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Comparing Collective and Personal Professional Theories of Experienced Practitioners

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Abstract

A characteristic of becoming a professional is the internalisation of the Collective Professional Theory (CPT), the shared insights of experienced practitioners. A problem arises when different opinions stemming from practitioners' Personal Professional Theories (PPTs), obscure a CPT's content. This study argues that groups of cooperating practitioners have well-defined CPTs, which together constitute a field. The relations between CPTs, PPTs and fields are studied in case studies under accountants and teachers. In each domain a representation of a CPT was constructed and compared with PPTs. The results indicate that CPTs are more complex than PPTs and the structure of the two fields differs locally. Compared to the CPTs of teachers, differences between the CPTs of accountants are smaller. Such insights in CPTs are important for education because socialisation in a domain may be fostered if one is aware of CPTs and the surrounding field in relation to one's PPT.

Introduction

Becoming a professional can be conceived as a socialisation process into a group of established, experienced professionals (de Bruijn & Nieuwenhuis, 1994). An important aspect of this process is the internalisation of the body of professional, theoretical and practical knowledge, convictions and values shared by the group members (Schaap, de Bruijn, van der Schaaf, & Kirschner, 2009). In the study mentioned such bodies are called Collective Professional Theories (CPTs) and their individual, internalised counterparts Personal Professional Theories (PPTs). PPTs develop as a result of education and experience and are stored as schemes and scripts in long-term memories, where they serve as a reference base for acting and further professionalization (Schaap et al., 2009).

However, it is not always clear what the construct CPT represents. This problem becomes manifest when a group professionals is not homogeneous, i.e. when members disagreeing on certain aspects of their common profession because they belong to different schools of thought or to different cultures (De Long & Fahey, 2000). In several domains examples can be found showing this point not to be imaginary. For instance there is debate among accountants about the tension between their role as independent controller and the non-audit services they provide (Ashbaugh, 2003). In the domain of teaching fundamental differences of opinion about the goals and content of education have always been numerous and are often reflected in political issues (Proctor, Brownlee, & Freebody, 2015).

Apart from the conceptual problem of how a CPT should be conceived, there are two technical problems connected to gaining insight in CPTs at all. The first technical problem concerns the representation of CPTs so that they can be studied. Van den Bogaart, Bilderbeek, Schaap, Hummel and Kirschner (in press) showed that

the main features of PPTs can be represented well by means of open, annotated

concept maps. Because CPTs and PPTs have the same kind of content, it is assumed

here that such maps are also suited to represent CPTs. The concepts in these maps

denote the main semantic elements of professional theories. Links between concepts

clarify their meaning. Annotations with concepts by means of examples clarify their

meaning further. Annotations also offer the possibility to attach procedural knowledge

to concepts which figure in it (van den Bogaart, Schaap, Hummel, & Kirschner,

submitted). If a concept map represents a PPT or a CPT, it is important for content

validity (Anastasia & Urbina, 1997) that implicit knowledge, which is usually hard to

reveal (Wilson & Berne, 1999), is represented in the map. In case of PPTs, implicit

knowledge can be elicited through a discussion with the producer about his/her map

and then be inserted in the map (van den Bogaart et al., submitted). In case of CPTs,

the map construction procedure has to reckon with implicit, shared knowledge too.

　　　The second technical problem concerns the method to compare PPTs and

CPTs. A possibility is to use the four qualities Schaap, de Bruijn, van der Schaaf,

Baartman and Kirschner (2011) distinguished to characterise a PPT, on CPTs as well.

The quality *concreteness* is the ability of the theory to support professional actions;

specificity is its uniqueness for a profession and *complexity* is the degree its content is

interconnected. The fourth quality, *richness*, expresses the level of uniformity with

which its content is distributed over six domains of professional knowledge:

vocational field, *organisations*, *professional environment, target groups, technical-

instrumental knowledge* and *self-knowledge and development*. Van den Bogaart et al.

(in press) developed a valid and reliable method to assess the four qualities by means

of a concept map representation and to express them as percentages. The four

qualities have a common characteristic: they are completely determined by a

representation and not (also) by data outside of it. For this reason these qualities are called *intrinsic*. A CPT and a PPT can be compared by means of the four intrinsic quality percentages. In that case the CPT is used as an external point of reference. Such a reference is relevant because the owner of a PPT may not be recognised as a (future) professional colleague, if the PPT is very different from the CPT of the occupational group in which (s)he operates.

Beforehand it is obvious that the four intrinsic qualities may not always be sufficient to express the extent to which a PPT is similar to a CPT. Both can have the same values for concreteness, specificity, complexity and richness and still show substantial differences in content and structure. That is why a method has to be developed to compare the content and structure of a PPT and a CPT. For the validity of such a method it has to take into account that professionals could have developed a discourse typical for their workplace (Bremner, 2012). Such workplace specific jargon could make it hard to determine if certain utterances have the same meaning.

The aforementioned considerations led to the goals of this study: (1) to develop and explore a method for determining open annotated concept maps as representations of CPTs which takes into account the possibility that parts of the CPTs are implicit; (2) to compare the intrinsic qualities of concept maps of CPTs and PPTs; and (3) to develop and explore a method for comparing the content and structure of these maps which reckons with the possibility that elements are expressed in workplace specific jargon. To achieve these goals the conceptual problem has to be addressed first. To this end a conception of CPTs that takes the possibility of differences in opinion between practitioners into account is developed in the theoretical section.

Conceptual framework

In this section it is argued that in order to deal with contradicting propositions in the

PPTs of practitioners, CPTs could be considered as belonging to a field in the sense of

the French sociologist Bourdieu (Hodkinson, Biesta, & James, 2007). The notion of a

field will be conceived as an extension of the notion of a theory as it is defined in the

science of logic,

CPTs and contradicting opinions

A CPT is by definition a theory and in the science of logic a theory is formally

defined as a consistent set of propositions, ordered in chains by means of relations of

for example a deductive, causal or temporal nature (Gamut, 1991). The required

consistency implies that a proposition and its denial cannot both be elements of the

same theory. If a CPT is conceived as a theory in this formal sense, the implication is

that when two practitioners have opposite views on some professional issue, those

views cannot be included in the CPT as two singular statements. Consistency is not

violated however when opposed views are inserted by means of a compound

statement in the form of a disjunction or an implication. Still, such insertions do not

solve the problem of including opposite views in a CPT. In case of disjunctions, the

compound statements are examples of the principle of the excluded middle. This

principle refers to tautologies that cannot belong to CPTs, as it is impossible to derive

any contingent propositions from them (Gamut, 1991). In case of inserting opposite

views as the premises of implications – i.e. "If you have as your view that .., then you

have to act as ..." – the definition of CPTs used, entails that such implications cannot

be elements also because they do not unambiguously prescribe how to act in certain

situations. Therefore, the only way to deal with opposite views is to leave them out of

CPTs, even though the result is CPTs that only portray small parts of the bodies of knowledge, convictions and values relevant in vocational domains.

At first sight, there are two possible approaches to be considered in which this dilemma may be solved. The first approach is to pass off a validated vocational curriculum as a CPT. Such a curriculum seems to be a possibility as it has to contain substantial parts of the relevant knowledge, convictions and values. Moreover, it has to be consistent as students cannot be asked to accept contradicting statements as true. That is why in curricula opposite professional views are often contained as the aforementioned implications. Students learn from these implications that different professional views are possible. However as explained, these implications are one of the reasons that vocational curricula cannot be considered as CPTs. Another reason stems from the observation that the way the content in vocational curricula is structured strongly differs from the ways in which experts structure their professional knowledge (Kondrat, 1992). This may explain why in many vocational institutions there is a debate about the gap between the content of the curriculum and the demands of (regional) occupational groups (Eraut, 2009).

The second approach for solving the dilemma is to pass off the consistent content produced by a knowledge management system (KMS) as a CPT. Such systems are developed to secure the specific knowledge of the employees of a firm or institution as an asset to compete with others (King & Marks Jr., 2008). The content produced by a KMS describes the firms' practice, so with the same argument used in case of CPTs, the aforementioned implications cannot belong to it. Still, content produced by a KMS cannot be considered as a CPT because the scope of the latter is broader than the scope of the first: a CPT contains all the shared knowledge, convictions and values of an interacting group of practitioners.

To summarize: when there are substantial opposite views in a vocational domain, it is not feasible to construct a unique CPT of the domain and this problem cannot be solved by conceiving a vocational curriculum or with content produced by a KMS as similar to a CPT.

CPTs considered as elements of a field

Knowledge management systems have one aspect that could be used to address the problem of opposite views when defining CPTs: its content is produced by a collaborative group of practitioners. When the group of professionals that contribute to a CPT is limited to cooperating practitioners, opposite views may well be placed in different, CPTs. However, as these CPTs all belong to the same domain, there has to be a unifying structure that connects them. The notion of a field introduced by the French sociologist Bourdieu (1996) can be used to unite limited CPTs in the same vocational domain.

In general terms a field can be described as " a configuration of relations between positions objectively defined in their existence and in the determinations they impose upon the occupants, agents or institutions" (Bourdieux as cited in Hodkinson et al., 2008, p. 35). To transform this abstract definition into a notion that can be used in this study we propose to conceive 'positions objectively defined' as CPTs. While working together, practitioners (un)consciously construct a CPT. Such constructs are elements of Popper's third world (Bereiter, 2008): the world of cultural, conceptual artefacts. Just as the 'real' objects in Popper's first world, different people, practitioners, can use, work, explicate and discuss CPTs. That is why they are called objectively defined, in contrast with PPTs which are elements of Popper's second world; the world of mental, subjective objects. Elements of the second world can only be used by the human beings who construct them (Popper, 1972). A CPT represents a

position in a field because its contributors have a common view on professional issues. In the field of a domain the different professional views are represented in the CPTs that constitute the field.

In this article the term 'field' is used to indicate the complex cohesion of knowledge, values and convictions belonging to a vocational domain. The term 'CPT' is reserved for the knowledge, values and convictions that are actually shared by a specific group of professionals. To describe a field one has to describe the multiple CPTs of which it consists and their mutual relations. These relations could be characterised as influences, because they portray the adaptation of one CPT under influence of another. Influential, outstanding CPTs are called enclaves (Friedman, Sykes, & Strauch, 2014). They cause a field to change. So fields are dynamic: they evolve in the course of time. Our use of the term 'field' can be characterised as instrumental. It is comparable to the use in physics, where fields were successfully introduced to analyse a class of phenomena whose real nature is not fully understood up until now (Hodkinson et al., 2008).

A premise of the transformation of the abstract definition of Bourdieux is that a group of cooperating professionals actually have a CPT. This assumption is reasonable because professional interaction while cooperating requires a certain homogeneity expressed by a shared body of professional knowledge, convictions and values used when cooperating (Bloor & Dawson, 1994). It even requires a common discourse to understand each others' point of view (Bremner, 2012). Some differences, e.g. in emphasis, still could exist but are respected by all involved and viewed as supplementing each other, resulting in a collective practice which is presumed being better than the sum of the individual practices (Akkerman & Bakker, 2011). It is possible that in some cases the premise can be mitigated. For example, in

vocations where working procedures and conduct are strictly regulated it could be

sufficient that practitioners have the same working conditions and types of clients.

The relation between CPTs and PPTs

Although CPTs and PPTs belong to different worlds in Popper's universe they do

influence each other. On the one hand CPTs continually evolve due to input of the

cooperating professionals, the peripheral participation of newcomers and to societal

and governmental changes. On the other hand CPTs shape professional habita

(Hodkinson et al., 2008) by influencing the language, techniques, division of labour

and standards professionals use in their interaction (Alheit, 2009). This implies that

CPTs are determined by the PPTs of the relevant occupants, by their practices and by

the agents (Sharma, 1997), activity systems (Engeström & Sannino, 2010) and

institutions (e.g. national associations of professionals) in which these occupants

participate. The intensity and frequency of the interactions determine which occupants

contribute to a CPT. Such interactions can either be local, with occupants engaging

with local policy and social conventions, or could extent over different continents as

may be expected in a globalising world (Beaverstock, Doel, Hubbard, & Taylor,

2002).

A CPT does not contain the entire PPTs of the involved professionals. Some

of their elements are private by their nature, such as the knowledge of personal

strengths, weaknesses and ambitions. Others might not be relevant for the practices in

which they interact. On these elements different and even opposite views are possible.

It is also possible that the cooperating professionals share tacit knowledge (Endres,

Endres, Chowdhurry, & Alam, 2007). Because such knowledge cannot be made

explicit by their owners, it is not contained in their PPTs (Schaap et al., 2009) nor in

their socially constructed CPTs.

Research questions

As a field could contain a multitude of CPTs, one has to choose a CPT as a point of reference when one wants to compare a PPT with a collective body of professional knowledge, convictions and values of professionals in the domain of the PPT. To explore this further, the goals of this study suggested two empirical research questions: 1) what are the intrinsic qualities of concept maps of CPTs as compared to the PPTs of experts, and 2) to what extent are the content and structure of CPTs and experts' PPTs similar?

Method

The two research questions were answered by means of a case study in the same domains as in our previous studies: accountancy and teaching English as a foreign language (van den Bogaart et al., submitted). These domains were chosen because they are very different in nature: accountancy is a highly protocollised domain contrary to the teaching domain. To answer the first question an open, annotated group map (Stoyanova & Kommers, 2002) of a CPT was constructed by a group of five experienced professionals in each of the domains. The construction was supervised by two researches to ensure that the content of the map was shared, formulated in a common language and that workplace jargon was explained. To minimize the possibility that implicit elements of the CPT would be missed, each CPT was commentated by five other experienced practitioners. Their comments were processed in the CPT as long as the construction group agreed. To answer the second research question each CPT was compared with the concept maps of ten (accountancy) or nine (teachers) PPTs of experienced practitioners. To maximize the chance of finding differences of opinion these practitioners did not contribute nor

comment on the CPT. The choice of the two different domains entailed the extra possibility to compare them. For instance, as a consequence of the highly protocollised character of accountancy contrary to teaching the PPTs of accountants may well be more similar than PPTs of teachers (van den Bogaart, et al., submitted).

Participants

Experienced accountants and teachers English were selected from the network of a regional university of applied science in the northern part of the Netherlands. 20 Accountants (17 male, 3 female, M_{age} = 35 years, SD = 5 years) and 19 teachers (5 male, 14 female, M_{age} = 44 years, SD = 10 years) agreed to participate. 17 Accountants and 18 teachers were alumni of the regional university. The others were educated at other universities in The Netherlands. The participating accountants worked in 15 different small or middle-sized offices with clients in small or middle-sized businesses in the region, and had a professional experience of more then five years (M = 16 years, SD = 6 years). The teachers worked at 13 different schools and all had experience in the lower years of secondary education with a minimum of more then five years (M = 17 years, SD = 9 years). The accountants who constructed their group map came from five different offices, because it was not possible to find five experienced accountants from one office. This was considered acceptable as they all worked in the same region, in middle-sized offices with local, small and middle-sized firms as clients. Besides this, professional regulations for accountants are very strict and thus similar for each of them. The teachers in the construction group did work in the same school.

Instruments

Construction of the concept maps of the two CPTs was supported by a module of the dedicated computer program BrainWaever (Van den Bogaart et al., accepted). The

module allows subjoining examples and clarifying concepts and relations between
concepts. All concepts should be connected directly or indirectly with the focus of the
concept map: "*As a group of accountants/teachers we have professional knowledge of
and judgements on ..*". The commentary on each group map was also inserted in the
concept maps as far as the construction group agreed. Representations of the PPTs of
individual professionals were constructed by means of concept maps from
BrainWeaver too. In these concept maps the focus was: "*As an individual
accountant/teacher I have professional knowledge of and judgements on ..*". To
generate as much information on the PPTs as possible, each map was discussed in a
semi-structured interview with its owner. The information derived from the interview
was processed in the concept map (van den Bogaart et al., submitted). Trained
assessors supported by the assessment module of BrainWeaver (van den Bogaart et
al., accepted), determined the percentages that express the intrinsic qualities of the
concept maps.

To determine the degree of similarity in content and structure between a
concept map of a CPT and a PPT or of two PPTs, a method used in Huyts, de Bruyn
and Schaap (2011) was refined. This resulted in a procedure consisting of four steps.
The first step is called 'pruning' the two concept maps and makes comparing their
content and structure simpler. To prune a concept map one has to look for links
between concepts expressing that one of the concepts is a part or an example of the
other. That this is the case can be derived from labels such as 'consists of' or
'contains'. If a concept can be conceived as a part or example of another more general
concept, the exemplary concept and the link have to be deleted from the map and the
exemplary concept has to be inserted as an annotation in the more general concept.
The second step consists of forming a list of all the concepts of each of the two

pruned concept maps. In the third step items from both lists have to be linked by an assessor examining the lists and their corresponding concept maps. A link between an item of a list and an item of the other list expresses the fact that according to the assessor, both items are fully or partly the same. Two concepts can only be deemed as fully the same if their extension and intension are the same (Dummett, 1981). For this purpose, the extension of a concept is defined as the set of all knowledge-elements belonging to the concept (Hampton, 2012). For example the extension of the concept annual account is the set of all propositions describing techniques and regulations regarding the construction of annual accounts. The intension of a concept is defined as the importance and the purpose of the concept in a professional theory. This is operationalized as the order of the concept (primary or sub) in the concept map and as the relations or annotations of the concept expressing its purpose. For instance, a purpose of an annual account could be to provide information for the stock market. Two concepts are to be judged as partly the same if one of the extensions is a part of the other or if the extensions are identical and the intensions are different. For example, the concept profit and loss account is partly the same as the concept annual account because the construction of a profit and loss account is part of the construction of an annual account. By definition an item of a list cannot be fully the same as an item of the other list and at the same time fully or partly the same as another item on that other list. However, an item of a list can be partly the same as several items of the other list.

In the last, and fourth step each item of the two lists is awarded with marks in accordance with table 1. The degree of similarity in content and structure between two concept maps can then be calculated as the total number of awarded marks divided by the total number of items of both lists, expressed as a percentage.

Table 1: The award of marks to items

Number of links of an item	Interpretation	Mark
0	No corresponding item	0
1	The item is fully the same as the linked item	1
≥ 1	The item is partly the same as one or more linked items	½

Analysis

For the quantitative analyses of PPTs, five variables were assigned to each concept map. Four variables were defined as the differences between the intrinsic quality percentages of the PPTs and a CPT. The fifth variable expresses the similarity in content and structure between the PPTs and the CPT as a percentage. Low values of the first four variables are an indication that a PPT has the same intrinsic qualities as the CPT. A high value of the fifth percentage indicates that the PPT and the CPT are similar in content an structure. This resulted in: 1) five pairs H_0/H_1-hypotheses in each domain conjecturing that with respect to a variable the CPT and the PPTs are similar/different, and 2) five pairs H_0/H_1-hypotheses, each conjecturing the value of a variable is identical in/differs between both domains.

Due to the small dataset and the large number of variables a Bayesian approach supported by the statistical package R was used to: 1) calculate the Bayes-factor that expresses the amount of support from the data for H_1 against H_0 for each variable in each domain, and 2) determine if there is any support for the conjecture that the two fields differ when characterised by the five variables.

To get more insight in the CPTs, the analysis was supplemented by registration of the handling of differences in opinion, workplace specific jargon and the commentary of colleagues outside the group.

Procedure

The group construction procedure started with an email sent to the members of the two construction groups explaining the goals and design of the study. In this email they were asked to return a list of topics that, in their view, were important in their profession. To increase the chance that a common language would be used, the two groups each produced a group map of their CPT in a face-to-face session of three hours according to a protocol of three steps. First the lists of topics from the returned emails were discussed in the group to produce a common list of topics every menber agreed upon. The common list was inserted into BrainWeaver and transformed into a collection of concepts, randomly grouped around the focus of the concept map (van den Bogaart et al., in press). In the next step each group member was offered the opportunity to add or delete a concept, to clarify a concept or to explain a relation between two concepts. A discussion on the legitimacy of such an action was not allowed; only an explanation of the proposed action was allowed. If after such an explanation unanimity could be reached, the protocol did allow the action to be executed. Both construction sessions of the two group maps were audio and video taped to obtain information on the negotiation of meaning (Christiansen, 1997).

Each group map was made anonymous and sent for commentary to five experienced colleagues working in other organisations. Their commentary was discussed in the construction groups and again processed in the group maps only if unanimity was reached.

In a period of three months (due to busy time schedules, it was difficult to make appointments) the remaining ten experienced accountants and nine experienced teachers each constructed a concept map of their PPT. First each of them worked a session ($M = 52$ minutes, $SD = 11$ minutes) with BrainWeaver. A few days later they

were interviewed on their concept map by telephone ($M = 21$ minutes,

$SD = 4$ minutes).

In each domain two staff members of the regional university of applied

science from where the study was conducted and experienced in the assessments of

the intrinsic qualities of professional theories (van den Bogaart at al., submitted),

determined the intrinsic quality percentages of the nine PPTs and the local CPT. The

degrees of similarity in content and structure between the concept maps and the local

CPT were assessed by the same staff members also ($K_{accountancy} = .84$, $N = 128$,

$K_{teaching} = .83$, $N = 144$).

Results

The concept maps produced by the groups of accountants and teachers are shown in

Figures 1 and 2. To make a comparison of the two maps easier both are pruned as

explained in the method section and annotations to concepts and relations are omitted.

All members of both groups appreciated the construction process and stated that the

map expressed the main elements of their professional theory.

Group members introduced concepts and relations by means of an explanation

with one or two examples. Other members reacted on such a proposal by a

reformulation of the concept or relation or by introducing more examples, asking if

they understood the proposal well enough. In most cases this led to an insertion of a

concept, relation or annotation in the concept map.

The accountancy group disagreed on the insertion of "advice" as a sub-

concept of the concept products and services at first. In a later stage of the

construction process this item was successfully reintroduced as a sub-concept

connected to the primary concept product and services by the relation "could lead to".

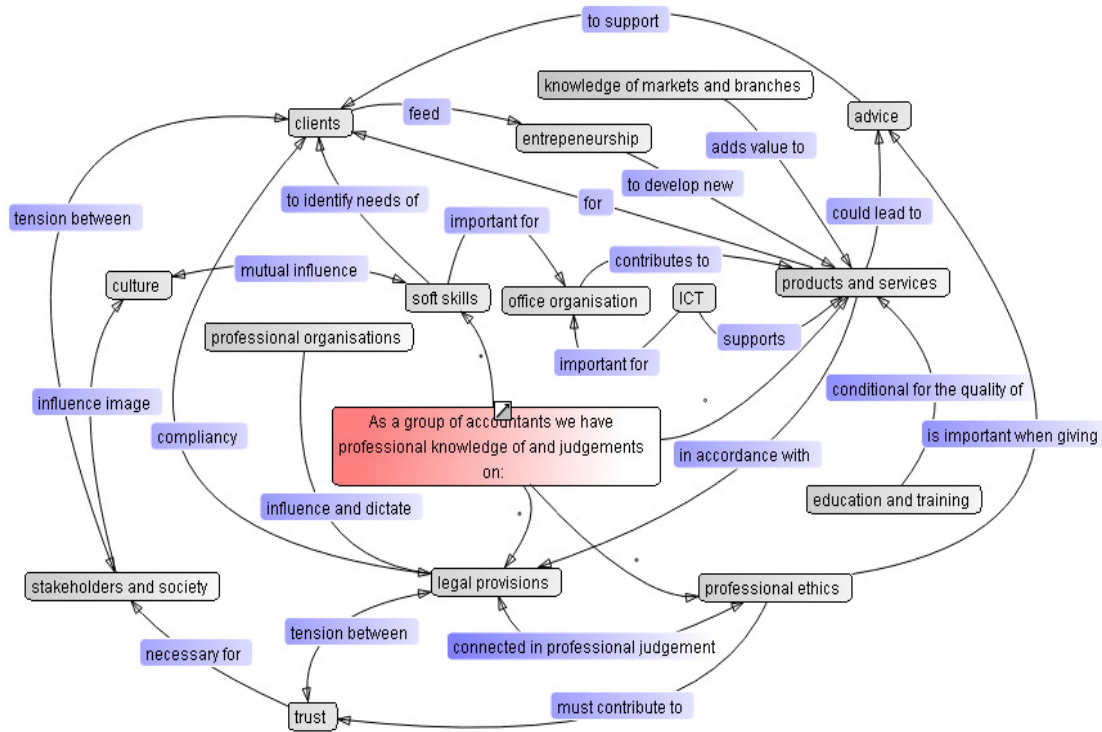In the teacher group there was discussion on the priority of the concepts language

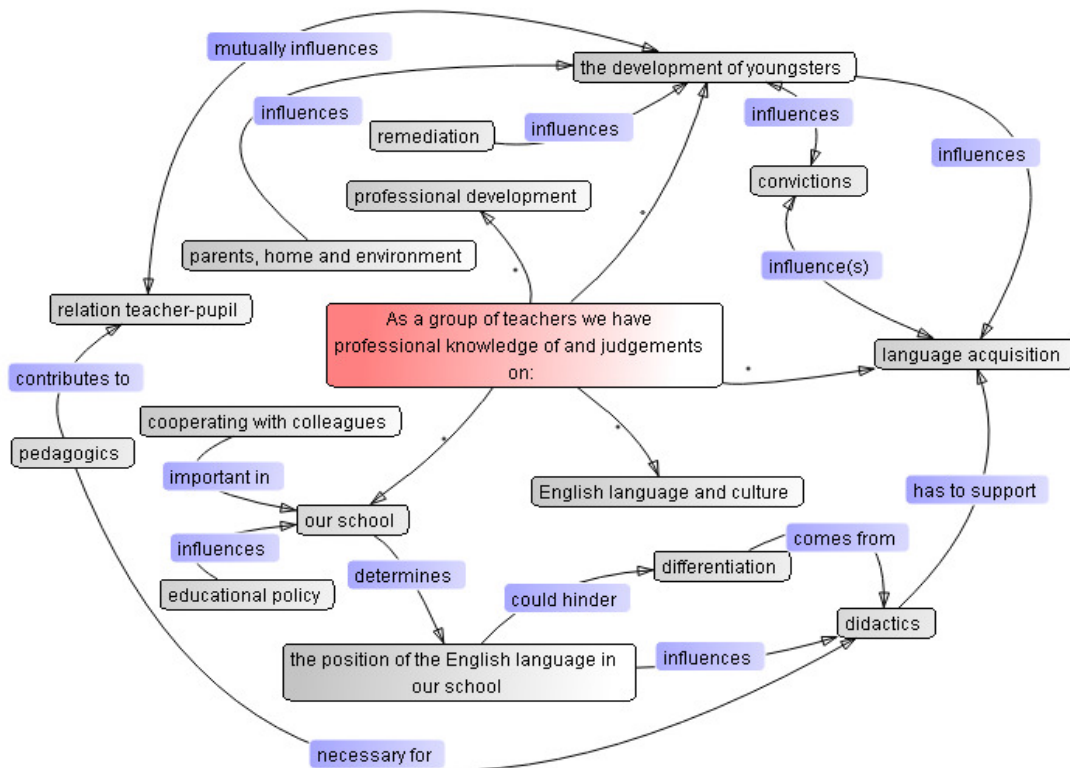*Figure 1.* The accountancy group map

Figure 2. The teaching group map

acquisition versus the development of youngsters in the construction process. In the

end both concepts were inserted as primary. The commentary on the group map of

the accountants contained one new concept (office organisation) and several

explanatory remarks. These were accepted by the construction group and inserted in

the concept map. The concept norms and values appeared in two commentaries on the

teachers' group map. This concept was not inserted because it immediately led to a

discussion about which values and norms that should be. A typical example of

professional jargon was found in the teachers' map. As an annotation to the concept

didactics the item "N+1" was inserted, which appeared to designate the zone of

proximal development according to all group members.

Before pruning, the accountants' group map contained 19 concepts and 28

relations and the teachers' group map 20 concepts and 21 relations. The average

numbers of concepts and relations in the concept maps of the PPTs of the ten

individual accountants were 15 and 14. The nine teachers produced an average of also

15 concepts and of 11 relations. The intrinsic qualities of all concept maps are shown

in Table 1.

Table 1. *The intrinsic qualities of CPTs and PPTs in accountancy and teaching*

	Accountancy		Teaching	
	CPT	*M (SD)* of PPTs	CPT	*M (SD)* of PPTs
Complexity	87	58 (15)	73	61 (8)
Concreteness	84	80 (11)	85	88 (8)
Specificity	68	77 (12)	83	79 (9)
Richness	75	69 (17)	50	64 (12)

As additional information on the intrinsic quality richness the distribution over

The distribution over the six domains of knowledge of the annotations to the concepts

in the maps is shown in Table 2.

Table 2. *The relative frequencies of the domains of knowledge*

	Accountancy		Teaching	
	CPT	*M (SD)* of PPTs	CPT	*M (SD)* of PPTs
Vocational field knowledge	22	19 (8)	1	4 (4)
Organisations	16	5 (4)	1	5 (5)
Professional environment	3	16 (8)	8	7 (5)
Target group	7	14 (6)	34	19 (7)
Technical-instrumental	41	37 (15)	49	45 (13)
Self-knowledge and development	12	9 (7)	6	19 (8)

The average similarity of content and structure between the concept maps of

the CPT and the PPTs is 56% (*SD* = 11) in accountancy, and 40% (*SD* = 6) in

teaching. An outstanding difference between the CPT and PPTs in accountancy is the

focus. According to the concept map the CPT covers both audit and non-audit

services, while PPTs usually focus only on one of these aspects depending on the

practice of its owner. The CPT of the teachers also has a broader focus then the

individual maps. This is expressed by the fact that the concept map of the CPT has

five primary concepts covering different aspects of the profession, while in the PPTs

the focus is narrower: pedagogical, stressing knowledge transmission or classroom

management, etc.

In Table 3 the Bayesian factors (Bfs) are displayed together with the H_1-

hypotheses belonging to it, for which there is positive support ($Bf \geq 3$), strong

support ($Bf \geq 12$) or very strong support ($Bf > 150$) (Jackman, 2009). For all other

H_1 there is no support ($Bf < 3$) and therefore these are omitted.

Table 3. *Bayesian factors and H₁-hypotheses*

H₁-hypothesis	*Bf*
The complexity of the accountants' PPTs differs from the CPT	134,8
The complexity of the teachers' PPTs differs from the CPT	13,9
The richness of the teachers' PPTs differs from the CPT	5,1
The content and structure of the accountants' PPT differs from the CPT	23000
The content and structure of the teachers' PPT differs from the CPT	27000
Both domains differ in the degree of resemblance in content and structure between CPT and PPTs.	25,0

Conclusion and Discussion

Regarding the first research question the *Bf* shows that the complexity of the

accountancy CPT differs from the PPTs (87 vv. 58). In the educational domain the

difference is smaller (73 vv. 61) but also strongly supported by the data. The other

intrinsic qualities do not lead to significant differences between CPTs and PPTs

except the quality richness in the educational domain (64 vv. 50). Differences in

complexity can be explained from the observation that both CPTs cover more aspects

of the profession than the PPTs do. In case of accountancy this could be a result of the

fact that the members originated from different firms with similar, but different

practices. The teachers who constructed the group map work in the same school.

Therefore, it is plausible that they have developed a CPT, which incorporates most of

their PPTs (Bryk, 1988). The difference in richness between the teachers' CPT and

the PPTs can be explained by the data in Table 2. In the PPTs there is one prominent

domain more then in the CPTs: self-knowledge and development. To know ones

weaknesses and strengths is important for teachers (Hamachek, 1999). However, such
personal knowledge cannot be part of a CPT.

Comparing the four intrinsic qualities of the PPTs in the two domains did not
result in significant differences. This is in accordance with the results stated in van
den Bogaart et al. (submitted). The biggest difference between the CPTs is the quality
richness (75 vv. 50). The explanation can again be found in Table 2: the six domains
of knowledge of the accountants' CPT are distributed more evenly than in the
teachers' CPT. Notably knowledge of the vocational field and of organisations (in
general) are almost absent in the CPT of the teachers. Whether this is a more common
phenomenon of CPTs in education is a question for further research.

Regarding the second research question, the data provide very strong support in
both domains for the hypothesis that CPTs and PPTs differ in content and structure.
This is not surprising, because individual shortcomings and even blind spots may be
compensated by a collective. There is strong support for the hypothesis that the
difference in content and structure between CPT and PPTs is larger in education than
in accountancy. This may indicate that the structure of the field of accountancy differs
from the educational field in terms of "density": professional differences between
individual (groups of) experts might on average probably be larger in education than
in accountancy. This is in accordance with the earlier provided characterisation of the
accountancy field as highly protocollised contrary to the less structured educational
field.

The two case studies probably reveal just fragments of the two fields. Although
indications of professional disputes were found, the controversy on non-audit services
in accountancy and on the prominence of the pedagogical dimension in education, it
is not clear to which degree these controversies could lead to contradicting

propositions that cannot be united in a CPT. In fact, in case of the two produced CPTs both groups found ways to capture opposite views in the group maps. The accountancy group used the relation "could lead to" to connect the non-audit service "advice" to audit services and the teacher group declared both the pedagogical and the instructional dimension as primary. It is not clear whether both choices lead to CPTs that function in practice and whether there are CPTs in both fields that represent a more distinct point of view. These are interesting questions for further research too.

Finally it is interesting to study how PPTs, CPTs and the surrounding field influence each other. This is important for vocational education and professional development as awareness of CPTs and the surrounding field in relation to one's own PPT helps to find one's place in a domain.

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