

## **Vocational Study and Public Service Motivation: Disentangling the Socializing Effects of Higher Education**

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**Abstract:** The majority of studies within the public service motivation (PSM) literature have been concerned with investigating employee attraction to employment in public or private sector organizations. But how does PSM emerge and evolve in a pre-entry setting? Based on survey data of 3,843 Danish students enrolled in different vocational studies and at different stages (years) of their educational program, this paper investigates the socializing effects of higher education into different levels and types of PSM. The analysis demonstrates that the socializing effect of higher education depends on the field of study: The level of PSM among students in vocational studies aimed at jobs with core public service delivery stays the same (or even decreases slightly) during education, whereas the level of PSM among students in other fields of study increases substantially with the length of their studies. This reveals that the association between education and PSM is not as uniform as previous studies have assumed.

## Introduction

Several studies within the Public Service Motivation (PSM) literature support that the motivation to contribute to society and serve the public interest is more commonly found among public sector employees than among their private sector counterparts (e.g., Crewson, 1997; Houston, 2000; Lewis & Frank, 2004; Rainey, 1982; Vandenabeele, 2008). This finding of a sector difference in PSM rests on the argument that individuals with higher levels of PSM are attracted to and more inclined to stay in organizations in which they perceive the environment for delivering public services to be favorable (Perry & Wise, 1990). On the other hand, once employed they are probably also exposed to organizational socialization processes aimed at internalizing public values (Brewer, 2008). One way or the other, the sector difference in PSM is thought to be a valuable asset of the public sector as high levels of PSM is positively associated with individual and organizational performance (Bright, 2008; Naff & Crum, 1999; Vandenabeele, 2009) as well as various forms of ethical and pro-social behavior (Brewer & Selden, 1998; Houston, 2006).

However, many individuals implicitly select their future employment sector when they make their vocational choice. Therefore, the match between individual PSM and a favorable environment for delivering public services may already be established within the context of various vocational studies (Kristof-Brown, 1996: 7; Wanous, 1991: 91). Only a few studies have so far compared PSM among individuals belonging to different occupations, different industries or with different academic profiles (Andersen & Pedersen, 2010; Kjeldsen, 2010; Steinhaus & Perry, 1996; Vandenabeele, 2011) and these studies are all based on cross-sectional data of current employees' PSM. In addition, an equally limited number of studies within the PSM-literature have relied on samples with students (Christensen & Wright, 2011; Vandenabeele, 2008; Vandenabeele et al., 2004) and these studies only focus on public/private sector attraction effects. Therefore, our knowledge about how PSM emerges and evolves in educational programs prior to labor-market entry is still very sparse (Vandenabeele, 2011: 91; Wright & Grant, 2010: 693), and the aim of this paper is thus to go further back in the causal chain of PSM attraction and socialization effects and investigate *whether and how different vocational studies affect individuals' PSM*.

This research question is examined using survey data of 3,843 Danish students enrolled in a number of different vocational studies and at different stages (years) of their educational program. The main expectation is that the longer an individual has studied (how far he/she is in the educational program), the higher the individuals' PSM will be. This is parallel to the classical expectation

of a positive relationship between higher education and PSM, which has been investigated dozens of times (e.g., Bright, 2005; Camilleri, 2007; Pandey & Moynihan, 2007; Perry, 1997). However, by examining students, this study allows for a more direct test of the mechanism of educational socialization into PSM. Following the research question's distinction between students enrolled in different vocational studies, this relationship may furthermore be moderated by the field of study: whether it is aimed at delivering core public service (e.g., nurses, teachers, and social worker students) or not (e.g., business, engineering, and law students). The PSM-socializing effect of education may be stronger for students enrolled in these vocational studies aimed at core public service delivery than for students enrolled in educational programs aimed at other types of jobs/work tasks. In this way, the paper provides insights into the dynamics of PSM prior to organizational experiences – insights that can be used to cultivate PSM within the social institution of education as well as offer knowledge in recruitment processes of newly educated public service providers.

First, the paper discusses the dynamics of PSM, the role of education as an important social institution in fostering PSM, and which vocational studies are likely to create a favorable environment for this positive effect. Based on this, empirical testable hypotheses about the relationship between vocational study and PSM are proposed. Next, the data collection, methods of analysis, and measures used in the study will be outlined. Finally, the results are presented and some concluding comments with suggestions for future research are formulated.

### **Vocational study and public service motivation: Theoretical expectations**

Public service motivation (PSM) describes individuals' prosocial motivation to contribute to society and serve the public interest through the delivery of public services. More specifically, it can be defined as "the belief, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate" (Vandenabeele, 2007: 547). Throughout the last two decades, PSM has received considerable research attention – a trend sparked by a Perry & Wise (1990) who laid out the theoretical foundations of the concept and proposed a research agenda for its positive prevalence and outcomes in a public sector context. As a result of this groundbreaking piece, most research done so far has concentrated on establishing a tool for measuring PSM (e.g., Coursey & Pandey, 2007; Perry, 1996) and documenting the existence of higher levels of PSM among public sector employees compared with private sector employees (e.g., Crewson, 1997; Gabris & Simo, 1995; Houston, 2000; Lewis & Frank, 2004; Andersen et al., 2011).

An important focus for this stream of research into sector differences in PSM has been to try to disentangle the dynamics surrounding PSM in various settings (Leisink & Steijn, 2008). Perry and Wise (1990: 368) originally described PSM as "an individual's *predisposition* to respond to motives grounded primarily or uniquely in public institutions and organizations", but later they also stressed that "public service motivation should be understood as a *dynamic attribute* that changes over time and, therefore, may change an individual's willingness to join and stay with a public organization" (1990: 370) (my italics). Drawing on insights from Person-Environment Fit theory (Kristof-Brown et al., 2005) and the Attraction-Selection-Attrition Model proposed by Schneider (1987), this has led a number of scholars to look at PSM attraction effects regarding public/private sector employment (e.g., Crewson, 1997; Lewis & Frank, 2004; Vandenabeele, 2008) as well as the relationship between PSM and job satisfaction, turnover intentions and absenteeism (Bright, 2008; Steijn, 2008; Wright & Pandey, 2011); but yet none have dealt explicitly with organizational socialization of PSM as proposed by (Brewer, 2008) and only a single study has tried to map the entire PSM attraction-selection-attrition model by use of panel data (Wright & Christensen, 2010). Thus, despite all these important contributions, one of the major questions within the PSM literature still calling for more research is, how dynamic or stable PSM is (Perry & Hondeghem, 2008: 302)

A first take on this is provided by the studies examining various individual and organizational antecedents of PSM such as gender, age, education, income, religious and professional affiliation, parental relations and modeling, bureaucratic red tape, tenure, and organizational culture (e.g., Bright, 2005; Camilleri, 2007; Pandey & Moynihan, 2007; Perry, 1997; Vandenabeele, 2011). But as all of these studies are based on cross-sectional survey data of current employees' PSM, we still lack knowledge of what the picture looks like before labor market entry. No studies have previously combined our expectations of the dynamics of PSM with this stream of literature into antecedents of PSM in a pre-entry setting; this is what this paper is attempting to do. As many individuals implicitly select their future employment sector (or more specifically, their possibility to participate in the delivery of public services) when they make their vocational choice, this is done by taking a closer look at the educational stage as one of these antecedents – the one which has shown the most consistent results with respect to its positive association with PSM (Pandey & Stazyk, 2008).

In general, higher education is expected to have a positive association with PSM due to the "key socializing role education plays in shaping individual beliefs" (Pandey & Stazyk, 2008: 103). Drawing on social psychological theories about social learning and identity formation (Bandura,

1977; Ryan & Deci, 2005) and this literature's empirical research into positive outcomes of education (Kingston et al., 2003; Pallas, 2000; Youniss & McLellan, 1997), educational institutions as crucial components of civil society are expected to teach "practical citizenship" and help individuals create their identity in relation to society. Therefore, higher education is likely to inculcate higher PSM (Pandey & Stazyk, 2008: 103). These insights have been incorporated into the PSM literature by Perry (2000), Vandenabeele (2007), and Perry and Vandenabeele (2008) who place the development of PSM within an institutional framework explaining how social institutions such as the educational system or public organizations transmit general public values ("a public institutional logic") to its members by means of socialization, social identification, culture, and social learning. Regardless of specific mechanism, the point is that individuals by being part of a social institution resting on public values and by observing, interacting, and identifying with significant others in this institution eventually internalize the institution's values, norms, and attitudes into their own identities; only then do the individual get the public service identity necessary to be motivated by and act on the basis of the public institutional logic (Perry & Vandenabeele, 2008: 60-62). Regarding the social institution of education, individuals with higher education will thus express higher levels PSM because they during their years of study/being in school have internalized the public values of the educational system (e.g., how to participate in civil society and the importance of contributing).

Debate has been going on over whether the positive association between education and PSM should also be attributed to a "professionalizing" effect of education (Bright, 2005; Kjeldsen, 2010), which is related to the cognitive mobilization that is essential in higher education. Returning to this issue below, this paper first and foremost focuses on the socializing effect of being part of an educational institution as such, and more specifically the effect of how far (years) the student is in his/her educational program. Drawing on the theoretical outline from Perry and Vandenabeele (2008) and the notion of PSM as a dynamic concept formed and changed by the environment in which the individual is situated, it seems likely that if higher education induces beliefs about civic duty and general public values through educational socialization processes, then we should be able to see a difference in the amount of PSM between first-year students and final-year students. The first expectation to be tested in this study is thus:

*Hypothesis 1:* The longer a student is in his/her educational program (years of study), the higher the student's level of public service motivation will be.

This hypothesized association between higher education and higher levels of PSM may, however, depend on the field of study. Do some vocational studies induce PSM more than others? And if so, which vocational studies have this positive ability? In a newly published study of institutional antecedents of PSM among 3,506 state civil servants, Vandenaabeele (2011) hypothesized and empirically confirmed that individuals with an academic profile which is typical for public servants (e.g., health care and social science) have a higher level of PSM than individuals from other fields of study (e.g., business, law and arts). Likewise, Edwards et al. (1981) (referred in Houston, 2000: 716) surveying 681 students and alumni of professional education programs found that individuals enrolled in public-sector related programs (public administration and social welfare) place more importance on such terminal values as sense of accomplishment and equality and such instrumental values as empathy, equity, and public interest. On the other hand, individuals enrolled in private-sector related programs (law and business) place more importance on efficiency. In addition, a study by Steinhaus and Perry (1996) has shown that industry accounts for a larger amount of variance in employees' organizational commitment than public/private employment. Finally, recent studies by Andersen and Pedersen (2010) and Kjeldsen (2010) have shown substantial differences in the PSM profiles of employees belonging to different occupations. Inspired by these results and recognizing the trend within the PSM literature that the concept may be equally (or even stronger) related to the possibility for delivering public services regardless of public/private sector employment (Christensen & Wright, 2011; Leisink & Steijn, 2008: 125-126; Steen, 2008), it seems likely that the positive effect of years of study on PSM is moderated by field of study: whether it is aimed at job with delivery of core public services or not, as well as there is probably also a direct positive effect on PSM of being enrolled in these core public service studies.

Wringley and McKeivitt (1994) focus on health, education, welfare, and security (HEWS) as the core of public services. For these services, positive externalities mean that society must assume responsibility in terms of ordering and/or paying for the services in order to ensure a social optimality. Otherwise, these services will be undersupplied (Andersen & Kjeldsen, 2010: 5; Wringley & McKeivitt, 1994: 77). In other words, core public services are provided for the benefit of society and like PSM they are thus collectively oriented. Therefore, the public institutional logic of organizations educating individuals to provide these services is likely to differ from the one characterizing other educational organizations. More specifically, the socialization process of students in the field of core public services is expected to internalize the public values relevant for

PSM (e.g., the importance of contributing to society and serving the public interest) to a higher extent than the socialization process in other fields of study.

This expectation parallels the literature on the role of professionals, their values and motivation regarding delivery of public services. The majority of public services in Western societies are delivered by professionals, i.e. members of occupations with a shared specialized, theoretical knowledge and intra-occupational norms/an ethical code of conduct implying commitment to an altruistic service-ideal which promotes the public interest rather than personal economic gain (Andersen, 2005: 23-25; Freidson, 2001; Mosher, 1968). This means that professionals to a higher extent than other occupational groups have a public service identity; an identity which is “produced and reproduced through occupational and professional socialization by means of shared and common educational backgrounds, professional training, vocational experiences...” (Evetts, 2003: 403). Thus, for students in a core public service study the educational socialization effect into higher levels of PSM is likely to overlap the previous mentioned “professionalizing” effect of education. In sum, this results in the following additional hypotheses:

*Hypothesis 2a:* Students enrolled in vocational studies aimed at jobs with core public service delivery will have higher levels of PSM than students enrolled in other studies.

*Hypothesis 2b:* The positive association between years of study and public service motivation will be stronger for students who are enrolled in vocational studies aimed at jobs with core public service delivery than for students enrolled in other studies.

Following previous research within the PSM literature including some form of distinction between students from different fields of study or employees from different occupations/different industries, the socializing effect of higher education on PSM may, however, be even further complex. Besides being socialized into higher levels of PSM, the students might also (or more specifically) be socialized into different *types* of PSM based on the very specific vocational study they are enrolled in (e.g., nurse, lawyer, teacher, engineer etc.). According to Perry (1996), PSM can be expressed on four dimensions: “Public interest”, “Compassion”, “Attraction to politics and policy making”, and “Self-sacrifice” and as these PSM dimensions may have different correlates and antecedents, empirical analyses of PSM should also allow for a distinction between dimensions (Perry 1996, 1997). In this sense, PSM is regarded as a first-order reflective and second-order formative construct; the items reflecting each dimension may be interchangeable, but each dimension gives a

unique contribution to an individual's aggregated PSM (Wright, 2008: 85). In addition, this paper therefore finally also investigates whether the educational socialization with respect to PSM differs between different specific vocational studies. One could, for example, imagine that the socialization in nurse schools would evolve around values empathy corresponding to inculcating "Compassion" motivation to a higher extent than the socialization in law schools which, in contrast, would perhaps inculcate more "Attraction to politics and policy making". However, this proposition is more tentative than the hypotheses stated above, and this part of the analysis is therefore purely explorative.

## **Data and methods**

The analysis of whether and how different vocational studies affect individuals' PSM relies on survey data of students enrolled in a number of different vocational education programs and who are at different stages (years) of their educational program at Aarhus University and VIA University College Aarhus, Denmark. In November 2010, an e-mail invitation to participate in the survey was sent to all of the 21,294 students who were at that time enrolled in one of the 27 educational programs participating in the survey. A total of 5,385 responses were obtained which corresponds to an overall response rate of 25 pct. However, reviewing the data quality (deleting incomplete survey answers and doubles) only 3,843 responses were usable for the present analysis. An overview of students in the sample according to their specific vocational study and whether it can be classified as a professional bachelor's education (students from VIA University College Aarhus) or a university education (students from Aarhus University) can be found in table 1 below. Since we are dealing with students with an average age of 25.5 years – see table A1 in the appendix – and with 85 pct. of students in the sample being below 30 years old, the respondents are expected to have limited or no work experience.

About the representativeness of the sample, the proportion of female students in the sample (81 pct.) is somewhat higher than the proportion of female students in the study population (64.4 pct.). This tendency to a higher response rate for female students does, however, vary substantively between the different vocational studies. For example, for students studying theology the female response rate in the sample compared with the population was 69.2 pct./51.7 pct. whereas the corresponding response rate for female building engineer students was 14.3 pct./30.8 pct. But since the population parameter for gender is not equally accurate across the different vocational studies (and it is the only population parameter available) and since this does not affect the results of the

correlation analysis as both gender and vocational study are included in the study, it was decided not to weight the sample. Even though the sample consists of students on different stages of their education, it is still cross-sectional data. This limits the possibility of causal inference based on the results which together with the lack of representativeness should be kept in mind by the reader.

The dependent variable, PSM, was for the “public interest”, “compassion”, and “attraction to public policy making” dimensions measured using an abbreviated version of the Perry (1996) scale proposed by Coursey and Pandey (2007). Validated by Wright and Christensen (2009: 15), this short form had a moderately good fit with data, and it has also previously proved to show the expected dimensions in a Danish context (across different occupations), (Andersen et al., 2011; Andersen & Kjeldsen, 2010). A principal component analysis of the expected dimensions is shown in table A2 in the appendix and descriptive statistics with reliability measures for the constructed reflective indexes for each dimension can be found in table A1 in the appendix. The “self-sacrifice” dimension, which has been somewhat more contested since Perry (1996) found that it has a strong correlation with the public interest dimension, was also measured using an abbreviated version of Perry’s (1996) scale. Here, the Perry (1996) items PSM1, PSM9, PSM19, and PSM26 were used as these had the highest loadings on the self-sacrifice dimension using the same data as Andersen et al. (2011). The use of all four PSM dimensions corresponds with Perry (1996) and Wright and Christensen’s (2009) findings that a four factor model provides a better fit than a three-factor model which combines public interest and self-sacrifice. Following Wright’s (2008: 85) notion of PSM as being a first-order reflective and second-order formative construct, the analysis includes an overall measure of PSM in its aggregated form and the four PSM dimensions separately.

The main independent variable of this paper, years of study, is measured by asking the students which year they began their current educational program, i.e. which year they got enrolled in their chosen vocational study. This has been recoded into a variable measuring the amount of years a student has spent in his/her educational program ranging from 1 to 7 where 7 is the maximum number of years, the educational program that lasts the longest according to official duration time (medical practitioner) can take plus one year in buffer (students who have studied longer than 7 years (n=4) have also been assigned the value 7). Next the type of vocational study, whether it is aimed at a job within core public services or not, is measured by dummy variable (1=core public service study) coded on the basis of Wringley and Hewitt’s (1994: 77) HEWS classification. Table 1 shows the vocational studies classified as core public service studies.

**Table 1:** Number of students in the sample according to vocational study.

<b>Vocational study</b>	<b>Core public service study</b>	<b>Other fields of study</b>
<i>Professional bachelor's educations:</i>		
Administration		26
Building engineer		25
Building technician		76
Catering officer		105
Character animator		19
Computer graphics artist		12
Design and business		96
Ergotherapist	106	
Foto-journalist		2
Global nutrition and health	16	
Journalist		70
Mechanical engineer		8
Laboratory technologist		126
Nurse	650	
Physiotherapist	208	
Psychomotor therapist	38	
Pre-school teacher	644	
Religion and communication		1
Social worker	270	
Teacher	607	
Textile designer		36
<i>University educations:</i>		
Architect		28
Dentist	30	
Law		158
Medicine (medical practitioner)	342	
Psychology	57	
Theology		35
<b>Total</b>	<b>2,968</b>	<b>839</b>

For the more explorative part of the analysis investigating how students from different vocational studies are perhaps socialized into different types of PSM (the different dimensions of the concept), a subsample of the overall sample of students were used. Based on the number of students in enrolled in each vocational study (as shown in table 1), this subsample consists of the students from the vocational studies with more than 75 respondents in the sample (across core public service studies vs. other fields of study): Building technician, catering officer, design and

business, ergotherapist, laboratory technologist, nurse, physiotherapist, pre-school teacher, social worker, teacher, law, and medical practitioner students (n=3,388).

Concerning control variables, the analysis first includes the students' gender. The relationship between PSM and gender has shown mixed results (Pandey & Stazyk, 2008: 103) except from with regards to the compassion dimension, where women are consistently found to have higher levels of compassion (DeHart-Davis et al., 2006; Perry, 1997). Second, the students' age is included. Age is typically presumed to have a positive relationship with PSM (Pandey & Stazyk, 2008: 102) and to avoid confounding in determining the socializing effect of years of study on PSM it is thus highly important to control for the students' age (as the students who have studied the longest also tend to be older). Furthermore, given that 85 pct. of the students in the sample are below 30 years old they are assumed to have little or no previous work experiences which could also be a source of confounding in investigating the educational pre-entry socialization. Third, the analysis also include a control for pro-social value influence from parents measured with a dummyvariable indicating whether the students' parents were publicly employed during the student's childhood or not (1= both parents were employed in the public sector). Due to parents' status as some of the most important "significant others", the family as another social institution than education (and more specifically parental relations and parental modeling) is assumed to play an important role in inculcating PSM at an early stage in life(Clary & Miller, 1986; Staub, 1992). This has been empirically confirmed by Perry (1997) and Vandenabeele (2011). However, as they both use samples with current employees, the present sample provides a stronger basis for testing this expectation. Finally, a control variable indicating whether the students' vocational study is a professional bachelor's education or a university education (see table 1) is also included as a control variable (dummyvariable, 1=university education). This is because professional bachelor's educations only take 3-4 years to complete while university educations take 5-6 years to complete.

According to their causal priority (temporal ordering) and research relevance, these control variables together with the main independent variables of the study have all been included stepwise in a series of hierarchical OLS-regressions analyzing whether and how different vocational studies affect individual's PSM. To investigate the moderating effect of the student being enrolled in a core public service study on the relationship between years of study and PSM, an interaction term (core public study\*years of study) has been created and added to the final model. If this interaction term has a positive sign and is statistically significant, then we have an indication that the socializing

effect of education on PSM is moderated by the field of study. Likewise, a number of interaction terms between the specific vocational studies and years of study are also included in the explorative analysis of whether the students from the different vocational studies are socialized into different types of PSM.

## **Results**

This section presents the results of the empirical analysis investigating whether and how different vocational studies affect individuals' PSM. First, the analysis testing the two proposed hypotheses about the relationship between years of study and PSM and the moderation of this association by enrolment in a core public service study is presented. Second, this analysis is extended to distinguish between students from different specific vocational studies and their possibly different types of PSM.

Table 2 provides information on the hierarchical regression analysis of the students' aggregated PSM as a result of years of study and this study's core public service status. According to hypothesis 1, a positive association between the number of years a student has completed of his/her educational program and the student's level of public service motivation was expected. Model 2.2 shows that this is apparently not the case. There is no significant effect of years of study on students' PSM when controlling for gender, age, parents having been employed in the public sector, and whether the student is enrolled in a university education or professional bachelor's education. More surprisingly, we see that the students enrolled in university educations have a significantly lower level of PSM than students enrolled in professional bachelor's educations (the bivariate correlation between years of study and university education is  $r=0.215$  ( $p<0.000$ ), while the bivariate correlation between years of study and PSM is weak and insignificant,  $r=-0.024$ ,  $p<0.211$ ). This should have been the other way around if higher education was supposed to lead to higher PSM as university educations last 5-6 years whereas professional bachelor's educations last 3-4 years. As we move on to model 2.3 where the dummyvariable measuring whether the student is enrolled in a vocational study aimed at core public service delivery is introduced, we see that this result from model 2.2 is partly explained by more professional bachelor's students with high PSM being within the field of core public service. As expected from hypothesis 2a, being enrolled in a core public service study is thus a very strong, positive determinant for one's PSM.

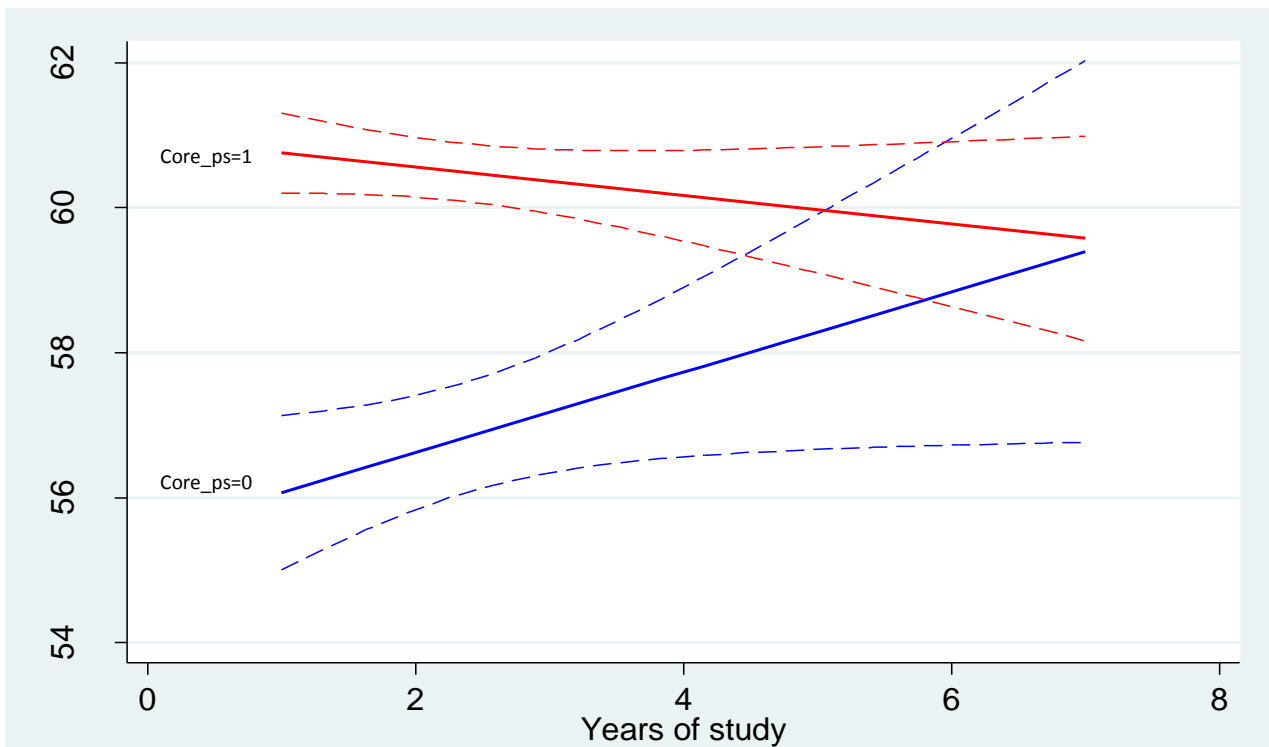
**Table 2:** OLS-regressions of students' public service motivation (unstandardized coefficients).

	<b>Model 2.1</b>	<b>Model 2.2</b>	<b>Model 2.3</b>	<b>Model 2.4</b>
Intercept	56.91*** (0.844)	58.01*** (0.896)	55.69*** (0.926)	54.43*** (1.067)
Gender (female)	2.395*** (0.453)	2.218*** (0.455)	1.826*** (0.452)	1.843*** (0.451)
Age	0.0305 (0.0275)	0.00888 (0.0284)	-0.00410 (0.0281)	-0.00794 (0.0281)
Parents in public sector	0.361 (0.449)	0.541 (0.450)	0.386 (0.445)	0.366 (0.445)
University education		-2.053*** (0.497)	-1.549** (0.494)	-1.701*** (0.498)
Years of study		-0.0272 (0.135)	-0.0279 (0.134)	0.551* (0.278)
Core public service study			3.716*** (0.441)	5.445*** (0.852)
Years of study* core public service study				-0.731* (0.308)
$R^2$	0.011	0.018	0.044	0.046
Adjusted $R^2$	0.010	0.016	0.042	0.044

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , standard errors in parentheses.

However, model 2.4 in table 2 shows that being enrolled in a core public service study plays an even more crucial role as it moderates the effect of years of study on PSM. The statistically significant interaction term between years of study and being enrolled in a core public service study indicates that the socializing effect of higher education on PSM differs according to this distinction between different fields of study. But contrary to what was expected from hypothesis 2b, the negative sign indicates that the effect is weaker and even slightly negative for students enrolled in core public service studies (given that it is estimated to be 0.551 minus 0.731), while the PSM of students enrolled in other vocational studies increase during their educational years. This interesting result is illustrated in figure 1.

**Figure 1:** Illustration of interaction between core public service study and years of study.



Note: Values computed from model 2.4, Table 2. Dotted lines indicate 95% confidence intervals.

As the figure shows, starting out from a fairly higher level of PSM at their first year of study, the PSM of students enrolled in educational programs aimed at jobs with core public service delivery more or less stays the same or even drops slightly during their years of study (this drop is, however, not statistically significant,  $p < 0.192$ ). On the other hand, starting out from a lower level of PSM, the students enrolled in other fields of study experience a significant increase in PSM ( $p < 0.043$ ) from their first year of study to their final years of study resulting in a convergence of levels of PSM between the two groups of students. In other words, the socializing effect of higher education into higher levels of PSM, which was expected in hypothesis 1, only applies to students who are not enrolled in core public service studies.

To get a firmer grip on the PSM of students in core public service studies vs. other fields of study and whether the picture from figure 1 hides that students from different vocational studies are socialized into different types of PSM, we now turn to the analysis of the relationships between years of study, enrolment in a specific vocational study, and the different dimensions of PSM shown in table 3.

**Table 3:** OLS-regressions of students' public service motivation according to vocational study (unstandardized coefficients).

	PSM		Public Interest		Compassion		Policy making		Self-sacrifice	
	B	Std. E	B	Std. E	B	Std. E	B	Std. E	B	Std. E
Intercept	60.92***	(1.290)	78.89***	(1.778)	63.31***	(1.565)	46.42***	(2.096)	49.60***	(2.145)
Gender (female)	1.660**	(0.512)	-0.330	(0.716)	7.222***	(0.638)	-0.0207	(0.828)	0.819	(0.862)
Age	-0.0305	(0.030)	-0.170***	(0.043)	0.117**	(0.038)	-0.171***	(0.049)	0.101	(0.052)
Parents in public sector	0.498	(0.469)	1.830**	(0.637)	0.736	(0.569)	-0.513	(0.767)	-0.261	(0.784)
Years of study	-0.115	(0.366)	-0.588	(0.495)	0.493	(0.438)	1.238*	(0.602)	-1.457*	(0.600)
Teacher	-2.789*	(1.307)	-2.968	(1.774)	-5.372***	(1.553)	-0.193	(2.110)	-3.079	(2.150)
Pre-school teacher	0.221	(1.285)	-2.606	(1.723)	-0.0114	(1.526)	1.133	(2.107)	-1.664	(2.110)
Social worker	1.707	(1.766)	-2.074	(2.406)	1.127	(2.133)	5.435	(2.838)	0.221	(2.887)
Medical practitioner	-0.0984	(1.419)	-1.026	(1.935)	-1.674	(1.725)	2.745	(2.295)	-2.580	(2.351)
Physiotherapist/ ergotherapist	-2.206	(1.677)	-3.482	(2.196)	-4.049*	(1.936)	-0.823	(2.741)	-2.622	(2.650)
Law	-11.98**	(2.135)	-12.60***	(3.140)	-14.32***	(2.718)	9.772**	(3.475)	-17.75***	(3.602)
Business	-5.025	(2.844)	-8.583*	(3.855)	-12.38***	(3.161)	8.497*	(4.263)	-11.79**	(4.363)
Laboratory technologist	-4.807*	(2.445)	-3.925	(3.281)	-7.663**	(2.898)	-2.602	(3.812)	-5.504	(4.070)
Building technician	-8.627**	(3.255)	-8.685	(4.549)	-14.16***	(4.085)	2.645	(5.081)	-13.94**	(5.229)
Catering officer	-0.886	(3.268)	-9.045*	(3.688)	-4.861	(3.265)	5.381	(4.735)	-3.471	(4.479)
Nurse (ref.)	-	-	-	-	-	-	-	-	-	-
Teacher*years_study	1.053*	(0.514)	1.225	(0.710)	1.107*	(0.623)	-0.417	(0.838)	1.691*	(0.854)
Pre-school teacher*years_study	-0.230	(0.513)	0.418	(0.696)	-0.482	(0.623)	-1.048	(0.852)	1.095	(0.852)
Social worker*years_study	-0.607	(0.676)	0.588	(0.929)	-0.242	(0.815)	-1.748	(1.089)	-0.0423	(1.106)
Medical practitioner*years_study	-0.583	(0.454)	0.749	(0.623)	-1.266*	(0.556)	-1.855*	(0.748)	0.393	(0.756)
Physiotherapist/ergotherapist*years_study	-0.0920	(0.664)	0.622	(0.877)	-0.366	(0.776)	-0.220	(1.081)	0.0340	(1.068)
Law*years_study	1.331*	(0.626)	2.499**	(0.912)	-0.0537	(0.794)	-2.352*	(1.029)	2.805**	(1.061)
Business*years_study	-1.084	(1.645)	-0.392	(2.188)	1.595	(1.755)	-4.650*	(2.373)	2.347	(2.414)
Laboratory technician*years_study	0.495	(0.983)	1.370	(1.302)	-0.369	(1.157)	-1.020	(1.540)	1.870	(1.645)
Building technician*years_study	2.042	(1.176)	1.654	(1.630)	1.545	(1.466)	0.014	(1.833)	5.045**	(1.881)
Catering officer*years_study	-0.851	(1.139)	2.632*	(1.308)	0.462	(1.162)	-3.823*	(1.696)	0.467	(1.587)
Nurse (ref.)	-	-	-	-	-	-	-	-	-	-
R <sup>2</sup>	0.065		0.029		0.141		0.022		0.035	
Adjusted R <sup>2</sup>	0.055		0.021		0.134		0.014		0.027	

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

Focusing on the lower part of the table showing the interaction terms between different vocational studies and years of study, it is seen that from very low levels of especially public interest motivation and self-sacrifice (compared to the nurse students who are reference category), it is an increase in these two types of motivation that drives the overall increase in PSM for the students who are not enrolled in core public service studies. Especially the students studying to become lawyers get socialized into higher levels of public interest motivation and self sacrifice (compared with the nurses), while they on the other hand experience a drop in their policy making motivation during their education – however, together with the business students the law students still have considerably higher levels of this type of PSM than the nurses.

In contrast, the picture among the students in core public service studies is a bit more blurred as their overall level of PSM more or less stays the same during their years of education (cf. figure 1). Nonetheless, there are still a few interesting differences in PSM between some of the specific vocational studies within the category of core public service studies and the nurses. For example, we see that those studying to become medical practitioners are socialized into lower levels of compassion and policy making motivation. On the other hand, the teacher students experience an increase in compassion compared to the nurses during their years of education (and also higher self-sacrifice). In sum, there are thus some significant and interesting differences in the types of PSM which are being fostered within the different vocational education institutions.

Finally, regarding the relationships between the students' personal characteristics (the control variables) and PSM, table 3 (and table 2) shows that female students have a significantly higher level of PSM and especially compassion than male students. On the other hand, age shows mixed findings. There is no difference in overall level of PSM among younger and older students, but older students tend to have more compassion and less public interest and policy making motivation than younger students. Regarding childhood socialization into higher levels of PSM by having parents employed in the public sector, this does apparently not have a significant impact on students overall level of PSM. However, having parents in the public sector positively affects students' levels of public interest motivation. These findings are generally in line with the results of previous studies into antecedents of PSM (Bright, 2005; Camilleri, 2007; Pandey & Moynihan, 2007; Perry, 1997; Vandenabeele, 2011).

## Conclusion

The purpose of this paper has been to examine the dynamics of public service motivation in a pre-entry setting and more specifically try to disentangle the socializing effect of higher education. This has been done by investigating whether and how different vocational studies affect the PSM of 3,843 Danish students enrolled in a number of different educational programs.

The main result of the analysis is that the socializing effect of higher education (the amount of years in a higher educational program) depends on the field of study. The estimated level of PSM among students studying to work with the delivery of core public services more or less stays the same during their years of education, whereas the level of PSM among students in other fields of study increases substantively the longer they have studied. In other words, the membership of vocational education institutions do not affect the amount of PSM among students in core public service studies, who already had a high level of PSM when they entered the higher educational system, whereas the level of PSM among other students is positively affected resulting in an estimated convergence in levels of PSM between the two groups of students when graduating. This runs contrary to what was expected in hypothesis 2b concerning the character of the moderating effect, but partly confirms hypothesis 1 about the “pure” socializing effect of higher education on PSM and hypothesis 2a about students in core public service studies having higher levels of PSM.

This result sheds new light on previous studies confirming a positive relationship between higher education and higher PSM (Bright, 2005; Camilleri, 2007; Pandey & Moynihan, 2007; Perry, 1997; Vandenabeele, 2011). Like the present paper, these studies base their expectation of a positive association between higher education and PSM on the notion that educational institutions socialize individuals into higher PSM by teaching practical citizenship and/or by inducing higher levels of professionalism. This is confirmed by the present study, but at the same time it is shown that the dynamics are more complex than these studies give reason to believe. For some students this socialization into higher levels of PSM is exactly what happens and for other students – the ones in core public service studies – the positive association between higher education and PSM seems rather to be the result of an attraction effect; individuals with higher levels of PSM select into the educational programs aimed at jobs with core public service delivery, and this is why they show high levels of PSM all the way during their years of education.

Moreover, the present analysis has also shown that educational socialization is not just a matter of levels of PSM. More interestingly, the students get socialized into different types of PSM.

Thus, the main result summarized above does not mean that students in core public service studies are not at all socialized by their vocational education institutions – they are just socialized into different PSM profiles reflecting the first-order reflective and second-order formative nature of the PSM concept. Parallel to some of the studies investigating differences in employees' PSM across different occupations (Andersen & Pedersen 2010; Kjeldsen 2010) and different academic profiles (Vandenabeele 2011), the present paper shows that it is already during their educational years that, for example, teachers, medical practitioners and lawyers get different motivations and ideas about how to contribute to society and help other people. If aiming at fostering PSM through the educational system, decision makers should thus be aware of the different types of PSM inculcated via the different vocational education institutions as well as the different starting point in terms of different levels of PSM that the students have when they enter the educational system.

Despite this paper's strength in investigating PSM in a pre-entry setting and relying on data with students in different stages of their educational program, it still has some weaknesses. First, there is probably some self-selection involved in the students' answering of the questionnaire which could at the same time be associated with higher levels of PSM. As the paper compares differences in PSM across students from different vocational studies and different years of study, this should, however, not affect the results as the probable self-selection bias is presumed to be equally distributed across these two factors. Second, the amount of variance explained by the presented models is rather low ( $R^2$  in table 2, model 2.4 is only 0,046). On the other hand, it is not lower than similar studies investigating education as an antecedent of PSM (Perry 1997; Vandenabeele 2011). Third, the papers' analysis relies on cross-sectional survey data which limits the opportunities for causal inference and the opportunity to investigate the specific mechanisms through which the educational institutions socialize the students. Future research is thus encouraged to use panel or time-series data which include individuals prior to entering the educational system and follow them during their education and onwards to organizational entry. This would on a more solid ground enhance our knowledge of PSM attraction and socialization mechanisms. Furthermore, the use of qualitative data (interviews with students) could provide information on how socialization is actually carried out. Nevertheless, this paper provides interesting insights into how PSM emerges and evolves in the educational context of different vocations which adds substantial knowledge to the relationship between higher education and PSM.

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## Appendix

**Table A1:** Measurement and descriptive statistics of study variables

Variable	Definition/measurement	Mean	Min.	Max.	Std.dv	N
PSM	Overall level of general, altruistic motivation to contribute to society and serve the public interest (formative index of the public interest, compassion, attraction to policy making, and self-sacrifice indexes, theoretical range: 0-100)	59.70	21.67	100	9.294	2,635
Public interest	Motivation to serve the general public based on values and duty (reflective index consisting of 4 Likert-scale items – see Table A2 for wording of questions, Cronbach’s alpha: )	72.07	0	100	14.036	3,381
Compassion	Affective motivation to contribute to society based on identification and empathy (reflective index consisting of 4 Likert-scale items – see Table A2 for wording of questions, Cronbach’s alpha: )	69.73	6.25	100	14.003	3,658
Attraction to policy making	Rationally based motivation to improve decision-making concerning public services (reflective index consisting of 3 Likert-scale items – see Table A2 for wording of questions, Cronbach’s alpha: )	43.90	0	100	16.221	3,167
Self-sacrifice	Motivation to contribute to society by bypassing own needs in order to serve the public interest (reflective index consisting of 4 Likert-scale items – see Table A2 for wording of questions, Cronbach’s alpha: )	48.08	0	100	16.971	3,430
Years of study	Variable measuring how many years a student has been enrolled in his/her vocational study (“When did you begin your current education?”)	2.28	1	7	1.353	3,813
Core public service study	Dummy variable indicating whether a student is enrolled in a vocational study aimed at jobs with core public service delivery, i.e. health, education, welfare, and security (HEWS), (1=core public service study) – see Table 1 for coding of vocations into core public service studies.	0.77	0	1	0.419	3,807
Vocational study	10 dummy variables indicating which specific vocational study a student is enrolled in (nurse is reference category).	See Table 1 for a list of vocational studies in the sample and the number of students enrolled in each vocational study				
Gender	Gender of respondent (1=female)	0.81	0	0	0.391	3,843
Age	Age of respondent (years)	25.52	18	59	6.040	3,842
Parents in public sector	Dummy variable indicating whether both parents have been employed in the public sector (1=parents in public sector)	0.20	0	1	0.399	3,843
University education	Dummy variable indicating whether a student’s vocational study is a university education (1) or a professional bachelor’s education (0) – see Table 1 for coding.	0.17	0	1	0.375	3,843

**Table A2:** Factor analysis of PSM dimensions (pattern matrix)

Questions	Component			
	1	2	3	4
<b><u>SELF SACRIFICE:</u></b>				
PSM26: I am prepared to make enormous sacrifices for the good of society.	,813	,105		
PSM19: I am one of those rare people who would risk personal loss to help someone else.	,762			
PSM1: Making a difference in society means more to me than personal achievements.	,701			,154
PSM9: Much of what I do is for a cause bigger than myself.	,623			,254
<b><u>PUBLIC INTEREST:</u></b>				
PSM39: I consider public service my civic duty.	,159	,767		-,108
PSM34: I would prefer seeing public officials do what is best for the whole community even if it harmed my interests.	,277	,681		-,382
PSM23: I contribute to my community.	-,161	,644		,295
PSM30: Meaningful public service is very important to me.	-,190	,602		,373
<b><u>ATTRACTION TO PUBLIC POLICY MAKING:</u></b>				
PSM31: I don't care much for politicians. (reversed)			,809	,119
PSM11: I associate politics with something positive.			,716	
PSM27: The give and take of public policy doesn't appeal to me. (reversed)			,600	-,161
<b><u>COMPASSION:</u></b>				
PSM8: To me, considering the welfare of others is very important.	,122	,132		,733
PSM4: It is difficult for me to contain my feelings when I see people in distress.				,712
PSM24: I have little compassion for people in need who are unwilling to take the first step to help themselves. (reversed)	,249		-,146	,430
PSM13: I am often reminded by daily events about how dependent we are on one another.			,181	,424

Note: PSM(nr.) refers to Perry's (1996) survey items. Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.