaviors due to social desirability or bias that results from the person's state of mind while completing the questionnaire. Nevertheless, self-reporting is quick, easy to administer and most suitable to assess the conscious working motives (Huizinga & Elliott, 1986). This cognitive approach aims to detect students' conscious feelings and interpretation of events and how this influences their behavior.

The predetermined surveys included measurements to assess several basic properties such as gender and the study progress which serve as control variables to stem the danger of spuriousness.

4.2 Case Selection and Sampling

As already pointed out, there are different stakeholders, the students, school staff and employers who are involved in an internship. This study focuses on the students' perception of the internship. Therefore the

sampling frame included university students that are at the end of an internship in the public sector and have started their academic formation at the university level. Purposive sampling was used (Dooley, 2009, p. 129). Social media was used to reach out to students who were at the end of their internship in a public institution. Considering the distance between the various public institutions and universities this web-based type of sampling has the highest chance of obtaining a large and representative sample. A majority of German students use social media (Vor dem Esche & Hennig-Thurau, 2014). Therefore a high percentage of all interns has a chance of being included in the research (Dooley, 2009). Students were asked to forward the survey to other potential participants. This so-called snowball sampling is a type of convenience sampling and serves to recruit people that have to meet certain criteria and are difficult to reach via other channels (Atkinson & Flint, 2004).

4.3 Data Collection Method

As an accessible dataset on the topic of intern motivation in the public sector does not exist, this research relies exclusively on primary data, that is data specifically collected for the purpose of this study.

The web-based questionnaires were distributed using LimeSurvey (Version 2.5) and consist of four parts. First, demographic information such as gender, country of placement, study progress and field of study was collected. The second part assessed basic need satisfaction with the Basic Psychological Needs at Work Scale (BPNWS)¹ (Brien et al., 2012). In the third part work motivation was measured with the use of the Work Extrinsic and Intrinsic Motivation Scale (WEIMS)² developed by Tremblay et al. (2009). Both scales are going to be elaborated in more detail in the operationalization part. The last part of the questionnaire dealt with the students public sector career aspirations. Before distributing it, the survey was answered by four randomly selected students to find possible mistakes and lack of clarity. The only changes that were made concerned the layout and some phrasing in the questions concerning demographics and career aspiration. Data gathering took place for three weeks in May 2016. The ethical research guidelines laid down by the Faculty of Behavioral Sciences of the University of Twente (2012) were regarded and anonymity of the participants was ensured.

5. Operationalization

5.1 Basic Need Satisfaction

Basic needs as presented in SDT are assumed to be universal and innate in every human being. Therefore the application is suitable for research in different cultures and points in time (Deci & Ryan, 1985). The satisfaction of the three basic needs for competence, autonomy and relatedness was measured using the BPNWS. The questionnaire consists of 21 items rated on a 7-point Likert-type scale ranging from 1 (entirely disagree) to 7 (entirely agree). Considering that an internship is associated with different demands than a permanent job some statements were slightly adjusted to make the scale more appropriate. Please, refer to

¹ The BPNWS used in this paper is publicly available. A bibliography of journal articles, working papers and conferences using the scale can be found on the web page of the SDT (URL: <http://selfdeterminationtheory.org> (28.06.2016)). As far as known the variables and correlations examined in this manuscript have not been studied yet.

² See above

Appendix A for detailed information on the measurement scales. The scores of the three sub-scales were used as indicators were used to compute the latent variable of overall need satisfaction.

Information from data collected in the questionnaire was deduced by averaging results from three sub-scales based on the satisfaction of the needs for autonomy (seven items; $\alpha = 0,7$), competence (six items; $\alpha = 0,7$) and relatedness (eight items; $\alpha = 0,83$). Scores of the sub-scales were used to assess the respective impact on the type of motivation. Further, an overall basic need satisfaction score was computed by averaging the results. As depicted in Table 1 Cronbach's alpha for the overall score was 0,69 which suggests good internal reliability. Cronbach's alpha values that can be meaningfully interpreted, range between 0 and 1 with 1 indicating maximum consistency between the different items measuring a construct. Using this scheme is reasonable as it has already been empirically put to a test through empirical research and meta-analysis and is based largely on field research in other domains (Baard et al., 2004; Deci et al., 2001). The frequently used scale has good external validity and strong reliability (Ilardi et al., 1993). To account for convergent and discriminant validity assumptions are based on the model of Gagné and Deci (2005) who found that basic need satisfaction rather enhances autonomous motivation than controlled motivation.

5.2 Types of Motivation

To test this assumption, the type of intrinsic versus extrinsic motivation in the internship was assessed. Each type of motivation is connected to different reasons to be involved in an internship. This logic was used to determine the motivation depicted by the students. The WEIMS, which also has its theoretical basis in self-determination theory (Ryan & Deci, 2000), was used to measure the type and level of motivation. In a research conducted by Tremblay et al. (2009), its applicability in different work environments was estimated and asserted as a reliable and valid instrument to measure different types of work motivation. It includes 18 different statements of which respectively three measure one of the six different types of motivation presented in SDT (i.e. a-motivation, extrinsic, introjected, identified, integrated and intrinsic motivation). Participants were asked to indicate on a 7-point Likert-scale in how far each item represented the reason they were currently involved in the internship. As for the BPNWS the items were slightly adjusted to consider differences between a permanent job and an internship. For detailed information, please consider appendix A. Considering that the different types of motivation only consist of three items respectively, the estimated internal consistency (Cronbach's alpha) for intrinsic ($\alpha = ,68$), integrated ($\alpha = 0,70$), identified ($\alpha = 0,71$), introjected ($\alpha = 0,72$), extrinsic motivation ($\alpha = 0,52$) and a-motivation ($\alpha = 0,76$) is acceptable. It is assumed that students are simultaneously affected by the different motivational types. An assessment considering each motivational style is advocated because it may reveal effects of single variables that are masked when only studying an autonomous motivation composite score (Gagné et al., 2015).

To detect students who display autonomous versus controlled motivation a Work Self-Determination Index (W-SDI) that was presented and recommended for further research in the paper of Tremblay et al. (2009) was calculated. The W-SDI is generated as follows: $(3 \times \text{IM}) + (2 \times \text{INTEG}) + (1 \times \text{IDEN}) + (-1 \times \text{INTRO}) + (-2 \times \text{EXT}) + (-3 \times \text{AMO})$. The weights used in this calculation correspond to the respective position in the self-determination continuum and the leverage of the different types of motivation (Gagne & Deci, 2005). When breaking down the continuum in the middle intrinsic, integrated and identified motivation represent autonomous motivation and are therefore valued positively whereas introjected, external and a-

motivation are on the other half of the continuum and influence the W-SDI negatively. Regarding the magnitude of the results, values obtained for intrinsic motivation, the most autonomous type of motivation, are multiplied by three as it is located on the far left of the self-determination continuum and is expected to have a higher leverage on the overall level of motivation. Scores measuring identified motivation which is located in the middle of the self-determination continuum are only multiplied by one as it has a smaller influence on the relative level of self-determination. Possible scores range between +36 indicating a high level of autonomy and -36 which is associated with a non-autonomous profile. The overall W-SDI had good internal validity with a Cronbach's alpha value of 0,66. Reliability analysis was run to consider if underlying concepts of the scale should be taken out of the model (see Appendix B). However, it was decided to stick with the model suggested and validated by Tremblay et al. (2009).

In addition to the W-SDI, that was used to obtain information about the overall autonomy profile of students in an internship, the WEIMS may also be used to compute self-determined as opposed to non-self-determined working motivation. To have a simpler, dichotomous approach to autonomous working motivation, the Work Self-Determined Motivation (W-SDM) which depicts the level of self-determined working motivation can be calculated by summing the means of the three self-determined sub-scales which are intrinsic, integrated and identified motivation. To explore the Non-Self-Determined Motivation (W-NSDM) an index is obtained by summing the means of introjected, extrinsic and a-motivation which are the sub-scales that are located on the non-self-determined side of the self-determination continuum (Gagne & Deci, 2005). Even though W-SDM had good internal consistency values of 0,68, the W-NSDM appeared not to apply to our population as it had a very low internal consistency value of 0,11 (see Table 3). Therefore both indexes were not considered in the subsequent analysis.

Exploratory factor analysis was run to see if there was a different underlying pattern in the data and items did group to different latent constructs than suggested in previous research (see Appendix B). As it did not produce any results that would contribute to this research, it was decided to stick with the construct recommended by Tremblay et al. (2009).

5.3 Career Aspiration

After having measured the degree of basic needs satisfaction and the type of motivation, public sector career aspirations were assessed by a 5-point Likert-scale ranging from 1 (absolutely) to 5 (absolutely not)³.

6. Data Analysis

This section presents the statistical analyses of the data. SPSS Version 22.0 was used to conduct the data analysis. Univariate descriptives were applied to detect measures of central tendency and measures of dispersion (see Table 1). Former assess the typical values of included cases. Later describe the deviation from the typical value. The data obtained is ordinal. One cannot be sure whether the intervals between the values are equal. However, the values of variables resulting from data collected from scales are often treated as interval data in previous research. To be able to compute a significant mean and to conduct regression analysis it shall be presumed that the intervals are equally spaced (Dooley, 2009, p. 319).

³For clearer results in statistical analysis and a more accessible direction of the association, values were reversed in the statistical analysis. In the following, a scale ranging from 1 (absolutely not) to 5 (absolutely) shall be used.

To assess the relationships between the variables presented in this paper, correlational analysis between the different types of motivation, basic need satisfaction and career aspiration was run. Further, regression analysis was run to study the predictive power of the individual basic needs and autonomy in motivation.

Basic needs as presented in SDT are assumed to be universal and therefore suitable for research in different cultures (Deci & Ryan, 1985). A majority of the students (43,8 %) did their internship in Germany. To study conditions of internships in Germany in more detail, a dummy variable was computed. It is expected that antecedents and outcomes of motivation in Germany are similar to the rest of the sample. A second potential confounding variable that was tested for was gender. Research suggests that women are not less motivated in their work (Cabrera, 2007) but face different obstacles such as perceived subjective and potential objective discrimination (Naff, 1995). This might change career aspiration and motivation in an internship already at the university level. Further, the effect of study progress on the relation between dependent and independent variables was checked. Career aspiration might change over the course of studies (Compton et al., 2008) and be subject to a better understanding of public institutions and career possibilities. To test for these potential confounding variables, hierarchical regression analysis was run.

6.1 Demographic Statistics

Table 1

Frequencies and Percentages for Demographic Variables

		Frequency	Percentage
Gender	Male	14	29,2
	Female	31	64,6
	N/A	3	6,3
Study progress in years	1	2	4,2
	2	8	16,7
	3	26	54,2
	4	8	16,7
	5	4	8,4
Place of the internship	Germany	22	45,8
	Netherlands	6	12,5
	Paraguay	4	8,3
	France	3	6,3
	Belgium	3	6,3
	Argentina	2	4,2
	Others	8	16,8

Note. N=48

Table 1 depicts demographic characteristics of the population included in the study. All of the students indicated to be at the end of an internship in the public sector. In total, 48 students (F=31, M=14, N/A=3) filled in the survey. A majority of 64,6 percent of the respondents are female, 29,2 percent are male and 6,3 percent did not indicate their identified gender. Most of the students were in the third year of their studies (54,2%) and followed a degree course in social sciences (64,6%). A predominant part of the internships were undertaken in Germany (45,9%) and the Netherlands (12,5%). Further countries that are included in the study are Paraguay (8,3%), France (6,3%), Belgium (4,2%) and Argentina (4,2%).

6.2 Descriptive Statistics

6.2.1 Basic Need Satisfaction

Table 2

Minimum, Maximum, Means and Standard Deviations, Skewness and Internal Consistency Values (Cronbach's alpha) for Need Satisfaction Index and its sub-dimensions

	Descriptive Statistics					
	Min	Max	Mean	SD	Skewness	α
NeedSatisfaction	3,81	6,43	5,2	0,7	-0,24	0,69
Autonomy	2,57	6,57	4,63	0,89	0,11	0,7
Competence	2,83	6,83	5,18	0,89	-0,51	0,7
Relatedness	3,63	7,00	5,72	0,88	-0,610	0,63

Note. N=48. Items were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree).

Results depicted in Table 2 show that students' basic needs were rather satisfied in the internship. On a scale from one to seven, results range from a minimum satisfaction level of 3,81 which is rather dissatisfied to 6,43 which is attributed to students who agreed and often even entirely agreed with the items used to measure satisfaction. The average student indicated a value of 5,2 and hence was somewhat satisfied. Satisfaction of the basic need of relatedness with a mean of 5,72 was experienced the most positive, suggesting that students experienced good relations at the workplace and felt a kind of social belonging. The need for autonomy had the lowest mean (4,63). Students were undecided when rating in how far they could influence and shape their tasks and work outcomes. The individual basic needs have similar standard deviations ranging from 0,88 to 0,89 pointing to a comparable deviation of the mean.

Assessment of autonomy satisfaction demonstrates a slight positive skewness (0.11) with a slope of the distribution pointing towards more positive results whereas the opposite is the case for competence (-0,51) and relatedness (-0,61) with negative skewness. Computing the percentiles it is underlined that the results for need satisfaction are relatively evenly distributed around the mean. For overall need satisfaction one can see that 25 percent of the students have a value of less or equal to 4,73. 50 percent of the students indicated values from 4,73 to 5,71. This shows that half of the students stated to be somewhat or even mostly

satisfied with regard to their basic needs in the internship. The percentiles for the three sub-dimension again indicate the lowest values for autonomy and the highest values for relatedness. However, it can be noted that the average levels of satisfaction are not attributed to outliers but that the overall distribution for autonomy rank in lower levels of satisfaction. 25 percent of the student are indifferent or unsatisfied concerning their autonomy at the internship. The 25 percent of students who indicated the lowest satisfaction level for relatedness is rather satisfied or less.

Results suggest that the basic needs of students are rather satisfied within the internship. However, there is still room for improvement. A special focus should lie with the design of tasks which allow more autonomy.

6.2.2 Types of Motivation

Table 3

Minimum, Maximum, Means and Standard Deviations, Skewness and Internal Consistency Values (Cronbach's alpha) for measures of motivation

	Descriptive Statistics					
	Min	Max	Mean	SD	Skewness	α
W-SDI	1,67	19,33	9,62	5,27	-0,05	0,66
WEIMS sub-scales						
Intrinsic	2,67	7,00	5,69	0,91	-1,18	0,68
Integrated	2,33	7,00	5,08	1,15	-0,49	0,7
Identified	1,33	6,67	5,06	1,18	-1,07	0,71
Introjected	1,33	7,00	4,78	1,33	-0,76	0,72
Extrinsic	2,33	7,00	5,08	1,15	-0,5	0,52
A motivation	1,00	5,67	2,58	1,2	0,47	0,76

Note. N=48. W-SDI ranked from -36 which indicates a low level of autonomy to +36 which indicates a high level of autonomy. W-SDM, W-NSDM and the WEIMS sub-scales were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree).

As depicted in Table 3, measures of dispersion for the W-SDI show a range from 1,67 to 19,33. Within the large scale that ranks from -36 to +36, the least autonomously motivated student deviates 17,66 points from the most autonomously motivated student. This indicates that students seem to be rather homogenous regarding perceived autonomy in motivation. All students were at least slightly autonomously motivated. Negative values would have suggested that the students exhibit controlled motivational types as introjected, extrinsic and a-motivation. However, even if not that big, differences in autonomy in motivation obviously exist and should be studied in more detail. The mean value of 9,62 indicates that the average student displayed moderately autonomous motivation. Regarding the self-determination continuum, this would suggest that students appreciated the tasks in the internship as important. However, they did not show

personal interest or enjoyment in the activities. The upper 25 percent of the students had values higher than 14,42. For these students, it can be assumed that they consider the tasks in their internships as part of themselves. The standard deviation of 5,27 shows a moderate variation in the group of students. Considering the low skewness of -0,05 one can say that values have a very symmetric distribution around the mean.

For the average student, the most pronounced type of motivation was intrinsic (5,69) and the weakest is a-motivation (2,58). Apart from a-motivation values for all other types of motivation indicated a negative skewness, meaning that the mode of the students depicted higher values on the scales than the average. This could be attributed to some outliers that experienced an exceptionally low level of motivation. For intrinsic and identified motivation this phenomenon is especially high. With the expectation of a-motivation, students showed some degree of each type of motivation respectively. The low minimum value of a-motivation shows that there were, however, students who did not show any degree of a-motivation in the internship. This supports a multidimensional pattern of motivation as postulated by SDT (Gagné et al., 2010). Both, intrinsic and extrinsic incentives seem to motivate students to accomplish tasks in the internship.

6.2.3 Career Aspiration

Data collected to assess the career aspirations present results which range from students who are absolutely sure that they want to work in the public sector to students who are absolutely sure that they do not aspire employment in the public sector. All types of aspirations are represented in the population unveiling a very heterogenous sample with regards to career aspirations at the end of an internship. The average student in the sample would rather work in the public sector. However, the results show a negative skewness which indicates that the tail of the distribution points to the left. This can be attributed to the fact that most of the students (45,83 percent) signaled that they most likely want to work in the public sector. As there are some outliers who are absolutely sure they do not want to work in the public sector, the mode is higher than the mean. An interesting difference can be found when comparing placements in Germany versus other countries. The average student who did his internship in Germany most likely (3,8) wanted to pursue a career in the public sector which was higher than in other countries where the average student was indifferent (3,2) towards working in the public sector (Table 6).

6.3 Inferential Analysis

After having described the data obtained from the population in this study, inferential statistics shall be used to analyze in how far results can be generalized beyond the sample that was tested.

Correlation analysis was conducted to assess the relation between the different types of motivation, their antecedent and outcomes, tested in this study.

To be able to refute or support the hypotheses stated at the beginning of this paper, regression analyses were conducted. The direction, the substance and the significance of the associations were analyzed. Least square estimation was used to minimize unexplained error variance and fit the regression line. The regression line represents the estimated outcome of the dependent variable for a given value of the independent variable. To obtain reliable results and avoid Type I or Type II error certain assumptions about the variables used in linear regression analysis must be fulfilled. Therefore, the results were checked for

linearity, independence of errors, constant error variance, normally distributed errors (Osborne & Waters, 2002) and the presence of influential cases (see Appendix B).

After having obtained satisfying results in these tests, bivariate regression between Basic Need Satisfaction and W-SDI was run. Second, multiple regression measuring the respective effect of competence, relatedness and autonomy on W-SDI was carried out. Third, regression analysis for the association between W-SDI and career aspirations was conducted. Hierarchical regression analysis was conducted to control for the effect of potentially confounding demographic scores. The influence of study progress (measured in semester count, which is an academic term of half a year each), gender and whether the internship was accomplished in Germany or not were controlled.

6.3.1 Regression Analysis: Basic Need Satisfaction and W-SDI

Table 4

Summary of Regression Analysis between basic need satisfaction and W-SDI

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-22,09	3,44		-6,41	0,000
NeedSatisfaction	6,09	0,66	0,81	9,29	0,000
R= 0,81, R ² = 0,65, Adjusted R ² = 0,65, Std. Error = 3,14					

Note. N=48. Items were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree). W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy.

Bivariate regression analysis was conducted to study the effect of enhanced basic need satisfaction on autonomy in motivation (Table 4). As expected basic need satisfaction ($\beta = 0,81$, $p < 0,001$) was significant and positively related to the W-SDI. The results indicate that every level of basic need satisfaction contributes to a 6,09 increase in autonomous motivation which can depict values from -36 to 36. Hence, variance in Y can best be explained by: $Y = -22,09 + 6,09X + e$. Based on the t-value of 9,47 and a p-value of less than 0,01 it can be concluded that the relationship is statistically significant and a very strong presumption against the null hypothesis is justified. The coefficient of determination has a value of 0,65 which indicates that 65 percent of the variance in the autonomy of motivation can be explained by the level of basic need satisfaction. Looking at the standard error of the estimate one can see that the average case deviates 0,66 points from the line of best fit.

The overall model suggests that satisfaction of basic needs as presented in the SDT are a valuable tool for assessing the type of motivation. Hypothesis 1, namely that a higher level of basic need satisfaction leads to a level of motivation in an internship that is more autonomous was supported as a significant positive relation between the two indicators was observed. Hence, institutional factors that support basic need satisfaction contribute to autonomous motivation. This result does not come as a surprise as this relation

has been recognized in well-founded earlier research (Deci & Ryan, 2000). However, as far as known, it is the first time that the relation was approbated in the setting of internships in the public sector.

Table 5

Hierarchical regression between control variables, basic need satisfaction and autonomous motivation (W-SDI)

Predictor	Block 1 β	Block 2 β
Block 1: Control Variables		
Gender	0,08	0,19
Semester	0,2	0,19
Place	-0,06	-0,08
Block 2: Basic Need Satisfaction		
NeedSatisfaction		0,84**
R ²	0,05	0,73
Adjusted R ²	-0,01	0,71
Sig.	0,53	0,00
F	0,74	29,43

Note. N=48. W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy. Items for NeedSatisfaction were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree). Gender: 0 = N/A, 1 = female, 2 = male. Place: 1 = Germany, 0 = Other.

** $p \leq 0,01$.

To control for potential confounding variables hierarchical regression analysis was performed (Table 5). First, the control variables gender, semester count and the place of the internship were entered into the model as predictor variables. Block two contained both the control variables and the Need Satisfaction Index. To rule out the danger of highly correlated predictor variables, the variance inflation factor (VIF) for each variable was checked. As all VIF values were under 1,02, it can be concluded that there was no multicollinearity among predictor variables (see Appendix B).

Results show that neither of the potentially confounding variables has a significant relation with the W-SDI. Block 1 which solely included the potential confounding variables had a significance level of 0,53, meaning that the model is not statistically significant. Only when entering the level of basic need satisfaction results became significant. The full model (Block 2) had a coefficient of determination with a value of 0,73 and hence could explain 73 percent of the variance in autonomous motivation. Results indicate that gender, study progress and the place of the internship do not influence the positive and significant relation between basic need satisfaction and autonomous motivation.

6.3.2 Multiple Regression Analysis: Basic Needs and W-SDI

Table 6

Summary of Multiple Regression Analysis between individual basic needs and W-SDI

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-22,12	3,52		-6,29	0,000
Autonomy	2,00	0,58	0,34	3,45	0,001
Competence	2,04	0,64	0,34	3,2	0,003
Relatedness	2,08	0,67	0,35	3,12	0,003
R = 0,81, R ² = 0,65					

Note. N=48. Items were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree). W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy.

Multiple regression was conducted to predict the impact of the need for competence, autonomy and relatedness respectively. Moreover, the aim was to determine if one basic need had a stronger relation with a more autonomous type of motivation than others. As can be seen in Table 6, all sub-dimension display t-values that range from 3,12 to 3,45 and p-values that are lower than 0.01 and are therefore highly significant predictors of autonomous motivation at work. Standard errors of the regression range from 0,58 to 0,67 and the R-squared indicates that the overall model can explain 65 percent of the variation in motivation.

Evaluating the relationship of the individual variables with W-SDI, it is noted that the three basic needs contributed in relatively equal terms to enhanced autonomous motivation. Even though relatedness had a slightly higher standardized coefficient ($\beta = 0,35$) than the two other variables both display beta values of 0,34. The difference is so small that it can be attributed to chance. For each level increase in autonomy, the score of the W-SDI increases by 2. One level increase in competence accounts for 2,04 points and relatedness contributes 2,08 points. The overall formula for the model would be as follows: $Y = -22,12 + 2X_1 + 2,04X_2 + 2,08X_3 + e$. This finding supports the SDT in stressing the importance of all three basic needs. To enhance motivation in an internship, it should be focussed on creating institutions that support each need respectively.

6.3.3 Correlational Analysis: Basic Need Satisfaction and Types of Motivation

Table 7

Correlations between WEIMS sub-scales and motivational antecedents and consequences for internships in Germany versus other countries

Variable	Need Satisfaction		Career Aspiration		
	In Germany	Others	Overall	In Germany	Others
Mean	5,21	5,2	3,5	3,8	3,2
SD	0,6	0,78	1,05	1	1,03
α	0,61	0,75			
WEIMS subscales					
Intrinsic	0,51*	0,48*	-0,02	-0,33	0,4**
Integrated	0,24	0,38	0,44**	0,32	0,47*
Identified	0,25	0,37	0,52*	0,45*	0,57**
Introjected	-0,17	-0,09	0,00	-0,25	0,11
Extrinsic	0,25	0,38	0,44**	0,32	0,47*
A-motivation	-0,44*	-0,82**	-0,24	-0,07	-0,37

Note. N=48. (Germany N=22/Others N=26) Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely). W-SDI ranked from -36 which indicates a low level of autonomy to +36 which indicates a high level of autonomy. WEIMS sub-scales were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree).

* $p \leq 0,05$; ** $p \leq 0,01$.

After having ascertained the positive effect of basic need satisfaction on autonomous motivation, its relation to the different types of motivation as postulated in SDT shall now be studied. To estimate cultural differences, the results were divided into internships in Germany and in other countries. Values of the correlation range between -1 (perfect negative correlation) and plus 1 (perfect positive correlation).

Conclusions depicted in Table 7 show that intrinsic motivation and basic need satisfaction positively correlate in both Germany (0,51) and other countries (0,48). This supports the expectation that autonomous motivational types that are positively related to need satisfaction. None of the extrinsic types of motivation has a significant correlation with need satisfaction. However, a significant negative relationship between a-motivation and need satisfaction is shown. This relationship is moderately high for internships in Germany (-0,44). In other countries, correlation is highly significant and twice as high (-0,82) indicating that in Germany need satisfaction is surprisingly less in line with preventing a-motivation than in the overall sample.

Hypothesis 1.1 of this study can only partially be confirmed. The tendency of basic need satisfaction correlating positively with autonomous types of motivation negatively with controlled types could be confirmed. However, this correlation only holds true for the most extreme types of autonomous versus controlled types of motivation. The more moderate motivational types which are placed in the middle of the self-determination continuum did not have any significant relation whatsoever.

6.3.4 Regression Analysis: W-SDI and Career Aspiration

Table 8

Summary of Regression Analysis between W-SDI and Aspirations

	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	Sig.
(Constant)	2,98	0,31		0,000
W-SDI	0,05	0,03	0,27	0,063
R= 0,27, R ² = 0,07, Adjusted R ² = 0,05, Std. Error = 1,02				

Note. N=48. Items were rated on a 7-point Likert-type scale ranging from 1 (Entirely disagree) to 7 (Entirely agree). Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely)

As depicted in Table 8 the relation between the type of motivation and the aspiration to work in the public sector has a p-value of 0.6 which indicates that there is only a very low presumption against the null-hypothesis. As the assumption of normality could not completely be confirmed, it was decided to select a p-value of 0,01 for significance testing of the relation between W-SDI and Aspirations. For detailed information, please regard Appendix B. The coefficient of determination suggests that only 7 percent of the variance in career aspirations can be explained by the type of motivation.

Hypothesis 2 which assumed a positive relation between autonomous motivation within an internship and enhanced public sector career aspirations needs to be refuted for the time being.

Table 9

Hierarchical regression between control variables, autonomous motivation (W-SDI) and public sector career aspirations

Predictor	Block 1 β	Block 2 β
Block 1: Control Variables		
Gender	-0,17	-0,19
Semester	0,22	0,17
Place	0,27	0,29*
Block 2: Work Self-Determination		
W-SDI		0,28*
R ²	0,16	0,23
Adjusted R ²	0,10	0,16

Predictor	Block 1 β	Block 2 β
Sig.	0,05	0,02
F	2,78	3,29

Note. N=48. W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy. Gender: 0 = N/A, 1 = female, 2 = male. Place: 1 = Germany, 0 = Other. Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely).

* $p \leq 0,05$; ** $p \leq 0,01$.

Again, control variables were considered. These are the identified gender of the intern, his study progress in semester count and the place where the internship was accomplished. To test the potential confounding effect on the relation between the type of motivation and public sector career aspirations, hierarchical regression analysis was conducted (Table 9). By computing the VIF, the threat of multicollinearity was tested. As all VIF values were under 1,06 it can be concluded that predictor variables are not highly correlated and contribute to the model individually (see Appendix B).

Block 1 included the control variables and in Block 2 the W-SDI was added as a predictor variable. In the first model, no predictor variable was significantly related to career aspirations. In the full model the place of the internship ($\beta = 0,29$) and the W-SDI ($\beta = 0,28$) are significant indicators. Semester count and gender remain insignificant. It can be concluded, that whether the internship took place in Germany or not moderated the relationship between W-SDI and public sector career aspiration. Only for internships that were not done in Germany did autonomous motivation play a role for the subsequent aspiration to work in the public sector. The value of the coefficient of determination indicates that 23,4 percent of the change in the dependent variable could be explained. The p-value for Block 2 is 0,02 which indicates that the model is statistically significant.

Table 10

Summary of multiple regression analysis between the place of the internship, W-SDI and Career Aspiration

	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	Sig.
(Constant)	2,63	0,34		0,000
Place	0,64	0,29	0,31	0,029
W-SDI	0,06	0,03	0,3	0,034
R = 0,41, R ² = 0,17, Adjusted R ² = 0,13, Std. Error = 0,98				

Note. N=48. W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy. Place: 1 = Germany, 0 = Other. Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely).

Subsequently, multiple regression was computed to study this relationship in more detail and to account for the level change in career aspiration holding the place of the internship constant (Table 10). The goal was to determine the change in aspiration due to autonomous motivation for students that either did or did not complete their internship in Germany. The overall model had a significance of 0,016. Hence, for the given set of observations, the null hypothesis can be rejected. The individual predictor variables in the model had somewhat lower p-values of 0,029 and 0,034 respectively, but can still be considered significant. Results indicate, that indeed when controlling for the place of the internship, autonomous motivation contributes positively to public sector career aspirations. Both factors have roughly the same impact and contribute to a 0,31 and 0,3 increase in a standardized level of career aspiration. Taken together, the variables are able to explain 17 percent of the variance. The formula for the regression line how the autonomy in motivation and the place of the internship predict career aspirations of university students is the following: $Y = 2,63 + 0,64X_1 + 0,06X_2 + e$.

The conclusion about the second hypothesis needs to be modified. As phrased at the beginning of this study, it was assumed that a more autonomous level of motivation in the internship has a positive impact on the aspiration to pursue a career in the public sector. This relation could not completely be confirmed. Rather, it seems to be contingent on the place of the internship. Albeit significant, even this model can only account for 17 percent in the variance of career aspirations. This indicates that there seem to be a number of other indicators for the dependent variable which should be assessed in more detail.

6.3.5 Correlational Analysis: Types of Motivation and Career Aspiration

To consider the correlation between the WEIMS and the individual types of motivation correlation analysis was conducted (Table 7). Results indicated that integrated (0,44), identified (0,52) and extrinsic (0,44) types of motivation are positively interdependent with career aspirations. As expected a-motivation has no correlation with career aspirations. It seems to lead to indifference concerning career plans. However, there is no clear pattern among the different types of active motivation. For the overall sample, extrinsic motivation as the most controlled type of motivation had the same relation to career aspirations as integrated motivation which is a rather autonomous type of motivation. Hence the aspiration to work in the public sector is correlated with both extrinsic rewards and a personal coherence with the goals and values of the organization. Overall, identified motivation which comprises valuing the importance of goals and regulations in the internship seems to have the highest relation to career aspiration in the public sector.

As hierarchical regression analysis for the relation between the W-SDI and career aspirations indicated differences in the setting of the internship, this potential confounding variable was considered in correlational analysis. Also for the correlation between the WEIMS sub-scales and career aspirations, there are pronounced differences between the settings of the internship. For students in Germany, only identified motivation had a significant relation of 0,45. Surprisingly, results obtained in other countries differ very much. When only considering students who did their internship outside Germany identified motivation with

0,57 has the highest association. Extrinsic and integrated motivation both depict significant and positive values of 0,47. For this group of students intrinsic motivation has a positive correlation of 0,4 with career aspirations. However, this seems not to be the case for internships in Germany. Here, only identified motivation is related to the aspiration to work in the public sector.

Hypothesis 2.1, assuming that more autonomous types of motivation correlate with public sector career aspirations, could not be confirmed. Students display a rather multidimensional pattern of different motivational types which are related to public sector career aspirations.

7. Discussion

Internships provide a first insight into a potential future working environment and are a valuable tool for both training and recruitment. Therefore, a suitable design of internship programs is crucial as it might be the turn on the scale in the decision to apply for a job in the public sector. This paper is concerned with basic need satisfaction, motivation and career aspirations of students who do an internship in the public sector. In the following the major findings of this study shall be outlined. First, the descriptive statistics of studied antecedent and consequences of motivation shall be discussed. Furthermore, the relation between the different variables is considered. The data obtained can be used to derive implications for the planning of internship programs that enhance autonomous motivation of students. Moreover, conclusions about the relation of motivation to public sector career aspirations are drawn.

7.1 Satisfaction of Basic Needs

Basic need satisfaction was assessed with the BPNWS that has been used and validated in previous research. Internal and convergent validity supported the application of the scale as an adequate tool to measure the satisfaction of the distinct basic needs of competence, relatedness and autonomy and to compute an overall score of basic need satisfaction. In general, students' basic needs were rather satisfied in their internship. Nevertheless, there remains room for improvement. In the studied population, the need for relatedness was best satisfied whereas the environmental factors in an internship seemed least supportive for the satisfaction of autonomy. The basic need for relatedness is contingent on interpersonal controlling and supportive relations at work. Interdependence between employees and a respectful working environment contributes to the internalization of regulations and values (Deci et al., 2001). It seems that supervisors and colleagues of interns in the public sector can live up to these needs most adequately. Further, students perceive external pressures in the internship as burdening. To support the need for competence, an adequate design of tasks and jobs is important (Gagné et al., 1997). The basic need for autonomy is influenced and thwarted by external pressures such as red tape, deadlines, contingent rewards and surveillance (Grolnick & Ryan, 1989). Therefore, it is recommended to give students more leeway in deciding how their tasks are best executed.

7.2 Types of Motivation

Different types and levels of motivation were measured with the use of the WEIMS, which was developed by Tremblay et al. (2009). Compared to the overall scale the range of the values of empirical findings was relatively small indicating a rather homogenous sample. However, there are important differences in

autonomy of motivation which need to be considered. Results ranged from very low to higher levels of autonomy in motivation. However, all students in the sample were autonomously motivated, indicating that they engage in the internship with a sense of choice and willingness as opposed to controlled motivation which would suggest coercion and a sense of external pressure. Studying the different types of motivation postulated in SDT showed that the multidimensional pattern which was empirically observed in earlier research (Gagné et al., 2010) can be applied to interns. Intrinsic motivation was the type of motivation that was most prominent in the sample of students. As intrinsic motivation is considered the most self-determined type of motivation, this finding is in line with an rather autonomous level of motivation in the sample. Spontaneous satisfaction with the activity itself as opposed to accomplishing tasks because of a separable outcome was most important for the students. However, the rather high average values on the magnitude of the other types of motivation show that there is more to the motivation of interns than just intrinsic motivation. Extrinsic factors such as money and security seem to have a substantial impact on the overall motivation as well. It is important to keep in mind that this is not necessarily negative. Earlier studies found that extrinsic incentives if used appropriately, do not undermine intrinsic motivation but enhance overall motivation. Both intrinsic and extrinsic motivation that arise out of personal importance, whether it is the identification with the organizational goals or the income associated with the internship, enhance performance and well-being at the workplace (Gagne & Deci, 2005). These findings are in line with previous research (e.g. Tremblay et al., 2009) and therefore support the criterion validity of the WEIMS.

7.3 Association between Basic Needs and Motivation

SDT depicts a model which suggests that supporting satisfaction of basic needs enhances autonomy in motivation. This assumption is reinforced by the findings of this research and deemed apply to internships in the public sector. Results of the WEIMS and the BPNWS were helpful to study the interaction of working conditions and motivation of interns. Multiple regression analysis showed that the individual basic needs contribute to increased autonomous motivation in relatively equal terms. These findings support research of Deci and Ryan (2010) which suggests that students must perceive not only competence and relatedness but also a feeling of autonomy to optimize overall satisfaction, performance and well-being. Therefore, an environment that supports the satisfaction of the three needs in a consistent manner is desirable if one wishes to enhance autonomous motivation in internships. Gender, study progress and the place of the internship did not confound this relation. Moreover, correlation analysis with the different types of motivation showed that tasks which are designed in a way that supports the satisfaction of basic needs go hand in hand with intrinsic motivation. Further, it was found that basic need satisfaction and a-motivation correlate negatively. This supports the assumption that students with high levels of basic need satisfaction, will most likely not lack motivation to engage in an activity and fail to value the activity or its outcomes. Different from the expectation, other types of motivation postulated by SDT, such as extrinsic, identified and introjected motivation, did not show any significant relation with basic need satisfaction whatsoever. This underlines the importance of basic need satisfaction specifically for intrinsic motivation as opposed to overall autonomous motivation.

7.4 Association between Motivation and Career Aspiration

Moreover, the aim of this study was to determine the effect of these types and levels of motivation on public sector career aspirations. Career aspirations displayed by the students were very heterogeneous with results ranging from complete declination to the absolute certainty about the wish to work in the public sector. The average student in the sample most likely wanted to work in the public sector.

The overall level of autonomy in motivation did not prove to be related to the aspiration to pursue a career in the public sector. This can be explained by the finding that the motivation to pursue a career in the public sector is not so much contingent on self-determination but rather on a broad facet of underlying reasons and types of motivations that are also dependent on external and controlled components. The lacking relation between autonomous motivation with career aspirations should not lead to the conclusion that enhancing autonomous motivation in an internship is not important.

As already mentioned, it was not only autonomy in motivation but several different types of motivation which correlated with career aspirations. Correlation analysis suggests that identified motivation has the highest link with the aspiration to work in the public sector. This shows that a main reason for the aspiration to work in the public sector is not the most autonomous type of motivation and inherent enjoyment a job provides. Interns rather displayed a special kind of public service motivation, a conscious valuing of goals, the embracement of work characterized by high task significance and the wish to help others (Perry & Wise, 1990) as drivers of effort in the internship. Internship programs designed to enhance career aspiration should especially focus on tasks which facilitate identified motivation. Integrated motivation also had a positive relation with career aspiration. Integrated motivation is positively linked to identified motivation but is somewhat more autonomous in the sense that action is in congruence with the perception of the self. The wish to pursue a career in the public sector arises out of the possibility to completely endorse its demands and values. Unlike expected, extrinsic motivation seems to correlate significantly with the ambition to pursue a public sector career whereas intrinsic motivation did not. A positive correlation with extrinsic motivation shows that security and an adequate salary provided in the public sector contribute to working ambitions as well. Earlier research demonstrated that controlled motivation can be an important motive for the execution of tedious tasks that demand disciplined task engagement. For such work, extrinsic incentives may generate the most effective results. Deci et al. (1994) found that a meaningful reason to engage in an uninteresting activity led to the internalization of the rationale behind the task. The findings of this study support previous research in the assumption that tangible rewards which are designed in a way as not to undermine intrinsic motivation can contribute to overall performance and the wish to pursue a public sector career. Tasks do not need to be intrinsically satisfying by all means but can also be personally important by contributing to job security or higher wages (Gagne & Deci, 2005). These assumptions are supported by the findings of this research which suggest that already in an internship not only students interest but also their personal needs are important factors in enhanced overall motivation and the wish to seek for work in the sector where the internship was accomplished. Payment, for instance, can enhance motivation (Singh et al., 2015). However, in many countries such as Germany extrinsic rewards such as an expense allowance are not considered in internships which are done in the course of a study curriculum (German Federal Ministry of Labour and Social Affairs, 2011). This missing extrinsic incentive might lead to decreasing overall motivation.

Whereas gender and study progress did not change the relation between the variables the place of the internship moderated it. As the majority of students in the sample did their internship in Germany it was considered individually. Earlier research suggests that the components of SDT and their relation such as motivation and basic needs are cross-culturally valid (e.g. Deci et al., 2001). This finding did not hold for the studied population. In Germany overall career aspirations and the relation of motivation and career aspirations was distinct from the general sample. It was discovered that students who did their internship in Germany were more decided about their aspiration to work in the public sector than the overall sample. However, only identified motivation displayed in the internship was significantly and positively related to career aspirations. None of the other types of motivation, nor the overall level of autonomy was significantly correlated. For interns in Germany there seem to be other underlying reasons that contribute to the wish to work in the public sector than motivation in the internship. Taking those students out of the sample, led to a slight correlation between autonomous motivation and career aspirations which indicates that for some internship programs autonomy in motivation does seem to matter.

8. Conclusion and Recommendation for Future Research

This study gave a substantial overview of the implications of the SDT. It tested and supported several of its components in the setting of internships in the public sector and gave valuable implications for future practice and research. Because of missing practical and financial resources, this thesis faces some limitations. In the following, suggestions for future research shall be outlined.

The focus of this research was on subjective need satisfaction and motivation. It relies on self-reporting and the individual perception of the student is in the center of interest. Objective ratings of health status that reflect well-being could be obtained to get a more complete picture of the students' basic need satisfaction. For objective ratings of motivation, observer reports on the effort students are putting into their internship are recommended. This approach could be enhanced by an observational study that captures actual career outcomes and not only aspirations.

Further, the threat of reverse causation could not be ruled out completely. A correlational analysis of the sort applied in this paper does not preclude the possibility that the aspiration to work in the public sector was prior to the feeling of a respective type of motivation in the internship. Maybe career aspirations do not depend on the motivation in the internship itself. Rather a predetermined aspiration which can be contingent on external and intrinsic factors does lead to the motivation to pursue an internship. This causal ordering and the difference of motivation and career aspirations before and after the internship could be assessed by means of a longitudinal study. If logistically and financially feasible a temporal separation of the measurement of independent and dependent variables is recommended (Podsakoff et al., 2012). There might be a time lag between the motivation perceived in the internship and the actual aspiration that might only arise after thoroughly being able to reflect on the internship experience and not already during the internship. Moreover, further incentives for a public sector career within the internship, such as a broadened personal network and a better overview of actual career opportunities, should be assessed. Further, motivational factors prior to the internship that can explain predetermined career aspirations should be considered.

To validate the scales used in this research, it was focussed mainly on convergent and internal validity. Factor analysis was run but did not produce any conclusive results. Confirmatory factor analysis

would spread more light on the applicability of the WEIMS and the BPNWS to students in their public sector internship. The lacking relevance of the level of autonomous motivation for career aspirations supports earlier researchers (e.g. Gagné et al., 2015) in the demand to take the motivational subtypes into account. These first order factors seem to give a more detailed and accurate picture of the underlying motivational structure. However computing an overall index of autonomy in motivation, proved to be a relevant tool to give a more complete overview of motivation in an internship.

A special kind of Public Service Motivation (PSM) was assumed for this study (e.g. Perry & Wise, 1990). Therefore a particular focus was on internships in the public sector. Future research should determine if the results presented in this paper also apply to the private sector and non-governmental organizations. It might be that a higher level of autonomous motivation in the internship is not only attributed to the desire to work in the public sector but also leads to the aspiration to work in an NGO or even parts of the private sector where similar goals are pursued. Apart from differences in sectors, potential differences in culture should be studied in more detail. As a major part of the placements in the studied population was undertaken in Europe, namely in Germany, this setting was investigated in more detail and found to be divergent from the overall sample. This indicates that culture might have a potential confounding effect and further tests and a more diverse sample of settings is needed.

All in all, it can be concluded that the satisfaction of the three basic needs which in earlier research was shown to produce a sense of well-being and organizational socialization, plays a major role in determining the type of motivation in an internship. The framework of the SDT was deemed suitable to explain autonomy in motivation. Moreover, results underline the importance considering both, autonomous motivation and extrinsic incentives that can enhance career aspirations. Identified, internalized and extrinsic types of motivation did positively correlate with career aspirations. This shows that types rather than the level of motivation in an internship are decisive for actual working ambitions. Findings suggest that motives for actual career aspirations are much more extensive than the factors considered in this study. However, albeit only partially, motivation in an internship was deemed a useful tool in understanding career aspirations. While this study focussed mainly on autonomous motivation, there are further aspects within students' career aspirations that remain elusive and require further research. For instance, the effects of an underlying PSM and extrinsic factors such as security and payment should be assessed in more detail.

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II. Appendices

Appendix A

Basic Psychological Needs at Work - Scale

Please, use the following scale to indicate in how far you agree with the following statements with regards to the experiences you are making in your internship.

1	2	3	4	5	6	7
Entirely disagree	Mostly disagree	Somewhat disagree	Indifferent	Somewhat agree	Mostly agree	Entirely agree

1. I have been able to learn interesting new skills on my job.
2. I really like the people I work with.
3. I do not feel very competent when I am at work.⁴
4. People at work tell me I am good at what I do.
5. I feel pressured at work.
6. I get along with people at work.
7. I pretty much keep to myself when I am at work.
8. I am free to express my ideas and opinions on the job.
9. ~~I consider the people I work with to be my friends.~~ I like to spend time with the people I work with.
10. I feel like I can make a lot of inputs to deciding how my job gets done.
11. When I am at work, I have to do what I am told.
12. Most days I feel a sense of accomplishment from working.
13. My feelings are taken into consideration at work.
14. On my job I do not get much of a chance to show how capable I am.
15. People at work care about me.
16. There are not many people at work that I am close to.
17. I feel like I can pretty much be myself at work.
18. The people I work with do not seem to like me much.
19. When I am working I often do not feel very capable.
20. There is not much opportunity for me to decide for myself how to go about my work.
21. People at work are pretty friendly towards me.

Autonomy:	10, 5, 8, 11, 13, 17, 20
Competence:	3, 4, 1, 12, 14, 19
Relatedness:	2, 6, 7, 9, 15, 16, 18, 21

⁴ The items colored in red are negatively formulated to also take need frustration into account. For a meaningful data analysis the values of these items have been reversed in the dataset.

Work Extrinsic and Intrinsic Motivation Scale (WEIMS)

Please, use the following scale to indicate to what extent each of the following items corresponds to the reason you are currently involved in your internship

1	2	3	4	5	6	7
Entirely disagree	Mostly disagree	Somewhat disagree	Indifferent	Somewhat agree	Mostly agree	Entirely agree

1. Because this is the type of work I chose I can imagine to do to attain a certain lifestyle.
2. For the income it [can] provides me.
3. I ask myself this question, I don't seem to be able to manage the important tasks related to this work.
4. Because I derive much pleasure from learning new things.
5. Because the work I do in my internship fundamentally links to how I see myself. ~~it has become a fundamental part of who I am.~~
6. Because I want to succeed at this job, if not I would be very ashamed of myself.
7. Because I chose this type of work to attain my career goals.
8. For the satisfaction I experience from taking on interesting challenges.
9. ~~Because it allows me to earn money.~~ Because it provides me with the prospect of earning money in the future.
10. Because it is part of the way in which I ~~have chosen to live my life.~~ can imagine to live my life.
11. Because I want to be very good at this work, otherwise I would be very disappointed.
12. I don't know why, we are provided with unrealistic working conditions.
13. Because I want to be a "winner" in life.
14. Because it is the type of work I have chosen to attain certain important objectives.
15. For the satisfaction I experience when I am successful at doing difficult tasks.
16. Because this type of work provides me with security.
17. I don't know, too much is expected of us.
18. ~~Because this job is a part of my life.~~ Because I can imagine that this job becomes part of my life.

Intrinsic motivation	4,8,15
Integrated motivation	5,10,18
Identified motivation	1,7,14
Introjected motivation	6,11,13
External motivation	2,9,16
Amotivation	3,12,17

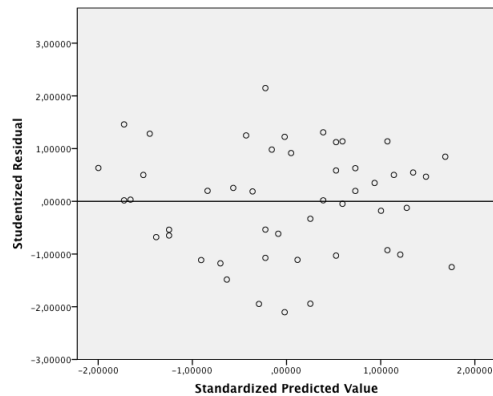
Appendix B

Assumptions of Linear Regression

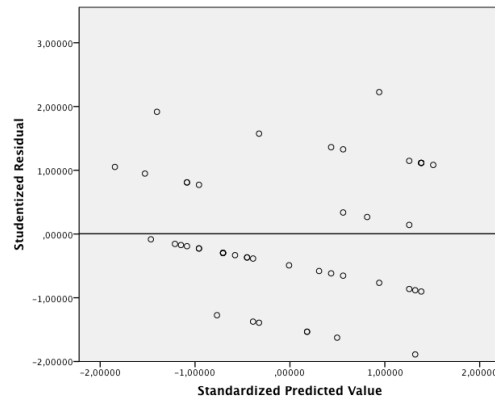
1. Linearity

In order to compute an accurate slope the relation between the dependent and independent variable should be linear. This assumption was tested in a plot of the studentized residuals versus the standardized predicted values.

For NeedSatisfactionIndex on W-SDI



For W-SDI on Aspirations

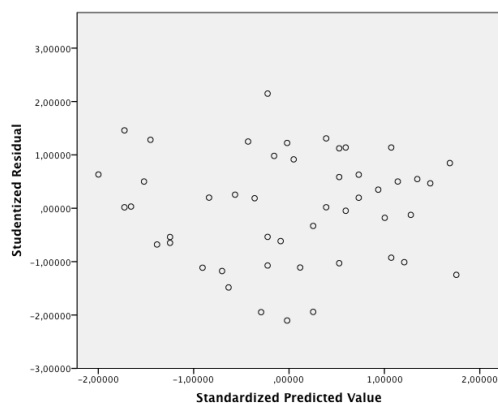


The cases are symmetrically distributed along the Y-axis. The assumption of linearity is fulfilled.

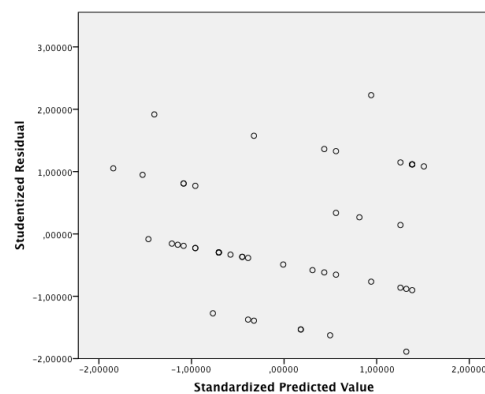
2. Independence of Errors

The errors should be independent of each other. To depict the relationship between the studentized residuals and the standardized predicted values a diagram was created. If the data points do not follow a pattern and are distributed randomly independence of errors is fulfilled.

For NeedSatisfactionIndex on W-SDI



For W-SDI on Aspirations



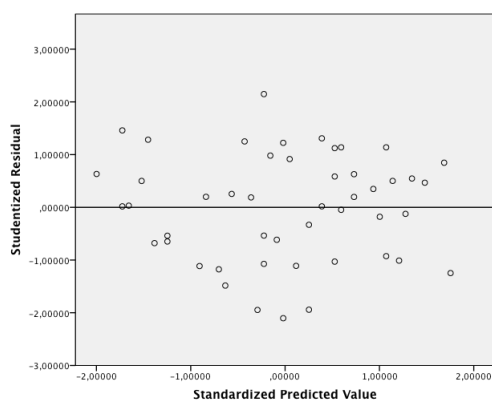
The standardized predicted values are randomly distributed. Independence of errors is given as there is no pattern.

The standardized predicted values are rather randomly distributed. Independence of errors is given.

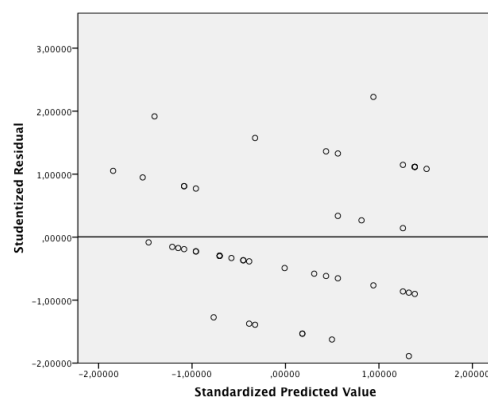
3. Constant error variance

It is expected that the data is homoscedastic. Hence the variance of errors should not change across the different values of X. In a plot of the standardized predicted values versus the studentized residuals the cases should be distributed around a value of zero on the Y-axis.

For NeedSatisfactionIndex on W-SDI



For W-SDI on Aspirations



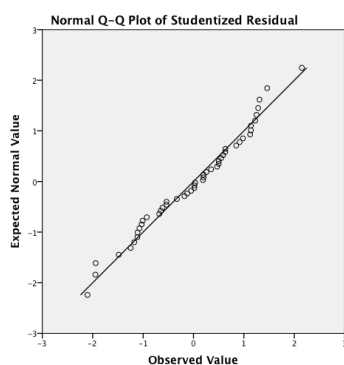
The residuals are distributed around zero. Homoscedasticity is given.

Homoscedasticity is given as the residuals are distributed around zero.

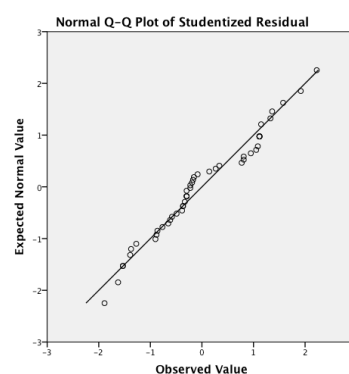
4. Normality of error

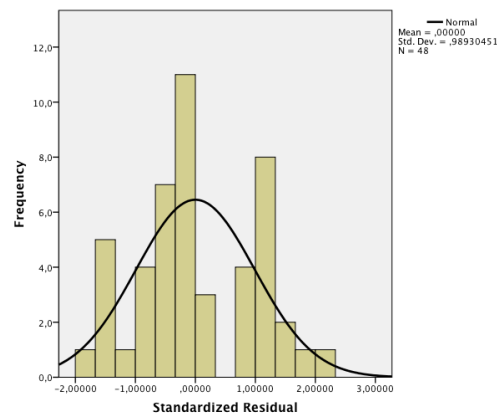
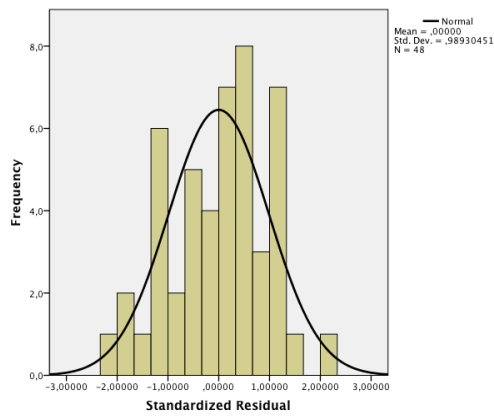
It is assumed that at any given value of the independent variable the values of the dependent variable are normally distributed around the predicted value.

For NeedSatisfactionIndex on W-SDI



For W-SDI on Aspirations





The Q-Q plot and the histogram indicate a normal distribution of errors.

The Q-Q plot and the histogram indicate a violation of the normal distribution of errors assumption. As it does not contribute to a bias or inefficiency of regression models but rather the random error in the relationship and therefore the assessment of statistical significance. To face this problem a more conservative p-value of 0,01 was selected to conduct significance tests.

Influential Cases - Sensitivity Analysis

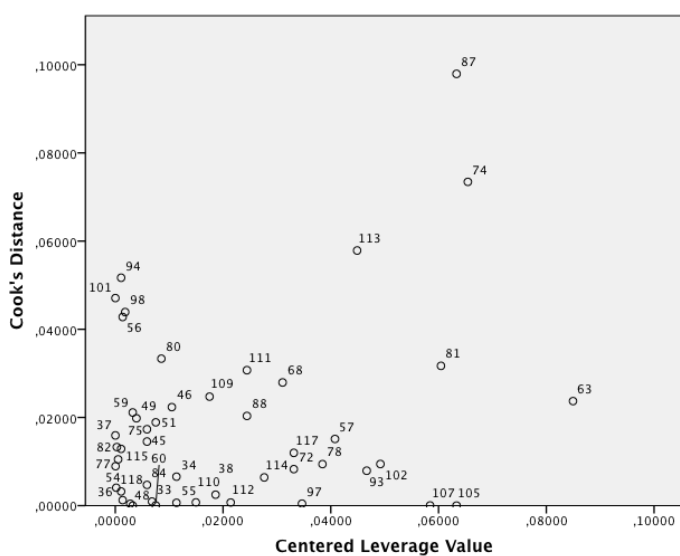


Figure A-I: Cook's Distance for the regression between SDI and W-SDI

Data was examined for the presence of extreme outliers. Based on their impact it was decided whether the respective cases were considered in the subsequent analysis or not. A case can be considered influential when Cook's D exceeds $4/(n-k-1)$. In the main regression model between the NS-Index and W-SDI the case 87 was detected as an influential case which exceeded the permitted value of Cook's Distance. However, after having conducted a sensitivity analysis it was concluded that the case does not falsify or bias the results. By estimating Cook's Distance at around 0,087 an influential case (ID = 82) was detected. A sensitivity analysis was conducted to estimate whether the case affects the results of the study. Figures ? and ? display changes in the R^2 and the Standard Error in the results including and excluding the influential case. Both models indicate the same significance. R^2 is slightly higher and the Standard Error slightly lower when excluding the case. However, these changes are minor and can be disregarded. Hence, the influential case did not falsify or bias the results.

Table A-1

Summary of Regression Analysis between basic need satisfaction and W-SDI without influential case

	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	Sig.
(Constant)	-23,498	3,532		0,000
NeedSatisfactionIndex	6,344	0,67	0,816	0,000
R = 0,82, $R^2 = 0,67$, Adjusted $R^2 = 0,66$, Std. Error = 3,1				

Note. N=47. W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy. Gender: 0 = N/A, 1 = female, 2 = male. Place: 1 = Germany, 0 = Other. Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely).

Table A-2

Summary of Regression Analysis between basic need satisfaction and W-SDI with influential case

	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	Sig.
(Constant)	-22,088	3,444		0,000
NeedSatisfactionIndex	6,092	0,656	0,808	0,000
R = 0,81, $R^2 = 0,65$, Adjusted $R^2 = 0,65$, Std. Error = 3,14				

Note. N=48. W-SDI ranked from -36 which indicates a low level of autonomy and +36 which indicates a high level of autonomy. Gender: 0 = N/A, 1 = female, 2 = male. Place: 1 = Germany, 0 = Other. Aspiration was rated on a 5-point Likert-type scale ranging from 1 (Absolutely not) to 5 (Absolutely).

Multicollinearity

Table A-3

Collinearity Statistics for respective basic needs

	Tolerance	VIF
RelatednessIndex	0,628	1,593
AutonomyIndex	0,821	1,218
CompetenceIndex	0,684	1,462

Note. N=48. Dependent Variable: W-SDI

In order to assess if the respective contribution of the satisfaction of the needs for autonomy, competence and relatedness on the degree of autonomy in motivation are meaningful the threat of multicollinearity was checked. The variance inflation factor (VIF) was measured as an indicator for high correlation between the indicator variables. Hair (2010) suggests a maximum VIF level of 10 as acceptable. Hence, collinearity is not significant.

Table A-4

Collinearity Statistics for control variables and W-SDI

	Tolerance	VIF
Gender	0,973	1,028
Semester Count	0,998	1,002
Place	0,994	1,006
Need Satisfaction	0,981	1,020

Note. N=48. Dependent Variable: W-SDI

Table A-5

Collinearity Statistics for control variables and Aspiration

	Tolerance	VIF
Gender	0,986	1,015
Semester Count	0,959	1,043
Place	0,986	1,014
W-SDI	0,948	1,055

Note. N=48. Dependent Variable: Aspiration

Possible Adjustment for the W-SDI

Table A-6

Reliability analysis for the sub-dimensions of the W-SDI

	Item-Total Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Intrinsic	22,5764	15,450	0,213	0,663
Integrated	23,1944	11,593	0,627	0,520
Identified	23,2083	10,533	0,769	0,455
Introjected	23,4931	11,830	0,459	0,583
Extrinsic	23,1944	11,593	0,627	0,520
Amotivation	25,6875	18,371	-0,194	0,798
Reliability Statistics: Cronbach's Alpha = 0,66				

Note. N of Items = 6.

Testing the internal consistency of the WEIMS scale it was found that when taking the three items measuring a-motivation out of the model the values of Cronbach's Alpha increased from 0,66 to 0,8. As this is an considerable increase in the internal validity of the scale measuring autonomy in motivation this step should certainly be taken into consideration in future research. A new scale without a-motivation could be computed as follows: 1xIM+2xINTEG+3xIDEN+4xINTRO+5xEXT. Values would range from 1, indicating completely controlled motivation to 90, indicating absolute autonomy in motivation. Content wise a possible reasoning for taking a-motivation out of the study would be research that is interested in active motivation and not the absence of motivation.

However, the conclusive results of this study show that it is valuable to consider a-motivation. As for the relation between basic needs and the different types of motivation a-motivation played significant role, it was deemed suitable to keep it in the model. It was considered important to also study the possibility of students who lack the drive to put any effort in any activity concerned with the internship.

Factor Analysis

Table A-7

Rotated Component Matrix for WEIMS factor analysis

	Component					
	1	2	3	4	5	6
MotiQ1	0,792	0,163	-0,201	0,070	-0,086	0,327
MotiQ2	0,170	0,015	0,467	0,235	0,140	0,713
MotiQ3	0,087	-0,118	0,797	-0,100	-0,091	0,021
MotiQ4	0,076	0,083	-0,293	0,796	-0,056	0,143
MotiQ5	0,180	0,033	-0,151	0,119	0,846	0,102

MotiQ6	0,120	0,790	-0,056	-0,065	0,218	0,164
MotiQ7	0,311	0,665	-0,189	0,254	0,285	-0,162
MotiQ8	-0,150	0,216	0,035	0,741	0,244	-0,026
MotiQ9	0,217	0,452	0,215	0,140	0,279	-0,155
MotiQ10	0,822	0,216	-0,091	-0,062	0,383	-0,082
MotiQ11	0,227	0,772	-0,024	0,141	-0,180	0,120
MotiQ12	-0,152	0,192	0,647	-0,060	-0,272	0,199
MotiQ13	0,028	0,719	0,273	0,094	-0,188	-0,263
MotiQ14	0,747	0,290	0,034	0,089	0,177	-0,358
MotiQ15	0,017	0,527	-0,093	0,518	-0,037	-0,514
MotiQ16	0,582	-0,215	0,351	0,445	0,052	-0,016
MotiQ17	-0,232	0,082	0,843	-0,079	0,079	0,039
MotiQ18	0,801	0,239	-0,145	-0,235	0,026	0,185

Note. N=48. Values colored in yellow have the highest factor loading on the latent construct

Table A-8

Rotated Component Matrix for WEIMS factor analysis without a-motivation and with only two latent constructs

	Component	
	1	2
MotiQ1	0,801	0,074
MotiQ2	0,285	-0,072
MotiQ4	0,017	0,440
MotiQ5	0,408	0,120
MotiQ6	0,314	0,566
MotiQ7	0,401	0,732
MotiQ8	-0,128	0,567
MotiQ9	0,255	0,499
MotiQ10	0,888	0,190
MotiQ11	0,265	0,652
MotiQ13	-0,022	0,692
MotiQ14	0,703	0,383
MotiQ15	-0,090	0,844
MotiQ16	0,466	0,035
MotiQ18	0,840	0,031

Note. N=48. Values colored in yellow have the highest factor loading on the latent construct

Appendix C

Data Overview⁵

Codebook

Sex		Value	Count	Percent
Standard Attributes	Position	6		
	Label	Gender		
	Type	Numeric		
	Format	F1		
	Measurement	Nominal		
Valid Values	Role	Input		
	1	Female	31	64,6%
	2	Male	14	29,2%
Missing Values		System	3	6,3%

sem		Value
Standard Attributes	Position	7
	Label	Study progress: Semester count
	Type	Numeric
	Format	F13
	Measurement	Scale
N	Role	Input
	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	5,90
	Standard Deviation	1,801
	Percentile 25	5,00
	Percentile 50	6,00
	Percentile 75	6,50

disci		Value	Count	Percent
Standard Attributes	Position	8		
	Label	Study discipline		
	Type	String		
	Format	A2		
	Measurement	Nominal		
Valid Values	Role	Input		
	A0	Other	1	2,1%
	A1	Arts, Design & Architecture	1	2,1%
	A2	Business & Management	11	22,9%
	A3	Computer Science & IT	0	0,0%
	A4	Engineering & Technology	0	0,0%
	A5	Journalism & Media	2	4,2%
	A6	Law	2	4,2%
	A7	Medicine & Health	0	0,0%
	A8	Natural Sciences & Mathematics	0	0,0%
	A9	Social Sciences	31	64,6%

NeedSatisfactionIndex		Value
Standard Attributes	Position	100
	Label	Basic Need Satisfaction
	Type	Numeric
	Format	F8.2
	Measurement	Scale
N	Role	Input
	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	5,2044
	Standard Deviation	,69806
	Percentile 25	4,7381
	Percentile 50	5,2143
	Percentile 75	5,7143

⁵ The complete dataset can be found in a digital version in the DataLab of the University of Twente.

CompetenceIndex

		Value
Standard Attributes	Position	98
	Label	Satisfaction of Competence
	Type	Numeric
	Format	F8.2
	Measurement	Scale
	Role	Input
N	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	5,1875
	Standard Deviation	,88834
	Percentile 25	4,6667
	Percentile 50	5,2500
	Percentile 75	5,8333

AutonomyIndex

		Value
Standard Attributes	Position	97
	Label	Satisfaction of Autonomy
	Type	Numeric
	Format	F8.2
	Measurement	Scale
	Role	Input
N	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	4,6339
	Standard Deviation	,88697
	Percentile 25	4,0000
	Percentile 50	4,5714
	Percentile 75	5,4286

RelatednessIndex

		Value
Standard Attributes	Position	99
	Label	Satisfaction of Relatedness
	Type	Numeric
	Format	F8.2
	Measurement	Scale
	Role	Input
N	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	5,7161
	Standard Deviation	,88115
	Percentile 25	5,1250
	Percentile 50	6,0000
	Percentile 75	6,3125

W_SDI

		Value
Standard Attributes	Position	107
	Label	Work Self Determination Index
	Type	Numeric
	Format	F8.2
	Measurement	Scale
	Role	Input
N	Valid	48
	Missing	0
Central Tendency and Dispersion	Mean	9,6181
	Standard Deviation	5,26597
	Percentile 25	4,6667
	Percentile 50	10,5000
	Percentile 75	14,1667

W_SDI_CAT

		Value	Count	Percent
Standard Attributes	Position	117		
	Label	Types of Motivation		
	Type	Numeric		
	Format	F8.2		
	Measurement	Nominal		
Valid Values	Role	Input		
	1,00	INTR_CAT	0	0,0%
	2,00	IntegratedMoti	19	39,6%
	3,00	IdentifiedMoti	29	60,4%
	4,00	INTRO_CAT	0	0,0%
	5,00	EXT_CAT	0	0,0%
	6,00	A_MOT_CAT	0	0,0%

Aspiration

		Value	Count	Percent
Standard Attributes	Position	96		
	Label	Aspir		
	Type	Numeric		
	Format	F8.2		
	Measurement	Scale		
N	Role	Input		
	Valid	48		
	Missing	0		
Central Tendency and Dispersion	Mean	3,5000		
	Standard Deviation	1,05185		
	Percentile 25	3,0000		
	Percentile 50	4,0000		
	Percentile 75	4,0000		
Labeled Values	1,00	Absolutely not	1	2,1%
	2,00	Most likely not	10	20,8%
	3,00	Indifferent	8	16,7%
	4,00	Most likely	22	45,8%
	5,00	Absolutely	7	14,6%