Interprofessional Education and Collaborative Practice in Health and Social Care: The Need for Transdisciplinary Mindsets, Instruments and Mechanisms

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Introduction

The human mind provides us with an enormous potential of creativity, but humans are prone to several limitations. One of these is the blindness for own conditions, in organizational psychology also known as organizational blindness. Because we easily adapt to the context we live in, and because our perception is rapidly habituating to recurring contextual elements, we become blind for aspects that are otherwise (by external persons) seen as inappropriate or dysfunctional, and we neglect opportunities for improvement. Another limitation is the proneness to categorize objects, notions and phenomena into distinct classes. Although we know that reality is vastly complex and that nature upholds an infinite continuity, scientists as well as laymen are focused on analyzing elements by putting them into categories.

In such contexts, the described limitations of the human mind work together: stereotyping other professions strengthens the image of the own profession and allows traditional professional identities to endure. We tend to categorize instead of seeing flexible connections. And because we are all busy people and because most politicians focus on day-to-day business instead of on broad and long-term thinking, things remain as they have been for years, even if the profiling of professions is lacking flexibility and cost-effectiveness. Regarding the latter, it is noteworthy, for example, that psychologists become certified in 4 years of study in one country, while in another country for reasons of professional status they need 6 years of study, equaling the duration of a medical education. When it comes to higher education, upholding a pragmatic stance of added value and cost-effectiveness of study programmes would need to involve more flexibility and adaptation of higher education and of institutions to evolutions and needs of modern society. But, in line with the law of Parkinson

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(1955) on multiplication of work and bureaucracy, existing mechanisms tend to endure and create conditions to reinforce and legalize their existence.

The Essence of Interprofessional Education (IPE)

Terminology used to denote learning in which different professions are engaged can be confusing. Terms used include 'common learning', 'shared learning', 'multiprofessional learning', 'transdisciplinary education' and 'interprofessional learning'. In the UK, CAIPE defined IPE as "Occasions when two or more professions learn from and about each other to improve collaboration and the quality of care" accentuating that this learning should be interactive, and thus "with, from and about each other" in order to improve collaborative practice. It was stated as clearly different from any other kind of multiprofessional education in which two or more professions or programmes study side by side for whatever reason but which does not necessarily include planned collaboration. This definition is in line with the distinction between multidisciplinary care organized on the basis of parallel but independent contributions based on specific expertise, and interdisciplinary working where close communication and complementary and mutually supportive contributions allow holistic management of the patient's needs (Hall and Weaver 2001). It has been proposed to draw together the notion of interdisciplinarity and transdisciplinarity, indicating that in interprofessional collaboration it may occur that roles and functions overlap in order to provide the best possible care (Gordon and Ward 2005).

IPE has two main elements that can be used to define its core: the nature of the activities (the process) and the expected outcomes of these activities. It is important to distinguish several factors that influence the process, and that can be labelled as presage factors (Freeth and Reeves 2004). These can determine the effectiveness of IPE, but are not essential to define it. Concerning outcomes, one could state that any kind of expected outcome that fosters the quality of interprofessional collaboration would be sufficient to label an educational activity as IPE when these activities take the form of learning with, from and about each other. IP courses can be oriented directly towards improving collaborative practice, or can aim at intermediate goals which in the long term can enhance the quality of collaborative practice. This is the case, for example, for courses that are embedded early in the curriculum, aiming at influencing perceptions and attitudes of participants, or teaching certain skills without integration into a collaborative competence or an immediate implementation in practice. These courses can serve as a basis for IP courses later in the programme, in which learning outcomes are competence-based. Still, from a quality assurance viewpoint one can argue whether those ground-laying courses should be labelled IPE without considering the (quality of the) courses later in the curriculum that build upon these.

As IPE initiatives become more widespread, and as findings of factors determining the effectiveness of IPE become substantial, expectations regarding the essentials

for a course to be labelled IPE can be based on more explicit criteria. From the viewpoint of promoting and safeguarding the quality of IPE, a viable suggestion would be to formulate a minimum threshold of learning outcome characteristics. At the end of an IP course, for example, students should be able to demonstrate their collaborative competence. This does not necessarily have to imply that students have to learn or be assessed in clinical practice but that the learning goals are at least at the behavioural level of a demonstrable integration of knowledge, skills and attitudes. In this respect, the competence-based character is included as an essential element for IPE. When a course does not meet this level of formulated outcomes, it can merely be labelled as a preparatory course for IPE. It leaves the option open to structurally embed such preparatory courses in a trajectory ending with a competence-based course, and in this context the trajectory or courses as a whole can be labelled IPE as it results finally in the acquisition of IP competences. IP competences can be manifold. Different projects have proposed sets of IP competences. In the future a consensus may grow on the competences that can be seen as minimal requirements for IP courses in health and social care. The introduction of a competence-based formulation of learning outcomes as a necessary requirement for IPE would be a good first step in that direction.

In this respect, the classification of interprofessional learning outcomes as originally developed by Kirkpatrick (1967) and modified by Barr et al. (2005, see also Hammick et al. 2007) can be useful as a common taxonomy (see Table 1). Level 3, the level of behavioural change, is a crucial one. Here, as in level 2 and 4, one could make a distinction between on the one hand the integration of skills, knowledge and attitudes that can be demonstrated and assessed in simulated situations, and on the other hand the transfer of this integrated behaviour in the professional practice (visible in the spontaneous behaviour at work or during clinical placements). The distinction is largely based on the ability to assess the degree of spontaneous application of the competence in an authentic situation. The assessment is a stronger determining factor here than the learning activity. If, for example, the student has the opportunity to participate in IP activities in clinical placements and can build upon these activities to learn but the competence is assessed in case simulations during practicals or placements, the course is not set at behavioural level 3b. Although learning and coaching activities may allow students to reach that level, in terms of quality assurance the level cannot be set as the standard as long as the behavioural change is not assessed appropriately.

Examinations are the quality check in terms of effective outcomes of the teaching and learning activities and of their goals. Goals may be set at a certain level, and activities may foster the attainment of these goals, but if assessment is not aimed at checking the goals at the right level, the course should not be qualified at this level. A chain is as strong as its weakest element.

Identifying learning activities as being IPE could also be restricted to formal activities and courses as opposed to informal or occasional learning during a course. This does not imply that informal or occasional learning about interprofessional collaboration is to be avoided. But as they are not systematically structured, it is also hard to construct quality assurance mechanisms for them. This stance would restrict

Table 1 Modified version of Kirkpatrick's (1967) outcomes model, as modified by Barr et al. (2005, see also Hammick et al. 2007). Additionally the level of behavioural change could be divided in a level comprising the acquisition of a competence in simulated conditions (3a) and in real practice (3b)

1.	Reaction	Learners' views on the learning experience and its interprofessional nature
2a.	Modification of perceptions and attitudes	Changes in reciprocal attitudes or perceptions between participant groups; changes in perception or attitudes towards the value and/or use of team approaches to caring for a specific client group
2b.	Acquisition of knowledge and skills	Including knowledge and skills linked to interprofessional collaboration
3.	Behavioural change	Identifies individuals' transfer of interprofessional learning to their practice setting and their changed professional practice
4a.	Change in organisational practice	Wider changes in the organization and delivery of care
4b.	Benefits to patients/clients	Improvements in health or wellbeing of patients/clients

the spectrum of IPE drastically. On the other hand, it might stimulate institutions to upgrade existing informal IP learning into formal learning in the curriculum while still valorising the acquisition of competences outside the formal learning. It is perfectly possible and may even be more effective to recognize and validate outcomes of informal learning once formally structured learning paths have been established. The presence of a formal IP learning path in a department entails that the learning goals are well defined, that assessment methods are well structured, and that the necessary competence for (and experience in) assessment is available in the institution. These elements facilitate the recognition and validation of competences acquired by informal learning. In short, in departments where the formal IPE is present and well-structured, the informal acquisition of competences may be better recognized.

Finally, it would be possible to limit IPE qualifications to courses or programmes on the basis of the specific learning goals. Here, the question is not whether the goals are assured to be on the appropriate level—preferably the behavioural level—but whether they include a minimum set of learning goals that are viewed to be essential for interprofessional collaboration. If, for example, the learning goals of a course are only aimed at the ability to assess which health care professions can or should be involved for a specific pathology, or to which health care worker a patient should be referred to, this invokes an important competence at the appropriate behavioural level. It is, however, not aimed at working closely together with other professionals to assess, plan and provide care. In view of the importance of collaborative practice, IP networks may see it as a task to stimulate the incorporation of this element as a direct learning outcome to be achieved in every IPE course. It entails a challenge for many existing IP courses, as the assessment of this achievement is more difficult to organize.

Expectations or minimal requirements regarding outcomes for a course to be qualified as IPE will automatically entail expectations regarding assessment and working methods in teaching and learning. It is hardly conceivable, for example, that a course aimed at developing the ability to construct a patient-centred shared care plan would be highly effective without adopting a case-based approach in teaching and learning. Also collaborative, problem-based or enquiry-based learning can be seen as important elements, in which students develop new knowledge on the basis of experience and discussion.

The Role of the Government for Collaboration Between Institutions

In some European countries, for example UK, governments have taken initiatives in the past 20 years to strengthen interprofessional collaboration. After 10 years of existence of CAIPE, at the end of the last century, its efforts were backed by the renewed UK government policy: it laid emphasis on collaboration as much between organizations as between practicing health care professionals. IPE would be developed in partnership between employers and Higher Education Institutions (HEIs), and integrated in undergraduate programmes instead of after qualification. A shift of emphasis from institutional to community-based services, and calls for a more flexible and more responsive workforce, may have resulted first in role ambiguity and tensions between professions, but were followed by IPE initiatives leading to sustained developments embedded into an increasingly favourable climate.

The workforce strategy spelt out by the UK Department of Health (2000), following the governmental plan of the National Health System, called for education and training to promote teamwork, partnership and collaboration between professions, between agencies and with patients employing a holistic approach. Following extensive consultation with stakeholders, the Quality Assurance Agency developed a set of benchmark statements describing standards of health care study programmes, of which several statements explicitly refer to interprofessional collaboration (QAA 2001, 2002, 2006, see Table 2). The following years were characterized by several projects across the country in which universities collaborated in developing interprofessional learning.

Health care institutions, councils and regulatory and professional bodies progressively have adopted interprofessional collaboration as a core element in systems of auditing or accreditation, although coordination between these bodies is patchy. The Chartered Society of Physiotherapy, for example, has included IPE in their Curriculum framework for qualifying programmes in physiotherapy. Undoubtedly, societies and networks such as the Centre for the Advancement of Interprofessional Education (CAIPE) have given an impetus to IPE in the UK. The Department of Health (England) funded four large scale projects ‘common learning sites’ in IPE in Higher Education in 2002 and a three year project 2004–7 Creating an Interprofessional Workforce (CIPW 2007). Within UK Higher Education, there has also been funding

Table 2 Benchmarking statements of the UK Quality Assurance Agency with IP implications (QAA 2001; see also appendix in Barr 2002)

Statements for health care referring to collaboration between professions in health care say that each award holder should:
Participate effectively in interprofessional and multi-agency approaches to health and social care where appropriate
Recognize professional scope of practice and make referrals where appropriate
Work, where appropriate, with other health and social care professionals and support staff and patients/clients/carers to maximize healthy outcomes
Draw upon appropriate knowledge and skills in order to make professional judgements, recognizing the limits of his/her practice
Communicate effectively with patients/clients/carers and other relevant parties when providing care
Assist other health care professionals in maximizing health outcomes
Recognize the place and contribution of his/her assessment within the total health care profile/package, through effective communication with other members of the health and social care team
Work with the client/patient (and his/her relatives/carers), group/community/population, to consider the range of activities that are appropriate/feasible/acceptable, including the possibility of referral to other members of the health and social care team and agencies
Plan care within the context of holistic health management and the contribution of others
Have effective skills in communicating information, advice, instruction and professional opinion to colleagues, patients, clients, their relatives and carers; and, where necessary, to groups of colleagues or clients

to promote good practice in IPE through the subject centres of the Higher Education Academy.

The synergy between legislative initiatives, governmental policy and societal context, and collaboration between research and educational institutions provide the most fertile soil for the instalment and advancement of interprofessional practice. Education has to follow important societal trends and needs, and vice versa. Despite signs of synergy there remain resistance and constraints. Monoprofessional education remains the norm, even where IPE has had most support. But the arguments and evidence grow in strength.

In the UK the necessity to implement IPE in higher education is since some years largely driven by governmental policy and more specifically by the Department of Health. Four national leading edge pilot sites for IPE were approved (see Barr 2007, for an overview). Throughout the country, it has resulted in different courses and programmes. One of them is the Combined Universities Interprofessional Learning Unit (CUILU), as a joint initiative between Sheffield Hallam University and the University of Sheffield.

In a survey of interprofessional education in clinical settings in South-East England (Stew 2005) it was found that IPE develops according to a variety of situational factors. Three broad models were identified: student-led sessions (with presentations

of patient case studies), clinician-led sessions (with a specialist presenting a topic followed by discussion) and tutor-led sessions aimed at interprofessional debate. IPE was found to be a commonly occurring phenomenon, but the authentic IPE according to the effectiveness criteria (Barr et al. 2005) seems to be absent in many settings. The challenge largely remains to establish an effective blended model of IPE and at the same time setting up mechanisms to assure the quality. One nice example is the Leicester Model of Interprofessional Education (Lennox and Anderson 2007).

Building upon the recommendations of the WHO-report Call upon action (2010) the European Interprofessional Practice & Education Network (EIPEN) has drawn up a Charter for IPE in Europe. Institutions endorse this charter when becoming member of the network. By signing the charter, they subscribe to its recommendations, asking political leaders, decision-makers and institutional managers in health care, professional bodies, governmental agencies, health insurance organizations, patient organizations, and educational institutions, to promote and ensure effective collaborative interprofessional practice in health and social care, following the recommendations of the new framework for interprofessional education and collaborative practice, published under the auspices of the World Health Organization. By the knowledge that interprofessional education can only be fruitful if the necessary changes are implemented in practice, the charter (see www.eipen.eu) asks that

- Professional bodies of health and social care professions explicitly formulate the necessity of competences in interprofessional collaboration being present in graduating students in health and social care professions.
- Educational and clinical institutions formulate interprofessional collaborative work as one of the main values in their mission and in their quality management policy, and support and adhere to bodies and networks that promote and/or supervise interprofessional health and social care.
- Educational institutions comply with this need by ensuring that graduates are competent in interprofessional health and social care and by ensuring that professional body representatives ratify the competence chart of their educational programmes based on the presence of interprofessional competences.
- Clinical institutions comply with this need by ensuring that staff is competent in interprofessional health and social care, by providing continuous training in this, and by allowing patient representatives and/or representatives from patient organizations to take part in the institutional policy.
- Governmental agencies focus on the compliance of clinical and educational institutions with regulations promoting and necessitating interprofessional practice and education, and support the institutions by implementing accreditation and financial mechanisms that foster this practice and education.
- Health insurance bodies, patient organizations, and supportive networks explicitly formulate the need for IPE towards the clinical and educational institutions, as well as towards the governmental agencies.

The Role of the Higher Education Landscape

The European Qualification Framework (EQF) has been developed to provide transparency in levels of education across European countries. If we focus on the EQF levels for which discussions could arise with regard to current practice of IPE, then it would imply a range between level 4 to 7 (level 4 not linked to a cycle in higher education, level 5 for short cycle higher education, level 6 for first cycle or bachelor learning outcomes, and level 7 for second cycle or master). Efforts have to be made to define as specifically as possible potential levels of IP competences or learning outcomes, and allocate these to the appropriate cycle. Students of bachelor and master programmes, and even of vocational training programmes, can share the same IP teaching and learning experiences, and still be oriented towards slightly different levels of IP competences.

In the context of IPE, some things are striking in the EQF. For example, cognitive and practical skills are mentioned explicitly, and practical skills are defined as involving manual dexterity and the use of methods, materials, tools and instruments, while social skills—essential for interprofessional practice—are not mentioned. Also, for level 5, skills are supposed to be used for the development of creative solutions to abstract problems. Problems associated with interprofessional practice usually are not abstract, but can be very complex.

It is clear that it is difficult to write down the dynamics of learning outcomes in a framework which is restricted to one-line characteristics. The use of the EQF will need, therefore, a flexibility and open-mindedness on the part of the user, instead of criticising the incompleteness. As regards IPE, we can put forward that "managing activities in contexts of unpredictable change, and review performance of work" is essential for effective collaborative practice. If we replace the ability to solve "abstract" problems by "problems with a certain degree of complexity", then one could argue to situate a typical IP competence level of a health care worker between level 5 (short cycle) and 6 (first cycle), but arguments can be formulated also to place it between level 6 (first cycle) and 7 (second cycle). It all depends on the specific formulation and the interpretation of the levels in the concrete context.

One could argue that the present EQF is primarily defined from a disciplinary scope, in which interdisciplinary issues are linked to innovation and research. In this way, it is by definition difficult to clearly identify a specific place for interprofessional education as related to clinical practice within this framework. For example, a health care worker surely needs problem-solving skills in order to develop new knowledge and procedures and to integrate knowledge from different fields, but he/she does not primarily use these skills for research and/or innovation. Likewise, a health care worker who is responsible for a team should be able to manage and transform work contexts that are complex, unpredictable and require new strategic approaches, and to take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams. But in essence, these abilities should be present also in some form in health care workers who work in team without being the team leader. This is certainly the case in IP teams where a collaboration exists

in the form of case management, in which a health care worker as a team member can assume responsibility for the care planning of a patient, and thus collaborate with others to coordinate care planning activities, while a team leader can focus on general objectives and on the management of the team meetings as such. To put it as a paradox: in some way, in some contexts, the competences with regard to this aspect may be present to a larger extent in team members as case managers than in team managers.

The issue of lifelong learning is of great importance to interprofessional education. If we conceptualize interprofessional learning as involving all kinds of health care professionals, we have to be careful not to limit IPE to the universities and HEIs. Just as students in master and bachelor programmes can interact together, so could students of vocational training programmes be included in interprofessional learning paths installed by HEIs. IP competences also can be acquired through experience in the work setting. One of the major problems, however, is that effective IP collaboration is not always present, and from lack of adequate role models to learn from, or working methods and tools to experiment with, it may be difficult to gather evidence for acquired competences.

From another perspective, it is not only important to find ways to recognize already acquired competences, but also to provide opportunities for health care workers to enrol in post-qualifying courses at graduate or postgraduate level to further develop their IP competences. In light of what I've written about enhancing flexibility in study programmes, one could state that opening doors to individuals to enrol for specific IP courses within existing study programmes may cause problems in administrative handling of the course, but may provide an enrichment for all students enrolled in the course. In clinical practice, health care workers have to deal with heterogeneity and instability in teams and with age differences and differences in the cultural background and belief systems of team members. They also have to deal with conflicts which may be connected with such differences. In order to approach the reality of clinical practice in the learning of IP competences, opening access to IP courses to a wide variety of students should not be seen as a burden but rather as an opportunity to make a course more reality-prone.

Some trends, for example the academic drift in higher education, may lead to disregarding IPE, and overlooking that a synergy of governmental, societal and educational policy is needed to implement and safeguard IPE in HEIs. This may seem to go against the expressed need for institutional autonomy in quality assurance, but it does not. The synergy relates to a legitimate demand to involve relevant stakeholders in defining professional needs for the society, especially in institutions where the core processes tend to be aligned with existing structures around traditional disciplines. An example is given in the list of specific key competences for nursing as defined by the TUNING project: most competences stress discipline-specific aspects as is natural. When it comes to IP competences, graduate nurses have to demonstrate an ability and willingness to function in a multidisciplinary setting. The challenge is to see that IPE is securely embedded in higher education programmes, and it begins with the establishment of the most appropriate objective. In this respect, an "ability

to function in a multiprofessional setting" may be regarded as a limited objective for a health and social care study programme.

The Role of Quality Assurance Mechanisms

In the future, a consensus on IP competences in accordance with the EQF, combined with a consensus on good practices in IPE, could lead to the development of quality assurance mechanisms that are complementary to external QA mechanisms. For example, an institution could apply for the certification of an IP course that is run by different academic departments. This certification could then be taken into account for accrediting a degree programme provided that IP competences are recognised as an essential component in all degree programmes in health and social care. These initiatives would fit within a model that seeks a balance between system- or institution-based accreditation and programme-based accreditation, at the same time trying to make external quality assurance mechanisms more lean and efficient.

The complex nature of IPE will demand that extra attention is paid to elements of sustainable quality management, to assure that an IP course can survive conditions that pose a threat or a risk to it. For this, tools can be developed that can be used for self-assessment and auditing purposes. Difficulties in the organization and logistics of courses as well as competing curricula demands, if not solved promptly with management support, can seriously impair the enthusiasm of teachers. From a dynamic systems perspective interaction involves more than three elements of the 3P-model (Freeth and Reeves 2004). Organizational issues may have a direct influence on the effectiveness, and also interact with learner characteristics. For example, in the case of optional IP courses, it could be assumed that the most motivated students would enrol for that course. Enrolment would also depend, however, on the constraints in time and place, and on the perceptions that students have about requirements and benefits. Age, work experience and professional orientation interact in a complex way in influencing students' views about collaborative care (Pollard et al. 2005).

Apart from establishing mechanisms of quality assurance based on the principles of total quality management in a dynamic systems perspective, mechanisms could pay special attention to aspects which have proven to be influential in the effectiveness of IP courses and the examples of good practice related to this. Evaluation studies in the 1990s reported mainly on positive outcomes in student perceptions of other professions, such as the elimination of negative stereotyping (e.g., Parsell and Bligh 1998) or potential effects on students' skills (e.g., Van der Horst et al. 1995). Reviews at the turn of the century argued for more studies of the impact of IPE on interprofessional practice and health outcomes (Zwarenstein et al. 2002) and for methodologically sound evidence to show cause and effect links between IPE and impact on patient care (Freeth et al. 2002).

A growing body of evidence, generated from systematic review work (e.g., Barr et al. 2005) has indicated that IPE can help foster a range of attributes required for effective collaboration. Over the past 10 years evidence has been generated regarding

facilitating and pivotal factors as identified in the 3P-model (e.g., Hammick et al. 2007). Published studies and shared knowledge through networks have led to the establishment of generally accepted principles for IPE. Learning is very successful when it is active, interactive, case-based (e.g., Lindquist et al. 2005) and patient centred, placing service users at the centre of learning. Practice-based learning is seen as essential and can take many forms such as observational study and experience on training wards. Practice-based learning offers greater opportunity for experiential learning, suggesting that IPE within practice enables students to develop shared responsibility more effectively (Morison et al. 2003). Teaching methods based on adult learning (Brookfield 1986; Knowles 1984) and experiential learning (Kolb 1984), facilitating students' reflections and exploiting their expectations and their practice, a comfortable learning environment, and viewing mistakes as opportunities to improve promote interprofessional learning. Any differences within an IP student team with regard to their confidence in their professional role or with regard to the mastery of IP competences is to be seen as an opportunity to learn, for example through peer observation. Learning should be very much self-directed, in which the perceived learning needs and learning preferences are in harmony with the desired learning outcomes (Barr et al. 2005).

A persistently debated issue concerns the timing of IPE in study programmes. This is linked to differing views as to whether IPE should be planned before or after uniprofessional identity has been established. On entering higher education students become professionally socialized, and in parallel with this, stereotyping of other professions may take place. Students may develop a more positive image of the role of their own profession in comparison with that of other professions. This can contribute to creating cognitive and social boundaries between professions. Good facilitation of contact between professions can reduce stereotyped perceptions, encourage more positive attitudes between professions and foster a positive attitude to enhance collaborative team working (Barnes et al. 2000).

Besides specific educational methods, elements and tools can be used that enhance the effectiveness of both IP collaborative practice and IP education. Quality assurance of IP programmes thus can depend on the elements used in that programme to reach the learning outcomes. Learning outcomes of students have to include elements of practice that have proven to enhance the quality of this practice. If a method or a tool supports the efficiency of decision-making in IP teams, then this tool—or a similar one—should be used both in practice and in training for practice. A useful tool for enhancing collaboration in care planning is a shared care planning matrix (Vyt 2008; Vyt et al. 2014). Health care workers define shared care goals, identify who is involved for each goal, and define who is responsible for each goal.

Knowledge and the explicit use of conceptual frameworks and theories is an element of good practice. Effective team-based decision-making, for example, may require appreciation of underpinning theories. A shared conceptual framework of illness may enhance dynamic interaction between participants. If a theory of illness as single-cause or sum of causes, is in use then the decision-making process is likely to involve an inventory of these causes. A more complex multiple cause theory of illness would lead to analysis of the complex interplay between factors to determine a good

way of intervention. A widely known conceptual model is the ICF framework, put forward by the World Health Organization. In this biopsychosocial model health and functioning is perceived as complex and multidimensional, and a language has been developed that enables communication about health across professional boundaries. The ICF framework is especially suited to establishing a foundation for professionals in interprofessional health care (Allan et al. 2006).

Elements and Tools for Effective Interprofessional Teamwork

To achieve effective interprofessional collaboration, health care workers not only need specific interprofessional competences but also tools and working methods. Efficient communication and information management is a major issue in this. Although modern information technology can bring us great steps forward, it cannot guarantee an efficient collaboration and an open communication. Regular personal contact between team members and team management are essential components to achieve this.

Some characteristics of well-functioning teams can be depicted (McPherson et al. 2001; Mickan and Rodger 2005). A team needs effective leadership stimulating openness and self-reflection. A team should consist of members who take up complementary roles. They should have knowledge of, and respect for, the competences and contributions of other professionals in the team, abandoning stereotyped perceptions. Effective teams can be characterized also by their search for common goals, which everybody can agree upon. They have common frameworks and tools stimulating the sharing of knowledge. Skills in communication and conflict management have to be present in every team member.

Interdisciplinary meetings foster collaboration between different disciplines. Creating opportunities for formal and informal dialogue between health care providers are important in improving interdisciplinary collaboration at least if a safe atmosphere is created for this. A safe atmosphere will for instance stimulate an open and honest communication about difficult ethical issues, hereby allowing health care providers to express their emotions and moral concerns (Ten Have et al. 2013).

When these elements are present, teamwork is well underpinned. The quality of team meetings, being a very important aspect of teamwork, can be enhanced by elements such as the preparation of documents, the presence of key persons, the availability of information, and the management of the meeting process. The team coach should structure the meeting in such a way that enough time is devoted to a shared problem definition, with exploration and analysis, before constructing an intervention strategy. Finally, a meeting should end in a clear follow-up of goals and tasks.

Instruments have been developed to measure behavioural characteristics of groups and individuals in the context of interprofessional collaboration. These instruments can be used for research purposes, and also for monitoring progress during an IP

course or for pre/post measurements. An international collection of tools is generated by the US National Centre for Interprofessional Practice and Education (www.nexusipe.org). A recently developed instrument to measure the quality of transdisciplinary team decision making is the Team Decision Making Questionnaire (TDMQ; Batorowicz and Shepherd 2008). TDMQ consists of 19 items grouped into 4 subscales: decision making, team support, learning, and developing quality services. Further validation with larger groups and different clinical fields is still needed.

To measure perceptions with regard to interdisciplinary education two types of questionnaire are in use. The Interdisciplinary Education Perception Scale (IEPS) exists in an original version (Luecht et al. 1990) and in a recently remodelled version (McFadyen et al. 2007). The questionnaire is directed to identifying the perceived characteristics of individuals about their own and other professions. The remodelled version has three subscales: competency and autonomy, the perceived need for cooperation and the perception of actual cooperation. The other questionnaire is the Readiness for Inter-professional learning Scale (RIPLS), in an original version (Parsell and Bligh 1998) and a revised version for use with undergraduate students (McFadyen et al. 2005). In the revised version, 3 of the 4 subscales (teamwork and collaboration, positive professional identity, and roles and responsibilities) show good reliability (McFadyen et al. 2006). In contrast with the IEPS, the RIPLS focuses on the perception and appreciation of collaboration, shared learning and professional roles.

A recent set of questionnaires has been developed in Belgium for use in educational as well as in clinical settings. The Interprofessional Practice and Education Quality Scales (IPEQS Vyt 2014) is to be used with the PROSE Online Diagnostics and Documenting System. A first set includes a team-oriented self-assessment by a validated 60-item questionnaire consisting of three subscales (20 items each) on aspects of interprofessional teamwork. The first subscale covers the conditions for interdisciplinary collaboration. The second covers specific aspects relating to the interdisciplinary work processes, and the third covers the individual interdisciplinary competence and mindset of the health workers. A second set includes a 40-item questionnaire for study and training programmes. Each item is rated on a five-point Likert scale, and optionally respondents can also make comments about the item. The system generates performance indexes based on summations of item scores.

For interprofessional teamwork, we need a collective code of ethics, a shared complementary responsibility, effective team coaching and coordination of care planning, and instruments which scaffold teamwork, such as shared electronic patient files. Effective goal setting and care planning is frequently hindered by a mindset of healthcare workers focused on professional identity and qualifications rather than on common goals for the patient or client system. This mindset also limits the quality of interprofessional collaboration and shared care. To counter this mindset, a planning tool can help, by making a clear differentiation between goals and actions and by clearly identifying shared goals, responsibility, task differentiation and collaboration. Also, therapists and health care workers can follow a stepwise reasoning starting with the personal factors and the context of the patient, identifying strengths and limitations, followed by seeking what we could achieve for and with the patient,

and then proposing concrete actions in which different professions can collaborate. This tool which promotes the interprofessional teamwork is the shared care plan (Vyt 2008; Vyt et al. 2014). On a matrix, for each goal the actively contributing health care workers are identified by the team. For each goal, one of the health care workers takes up the responsibility, while one of them can take up the responsibility for coordinating the shared care. The joint use of this matrix is aimed toward better involvement of team members. This method also avoids the pitfall of starting the clinical reasoning on the level of physical functions and then identifying implications on activity and participation level. This pitfall is frequently associated with a linear mode of causal thinking and narrowed vision on physical root factors.

Interprofessional Competences

Interprofessional competences are the core of interprofessional teamwork. They play key roles in several dimensions of health care work, such as corresponding and reporting, consulting, goal setting and intervention planning, care management, referral and follow-up. A framework that systematically analyses components and performance criteria of the competence is necessary for health care education as well as continuing education and training clinical professionals. A clear differentiation between the identification of essential knowledge and skills, and the definition of criteria to assess the behavioural performance of health care workers is crucial.

The umbrella competence of interprofessional collaboration encompasses the communication of ideas from the own disciplinary framework of reference towards other disciplines, the use of expertise of other disciplines and health care workers, and active and effective involvement in teams. It includes the harmonisation of own ideas and activities with those of other health care workers, and the ability to cooperate in the planning, follow-up, and evaluation of the interdisciplinary care. The interdisciplinary focus of a health care worker becomes evident in the way of analyzing situations of health problems, and in drawing up interventions and care provision.

A team member has to be able to plan activities in accordance with those of others and to anticipate problems that may arise for other health care workers. A team member needs a mindset that focuses on the possible role and information of other disciplines, while being careful not to draw conclusions to soon on the basis of partial data. An assessment of this competence is not based on the profoundness of knowledge, but on the way knowledge is used.

Providing students with experiences of interprofessional teamwork is important, but when robust assessment is lacking as a cornerstone, IPE may lead to more negative consequences than positive ones. Failing to assess interprofessional competence could imply that this is less important than other professional competencies, and means that assessment of competence is less robust.

There is a clear distinction between the notion of competences and that of learning outcomes. A multidimensional construct of professional competence has been

defined by Epstein and Hundert (2002) as "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served" (p. 226). One dimension of professional competence involves the ability to integrate multiple aspects of practice. A competence-based assessment approach is opposed to measurement techniques that assess one performance dimension rather than assessing the whole performance of the student.

While competences can generally be conceptualized as integrated clusters of knowledge and insight components, skill components and attitude components, learning outcomes are the conversion of competences into a curriculum whereby components of a competence or a competence as such can be acquired. Learning outcomes can refer to a part of a module, a module, a semester or an academic year.

The conceptualization of competence-based models of interprofessional education began in the mid-1990s. Some focus on competences common to all health care workers. Drawing on a European-wide interprofessional consultation using the Delphi research method, Engel (2001) pointed out the competences to be expected of newly qualified professionals to adapt to and participate in the management of change.

Another way of construing a framework for IP competences, is to analyze the necessary knowledge, skills and attitudes as underlying components, and develop a set of performance criteria in which one or more elements of those components are combined. This is, for example, done in the competence chart of the European Network of Physiotherapy Higher Education (ENPHE, see Ven and Vyt 2007). One competence was explicitly identified as an IP competence. The definition and clarification of the IP competence of collaboration has been formulated as "This competence encompasses the communication of ideas from the own disciplinary perspective (and frameworks of reference) towards other disciplines, making use of expertise of other disciplines and health care workers, and active/effective involvement/participation in task-oriented groups/teams. The central roles are those of health practitioner, but also advisor and colleague. The competence is important for daily collaboration within or between units, in interprofessional consultation by telephone or e-mail, in correspondence in the case of referrals, and in meetings and discussions about and with clients. The interdisciplinary focus of a physiotherapist becomes evident in the way he/she analyzes situations of health problems, interventions and care provision, and also in the way he/she talks with and about other health care workers. The competence includes the alignment of own ideas and activities to those of other health care workers, and the ability to cooperate in the planning, follow-up, and evaluation of the inter-professional care.

The competence is of importance in diverse settings, such as home care and (complex and highly specialized) hospital units. Frequently this work involves stressful and hectic situations which require swift handling, and in which conflicts may arise about the competences required. Competent practice requires attention to process and outcome, with an open attitude and sensitivity towards the perception of others. In meetings, methods for problem analysis, problem solving, and prioritization can

be used. Interdisciplinary collaboration is also expressed through active participation in (the formation of) interprofessional networks. A central aspect is also the ability to report and communicate with colleagues and other health care workers in a professional way—orally, in writing and electronically- about the demands of clients, diagnostics data, treatment goals, and data about intervention and prognosis. In situations of consultation, the physiotherapist can take up a leading role."

Because a competence is dynamic and can consist of a combination of many different elements and quality criteria, it is important that a student holds a dynamic view of the competence chart. The listed criteria are also just a limited set of examples. When students are familiar with the aims and constituent parts of a competence they ought to be able to formulate extra relevant assessment criteria. Of course, different components can also be assessed during the education. Each element in the listing can be transformed into evaluation goals.

The precise formulations of components and criteria are important, and make it possible to derive clear objectives. For example, the integration of opinions formulated by other team members, in the process of problem analysis, can be characterized as a cognitive skill which the student can demonstrate when asked. It does not mean that the student does this spontaneously. Therefore orientation towards consulting other health care workers and attending to the ideas of others should be present. And finally the student should have knowledge of working methods and work domains of the different health care professionals in order to choose or contact the appropriate persons for a consultation. This implies that the assessment of those competences in terms of evaluating whether the student shows a spontaneous integration of the knowledge, skills and attitudes, can only be done to its full extent in real-life practice or in case simulations with a high degree of authenticity. In the course, at Artevelde University College and University of Ghent the following 5 key competences were defined:

- Consult and collaborate effectively in IP teams, on the basis of knowledge of competences of health care workers
- Work out patient-centred shared care plans on the basis of information and interaction with other health care workers
- Anticipate, identify, and remediate problems in interprofessional teamwork and shared care planning
- Make appropriate referrals to other health care workers based on the knowledge of competences of health care workers
- Evaluate interprofessional communication, decision making and care planning in terms of efficiency

Also 5 handling dimensions were identified that are applicable to several competences: Consult and collaborate, Involve and stimulate colleagues, Communicate and inform, Learn and reflect, Act and advise. Each of the 5 dimensions were broken down in performance criteria linked to one or more competences. For example, in Consult and collaborate it is essential to formulate intervention goals in such a way that they can be integrated in a shared care plan, to work constructively with others

in formulating shared care goals, and to select relevant clinical data in view of shared care planning.

The identification and formulation of IP competences or capabilities has certainly resulted in a major move forward. These frameworks provide an overview of what is essential to achieve and further develop in continuous professional improvement. A teacher, facilitator or assessor can provide very specific feedback on the performance of the student on this basis.

Institutions may still refrain from establishing an IP course based on the argument that IP competences are already integrated in the learning outcomes of different courses in the programme, and that there is no need to run a separate course because of overlap. The embedding of IP competences during the whole curriculum is certainly an asset, providing opportunities for a gradual acquisition of competences and preventing the perception of interprofessional collaboration as an isolated or singular event. On the other hand, it is necessary to have a clear identifiable assessment of these competences, assuring that students have effectively acquired them. A specific course in which students are assessed explicitly on IP competences is a good way to assure this.

Conclusion

Disciplines and professions in health and social care, as in hard sciences, are not absolute but are artificially made by man, and thus bound to cultural and historical context. The science policy of today strengthens a specialisation drift within disciplines. If we put human health in the focus rather than professional identities, then a rethinking of higher education is necessary, in which a dynamic interplay should be possible between disciplines. As long as teenagers are forced to make a choice for a specific profession when enrolling in higher education, and as long as every profession will stick with his own professional code instead of creating a common deontology as a health care worker, it will be hard to overcome the traditional siloing between professions. Following the WHO framework and the European charter of EIPEN, politicians, educational leaders, and clinical institutions need to collaborate on implementing this interprofessional collaboration. A change in mindsets is needed, as well as instruments and mechanismes that underpin the interprofessional and interdisciplinary collaboration, both in science and in clinical interventions. Among these are competence frameworks and tools for assessing and fostering these competences, but also guidelines and standards for clinical paths in which different professions need to collaborate, and tools making this collaboration more effective, such as the shared care planning matrix.

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