

# **Epistemic cultures among beginning professionals**

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*Working paper no. 08/2006*

*[www.hio.no/sps](http://www.hio.no/sps)*

*Paper presented to the 23rd Nordic Conference of Sociology, Turku, Finland, 18.-20.8. 2006. The study is part of the Prolearn project (Professional learning in a changing society) funded by Research Council of Norway.*

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## **Abstract**

One of the key characteristics of professions is that they are knowledge based occupational groups. Professional education and training is therefore an essential element of professionalism. During the last 30-40 years professional education in several “new professions” has moved from a “vocational” to an “academic” model. What are the implications of such academic drift for their preparation for working life? A central argument in the paper is that a greater emphasis on knowledge and epistemological cultures is needed to understand the challenges of professionalism in modern knowledge societies. Since knowledge never is fixed and complete, Knorr Cetinas (1997, 2001) perspectives on the unfolding dynamics of knowledge production is essential also in professional development. Professionalism implies connecting to knowledge which transcends a specific space and time. The paper examines the relationships between initial education and epistemic strategies among beginning professionals (nurses, teachers and social workers) and discusses the relevance of the perspectives presented above. Data are drawn from a longitudinal Database for studies of Recruitment and Qualifications in the Professions in Norway (StudData). Results indicate that there is a constructive relationship between what is learned in initial education and occupational life. Epistemological cultures developed during initial education relates significantly to beginning professionals epistemic strategies as well as their patterns for further professional development.

## **Introduction**

One of the key characteristics of professions is that they are knowledge based occupational groups. During the last 30-40 years education in the professions has increasingly been formalised and institutionalised. Professional education in the “semi professions” has moved from a “vocational” to an “academic” model. At the same time the educational institutions have been upgraded to become part of higher education. Educational training institutionalised in universities or university like institutions are considered highly important in the development of a critical attitude to knowledge and professional practice (e.g. Freidson, 2001).

Sociologists have returned to the concept of professionalism to understand the challenges of knowledge based occupational groups (Evetts 2003). A central argument in this paper is that a greater emphasis on knowledge and epistemological cultures is needed to understand the challenges of professionalism in modern knowledge societies. A knowledge society is not simply a society of experts or an increasing production and flow of knowledge, but rather a society into which knowledge cultures have spilled and woven their tissues into society as a whole (Knorr Cetina, 1997). We live in a world of increased reflexivity mediated by expert systems. Individuals engage with the wider environment and with themselves through information produced by specialists which they routinely interpret and act on in everyday life (Giddens, 1990). The democratisation of knowledge has been accompanied by a growing contestability of knowledge claims. As more and more actors are being drawn into the field of knowledge production, the self-legitimation of the older knowledge elites becomes less certain. Professionals do therefore not just need knowledge as a basis for carrying out their tasks; they also have to a much greater extent to defend their professional practice scientifically towards other professional groups as well as the lay audience.

Even though professional education is important to develop students' knowledge base and their socialisation into the occupation, development of professional knowledge is a continuous process. Important elements of professional knowledge and skills may first be really developed during occupational practice (Eraut, 1994; Eraut, 2004). The aim of this paper is to examine the epistemological cultures and strategies among beginning professionals. Is professional learning among beginning professionals first of all characterised by apprenticeship models or do the epistemological culture also include an abstract body of professional knowledge? Important questions are:

- Are there important differences in epistemic cultures between beginning nurses, teacher and social workers?
- To what extent are individual characteristics related to epistemic strategies? Are individual epistemic cultures developed during college education related to beginning professionals' strategies for further development of professional knowledge?

## **Analytical perspectives**

It may be distinguished between two perspectives on learning: learning as *acquisition* and learning as *participation* (Sfard 1998). While learning as acquisition is a metaphor for perspectives analysing individuals' cognitive knowledge construction, the participation metaphor characterise studies of learning as a process of becoming a member of a certain community and becoming able to communicate and participate within this community (Tynjälä et al. 2003). Focusing on apprenticeship models and perspectives on "communities of practice" (Lave & Wenger, 1991; Wenger, 1998) the latter perspective have challenged traditional cognitive learning theory and stimulated several studies on the informal characteristics of workplace learning (e.g. Nielsen & Kvale, 1999). Eraut et al. (2002) emphasise how strongly workplace learning is situated in the work itself and its social and organisational context. Moreover, such perspectives challenge the traditional assumption that knowledge learned in the context of education simply can be transferred to the context

of work. Concept like “boundary crossing” (Engeström, 2001; Guile & Young, 2003) and “recontextualisation” (van Oers, 1998; Bernstein, 2000) have been developed to focus and understand the challenges related to the passage from classroom contexts to contexts of professional work.

Nowadays it is widely acknowledge that learning is situated in its cultural context. Focusing on “communities of practice” tends, however, to ignore that learning is not locked into local settings, but produces and organises networks across space and time. By focusing on apprenticeship relationships it also tends to overlook the relevance of abstract codified knowledge (Guile & Young, 2002). Acquisition should, however, also be analysed from a sociological perspective focusing on how professionals link to more abstract modes of knowledge and get connected to knowledge (Nespor, 1994; Smeby, In press). The concept of “*wanting structure*” (Knorr Cetina, 1997; Knorr Cetina, 2001) may be a sound perspective to understand such processes.

According to Knorr Cetina the most profound changes in modern societies is the expansion of object centred sociality. We relate to several objects in a emotional way. While the social sciences only have focused on human bounds formed through normative consensus, Knorr Cetina argues that integration based on knowledge objects may create communities ‘in thought’(Knorr Cetina, 1997). Like many sociologist of scientific knowledge, she takes her examples from the laboratory focusing on how scientific research works in practice. She argues that such knowledge settings are no longer limited to science. She has analysed traders applying the same perspectives, arguing that ‘the market-on-screen has a presence and profile in its own right’. The market on the screen is a knowledge object in the sense that it is signalling what it still lacks and the traders interpret these signals (Knorr Cetina & Bruegger, 2002).

Knorr Cetina describes knowledge objects as the goal of expert work and also what they are interested in, attracted by as well as seduced and attached to. Experts' relationship to knowledge objects is however, not only emotional bonds, it is also dynamic and ambivalent. The relationship is characterised by the notion of lack and a corresponding structure of wanting. One could say that 'objects of knowledge structure desire, or provide for the continuation of the structure of wanting' (Knorr Cetina, 1997:13). The concept of 'lack' is essential because that is the underlying dynamic that implies a continually renewed interest in knowing. Moreover, she stresses the 'unfolding ontology', it implies an understanding of knowledge as never final; it appears never to be fulfilled.

Jensen and Lahn (2005) have analysed nursing students' relationships to knowledge and conclude that students' interpretation of the concept of care works very much as a knowledge object in Knorr Cetina's sense of the term. They find that students first find the abstract, decontextualised world of theory challenging. Nursing theory is described as dry, irrelevant and boring. They find however a shift in students' perspectives during the last year of study. The 'back-and-forward looping between theoretical input and practical experience' that characterised the nursing programme seems to stimulate students and made them see the relevance of nursing theory. Students underlined the moral worth of self-related motives and concerns. The ability to preserve every patient as a unique person was emphasised. Knorr Cetina and Jensen and Lahn's contribution is that they focus on the role of knowledge as a basis of identity and motivation. Professionals are not just committed to knowledge in general. Knowledge objects and the professional 'wanting structure' gives direction for where to look for solutions. As Jensen and Lahn conclude: abstract forms of knowledge 'offers the possibility of ensuring professionalism as a socially responsible and vital life form'.

The acquisition perspective and the participation perspective should both be taken into account to understand how expertise and knowledge takes place in reciprocal interaction between individuals and their sociocultural environments (Billett 1996, Sfard 1998, Tynjälä et

al. 2003). The relevance and importance of acquisition in terms of development of “wanting structures” and participation in terms of “communities of practice” may nevertheless be studied empirically by focusing on epistemological cultures and the balance between epistemological strategies.

## **Data and methodology**

The data are drawn from the longitudinal Database for Studies of Recruitment and Qualifications in the Professions (StudData) in Norway. The first wave of data that this paper draws upon included several background variables as well as data on study efforts, their assessment of various aspects of the educational programmes, satisfaction, gain and expectations for the future. The second wave focus on their occupational carrier, knowledge demands in occupational practice, further development of professional knowledge as well as assessment of their professional education. The present paper focus on data from nurses, teachers and social workers and data from both waves are used.

The students answered a questionnaire when they were in their final term in the spring 2001 and about almost 3 years after graduation the spring 2004. While the response rate in Wave 1 was 70 per cent, it was 58 per cent in Wave 2. In the first wave (2001) the questionnaire was distributed to and completed by students during their lectures. This means students that for various reasons did not attend the current lecture were not included in the survey. In the second wave in 2004 the questionnaire was distributed by post to all students who were in their final term in 2001, also student who did not respond in the first wave. A critical factor is therefore panel retention. The present paper is based on responses from three professional groups: nurses, teachers and social workers. 179 nurses, 195 teachers, and 121 social workers responded in both waves.

The present paper focuses on the extent to which and how beginning professionals develop their knowledge and skills during their early carriers and their assessment of the importance of different knowledge sources. While informal contact with colleagues is a type of epistemological sources and strategy that relates to the perspectives focused in the participation perspective, reading of professional literature and participation on courses and seminars relates more directly to the perspective on knowledge as acquisition and may give some indication on the extent to which the beginning professionals have developed a wanting structure.

Linear regression analyses (OLS) have been conducted to examine individual knowledge cultures and strategies. Descriptive statistics on the variables included in these analyses are presented in Table I.

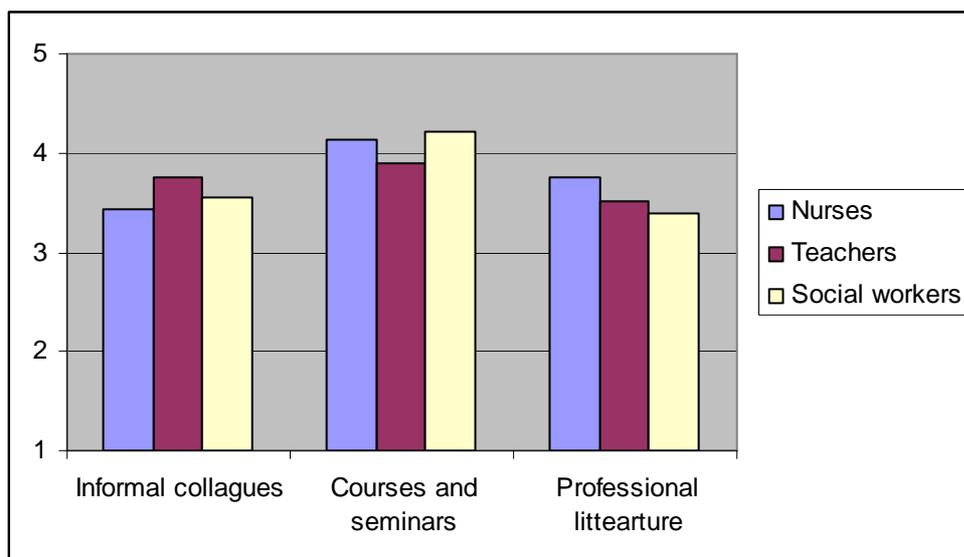
**Table I** Descriptive statistics of variables included in the various regression analyses.

	Min.	Max.	Mean	Std. Dev.
<b>Assessment of importance of knowledge sources:</b>				
Courses and seminars	1	5	4.075	0.949
Reading professional literature	1	5	3.574	0.765
Informal colleagues	1	5	3.579	1.059
<b>Use of knowledge sources:</b>				
Frequency seminars (1=0, 2=1-3, 3=4<)	1	3	1.878	0.639
Time for reading (minutes per week)	0	1260	155.749	181.525
Professional discussion colleagues	1	5	3.981	0.756
<b>Evaluation of education and study (Wave I):</b>				
Time for studies (hours a week)	7	60	28.538	8.951
Study strategy (index)	1,6	6,75	3.727	0.890
Satisfaction education	1	5	3.256	0.765
<b>Motivation:</b>				
Professional commitment (index)	1,2	4	2.655	0.495
Own interests (index)	1,5	5	4.378	0.630
Local expectation	1	5	2.658	0.887
<b>Job characteristics:</b>				
Job requirements for knowledge and skills	1	4	3.340	0.586
Average working hours	3	85	36.831	7.934
<b>Demographics:</b>				
Gender/being male	1	2	1.165	0.372
Age	25	57	31.095	6.152
<b>Professional belonging:</b>				
Nurse	0	1	0.383	0.487
Social work	0	1	0.266	0.442
Teacher	0	1	0.351	0.478

## Results

### *Differences between the professional groups*

The beginning professionals were asked about the importance of different knowledge sources for their professional development. In general it seems that the three professional groups assess different types of organised training, informal contact with colleagues as well as reading of professional literature as important. In general it seems that courses and seminars are considered most important, while informal contact with colleagues and reading of professional literature are considered somewhat less important. There are also significant differences between the professional groups. Teachers assess courses and seminars as less important than the other groups, while the former assess informal contact with colleagues as more important. Nurses consider professional literature more important than teachers and social workers.



**Figure 1** Beginning nurses, teachers and social workers average assessments of the importance of different knowledge sources for their professional development on a scale from 1 (not important) to 5 (extremely important).

### ***Individual assessment of the importance of knowledge sources***

To examine the individual professionals' assessments of the importance of various types of knowledge sources regression analyses have been conducted. Table 2 shows that the only independent variables included in that analyses that relate to the assessment of the importance of all the knowledge sources is "own interest for professional development". The patterns for the other independent variables differ between the different knowledge sources. Job characteristics "job requirements" and "average working hours" relates positively to the importance of courses and seminars, while two of the variables that concern students' assessment of their period as students: "time used for studies", "an active and critical study strategy" relates positively to the assessment of reading of professional literature (Model 1). "Local expectation from colleagues and managers" only relates to the assessment of the importance of informal contact with colleagues. When it comes to demographics, being male relates negatively to the assessment of the importance of courses and seminars as well as professional literature, while age is positively related to the assessment of courses and seminars (Model 1). Differences between the professional groups (Figure 2) are in general confirmed in the regression analyses. Teachers assess the importance of courses and seminars lower than nurses, while social workers assess professional literature lower than nurses.

The independent variables included in the model (Model 1) "explains" beginning professionals assessment of the importance of courses and seminars ( $R^2=0.248$ ) as well as literature ( $R^2=0.218$ ) pretty well, while the model seems to lack relevance for the "explanation" of assessment of the importance of informal contact with colleagues ( $R^2=0.042$ ).

Individual assessment of the importance of the different knowledge sources for professional development may be related to the extent a knowledge source is consulted as well as the benefit of the respective sources if consulted. For two of the knowledge sources, "courses

and seminars” and “professional literature” data are available to examine this problem. These knowledge sources also seem to be most highly related to the individual characteristics included in Model I.

**Table 2 Beginning professionals' assessment of the importance of different types of sources for their professional development. Unstandardised regression coefficients (B). N=364.**

	Courses and seminars		Courses and seminars		Professional literature		Professional literature		Informal colleagues						
	Model 1		Model 2		Model 1		Model 2								
	B	S.E.	B	S.E.	B	S.E.	B	S.E.	B	S.E.					
Constant	0.489	0.725	0.367	0.713	1.194	*	0.560	1.413	0.741	2.617	**	0.870			
Time for studies	0.000	0.005	0.001	0.005	0.006		0.004	0.005	0.004	-0.006		0.006			
Study strategy	0.058	0.056	0.048	0.055	0.144	***	0.043	0.098	0.053	-0.013		0.067			
Study satisfaction	-0.070	0.062	-0.075	0.061	0.129	**	0.048	0.105	0.059	-0.048		0.075			
Professional commitment	0.092	0.104	0.049	0.103	-0.025		0.081	-0.012	0.098	-0.243		0.125			
Own interests	0.391	***	0.072	0.405	***	0.071	0.296	***	0.055	0.355	***	0.074	0.185	*	0.086
Local expectation	-0.005		0.051	0.003		0.051	0.037		0.039	0.090		0.054	0.132	*	0.061
Job requirements	0.218	**	0.081	0.196	*	0.081	0.090		0.063	0.027		0.081	0.170		0.097
Working hours	0.022	***	0.006	0.015	*	0.006	-0.005		0.005	-0.009		0.006	0.001		0.008
Being male	-0.285	*	0.120	-0.296	*	0.119	-0.297	**	0.093	-0.312	**	0.112	0.102		0.144
Age	0.016	*	0.008	0.015		0.008	0.010		0.006	0.001		0.009	0.000		0.010
Social work (ref. nurses)	0.200		0.123	0.148		0.123	-0.326	***	0.095	-0.197		0.122	0.124		0.147
Teachers (ref. nurses)	-0.248	*	0.113	-0.257	*	0.112	-0.119		0.087	-0.125		0.112	0.157		0.136
Frequency seminars			0.287	***	0.073										
Time for reading									0.001	***	0.000				
R <sup>2</sup> adj.	0.172		0.212		0.218		0.245		0.042						
	364		357		365		232		364						

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

Model 2 shows that frequency of participation on seminars and conferences<sup>1</sup> is significantly related to assessment of the importance of courses and seminars. The inclusion of this variable improves the model somewhat, but it changes the significance of the other independent variables only to a limited extent. Correspondingly time used for reading professional literature is positively related to assessment of the importance of professional literature. Inclusion of this variable in the model imply that “study strategy” as well as “satisfaction with education” no longer turns out to be significantly related with the assessment of this knowledge source.

### ***Frequency of consulting knowledge sources***

Finally, beginning professionals’ frequency of consulting knowledge sources are examined using the same independent variables as in Table 2 (Model 1). Frequency of participation on seminars and conferences outside the workplace the latter 12 months is positively related to working hours, and social workers are more likely to take part than nurses. While the independent variables “own interest”, “job requirements”, “gender” and “age” also related significantly to the assessment of the importance of courses, seminars and conferences” (Table 2) these variables turns out not to be significantly related to frequency of use of such type of knowledge source (Table 3). Time used for reading professional literature relates significantly to “study strategy”, “own interest”, “gender” and teachers use more time for reading than nurses. The only individual characteristics that relates to the assessment of the importance of reading professional literature (Table 2) and not to the reported use of time for such reading (Table 3) is “satisfaction with educational quality”. However, it should also be emphasised that while being male is negatively related to the assessment of the

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<sup>1</sup> The dependent variable on importance is specified as courses seminars and conferences, while the independent variable on frequency is specified as seminars or conferences outside the workplace the latter 12 months. However, alternative analyses where those who report that they have participated in courses organised by their employee are excluded gives similar results. The discrepancy in the specification of these variables seems not to influence the results.

importance of reading professional literature, male professionals reports that they use on average 1 hour (59.4 minutes) more a week on such reading than their female colleagues. Moreover, while social workers reported reading professional literature to be more important for their professional development than nurses (Table 2), teachers turned out to use more time than nurses on such type of reading (Table 3). Frequency of collegial discussions is positively related to own interest and job requirements. Since informal contact with colleagues is not quite the same as professional discussions with colleagues the somewhat different relationship to the independent variables included in the model should not be emphasised.

**Table 3 Beginning professionals' use of time weekly for reading of professional literature and frequency of participation on seminars or conferences outside their workplace and professional discussions with colleagues. Unstandardised regression coefficients (B).**

	Time for reading		Frequency seminars		Collegial discussions	
	B	S.E.	B	S.E.	B	S.E.
Constant	-586.046	*** 180.573	0.415	0.527	2.079	*** 0.615
Time for studies	1.191	1.056	-0.003	0.003	0.004	0.004
Study strategy	36.031	** 13.088	0.028	0.041	0.028	0.048
Study satisfaction	-12.566	14.710	-0.024	0.045	0.006	0.053
Professional commitment	10.753	24.542	0.092	0.076	-0.047	0.089
Own interests	57.641	** 18.062	-0.016	0.052	0.214	*** 0.061
Local expectation	24.331	13.299	-0.007	0.038	0.024	0.043
Job requirements	29.727	20.073	0.071	0.060	0.202	** 0.069
Working hours	-1.512	1.427	0.026	*** 0.005	0.003	0.005
Being male	59.409	* 27.669	0.052	0.088	0.043	0.102
Age	4.035	2.331	0.001	0.006	-0.002	0.007
Social work (ref. nurses)	4.182	30.489	0.272	** 0.089	0.154	0.104
Teachers (ref. nurses)	102.618	*** 27.132	0.080	0.082	-0.094	0.096
R2 adj.	0.182		0.106		0.058	
N	232		359		365	

\*\*\* p<0.001, \*\* p<0.01, \* p<0.05

## **Preliminary discussion**

In the introduction it was distinguished between two perspectives on professional development characterised by the metaphors *acquisition* and *participation* (Sfard 1998). In the analyses the former perspective have been related to organised training like courses and seminars and reading of professional literature, while the latter has been related to informal contact and discussions with colleagues. Analyses of the beginning professionals' assessment of the different knowledge sources for their professional development show that all three knowledge sources are considered important. Courses and seminars are considered somewhat more important than informal contact with colleagues and reading of professional literature, but the differences are not very significant. There are also some differences between the professional groups, teachers consider informal contact with colleagues somewhat more important than nurses, while nurses consider reading of professional literature somewhat more important than teachers. These results indicate that both perspectives focusing on *acquisition* as well as perspectives focusing on *participation* are important to shed light on professional development and learning among beginning professionals. Moreover, the importance of these perspectives in terms of focus on different types of knowledge sources is more or less the same for professional development among nurses, teachers and social workers. Even though such a conclusion may be considered rather commonplace, there is strong tradition in studies of workplace learning that tends to focus only on participation and communities of practice.

In the research literature the transition from education to work is characterised as boundary crossing (Guile and Young 2003) to emphasise the challenge in applying knowledge learned in one context in a new one. Moreover, even though it in general is assumed that knowledge learning in education improves employers' qualifications and productivity, the empirical evidence is uncertain (Bills 2004). Collins (1979) argues that education first of all is a way to regulate access to profitable occupations. Educational success is an appropriate indicator for

later performance in the educational system, but not for performance in occupational life. From such a perspective it is interesting that there seem to be a positive relationship between epistemological strategies in occupational life and initial education.

An important point of departure in this paper is that a greater emphasis on knowledge and epistemological cultures is needed to understand the challenges of professionalism in modern knowledge societies. Moreover, it has been argued that the concept of *wanting structure* offers a perspective to understand the role of abstract forms of knowledge as a basis of professionalism. The analyses in this paper give some indications that students who develop a wanting structure during their initial education are more likely to continue reading professional literature to develop their knowledge and skills. There seem not to be any relationship between the development of a wanting structure and the emphasis of other knowledge sources like informal contact with colleagues and courses and seminars. This may be one reason why studies focusing on learning as participation tend to overlook the relevance and importance of initial professional education.

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