

Christiane Schnell

Proliferations and Vulnerabilities: Hybridization of Professionalism in the Field of Cancer Medicine

Abstract: In cancer medicine, particularly in drug research and development, structural changes in professionalism can be observed as examples. This field is characterized by a strong tension between social expectations concerning the control of existential risks to health, on the one hand, and strong commercial interests of a shareholder value-driven industry, on the other hand. Based on a qualitative empirical analysis, two subfields within the field of cancer medicine are reconstructed. One of these subfields—colon cancer therapy—could be interpreted as representing a renewal of the knowledge-power nexus. The pattern of the other subfield—brain tumour research—refers to a much more vulnerable professionalism. Both fields are characterized by development in professional work, which could be described with the hybridization concept. Therefore, the contrast between the two empirical examples presented still challenges the theoretical interpretation of contemporary professionalism.

Keywords: Professionalism, hybridization, medical profession, structural change, pharmaceutical industry

During an international cancer conference in the autumn of 2015, a music video was shown on screen, in which the Belgian singer Stromae broached the threat of cancer. In the black-and-white film clip, he writhed in torment while creepy claws slowly approached. It can happen to anyone; the question is solely (as asked in the song's title): Cancer—*quand c'est?* [Cancer—when will it happen?]. The much-awarded pop song elaborately conveys the perception of the disease, summarized with the term “cancer.” While modern medicine seems to have mastered the grave dangers to health in western industrial societies, cancer still poses a basic threat to life that arises from the frightening idea of a latent menace and endogenous cell growth, becoming independent in a hostile manner.

For the cancer specialists who had gathered at the conference in Vienna, this piece of pop music contained a welcome recognition of their work. The song is about human suffering and the urgent need for new medical cures and drugs to end this misery. At the same time, Stromae's impressive performance has been effective in advertising for the pharmaceutical industry, which is involved in oncological research. Thus, cancer research does not only refer to a relevant social problem and a medical challenge, but it is also a profitable business. Drugs for treating cancer are sold at high prices, but more importantly, the approval of promising active ingredients to fight cancer leads to a rapid increase in the stock prices of pharmaceutical groups.

Because of the entanglement of medical relevance and commercial importance,

Christiane Schnell,
Institute of Social
Research at the
Goethe-University
of Frankfurt,
Germany

Contact:
Christiane Schnell,
Institute of Social
Research at the
Goethe-University
of Frankfurt,
Germany
[ch.schnell@
em.uni-frankfurt.de](mailto:ch.schnell@em.uni-frankfurt.de)

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the field of cancer medicine is particularly interesting for the sociology of professions. On the one hand, aspects of structural changes in professionalism can be observed. On the other hand, the tension between social expectations and commercial interests, which characterizes this field, challenges the classic conception of professionalism, as well as more recent interpretations. Now, within the scope of this paper, I discuss the results of a study on cancer medicine. Recent interpretations of professionalism, especially the thesis of “hybridization” (Noordegraaf, 2007), theoretically lead the analysis. It describes a new mixture of the classic professionalism and (new) work requirements, which are traditionally alien to professions and result from commercial or organizational interests. Against this perception, transformation would directly be accompanied by de-professionalization and would sooner or later lead to the decline of professions. The hybridization concept supposes that professions need to evolve according to social change, and up-to-date theoretical concepts are required, which can capture these changes appropriately. Cancer medicine is suited for the purpose of this proposition. It covers experimental research, as well as the medical care of seriously ill patients, and are therefore two sources of unpredictability that resist technocratic standardization and economic calculation. Furthermore, the field of cancer medicine is also structurally changing with great dynamics. Especially, the junction of medicine and pharmaceutical industries and the related dependency on the corporate control that is oriented towards the shareholder value play a significant role.

In this article, I aim to scrutinize the hybridization phenomenon, showing that it actually characterizes professionalism’s adaptation to a changing environment. Cancer medicine is an ideal field for studying the contradictions and the variations of this development. However, as two empirical examples illustrate, hybridization can have many faces, and the ambivalence between power and vulnerability is still key to understanding contemporary professionalism.

In the following sections, I discuss the structural transformation of professions and the changes in professionalism behind this development. Next, I consider the expansion of the notion of professionalism and the thesis of hybridization as representative of recent interpretations in the sociology of professions. Regarding colon cancer and brain tumour research, hybridized manifestations of professionalism in the field of cancer medicine are then reconstructed. Within the tension between existential risks to health and shareholder value, a new knowledge-power nexus and more vulnerable professionalism are carved out. In the last section of this article, I reflect on what consequences can be derived from these observations for the theory of the sociology of professions.

Relational or substantial change?

The classic professions had successfully defended themselves against reforms for a long time. Only in the course of rebuilding the welfare state institutions during the end of the 20th century had they faced pressures to change. Especially in the European sociology of professions, the facets of this transformation (which has occurred over the last decades) have been the subjects of intense research. The theoretical approaches and concepts based on these developments are on a middle-range level and mainly systematize changes in the organization and control of professional work. On the one hand, the consequences of the so-called new public management and new governance principles have come into focus (Evetts, 2009; Langer, 2012). They have brought along requirements—especially regarding transparency and the cost efficiency of professional services—that do not correspond to the traditional model of professionalism. On the other hand, the relation between “profession” and “organization” has been reflected on in a fundamentally new manner (Muzio & Kirkpatrick, 2011). The different logics of control, as presented by Freidson (2001), are analysed in new, mixed proportions beyond the conventional patterns. For example, clinicians

have always operated within the bureaucratic structures of hospitals, but now, the novelty is that they increasingly have to accept managerial tasks, as well as organize medical services based on economic aspects.

This development has to be situated in the context of more profound changes. Questioning the institutional privileges of the classic professions not only accounts for the structural alteration of professionalism. The development and reproduction of professionalism as a resource for dealing with the core problems of society have also come under pressure, “from the outside” as debated under the keyword “de-professionalization” and in a substantial manner, too. This affects social conditions, as well as the knowledge base of professional work. The diagnosis of the transformation from the industrial to the so-called information society or knowledge society provides the socio-theoretical background for explaining this change. Although “knowledge society” might not be a sufficient term from a social theory perspective, it consequently sums up some general trends in the field of interest.

Particularly at the structural level, the transformation of the educational system in western industrial societies is essential. In the course of the generally increased access to education, the sealing off by professional elites has become more permeable, and the internal structure of professional groups has turned more heterogeneous. Professions do not solely recruit candidates from the educated classes anymore, and passing on professional roles across generations is no longer the custom. Moreover, professions experience a greater inflow from the middle class so that social homogeneity has been loosened, and competition within their respective labour markets has increased.

Another important societal transformation, which has contributed to the structural changes in professionalism, is digitalization and its corresponding access to information. Additionally, it is both directly and indirectly linked to the phenomenon of consumerism and the expansion of market-based regulations of professional services. The traditional model of professional services implied an explicit asymmetry, derived from the vulnerability of clients and the superiority of professional experts. However, it is now claimed that the devout respect for professional expertise (e.g., as expressed in the phrase “demigod in white,” referring to a medical practitioner) has been replaced by increased decision-making power of clients and consumer sovereignty. Professionals are therefore required to develop new strategies for generating trust and commitment and interacting with their clients.

The knowledge bases of professional work itself have changed as well. Considering the accelerated advancement of scientific knowledge production, Kraemer and Bittlingmeyer (2001) cite the temporalization of knowledge. This development is enhanced by an increased awareness that knowledge itself has to be grasped as a product of social construction and should, therefore, be viewed as relatively dependent on the concrete and mutable contextual conditions. Nonetheless, the instability of specific knowledge bases originating from this situation opposes the strategies of demarcation and monopolization that have traditionally been practised by the professions. Noordegraaf (2007) expresses the issue this way,

Once, things were simple. Classic professions ... were able to deliver tangible, relatively simple services with clear added value. They were able to get a rather stable grip on content and criteria.... Nowadays, such strong professionalism is hard to attain.... Which problems must be tackled, as well as which criteria must be used to judge problem-solving, is ambiguous in both technical and ethical respects.... When professional methods such as therapeutic or didactic methods are used, it is also unclear which methods are effective and which are not; it is also unclear what is effective and what is not. (pp. 769-770)

In sum, professions and the sociological analysis of professionalism are confronted with modifications in relation to social change, as well as with quite substantial challenges of professionalism. Hence, in the following sections, I focus on the field of

cancer medicine after presenting how these developments are sociologically conceptualized. As mentioned, cancer medicine is characterized by structural changes in relation to societal transformations. Furthermore, cancer medicine is characterized by the paradox of professional knowledge as being powerful and vulnerable at the same time, which might be equally important for an understanding of contemporary professionalism. It is powerful as long as it can prove its ability to solve societal problems. It is vulnerable because these problems' main attribute is that they are not completely solvable; for example, people still die from cancer. Within a constellation that could be described as "hybridized" (the subject of the next section), the inherent tension between professional power and vulnerability becomes more obvious and structurally relevant.

Hybridization and professionalism as discourse

Approaches from the sociology of professions, which take up the previously described developments in a constructive manner, emphasize the relationality of professionalism and societal development. Professionalism is thereby less defined as a distinct form of controlling labour and rather described by its embeddedness within bureaucratic structures, organizational rationalities and interdisciplinary communities of practice. Overall, between professional work and the changing contextual conditions, direct interactions can be stated. Out of the attempts at theoretical conclusions, Evetts' (2011) analysis of the discursive turn of the concept of professionalism, as well as the diagnosis of hybridization, has gained special attention (see also Gourdin & Schepers, 2011; Noordegraaf, 2007).

Evetts (2011) suggests that classic professionalism, as referring to an occupational group in the Durkheimian (Durkheim, 1993) sense of an epistemic or a moral community ("occupational professionalism"), still exists. Moreover, a cultural and symbolic extension of the idea of professionalism is assumed. The "discourse of professionalism," also described by Fournier (1999), can be interpreted as a reaction of the contemporary transformation of capitalism, which is characterized by tertiarization and facets of the emergence of knowledge societies. The "appeal of professionalism" would, therefore, serve as an ideological tool in the service sector, which indeed relies on self-governance in the Foucaultian sense but is still more or less distant from enabling an autonomous professional practice. Here, Evetts (2009) introduces the term "organizational professionalism" to characterize a type of professional practice that demands specialist knowledge and self-dependent action but decisively stays obligated to the interests of an employing company or organization.

Hybridization describes the entanglement between professionalism, on the one hand, and requirements and constraints, which traditionally lie outside the professional area of responsibility, on the other hand (Noordegraaf, 2007). This concept does not refer to the inflationary rhetorical use of the term professionalism in contexts that are only seemingly liable to professional standards; rather, hybridization refers to classic professional work that now turns out as increasingly dependent on external interests and evaluation. The emphasis of the analysis thereby lies in overcoming the classic model of professionalism, which equates the latter with an all-encompassing structural autonomy. Besides, the influence of the criticism of professionalism might have affected this interpretation. The conflict-oriented and power-sensitive debate had its starting point in the late 1970s, in reaction to the earlier relatively schematizing and rather affirmative interpretations of professions. Instead, a critical glance was cast on the monopolization of responsibilities and the ideology of professional altruism, partly by highly detailed historical studies (Johnson, 1972; Larson, 1977). The professionalization of the established occupational groups has been reconstructed as a strategy of social exclusion and collective upward mobilization, which could only be achieved at the price of depreciating, subordinating, and discriminating against other occupations (e.g., care work versus medicine). Following the interpretation that professional autocracy under the guise of autonomy

did not prove itself historically, new findings take up the structural transformation as a logical consequence of social transformation and potential advancement.

The hybridization concept does not solve the contradiction between professionalism and market constraints or organizational interests, but these contradictions are considered within contemporary professional work. Hybridized professionalism not only has to incorporate professional knowledge and the corresponding moral and ethical responsibilities, but it also has to justify its effort in an adequate and balanced manner (Brint, 2006). Instead of the “third logic” of controlling work (Freidson, 2001) that comprises closure and autonomy, professionals are integrated into organizations that require verifiable professional performance and therefore operate with more or less elaborated forms of evaluation. In contrast to the discussion in the 1990s on the crisis of professions, hybridization is not interpreted as de-professionalization but as a realistic and contemporary form of professionalism. However, professionals are trusted to cope with the modified demands. Instead of a polarized interpretation implying either “pure professionalism” or ideologically disguised subsumption, tackling ambiguities and negotiating compromises characterize hybridized professionalism in particular.

The key to dealing with the structural transformation here is perceived in an active self-contextualization, which has to be integrated into the professional self-conception. Thus, it is in the nature of professional work to handle complex, paradoxical and partly unsolvable demands. Professional *per se* is characterized by a high amount of reflexivity because theoretical knowledge can never be transferred directly in the concrete individual case but presumes a systematic setting in relation to different forms of judgement. It refers to societal or rather collective problems occurring in a most complex, individual (by situational and contextual influences) and overdetermined manner that should be processed accordingly. This attribute of professionalism is now conferred on the modified framework conditions and needs to be extended correspondingly to these newer interpretations. Therefore, professional and ethical standards not only have to be followed but often have to be explained, vindicated and made transparent. Nonetheless, it is assumed that professionals with the intellectual and the methodical resources to reflect on the manifold manifestations of societal problems in individual cases should also be able to deal with altered and possibly conflicting requirements to a certain degree.

In both approaches, the struggle for control is moved from the structural to the symbolic-cultural level. It is referred to as the rhetoric of normative control, which does not remain entirely without effect but leads to the enforcement of selected, soft and subtle standards in particular.

The importance of controlled content should not be overemphasized, as strict substantive and institutional control is hard, if not impossible, to accomplish because times are ambiguous and because professional work is inferential and experimental. Instead, it should focus on new connections between work and organizational action, and outside worlds, as well as on how these connections are made meaningful. (Noordegraaf, 2007, pp. 775-776)

This “fuzziness” also affects the relation between individual professionals and the professional community. Hybrid professionalism is characterized by “patterns of fragmented association” instead of stable and homogeneous groups (Noordegraaf, 2007, p. 781). While Evetts critically examines the use of the discourse of professionalism for strengthening corporate identities to effectively control professionals, Noordegraaf emphasizes the structuralizing potential of professional identity.

Professionalism today can therefore also be understood as “a search for ... appropriate work identities ... that can be used for coping with trade-offs between individual demands, professional claims, and organizational action” (Noordegraaf, 2007, p. 780).

Overall, these new interpretations react to the structural transformation without

abandoning the concept of professionalism. Nevertheless, the thesis of hybridization also demonstrates that professionalism has slipped into a defensive position. In the following section, I further discuss the interpretation of hybridization with regard to a field, which on the one hand is dominated by the ideal-typical profession of medicine but on the other hand, does not provide a refuge for pure professionalism by any means. Hybridization shapes the entire field and therefore enables a reconstruction of different forms of professionalism under these conditions.

In between professionalism and shareholder value—the field of cancer medicine

To examine the hybridization of professionalism, the field of cancer medicine proves itself to be particularly appropriate. I present empirical examples from a recent research project funded by the German Research Association. The study's methodological approach was based on a combination of ethnographic observations, expert interviews and in-depth interviews with doctors involved in the pharmaceutical industries' research. Observations were made basically at conferences and symposia in the field of cancer medicine. Expert interviews were conducted with medical professionals, such as researchers in tumour clinics or representatives of foundations and professional organizations. In-depth interviews, conducted as problem-centred interviews, built the core of the study. Therefore, open narrations within a thematic frame provided an inside look into the subjective intentions and the structural circumstances of the interviewees' decisions to change their positions from clinical medicine or academic research to the pharmaceutical industry.

Although cancer research is highly internationalized, the empirical study focused mainly on Germany. The observations and all interviews were transcribed. The evaluation of the empirical material followed the grounded theory approach; selected episodes were also sequentially analysed. The actors' experiences as medical managers were interpreted with regard to the biographical context and the structural developments in cancer research. Furthermore, the combination of different qualitative materials (observations and interviews with experts and medical managers) allowed reconstructing different syndromes of hybridized professionalism. I briefly discuss two of these syndromes.

Despite significant medical progress over the past decades, cancer still poses a major threat to health. The development of new medicines and diagnostic and treatment methods are proximately interlinked with the actual medical care. If therapies that have been used to date fail, medical practitioners and patients alike rely on the involvement of pharmacological studies, hoping for the success of newer substances and treatments. Cancer research is extremely laborious, costly and in Germany, financed mainly by the pharmaceutical industry. Public funding is scarce and reserved exclusively for fundamental research. The symbiotic relationship between the pharmaceutical industry and the field of medicine (Light, 1995) is particularly true for the domain of cancer research. While the pharmaceutical industry benefits from the trust in the medical profession, medicine profits from pharmacological innovations to maintain its reputation as a knowledge elite (Light, 1995). Economic relevance, on the one hand, and the importance of public health, on the other hand, coalesce into a unique *mélange* in the field of cancer medicine. If a pharmaceutical company succeeds in pushing a new active substance through the national and international regulatory bodies, its stock-market prices will be affected even before it earns revenues from the drug sales. Rumours about a promising new drug will already result in increasing market rates.

At the same time, the internal organization of the pharmaceutical industry has changed over the last two decades, especially regarding the development of active oncological ingredients. Considering certain general health risks (such as hypertension, high cholesterol levels or indications such as attention deficit

hyperactivity disorder), the industry's influence severely dominates societal perceptions of problems and medical treatment (diseases are effectively generated), whereas in the field of cancer medicine, the industry is actually much more subjected to scientific research (David, Tramontin, & Zimmel, 2009). The reciprocal dependency has been intensified by the biomedical approach, which serves as a basis for the most recent diagnostic and therapeutic achievements. While the conventional development of active substances still resembles the classic industrial value chains, the biomedical method works on a project basis and involves the kind of organization that integrates the principles of human medicine right from the start (Fuchs, 2001). Biomedical substances are rather developed theoretically, with their efficacy based on targeted precision. Therefore, the patient or rather, the molecular biological analysis and classification of the tumour, is taken as a starting point of treatment. In this context, antibody therapy, which has contributed to the promotion of disease control in certain areas of indication, can be taken as an example. To develop new active substances with this approach and succeed in their registration, entire businesses, especially start-ups with the relevant biomedical expertise, have been purchased by pharmaceutical companies (Orsenigo, Pammolli, & Riccaboni, 1999). Beyond this, the industry has intensified its efforts to recruit oncology specialists. Hence, these hired medical professionals are neither (as assumed in the past) graduates attracted by money nor practitioners who failed in clinical practice but are often very skilful and experienced specialists.

Whether cooperating within the scope of clinical studies or as the so-called medical managers in pharmaceutical companies, doctors practising in the field of cancer medicine have to be familiar with the rules of the industry, organize their research projects in an economically reasonable manner and take into account commercial interests. Professional roles oscillate between science, medical practice and managerialism and thereby intersect systematically. In other words, the historical symbiosis of the pharmaceutical industry and profession has merged into a hybridized field. Tensions and contradictions between medical and bureaucratic–commercial orientations are not cancelled, but they are not necessarily triggered by the boundary between professionalism and organization. In fact, new combinations, alliances and lines of conflict may arise. Now, based on empirical findings, different pathways within this generally hybridized constellation can be reconstructed.

Contrasting constellations of hybrid professionalism

The development cycle of a new active substance takes at least 12 years from the first laboratory attempts to approval. According to the pharmaceutical industry, the expense for every new drug is estimated at several billion euros. Hence, high drug prices in the field of cancer medicine are justified with investment costs (not with their material production costs, for instance). Although companies do profit from each successful approval, the biomedical turn in oncology entails economically ambivalent preconditions. In accordance with molecular biological diagnostics, treatments have become more target oriented, aiming at a smaller number of patients in the sense of “stratified medicine.” Therefore, diseases within the oncological complex, which have a high prevalence, are of considerably higher economic interest. Since better opportunities for financing and sophisticated research proposals are provided, the chances of securing a solid reputation in the medical profession are better in a field of high prevalence compared to research on rare or more specified health risks. Regardless of how it is objectified, successfully developing a new substance or treatment is essential for success in both professional and commercial spheres. Thus, in the arena of oncology, different constellations arise. This can be exemplified by comparing the colon cancer and the brain tumour research fields.

The indication area of colon cancer is rated as an epidemic disease (according to the German Cancer Research Center at the Helmholtz Association (DKFZ, 2016),

every seventh case of cancer is related to the intestines, with about 60,000 new diseases nationwide in 2014). Nonetheless, considerable progress has been made in colon cancer therapy over the last 10-15 years. The survival rates have risen, and the quality of life has also generally improved under treatment. Medication functions more effectively, there are fewer side effects, and the intensity of medical surgery has been reduced accordingly. At the same time, diagnostics have been refined, and the population has been sensitized towards participating in prevention programmes promoted by healthcare policies. That is why colon cancer therapy offers very high chances of success for both medicine and industry. Despite the overall increased life expectancy, the demand for oncological therapies will not decline due to the disproportionate cancer incidence in the population. Thus, it can be assumed that in the field of colon cancer, the contradiction between medical and commercial interests is evened out (at least on the surface). Medical researchers are coerced to design their research projects in accordance with commercial purposes, but professional interests meet the interests of the pharmaceutical industry to a relatively far extent.¹

In contrast, brain tumour research represents a rather marginalized field in cancer research. In 2012, only 7000 people who were newly taken ill with malignant tumours had been reported in Germany. The disease is medically challenging and rapidly leads to massive impairment of health and the quality of life. It is particularly drastic for the patients because a brain tumour affects not only the body but the whole personality. At the same time, medical interventions on the brain are risky; surgeries particularly require extraordinary precision and are inevitably life threatening. There had been therapeutic achievements in some subcategories of the indication area of brain cancer in the past; nevertheless, it is still rated as incurable in most cases.

Therefore, this field turns out to be academically and economically much less promising than that of colon cancer. The medical challenges are nonetheless extensive. Apart from the technical challenges of working on the sensitive and delicately structured brain, the psychological burden for physicians is exceptionally high due to the severe consequences of even the smallest mistakes or sloppy work. Moreover, successful interventions will probably not effectively prevent patients' suffering and death. Experimental drug therapies offer hope for therapeutic progress but still require comprehensive research. Due to the small size of the target group, the industries' commercial interest in this therapeutic area is limited. Research and development are promoted by new health policies to a certain extent, allowing simplified licensing procedures for new drugs targeting the so-called orphan diseases. However, mostly, the only reason for investing in drug development in such a small market is the application of already existing substances on diseases that have so far not been included in the drug approval.

Therefore, these two constellations within cancer medicine differ fundamentally from each other. The colon cancer constellation reflects a kind of virtuous circle, wherein the dependency on commercial interests does not seem to imply a hindrance to professionalism. A more profound empirical insight reveals that thereby, professionals have to accept compromises as well, but this does not impair their professional reputation. In comparison, brain tumour research is structurally shaped like a vicious circle. The disease is rarer yet particularly frightening since it is accompanied by much pain and an impairment of personality and is still claimed to be incurable and lethal. Although some public funding is allocated for this disease, the research relies on industry support because of the expensive patented substances in use. Compared to the colon cancer constellation, it seems less promising to build a professional career on specializing in this therapeutic area. It is also much more difficult to acquire industry sponsorship for research in this field.²

¹ Source: Interview with a clinical doctor and researcher at a regional tumour centre.

² Sources: Interviews with an expert and the chairman of a public funding committee.

Both fields are structurally characterized by hybridization and the mutual interdependence of professionalism and pharmaceutical companies. Regarding the type of professionalism arising from this constellation, contrast is revealed as well. In analogy with the depicted structural requirements, this contrast can be described in two phenomena—as the renewal of the knowledge–power nexus and as vulnerable professionalism.

A new knowledge–power nexus?

To capture the hybridization phenomenon more precisely, I explain it with an ideal–typical contrast, exemplified and fathomed by the colon cancer and the brain tumour research fields. First, I reconstruct colon cancer research as a (re-)institutionalization of hybridized professionalism.

Within the German scientific community of oncological research, the so-called working groups have been established, bringing together medical professionals and industry representatives for periodic symposia, workshops and conferences. Colon cancer research herein forms a major group, uniting reputable scientists and large companies involved in cancer research. Apparently, hybridization has reached a level of institutionalization and closure in this field; even potential internal conflicts and competitions among members will be resolved within the working group.

An empirical example involved the case of a dispute about a national study investigating a new therapy strategy. The debate focused on the treatment of patients with metastasized colon cancer by administering medication which includes different antibodies. The study had been designed as a comparative type and should have proven a new active substance's superiority over the established combination of drugs. The study effectively failed to reach its self-imposed goals, and only a subgroup of the patients participating in the study had gained advantages from the new therapy. Some of the patients even died earlier than would have been expected from the standard therapy. Nevertheless, the findings were presented as medical progress and ascertained as a new therapeutic standard.^{3,4}

The conflict culminated when the findings were supposed to be presented at an annual conference of the working group. The company that had developed the standard medication until then (thus a competitor of the particular study's sponsor) prevented the presentation of the results by an interim injunction. At that point, the working group had a controversial discussion on the proper conduct, the evaluation of the results and the adjustment of the treatment guidelines.⁵ The dispute resulted in an appeal to the ethics commission, and briefly, the pragmatic consensus among the clinical doctors involved in this study, other medical professionals and the pharmaceutical corporations became questionable. At issue was nothing less than a euphemistic portrayal of the research results and a default of scientific standards, a prestigious professor who probably made promises for obtaining sponsorship and last but not least, a competition between two major companies. Nonetheless, just a little later, the study's results were published in a positive manner, stressing the medical progress against the threat of cancer, even touted as one of the most important achievements of the year in cancer research, whereas the disputes behind the scenes remained invisible outside of the working group.⁶

³ Tumours are diagnostically differentiated by their molecular structure and therefore react unequally to the antibody treatment. For the subgroup with a better result under the new medication, this medication is now listed as standard therapy in the treatment guidelines.

⁴ Sources: Observations at a symposium; interviews with a director of a tumour clinic, a biomedicine expert and a medical manager.

⁵ Source: Observations at a symposium.

⁶ Sources: Documentation of the ethics commission evaluation; observation at a cancer medicine congress.

The important point in interpreting this phenomenon lay with the structural fastening of the connection between medical professionalism and company interests. A marketing slogan by the pharmaceutical industry—“The best medicine is research” (*Forschung ist die beste Medizin*) (Verband forschender Arzneimittelhersteller, 2011)—symbolized the legitimation of this alliance. As long as the promise to society that cancer would be fought by any means could be demonstrated by successful research, the contradictions in the relationship between profession and commerce in this field of research could be concealed.

Regarding the professional self-conception, structural hybridization seemed to come along with a discourse of pure professionalism in this field. Despite this contradictory setting, the actors tended to adhere explicitly to the ideology of traditional professionalism. The medical leader of the mentioned study, who had been criticized for withholding the negative treatment results, justified his decision by reiterating his unquestionable responsibility as a medical doctor for the well-being of his patients.⁷ Complementary to the retaining of traditional role sets, the medical managers working alongside the industry in this field also insisted on the different roles of doctors and managers. They referred to their motivation to carry medical progress forward as well but viewed themselves in the positions of communicators, leaders and organizers.⁸ Career opportunities on both sides of the cooperation between the pharmaceutical industry and the medical profession appeared very promising. The corporate careers of three of the interviewed medical managers advanced within two years. Overall, the subfield of colon cancer was characterized by hybridization but already developed a new framework that stabilized and sheltered the group from internal and external criticisms. At the same time, traditional roles were defended, at least at a discursive level.

Vulnerable professionalism

For the field of brain tumour research, no comparable establishment could be stated. Notwithstanding the German working group and regular expert meetings at the national level, international networks were more important. The case of a surgeon, who was hired by a pharmaceutical company after performing several roles in research and medical practice, illustrated how far this subfield within the arena of oncological research was also representative of the hybridization of professionalism. He was contracted to support the process of the indication extension of an antibody for a specific type of brain cancer up to the legal approval. Deeply affected by the experience that patients could not be healed from their torturous illness and confronted with the limits of standard therapies, the surgeon adopted the role of medical manager. His designated goal for accepting this position in a pharmaceutical corporation was the regular provision of this antibody for patients. He had observed improvements for patients when this drug was used in experimental therapy approaches. His new position in the pharmaceutical industry seemed to him an opportunity to apply his professional knowledge more successfully and even in a more satisfying manner.⁹

The characteristics of hybridized professionalism, as described by Noordegraaf (2007), were thereby met in an ideal manner. He engaged in the project management of the company, explained the medical backgrounds to the different decision-making bodies, worked with an interdisciplinary team, acknowledged the company’s commercial interests and reflected on his work situation as a reasonable compromise. His professional self-conception was stabilized by the subjective envisioning of limited alternatives in the fight against brain cancer and especially through a network of

⁷ Source: Observations at a symposium.

⁸ Sources: Interviews with medical managers.

⁹ Source: Interview with a medical manager.

colleagues from industrial research and from medical practice, which encouraged him to follow that direction and to try to improve the situation of the disease-ridden patients.

According to his own interpretation, the interviewee did not attain his goal. The main reason was that the company's marketing department insisted on a broader definition of the indication field. It was stated that the costs of the approval procedure would be too high for the very small scope of application planned for the drug. Not even the warnings about the risks of a further extension of the indication would bring the company's strategy on track again. The approval procedure failed. Although the company offered him a new position in another project, the surgeon returned to medical practice.¹⁰

This case reflected the hybridization of professionalism in cancer medicine, as well as in the example from the field of colon cancer. However, it showed a different pattern of hybridized professionalism. Research on active ingredients in the field of brain cancer would depend on industry sponsorship, not only for funding large studies but also in the case of experimental research because the producers should at least provide the active substances. The hiring of a brain surgeon for the project on indication extension by the pharmaceutical company and his subsequent resumption of medical practice also showed a historically new permeability of the boundaries between industry and profession.

Differing from the colon cancer research field, in which profession and industry potently merged, the constellation of brain tumour research was defined by a vulnerability of professionalism, reinforced rather than qualified by hybridization. Thus, both examples resembled each other in that the medical development tended toward the direction of minimizing the target collectives of patients, while the industry constantly bore in mind the enlargement of the sales market. Nonetheless, in the case of the actual colon cancer study, this conflict was solved behind closed doors, while the results were presented to the public as an utter success in the fight against cancer. In the other case, the indication extension of the antibody for treating brain tumours, medical expertise conflicted with the mechanisms of business management and led to the project's failure.

This case of the brain surgeon took up the core argument of classic professionalism theories in as much as the problem (the severe disease of brain cancer) guided action. In the issue at hand, it even substantiated his willingness to abandon his professional role as a medical practitioner and to adopt another, the functional role of a medical manager. Instead of the powerful aspects of professionalism, its vulnerability was revealed. The interviewee described difficult surgical interventions on the brain and mentioned that he had "screwed up people" when he was unable to remove a tumour without injuring the healthy tissue despite his extreme efforts.¹¹ The confrontation with the limits of existing therapies explained his openness to the requirements of industrial project management. On the other hand, he neither understood nor accepted technocratic thinking, particularly of his colleagues in the corporation. Thus, he came into conflict with the company's marketing division, which was not susceptible to medical arguments.

According to these observations, an ideological discourse of professionalism paradoxically appeared to apply to the prestigious professor in the field of colon cancer rather than to the brain surgeon in the role of a medical manager. While the professor rejected fallibility by referring to his undeniable professional obligation for patients' well-being, the brain surgeon turned out to be resistant to the company's internal and external ideological appeals.

¹⁰ Source: Interviews with a medical manager and a biomedicine expert.

¹¹ Source: Interview with a medical manager.

Conclusions

High hopes in new therapeutic treatments to fight the menace of cancer correspond to equally heightened profit expectations of the pharmaceutical industry concerning the development of new active substances. Patients are particularly reliant on a functioning system of medical care, but economies of scale and shareholder value also play important roles in this field of medicine. Medical professionals in this context are confronted with both interests regardless of their cooperation with the industry as clinicians and scientists or direct employment by the industry. Thus, the field of cancer medicine provides comprehensive materials to fathom the transformation of professionalism.

Cancer as a life-threatening disease reveals the paradoxes and the discrepancies that historically accompany professions, which only now, in the course of the recent structural changes, particularly come into focus. The core question, also regarding the examples discussed above, is how key problems of society can be processed appropriately, respecting scientific, technical and socio-cultural conditions. In times of accelerated knowledge production and growing complexity, one stand-alone discipline cannot achieve this anymore. Especially because knowledge can no longer be perceived as a stable good but has to be viewed as a constantly developing resource, an interdisciplinary cooperation among professions and new conceptions of professionalism are needed. Instead of monopolizing and piling knowledge, professionals are required to engage in processes of continuous knowledge creation and questioning.

However, professionalism that embraces these developments loses its hegemonic character. To express it differently, a paradox of the structural changes in professionalism is that modernization and broadening the principles of professionalism result in shrinking latitudes. This contradiction becomes particularly obvious in framework conditions, which are regulated to a high degree in a technocratic manner and are objectified by mostly quantitative criteria. Listed pharmaceutical companies not only operate under economic principles to design commercially successful developments of active substances, but economic efficiency criteria have also become independent. Thus, aiming solely at the contradiction between the different logics of profession and organization would fall short of the goal. Rather, the rise of neoliberal ideology reveals its consequences, not only for the health system but for society in general. The suspension of the sanctity of the classic professions could be understood as progress from a power-sensitive perspective, with the mono-professional way of processing increasingly complex societal questions being outdated. On the other hand, if economic quantification is set as the *ultima ratio*, as is the case with management doctrine, and is uncritically adopted as a means for increasing efficiency, experimental and qualitative approaches are at a disadvantage. Working with complicated problems (which will remain challenging and usually will not be solved without compromises) is characteristic of professional work but not very popular in a shareholder value economy based on calculable investment and a definite success. Both empirical cases illustrate that despite the actors' efforts to reach an arrangement with the industry, they cannot assert professional arguments and medical criteria against the predominance of one-dimensional economic measurements. The urgency ascribed to the development of new therapies for cancer treatment serves as a decisive legitimation for the pharmaceutical industry, but the formula of "good medicine also being good business" withholds the fact that scientific progress presupposes long-term developments and does not function with the logic of short-term, cost-benefit calculation.

What then is the lesson to learn from these empirical findings for the sociological debate on professions and professionalism? It had been a struggle for decades to overcome the historically specific, androcentric and hegemonic concept of professionalism, which seemed impervious against any modernization. Actually, fundamental changes in the arena of professional work have now taken place, and

an inflationary use of the term ‘professionalism’ has been observed, campaigning with the appeal of qualification, value and responsibility. Refusing a strict, anachronistic concept of professionalism and questioning the sketchy discourse of professionalism have made the need for new theoretical approaches obvious but nevertheless complicated. The term “hybridization” does not fill this gap but builds a bridge with an appropriate description of new requirements and structural changes in contemporary professionalism. However, as the two empirical examples show, hybridized professionalism can assume different shapes. Professionalism might maintain authority and power but also become more vulnerable. The case of colon cancer research, therefore, underlines the renewal of the professionalization phenomenon under the conditions of the economization of medicine. Industry funding now replaces the institutional shelters against the market. The existing dependencies are being disguised from the public to maintain the difference between medicine and industry, between professional expertise and economic power.

Nonetheless, criticizing opportunistic strategies to uphold status and privileges might be easier than explaining the rationale of the brain cancer example without falling back on an affirmative or a technocratic, concealed normative approach to professionalism. The brain surgeon left medical practice to engage in industrial research. He hoped to help more patients by making a new drug available. His knowledge about brain cancer, his vicarious experience of pain and death, as well as the limits of existing treatments motivated him to leave “true” professionalism for a managerial position. However, he did not succeed. Hired as a specialist to ensure the licensing process, he became an insistent admonisher within the pharmaceutical corporation. In fact, his case particularly illustrated how difficult it was to translate the true complexity of a problem into a one-dimensional concept of efficiency. Otherwise, this brain surgeon’s case would be misinterpreted as the story of a lonely hero although his marginalized position made him look like one. The rationale behind this case corresponds to the actual structure of research and development in cancer medicine. Thus, the brain surgeon’s understanding of the medical problem and his motivation to take the role of a medical manager had been developed within a collegial exchange and stabilized by professional relationships, side-lining the border between industry and medicine. Maybe this type of hybridized professionalism, in between the germ cell of a new professional project and the ignored critics of hubris and simplification, represents a phenomenon of 21st-century professionalism, which deserves further sociological investigation.

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