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ON LEARNING IN THE CLINICAL ENVIRONMENT

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On learning in the clinical environment

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If I speak in the tongues of men and of angels, but have not love, I am a noisy gong or a clanging cymbal. And if I have prophetic powers, and understand all mysteries and all knowledge, and if I have all faith, so as to remove mountains, but have not love, I am nothing. If I give away all I have, and if I deliver up my body to be burned, but have not love, I gain nothing.

1 Corinthians 13:1-3

Till mamma och pappa

ABSTRACT

The clinical environment is acknowledged as an important setting for learning within healthcare professional education programmes. Learning that takes place in a setting primarily designed for work is usually referred to as *workplace learning*. Socio-cultural views on workplace learning recognise the affordances of the workplace and the engagement of individuals to interdepend in a relational manner. Invitational abilities of workplaces as well as how individuals elect to engage in workplaces thus constitute the bases for workplace learning.

The aim of the thesis was to explore workplace learning among undergraduate medical and nursing students which was performed in four consecutive studies. The thesis adopted a socio-cultural perspective on learning and employed qualitative approaches embedded in an interpretative tradition of inquiry. *Study I* explored students' experiences of clinical learning environments through individual interviews. *Studies II* and *III* analysed the interdependence between affordances and engagement by employing observations and interviews with an ethnographic approach. *Study IV* identified teaching and learning regimes in the clinical environment using observations and interviews.

For the medical students, workplace learning entailed access to a variety of activities in the role of a marginal member of healthcare. As marginal members, students needed to navigate through authentic environments, to some extent, on their own. Thus, medical students adopted an adaptive approach to workplace learning. For the nursing students, workplace learning involved being entrusted to take active part in, and hold responsibility for, patient care. As participators in practice, nursing students needed to negotiate their basic values with those of the workplaces. Nursing students hence adopted a hesitant approach to workplace learning.

Workplace learning was built upon fundamentally varying perspectives on learning in the medical and nursing context respectively. The way in which workplace learning was practiced was therefore based on the epistemological assumptions in each context. The current arrangement of medical students' workplace learning does not seem to support students' active participation in practice, in part due to the individual focus in learning. By contrast, nursing students' workplace learning entailed active participation; however, with substantial side effects due to the heavy focus on relational aspects of learning.

The thesis alluded to limitations with the influential theoretical framework of communities of practice. Instead, workplace participatory practices are suggested to reflect to the nature of workplace learning to a higher degree, not the least as student agency are adequately addressed. In line with a shift in the understanding of clinical learning environments from a measureable and stable institution towards acknowledging the social nature of learning in the clinical environment, the main message in this thesis argues for an upgrading of students as a powerful stakeholder in workplace learning; so as not to view students as consumers of clinical education.

SAMMANFATTNING

Den kliniska miljön är en erkänt viktig arena för lärande inom hälso- och sjukvårdsutbildningar. Lärande som sker i ett sammanhang ursprungligen instiftat för arbete brukar kallas *arbetsintegrerat lärande*. I ett sociokulturellt perspektiv på lärande erkänns att det finns ett relationellt beroendeförhållande mellan det som verksamheten tillhandahåller och individers engagemang. Det är alltså både verksamhetens inbjudande egenskaper och på det sätt som individer väljer att engagera sig som ligger till grund för det arbetsintegrerade lärandet.

Avhandlingen syftade till att utforska arbetsintegrerat lärande bland läkarstudenter och sjuksköterskestudenter, vilket gjordes i fyra studier. Avhandlingen hade ett sociokulturellt perspektiv på lärande och antog en kvalitativ ansats baserad i den interpretativa traditionen. *Studie I* undersökte studenters erfarenheter av den kliniska lärandemiljön genom individuella intervjuer. *Studie II* och *III* analyserade beroendeförhållandet mellan verksamhetens tillhandahållanden och individers engagemang genom observationer och intervjuer baserat på en etnografisk ansats. *Studie IV* identifierade regimer för lärande och undervisning med observationer och intervjuer.

För läkarstudenter innebar arbetsintegrerat lärande tillgång till en mängd olika aktiviteter i form av en marginell roll i hälso- och sjukvården. Till viss del fick studenterna navigera genom de autentiska miljöerna på egen hand. Läkarstudenter hade därför en adaptiv inställning till sitt arbetsintegrerade lärande. För sjuksköterskestudenter innebar arbetsintegrerat lärande att de anförtroddes att delta i, och ta ansvar för, vården av patienter. Dock medförde detta deltagande att studenterna behövde utmana sina egna värderingar i relation till arbetsplatsens. På så sätt tog sig sjuksköterskestudenterna en tveksam inställning till arbetsintegrerat lärande.

Arbetsintegrerat lärande bland läkarstudenter respektive sjuksköterskestudenter visade sig vara influerat av fundamentalt olika perspektiv på lärande. Kunskapssynen i respektive kontext verkade således påverka det sätt som det arbetsintegrerade lärandet tillämpas på. Läkarstudenters aktiva deltagande i praktiken underlättas inte av den nuvarande organisationen av deras arbetsintegrerade lärande, delvis på grund av den individuella synen på lärande. Däremot innebar sjuksköterskestudenternas arbetsintegrerade lärande att de kunde vara delaktiga i praktiken fastän detta visade sig ha nackdelar då denna kontext var genomsyrad av en relationell syn på lärande.

Avhandlingen pekade på begränsningarna med teorin Praktikgemenskaper och visar istället att Deltagande praktiker verkar vara en lämpligare teori när det gäller arbetsintegrerat lärande, inte minst eftersom students inverkan ges uppmärksamhet. Lärande i den kliniska miljön förstås inte längre som något mätbart eller som en stabil institution. Istället sätts lärandets sociala karaktär i centrum. Denna avhandling pekar därför mot en uppgradering av studenten från en konsument av klinisk utbildning till en inflytelserik aktör i det arbetsintegrerade lärandet.

LIST OF SCIENTIFIC PAPERS

The papers will be referred to by their Roman numerals.

I. **Liljedahl M**, Boman LE, Fält CP, Bolander Laksov K.
What students really learn: contrasting medical and nursing students' experiences of the clinical learning environment.
Advances in Health Sciences Education 2015;20(3), 765-779

II. **Liljedahl M**, Björck E, Ponzer S, Bolander Laksov K.
Navigating without a map: how medical students show proficiency in interacting with clinical learning environments.
Submitted

III. **Liljedahl M**, Björck E, Kalén S, Ponzer S, Bolander Laksov K.
To belong or not to belong: nursing students' interactions with clinical learning environments - an observational study.
BMC Medical Education 2016;16:197

IV. **Liljedahl M**, Björck E, Bolander Laksov K.
Workplace learning enacted: teaching and learning regimes in the clinical environment.
Manuscript

LIST OF RELATED PUBLICATIONS

i. **Liljedahl M**, Boman LE, Björck E, Bolander Laksov K.
Participation in a clinical learning environment.
The Clinical Teacher 2015;12(4), 284-5

ii. Bolander Laksov K, Boman LE, **Liljedahl M**, Björck E.
Identifying keys to success in clinical learning: a study of two interprofessional learning environments.
Journal of Interprofessional Care 2015;29(2), 156-8

CONTENTS

LIST OF ABBREVIATIONS

CLE	Clinical learning environment
CoP	Community of practice
IPE	Interprofessional education
LIC	Longitudinal integrated clerkships
WPP	Workplace participatory practices
TLR	Teaching and learning regimes

1 INTRODUCTION

Clinical environments usually serve a three-purpose function: to provide patient-safe care, to conduct clinical research and to educate future healthcare professionals. However, there might be a risk that one or two of these functions are neglected while another is prioritised. This is the experience of many people concerning clinical education. Accordingly, students have varying experiences of clinical education, a topic which has been extensively discussed for decades.

During my time as a medical student, I personally experienced various healthcare settings during the clinical rotations in the medical programme. Education caught my interest, and through the student union, I became engaged in the development and advancement of the medical programme as a student representative in decision-making bodies at Karolinska Institutet. These experiences gave me insight into the complexity that healthcare professional education and the healthcare setting, in general, entail. Oddly enough, medical practice seemed to quickly adopt research to provide evidence-based healthcare while the practice of education seemed to be based the opinions of individuals, rather than based on educational research. My desire was for medical education to be as scientifically sound as medicine, and I wanted to personally contribute to that development. I became interested in how learning happens in diverse and multifaceted clinical environments, a curiosity which served as the driving force of this thesis.

In my degree project, I found that students from different educational programmes seemed to encounter various experiences of the same clinical learning environment (CLE) (Liljedahl, Boman, Björck, & Laksov, 2015), something that appeared as a mystery to me. The interest in digging deeper into the learning environment became the starting point of this thesis. I was fortunate enough to become involved in a research group exploring learning in clinical environments, which served as my developmental space during the writing of this thesis.

2 BACKGROUND

Traditionally, learning has primarily been recognised as a feature of formal educational institutions, normally situated in universities (Tynjälä, 2008). Today, however, most healthcare professional education programmes have a substantial emphasis on clinical education. In clinical education, the intention is that students will learn the knowledge, skills and attitudes necessary for their future professional work. It is therefore deeply embedded in healthcare professional education that substantial learning takes place in clinical environments. In the medical education literature, the concept of learning has been broadened in the last decades to include activities in various settings, and the workplace has been upgraded as an important learning environment (Isba & Boor, 2011; Morris & Blaney, 2010).

This thesis concerns undergraduate students' learning in clinical environments. This background will first outline the theoretical basis of learning in workplace settings and then elucidate the socio-cultural perspective taken in this thesis. This will then be followed by an overview of how CLEs can be conceptualised as well as the rationale for conducting this research.

2.1 WORKPLACE LEARNING

Workplace learning is as old as medicine itself.

(Dornan, 2012, p. 15)

Compared to learning within a university, learning in a work-based setting, such as a clinical environment, presents other opportunities, challenges and conditions (Morris & Blaney, 2010; Tynjälä, 2008). Although medical education has been dealing with, and also investigated, learning in the clinical setting for a long time, the concept of 'workplace learning' has only recently been used in medical education (Dornan, Boshuizen, King, & Scherpbier, 2007; Mann, 2011; Teunissen, 2008).

It is argued that the interest in workplace learning arose from a discontent with formal vocational training (Hager, 2011). Despite efforts aimed at closing the gap between formal courses and clinical practice, practitioners continue to experience themselves as unprepared and insufficiently knowledgeable (Morris & Blaney, 2010). This section will serve as an overview of the theoretical basis for workplace learning and how it differs from learning in other settings.

Definition

Workplace learning refers to learning situated in a setting originally and primarily designed for practice, that is, 'work' (Tynjälä, 2008). Learning in a workplace is not limited to individuals labelled as 'learners', for example, students, but can include all individuals participating in work (Teunissen, 2015). As such, workplace learning in the broader literature is not primarily concerned with students or trainees but professionals developing practice by engaging in work activities (Malloch, Cairns, Evans, & O´Connor, 2011). Workplace

learning is sometimes referred to as ‘work-based’ (Morris & Blaney, 2010) or ‘practice-based’ (Teunissen, 2015) learning, though with similar connotations. Workplace learning might sometimes involve courses offered in collaboration between an educational institution and the workplace, and at other times, it is part of a professional’s everyday work.

The ‘workplace’ can refer to a range of matters and is not necessarily restricted to a location where an individual is employed to perform certain tasks (Cairns & Malloch, 2010). This thesis will however refer to workplace settings, usually hospitals or other healthcare services in which patient care is delivered, whereby teaching and training are undertaken and where research is occasionally performed.[1]

Theoretical basis

In its early stages, workplace learning was theorized primarily from a psychological perspective, meaning that there was a focus on what individual learners acquire in terms of knowledge and skills and the extent to which these were transferable to similar settings (Hager, 2011). Implicitly, it is here understood that required learning can be acquired in training sessions attended before entering the workplace. Learning is referred to as a ‘thing’ individuals do, and tools to support learning can be, e.g. reflection, as suggested by Schön (1983). Further, the individual’s development of, e.g. competence is placed at the centre for how learning activities are designed. Indeed, social and cultural aspects can be acknowledged as factors influencing learning; however, these factors are limited in the extent to which they serve as a backdrop for workplace learning. Workplace learning from the psychological perspective therefore highlights many similarities in terms of how learning is dealt with in formal settings (Hager, 2011). Learning is viewed as relatively simple and unproblematic and basically as an issue of acquisition.

According to Hager (2011), critiques of this cognitive discourse have argued, for example, that it underestimates the influence of contextual, social and organisational factors. The socio-cultural perspective appears to be rapidly emerging as the dominant perspective in the literature on workplace learning. The socio-cultural perspective views learning as individuals’ participation in activities whereby context is acknowledged as a significant dimension, and not simply as a background factor, in the process of learning (Hager, 2011). The perspective of individuals is seen as valid, however considered within their social, cultural and organisational contexts. The issue of transferability loses significance as knowledge is seen as more contextualised in nature. The work by Lave and Wenger (1991) on ‘communities of practice’ (CoP) and ‘legitimate peripheral participation’ is understood to have had a strong influence on this theoretical turn towards socio-cultural perspectives on workplace learning (Hager, 2011). Identifying workplaces as a CoP directs focus to relational and social aspects of the workplace and views all its members as co-constructors of knowledge (Wenger, 1998).

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[1] In Swedish, workplace would here be better translated as ‘*verksamhetbaserat*’, ‘*arbetsbaserat*’ or ‘*arbetsintegrerat’* instead of ‘*arbetsplats*’, as the latter tends to focus on the actual location rather than practice.

Moreover, learning is conceived as how novice members adopt appropriate functions. More recently, Billett (2001) has pointed to the interdependence between individual agency and workplace affordances as central to understanding workplace learning. These perspectives will be elucidated in greater detail later.

Workplaces as learning environments

Learning in the workplace is usually highly appreciated by learners (such as students); however, research has shown that the workplace as a learning environment also presents many challenges (Morris & Blaney, 2010). Learning assume second place to work as workplaces are primarily organised and oriented towards practice (Fuller & Unwin, 2011). The organisation of workplaces also makes the process of learning challenging to structure and follow, as learning can go unnoticed (Eraut, 2004). Learning in workplaces is also known to be characterised by undesirable outcomes as the impact of role models is substantial (Bleakley & Bligh, 2008). In medical education, this is seen as part of what is often referred to as the hidden curriculum (Hafferty & Franks, 1994).

Nonetheless, workplaces as learning environments also highlight some important advantages. What is learnt in a workplace setting is usually highly applicable to learners as it will be used in the same setting as it was learnt (Billett, 2002a). Also, the workplace enables the learning of knowledge and skills of a more situated and contextualised character than a formal setting is able to offer (Tynjälä, 2008). For professional education, the workplace can contribute to the development of a professional identity and vocational belongingness in ways that formal education never can (Tynjälä, 2013).

Learning in the workplace has been described as having an informal character, meaning that it takes place in contexts outside formal education and that it is embedded in activities relating to work (Eraut, 2004). Descriptions such as non-formal learning and tacit learning have also been used to depict learning outside formal educational institutions (Eraut, 2000). Central to these concepts is the notion that workplace learning is not as structured and organized as in formal education. Eraut (2000) argues that some learning might go unnoticed meaning that the effect of a certain experience will be unconscious i.e. comprising tacit knowledge. He also refers to informal learning as having an “implicit, unintended, opportunistic and unstructured” (Eraut, 2004, p. 250) character as activities are not necessarily designed for learning.

There are critiques that such descriptions are not helpful in understanding workplaces as learning environments as they connote the assumption that such learning is *ad hoc* and therefore weak (Billett, 2004). It is further argued that the process of learning cannot be assumed to look the same in workplaces as it does in formal environments (Tynjälä, 2008). Billett (2002a, 2004) argues that even though processes of learning are not always formalised, they can be highly structured and inherently pedagogical. For example, in many professions there are pathways from junior positions, to more senior ones and eventually to a leading position, although the specific requirements for each position are not written anywhere.

Moreover, Billett (2002a) argues that describing learning at work as informal simply describes the circumstances in which learning occurs rather than the nature of learning at work. Workplaces can therefore be, and often are, essential environments for learning even if they were initially designed and structured for something else, usually work.

For students under vocational training, workplace learning can be organised in a number of ways. Guile and Griffiths (2001) identified five different models of work experiences in their analysis of the relationship between work and learning within education.

- The *traditional model* simply 'launches' students into work, with supervision aimed at adapting students to work practices. The outcome of work experience is the acquisition of sufficient skills.
- The *experiential model* adds a component of reflection on experiences for the sake of making sense of experiences and achieving relevance for students. Students are thus 'briefed' to make them aware of learning and to 'record' experiences.
- The *generic model* uses work experiences for students to learn key skills and competences. There are clearly defined learning outcomes on which students are assessed. In this model, supervisors are used as facilitators managing students' activities and collecting evidence on learning through, e.g. portfolios. There is a focus on personal action plans, and the values of a certain experience are thus dependent on who is experiencing it.
- The *work process model* focues on students' holistic understanding of the work context, and a variety of workplaces are understood as contributing to students' development of knowledge and skills as transferable to other contexts. The primary focus in this model is to enable students to adjust themselves to the work context in order to become 'attuned' to work.
- *The connective model* is proposed as an alternative to compensate for the limitations of the former four models. In this model, a reflexive connection is made between formal and informal learning as well as students' conceptual development and their ability to work in different contexts. This requires educational institutions and workplaces to work closely together to create environments for learning in order to empower students to make use of work experiences in their conceptual development.

The five models can be helpful when considering how workplace learning is arranged for students. These five models hold somewhat different assumptions and conceptualisations of workplace learning, however, they are often employed simultaneously. Guile and Griffiths (2001) argue that while most contemporary vocational training uses a combination of models one to four, the fifth model can be a new approach to work experience.

So far, this chapter has demonstrated that workplaces as learning environments can be defined in various ways depending on the theoretical perspective chosen. While having previously been described as informal and unstructured, there are indications that workplaces are powerful learning environments, though in other ways than in formal settings (Billett,

2002a). In the field of medical education, the interest in workplace learning seems increasing. It is nonetheless clear that a solid theoretical base is needed to conceptualise learning in the workplace as it would otherwise be difficult to grasp and define (Tynjälä, 2013). I will now move to delineating the theoretical perspective taken in this thesis.

2.2 A SOCIO-CULTURAL PERSPECTIVE

> *Sociocultural theories make certain previously invisible things visible; newly visible problems can then be studied and newly visible solutions be implemented.*
>
> (Hodges & Kuper, 2012, p. 29)

Socio-cultural perspectives have been argued to hold great potential in informing theories concerning workplace learning (Mann, 2011). As opposed to focusing on how individual action results in an outcome, socio-cultural perspectives on learning view learning as a social act and as the process of changing and developing as a member in communities (Mann, 2011; Swanwick, 2005). Socio-cultural perspectives emerged, partly with strong influences from Russian scholars, such as Vygotsky, active in the beginning of the twentieth century (however, not available to the English-speaking population until much later), as a response to the dualistic view of human consciousness based on a stimulus-response association (Yamagata-Lynch, 2010). Socio-cultural perspectives view learning as being situated in a social world and knowledge as being constructed in interactions between individuals (Säljö, 2000).

Almost 20 years ago, Anna Sfard (1998) presented two metaphors of learning, which have since proven helpful in distinguishing the socio-cultural perspective of learning from the more psychological tradition. The traditional view of learning stems from a cognitive approach, which Sfard describes as the *acquisition metaphor* whereby learning is viewed as something that an individual acquires. What is being acquired can vary; it might be knowledge, concepts or ideas or more abstract phenomena such as sense, meaning or notions. Central to this metaphor is the notion that learning results in individuals owning and possessing knowledge that can later be applied or transferred. By contrast and based on a socio-cultural perspective, the *participation metaphor* views learning as a process of taking part in activities. Here, the context in which activities takes place, as well as individuals' interest in participation, are of significance. Moreover, membership in communities and its inherent norms and values are central to this metaphor. According to Sfard (1998), both metaphors are needed to understand and investigate learning; however, choosing one can contribute towards identifying the relevant aspects of a specific interest.

There is little doubt that the participation metaphor and, by extension, a socio-cultural perspective have gained increasing attention in educational research in the last decades, both within and outside medical education (Bleakley, 2006; Hodges & Kuper, 2012; Sfard, 1998; Swanwick, 2005). This thesis is based on a socio-cultural perspective of learning, and I shall

now outline a few theories in this genre, which have been influential in medical education research and which are also employed in different ways in this thesis.

Communities of practice

The theory of communities of practice was originally founded by Lave and Wenger (1991) and then further developed by Wenger (1998). CoP offers a way of understanding learning as sharing a passion or interest with others and establishing a community by participating in a collective practice. A CoP is defined as a set of relations whereby individuals' engagement in meaningful activities forms a community around a shared practice (Wenger, 1998). Accordingly, the boundaries of a CoP are loosely defined; a CoP can be a running team, an orchestra, a working group or even a family. Central to a CoP is the notion that membership and participation are voluntary, distinguishing CoPs from other groups such as formal working groups or an informal network (Wenger & Snyder, 2000). In that sense, CoPs are usually understood as self-governed (Snyder & Wenger, 2010). Further, newcomers in a CoP are viewed as legitimate peripheral participants who develop and learn as they increasingly become more central members in the CoP (Lave & Wenger, 1991).

A CoP is understood to be formed around three components: a mutual engagement, a joint enterprise and a shared repertoire (Wenger, 1998). The common passion and interest in the CoP enable members to have a *mutual engagement* in the community's survival and continuity. Further, a CoP is directed towards a unified goal, and the community's practice strives towards this *joint enterprise*. Lastly, and perhaps the most prominent component of a CoP, are the implicit and explicit norms, values, roles, routines and artefacts that form the community's practice – *shared repertoire*.

CoP has proven useful in investigations on learning in healthcare professional education from a socio-cultural perspective (e.g. Laksov, Mann, & Dahlgren, 2008; Lyon, 2004; Teunissen et al., 2007) as it acknowledges social aspects of human interaction that are not necessarily visible in other theories. However, as CoP has been extensively used in research, some of its limitations have also been highlighted. Based on their own research employing the CoP framework, Fuller and colleagues (2005) have pointed to four potential pitfalls in adopting CoP in research on workplace learning. First, CoP is oriented around the learning among newcomers; however, in a workplace setting, all members can be viewed as learners in some manner. Second, applying CoP might underestimate teaching activities as valuable for learning as it focuses primarily on non-formal aspects of social interaction. Third, CoP assumes that newcomers' identity is built by the community and not the other way around, although some negotiation is understood to be pursued as newcomers enter a CoP. According to Fuller et al. (2005), what newcomers bring to a community in terms of, e.g. skills and beliefs might therefore be neglected. Finally, Fuller et al. (2005) argue that CoP underestimates the significance of power and conflict in how opportunities for and barriers to learning might be experienced in a workplace. Thus, while CoP is powerful in acknowledging social aspects of learning in a community, it might neglect important aspects when it comes to workplace learning.

Workplace participatory practices

As a response to Wenger's heavy focus on the social contributions to learning, Stephen Billett has, in a number of publications over the last 15 years, developed an alternative theoretical framework to understand workplace learning. Central to his critique is the notion that CoP as a framework under-represents individuals' contributions to the possibilities and opportunities for learning (Billett, 2008). In his view, learning in the workplace is guided both by the opportunities for learning that a workplace affords and by how individuals elect to engage in activities (Billett, 2001). As such, participation in workplace activities is seen as based on a duality between the workplace and its participants, i.e. on both social and personal dimensions (Billett, 2002a, 2008). Workplace participatory practices (Figure 1) as a framework thus acknowledges how workplace affordances and individual engagement in relational interdependence guide and support workplace learning (Billett, 2001).

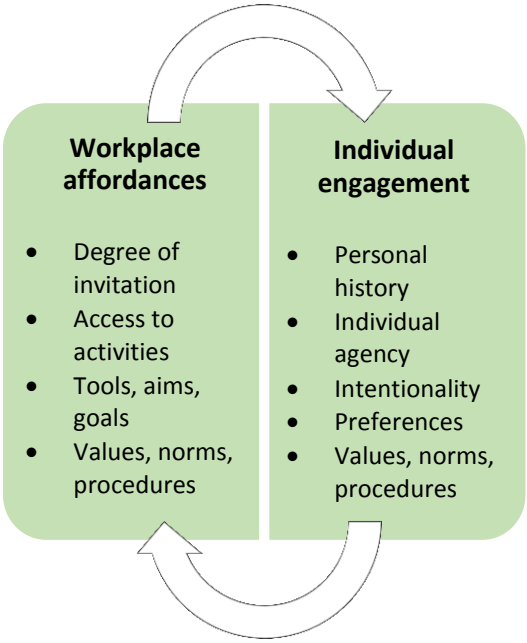

Figure 1. An overview on how workplace affordances and individual engagement interdepend according to Billett (2001, 2002a, 2002b, 2011)

Workplace affordances refer to the degree to which workplaces invite individuals to participate in the practice of the workplace (Billett, 2011). The invitational ability of workplaces are in turn guided by access to the available activities in the workplace and mediated by the tools, goals and aims as well as the values, norms and procedures situated in the history and tradition of the workplace. A workplace will consequently offer certain opportunities for learning, which are influenced by local negotiations between established members. For example, workplaces can include individuals advocating the value and contribution of students who will have high influence on co-workers. Further, a workplace might hold high standards regarding routines or practices leading to a restrictive approach to student participation. Another example relating to aims might be a workplace who do not

value learning as an aim within their practice and therefore, learners will hold a low status in the workplace.

Individual engagement, by contrast, refers to how individuals elect to engage in the afforded activities (Billett, 2011). People bring various prior experiences and personal histories when they enter a workplace which influence the way they value activities. Together with personal preferences and socially established norms, these experiences and histories shape individual agency, thus guiding their intentionality to engage in a workplace. Individual agency can also be thought of as being shaped by personal epistemologies, meaning that learners' interests form the quality of their engagement. For example, a medical student's reluctance to a career in surgery might impact the quality of his/her engagement in a surgical rotation. Likewise, staff meetings might not be values as a learning activity if students do not view themselves as member of the staff; potentially decreasing engagement from students. Another example relating to personal history can be a nursing student who during a previous placement had to argue to get access to practicing clinical procedures. He/she might in the next placement be careful to protect his/her opportunities to take part in such activities.

According to Billett (2011), workplace affordances and individual engagement depend on each other in a relational way, that is, the degree to which workplaces invite participation influences how individuals elect to engage which in turn reshapes the practice of the workplace. As such, here, workplace learning is not a feature that is 'offered' to individuals. Individuals are instead viewed as active agents in refining and reshaping practice, and workplace learning is consequently understood as a process of relational interdependence (Billett, 2004). Where a CoP is considered to socialise new members into practice, WPP acknowledges individuals' agency in shaping what is learnt and how it is learnt (Billett, 2002a). In this interdependence between workplaces and individuals, there might also be a tension regarding the goals for learning between the social practices of the workplace and those of individuals (Billett, 2002a).

As a theoretical framework, WPP is still scarcely employed in medical education research. WPP have however been suggested as an informative framework, especially in the consideration of workplace learning (Mann, 2011; Swanwick, 2005). The robustness of this framework therefore remains to be explored. References are increasingly made to WPP publications when discussing workplace learning, and there are also examples of studies conceptualising workplace learning according to WPP (e.g. Newton, Billett, & Ockerby, 2009).

Teaching and learning regimes

With an initial focus on educational development in higher education, Trowler and Cooper (2002) have introduced the concept of a *teaching and learning regime* (TLR) as a set of assumptions, rules and practices relating to teaching and learning. In their seminal paper, TLR was outlined as a way of understanding how learning and teaching are put into practice in higher education institutions. In a TLR, implicit theories and tacit assumptions of teaching

and learning form the basis of how teachers and students interact. Importantly, according to Trowler and Cooper (2002), while a CoP can sometimes be described in homogeneous terms, an underlying conflict between coexisting TLRs is assumed and even expected. Accordingly, the TLR concept adopts a social constructivist approach whereby individuals are influenced by the norms, values, practices and routines of their social community and workplace.

Trowler and Cooper (2002) outline eight components comprising a TLR. *Identities in interaction* relate to how one conceives him/herself in relation to others and in relation to teaching and learning. Identities are therefore fluid and inherently relational. *Power relations* include the notion that individuals exercise authority in relation to others by the positions they hold. *Codes of signification* refer to artefacts representing the underlying meaning given to, e.g. knowledge and activities. *Tacit assumptions* underpin the practices and rules of a TLR and include, e.g. stereotypical images of the nature of students and what constitutes a good teacher. Assumptions are taken for granted in institutions and they are therefore not really needed to negotiate or discuss as individuals who are part of that community regularly agree upon them or are simply unaware of them. *Rules of appropriateness* correspond to the implicit principles on what students and teachers can and cannot do in accordance with the tacit assumptions. On an everyday basis, individuals act according to their habitual routines in a TLR called *recurrent practices*. *Discursive repertoires* involve the phrases and words used to represent ways of thinking and understanding the world. Finally, a core component in TLRs has to do with the *implicit theories of learning and teaching* guiding individuals' way of approaching learning or teaching situations.

The concept of TLR has been used in research to explore and understand educational phenomena, primarily in the context of faculty development (e.g. Roxå, Mårtensson, & Alveteg, 2011). However, it has not been utilised as extensively in medical education. The potential benefits might however be many as clinical environments can be assumed to entail many conflicting interests. Thus, the conceptualisation of workplaces as containing various teaching and learning regimes might be an interesting perspective.

Taking a socio-cultural perspective

Adopting a socio-cultural perspective on learning in the clinical environment might enable the emergence of still perspectives not necessarily visible otherwise (Hodges & Kuper, 2012). It is also argued that compared to other theoretical perspectives, socio-cultural perspectives can more powerfully explain learning in the clinical environment (Bleakley, 2006). According to Bleakley et al. (2011a), socio-cultural theories have four main commonalities. First, they view the unit of analysis as greater than the individual, e.g. a community. Second, they assume a future-oriented and dynamic frame of learning, suggesting that learning happens through both time and space. Third, learning is understood to occur both in a social context (between humans) and in a cultural context (between humans and artefacts). Finally, learning is understood as a process of meaningful participation leading to 'being' a professional rather than to the accumulation of knowledge, skills and values (Bleakley et al., 2011a). The above-presented frameworks thus share some basic understandings of human

interaction but shed light on different aspects which may, in various ways, assist in the development of an understanding of learning in the clinical environment. Thus, while CoP can assist in understanding how students approach and become members in clinical communities, WPP can help identify tensions between workplaces' invitations and individuals' degree of engagement in clinical environments. Further, TLRs can assist in our understanding of the manner in which workplace learning is guided by underlying assumptions relating to teaching and learning. As such, taking a socio-cultural perspective on workplace learning can offer an understanding of how clinical settings work as learning environments for students.

2.3 CLINICAL LEARNING ENVIRONMENTS

> *Learning environments are increasingly identified as having an influence on those within them – just as 'good' or 'bad' teachers can affect learners' experiences, so too can learning experiences.*
>
> (Isba & Boor, 2011, p. 100)

Becoming a healthcare professional, such as a medical doctor or a nurse, includes developing knowledge, skills and attitudes as well as a professional identity (Jarvis-Selinger, Pratt, & Regehr, 2012). Not only does healthcare professional education require that students acquire all necessary knowledge, they also need to participate in communities where practice takes place (Sfard, 1998). In line with the shift towards socio-cultural perspectives, the environment in which clinical education takes place have been acknowledged as important and even crucial for student learning (Isba & Boor, 2011; Snadden, 2006; Swanwick, 2005). Consequently, CLEs have been the subject of extensive research in the last decades.

A variety of questionnaires measuring perceptions of the environment have been developed. Extensively used examples include the Postgraduate Hospital Educational Environment Measure developed for medical students (Roff, McAleer, & Skinner, 2005) and the Clinical Learning Environment and Supervision developed for nursing students (Dunn & Burnett, 1995). More recently, Strand and colleagues (2013) developed and validated an instrument in the Swedish context called the Undergraduate Clinical Education Environment Measure.

In these questionnaires, CLEs usually refer to a group of aspects that are thought of as influencing learning as well as learning experiences. Generally, a distinction is made between the physical environment and the social environment whereby the latter is sometimes described as an 'atmosphere' (Isba & Boor, 2011) or 'climate' (Genn, 2001). The origin of these concepts and their connotations has recently been delineated (Palmgren, 2016). Palmgren (2016) argues that while often used interchangeably, different concepts (such as environment, climate and culture) bring with them various theoretical and methodological assumptions.

In line with the social nature of workplace learning outlined in this background, and the socio-cultural perspective taken in this thesis, learning environments here refer to cultural features of the educational environment that direct to or influence learning. 'Culture' refers to deeply shared values, beliefs and assumptions (Denison, 1996; Schein, 1990) and is as such acknowledged in the socio-cultural perspective taken. Clinical learning environments are here therefore viewed as a dynamic situation-dependent interaction between individuals rather than a stable institution.

Clinical learning environments of medical students

When asked to evaluate CLEs, medical students generally rate the learning climate as positive (Edgren, Haffling, Jakobsson, McAleer, & Danielsen, 2010; Miles & Leinster, 2007). They seem to learn through participation in practice, being supported in an affective, pedagogic and organisational way (Dornan et al., 2014). Supervision has long been understood to be of the highest influence for both learning and the learning experience (e.g. van der Zwet et al., 2010). Boor et al. (2008) have shown how a favourable learning environment was created when supervisors adopted an expansive approach to participation – that is, the supervisors promoted participation while learners held a high status.

The growing body of research addressing how medical students perceive and experience CLEs points to some of the current challenges in clinical education. Being a newcomer and a learner in the clinical setting may involve feelings of being 'in the way' (Seabrook, 2004), being mistreated (Benbassat, 2013) and experiencing clerkship fatigue (Boor et al., 2008). The emphasis and reliance on physicians as role models might provide students with not only good examples but also poor ones (Bleakley & Bligh, 2008; Lempp & Seale, 2004). There are also examples of 'teaching by humiliation' (Lempp & Seale, 2004). These features of the CLE can be understood as hindrance to participation, and as shown in the study by Boor et al. (2008), a restrictive approach to participation has been connected to the perception of a poorer learning climate.

Clinical learning environments of nursing students

The CLEs of nursing students have been extensively explored, highlighting the importance of a close collaboration between supervisors and university teachers (Papp, Markkanen, & von Bonsdorff, 2003). Additionally, the relationship with the supervisor has been shown to be as important as it is sometimes challenging (Levett-Jones, Lathlean, Higgins, & McMillan, 2009), and one study found the relationship with nursing staff to be the most influential factor within the CLE (Dunn & Hansford, 1997). Nursing students want to feel appreciated and supported, further emphasising the need for high-quality mentoring while at the same time taking responsibility for getting the most out of their experiences (Papp et al., 2003).

Nursing students view their experience of belongingness to the workplace as important for their opportunities for learning (Levett-Jones & Lathlean, 2008; Manninen, Henriksson, Scheja, & Silén, 2013). Belongingness in this context refers to the experience of being accepted and included in a group, connected with that group and experiencing that one's

values are in harmony with those of the group (Levett-Jones & Lathlean, 2008). In Manninen et al. (2013), students reported that the experience of belongingness to the ward was connected to them being entrusted to care for patients, which in turn enabled them to experience authenticity in their learning.

2.4 RATIONALE

The significance of CLEs for learning and the learning experience is well established in the literature, and students' perceptions of the environment have been previously addressed in research. A previous study indicated that medical and nursing students held different experiences of CLEs (Liljedahl et al., 2015), and therefore, to further research learning in these two groups of students seemed needed. Additionally, there are many calls to advance the knowledge on the nature of workplace learning in a healthcare setting.

First, there seems to be a lack of attention on socio-cultural aspects of workplace learning (Bleakley, 2006; Helmich & Dornan, 2012; Swanwick, 2005; van den Eertwegh, van Dulmen, van Dalen, Scherpbier, & van der Vleuten, 2013). Second, there is a need to go beyond student satisfaction to the exploration of educational practices (Bleakley, Bligh, & Browne, 2011b), suggesting the need for research from other perspectives than individuals' own perceptions and experiences. Finally, most scientific inquiries (except for the field of interprofessional education) involve only a single profession aggravating comparisons between adjacent professional educational practices.

Together, this indicates the need to further explore workplace learning with a sound and relevant theoretical framework acknowledging the social nature of learning in the clinical environment. Such an exploration would have the potential to examine the nature of learning in the clinical environment more thoroughly than previous dominant discourses in medical education research (Bleakley, 2006). A deeper understanding of learning in the clinical environment would not only be beneficial in the consideration of the practice of clinical education; it could also be helpful in the further development of theories concerning workplace learning within medical education.

For clarity, 'workplace learning' is here understood as the phenomenon under study and relates to the nature of learning in work-based settings. By contrast, 'CLEs' are viewed as one way in which workplace learning is made visible in clinical environments. Further, 'setting' refers to the actual location where learning takes place, with the concept of the 'context' also including social and organisational dimensions. Henceforth, I will use the term 'medical context' when referring to medical students' CLEs and 'nursing context' when referring to nursing students' CLEs.

3 AIM

The overall aim of this thesis was to explore workplace learning among undergraduate medical and nursing students. Specifically, the aims and research questions were posed as follows:

- To explore medical and nursing students' experiences of the clinical learning environment from a sociocultural perspective **(Study I)**
- To explore the interdependence between workplace affordances and individual engagement in clinical learning environments **(Studies II and III)**
    - How are medical students influenced in their interactions with clinical learning environments?
    - How are nursing students influenced in their interactions with clinical learning environments?
- To explore practices of workplace learning in the medical and nursing contexts **(Study IV)**
    - What teaching and learning regimes can be found in the medical and nursing contexts?

4 METHODS

Qualitative methodologies and methods are complex structures in-and-of themselves.

(Varpio, Martimianakis, & Mylopoulos, 2015, p. 245)

The choice of method in any research should preferably be guided by the problem, aim and research questions in focus (Creswell, 2012). Even so, methodological choices relating to the paths as well as the methods applied are often determined on a more practical level, meaning that, e.g. researchers' previous knowledge and expertise as well as the data available for collection regulate the way in which a research project develops (Patton, 2002).

An overview of the methodological and theoretical perspectives employed in this thesis is presented in Figure 2. The philosophical positioning and research design are visible in the top part while the theoretical positioning is presented in the low part. The shape of an hourglass here symbolises that the methodological and theoretical perspectives are interconnected vessels as the research design is dependent on them both. Further, an hourglass can be flipped and twisted; however, it is difficult to add or remove contents. In the ensuing chapter, I will describe how the current research project was developed and how the research questions were addressed methodologically in the thesis.

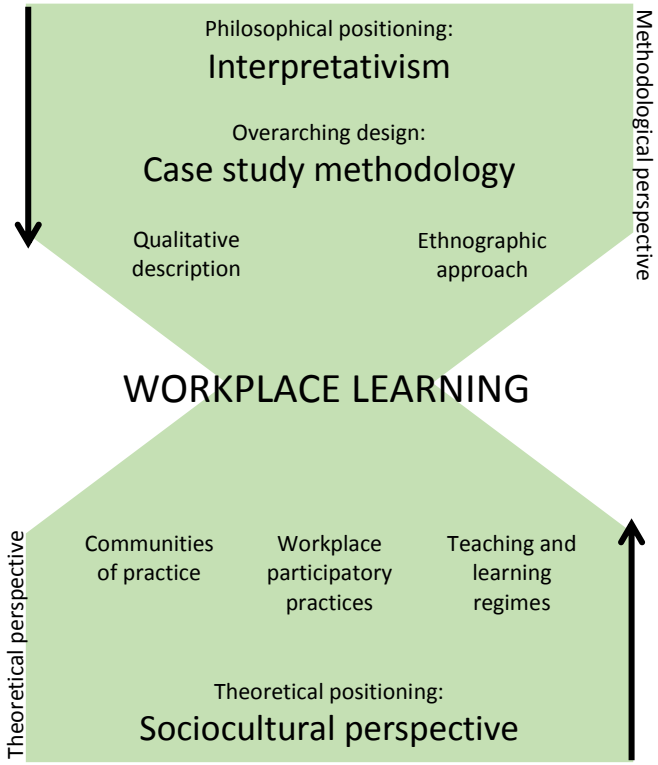

Figure 2. An overview of the methodological and theoretical perspectives taken in this thesis

4.1 PHILOSOPHICAL POSITIONING

Thomas Kuhn (1970) first introduced the concept of scientific paradigms in the 1970s. A paradigm can be understood to comprise a set of ontological and epistemological assumptions guiding a scientific field or an individual researcher. In the medical research field, positivist and post-positivist paradigms have historically been dominant; therefore the field has been seeking to uncover reality through objective and rigorous empirical research (Guba & Lincoln, 1994). If possible, medical research will usually perform randomised controlled trials to confirm or falsify hypotheses. In cases where this is not possible, research in these paradigms can undertake alternative approaches, and instead, results can be interpreted in light of, e.g. potential bias and confounders. As such, positivist paradigms apply the ontological assumption of a realist, meaning that it is assumed that a particular reality exists and, hence, can be investigated to establish 'truths'. Epistemologically, positivist paradigms adopt the imagination of dualism and objectivism, that is, the researcher needs to distance him/herself from the research so as not to influence the findings.

Conversely, the interpretative (also called constructivist) paradigm views the world as relative and locally constructed, suggesting that it is possible for several different realities to co-exist (Guba & Lincoln, 1994; Lincoln, Lynham, & Guba, 2011). Epistemologically, researchers within the interpretative paradigm apply the role of a co-constructor and thus engage with phenomena and participants to create knowledge and findings together with them. In practice, this can be performed in different ways. Some researchers view themselves as an instrument for collecting data, e.g. when performing interviews. Others can invite participants to actively engage in the study, including as co-authors. A commonality among researchers within the interpretative paradigm is that they are focused on what makes sense (Preissle, 2006); thus, the research process seeks to describe the world in an understandable way.

Boldly stated, quantitative methods dominate positivist and post-positivist paradigms while qualitative methods are more commonly found in interpretative paradigms. Further, while some fields, such as that of medicine, have for long almost exclusively engaged with quantitative methods, others such as the social sciences have utilised a combination of quantitative and qualitative methods, although dominated by the former. Within the social sciences, however, there has been an explosion in recent years of alternative approaches, including interpretative approaches (Lincoln et al., 2011). Scholars with an interest in non-positivist approaches consistently seek to contribute to scientific understanding with more than statistics.

Although as an undergraduate student I was initially educated within the post-positivist tradition, I have in this thesis taken an interpretative stance. This means that this thesis does not claim to uncover any undiscovered truth existing in the world. Rather, the attempt is to describe aspects of a contextual reality in a way that makes sense. Reasonably, there are alternative descriptions and the strengths and contribution of this research are hence not the general aspects but instead the specific aspects brought forward (Creswell, 2012).

In line with the interpretative orientation, this thesis took a qualitative approach to inquiry (Lincoln et al., 2011). The intention was hence not to measure, assess or evaluate workplace learning but to provide an in-depth and thick description of some ways in which workplace learning are constituted. A qualitative approach was also in line with the theoretical perspective on workplace learning taken in the thesis. Depending on the theoretical framework employed in each study, various qualitative methods were deemed appropriate. Therefore, this research project was, to a high degree, methodologically guided by the research questions posed in each study (Lingard & Kennedy, 2010). I view this research as an exploration of how workplace learning and CLEs *might* be described. The potential usefulness of this research lies within the possibilities for people to make sense of these descriptions (Preissle, 2006).

4.2 RESEARCH DESIGN

In line with the interpretative stance taken, the overarching research design in this thesis was guided by the case study methodology as outlined by Yin (2014). Case study methodology is employed within various traditions of qualitative research, usually used to provide an in-depth description of one or a few cases (Creswell, 2012). Specifically, it is helpful when the boundary between the phenomenon of interest and the context of that phenomenon is difficult to define as it holds the case in focus as a unit of analysis, rather than as predefined static phenomenon (Yin, 2014). Therefore, the case study methodology was well in line with the conceptualisation of CLEs employed here. In particular, the two contexts (medicine and nursing) can be viewed as two cases illustrating how workplace learning can be utilised.

Table 1. A schematic overview of the research design, including focus of inquiry, theoretical frameworks applied, and the setting, data and analysis in each study

Study	Focus of inquiry	Research design	Theoretical framework	Setting	Data	Analysis
I	Students' experiences of the clinical learning environment	Qualitative description	Communities of Practice	Medical and nursing programme at Karolinska Institutet	15 in-depth interviews	Inductive content analysis
II	Medical students interactions with clinical learning environments	Observational studies with an ethnograpic approach	Workplace Participatory Practices	Three clinical departments at academic hospitals in Stockholm (sites)	70 hours of observation; eight follow-up interviews	Inductive thematic analysis
III	Medical students interactions with clinical learning environments				55 hours of observation; ten follow-up interviews	
IV	Practices of workplace learning		Teaching and Learning Regimes		135 hours of observation; 16 follow-up interviews	Deductive thematic analysis

In this thesis, workplace learning among medical and nursing students was explored within four autonomous studies (Table 1). Students' experiences of the clinical learning environment were explored in *Study I*. *Studies II* and *III* were observational studies and explored interactions within CLEs. Finally, *Study IV* was an observational study exploring practices of workplace learning. As such, the four studies contributed with different but complementary perspectives on workplace learning. The studies were consecutive, meaning that the findings of *Study I* guided the design and theoretical approach of *Studies II* and *III* which in turn served as inspiration for *Study IV*.

Qualitative description

A qualitative approach to inquiry was a natural choice in *Study I* as human experiences were being explored (Creswell, 2012). There was also a dearth of qualitative studies performed in this specific setting. Although not described as such in the paper, *Study I* can be considered as employing the research design of qualitative description, which is especially beneficial when researchers search to describe a phenomenon in everyday terms which are familiar to participants (Sandelowski, 2000). The findings are therefore reported close to the data; accordingly, theoretical frameworks are not usually applied. It does not, however, mean that all interpretation is abandoned (Sandelowski, 2010). Rather, as every research effort is an aspiration to interpret and understand the surrounding world, qualitative description attempts to interpret phenomena, although on the participants own terms (Varpio et al., 2015). In line with qualitative description, *Study I* was therefore designed to describe the CLE of students in an open-minded fashion and without pre-set ideas regarding what the CLE entailed for students.

Sandelowski (2010) argues that researchers tend to lean towards and are influenced by some theory, although not always explicitly stated. In *Study I*, the CoP framework (Wenger, 1998) worked as a way of framing the phenomenon under study. CoP was also used to reflect on and understand the findings. Nevertheless, the study held an inductive approach, and the findings emerged from and close to the data (Graneheim & Lundman, 2004).

Ethnographic approach

In the final stages of *Study I*, an interest arose to understand how students' experiences were manifested in clinical environments. The subsequent studies were therefore of an observational nature taking an ethnographic approach.

As a modern and established research approach, ethnography is used to explore social settings and processes (Atkinson & Pugsley, 2005; Hammersley & Atkinson, 2007). Rather than being understood as a tool for data collection or analysis, ethnography is seen as a research approach comprising a set of assumptions and underpinnings (Atkinson & Pugsley, 2005). The unit of analysis is usually a culture-sharing group of people (Creswell, 2012), e.g. a people, a class, a workgroup or a family. According to Atkinson and Pugsley (2005), ethnographic research assumes, among other things, that social action is meaningful, influenced by contextual factors and highly tacit in terms of how people get to know what

actions are accepted or not. Importantly, ethnographic studies strive to explore, describe and understand the ordinary; things and processes that are part of people's everyday life (Atkinson & Pugsley, 2005). Put differently, ethnographic studies aim to 'get inside' how a group of people view the world (Reeves, Peller, Goldman, & Kitto, 2013). In line with ethnography, *Studies II–IV* were designed as observational studies exploring how the process of learning are manifested in CLEs.

The concept of workplace participatory practices as outlined by Billett (2001) was used as a theoretical framework for *Studies II* and *III*. This theoretical framework guided the way in which the phenomenon was understood and the manner in which the research process was undertaken, e.g. both students and supervisors were included as informants. However, the analytical process was performed without any theoretical framework as a lens for analysis and instead opted for inductively searching for findings to emerge from data.

By contrast, *Study IV*, used the concept of teaching and learning regimes, as outlined by Trowler and Cooper (2002), as a theoretical framework in the analytical process. The data was therefore analysed deductively in line with the aspects comprising TLR.

4.3 SETTING AND SELECTION

This thesis was set within the clinical education of undergraduate medical and nursing students in Stockholm, Sweden. An overview of the medical and nursing programmes in Sweden are presented in Table 2.

Table 2. An overview of the medical and nursing programmes in Sweden

Feature	Medical programmes	Nursing programmes
Duration	5.5 Years	3 Years
Degree	Master's	Bachelor's
Outcomes for the degree according to The Higher Education Ordinance[2]	*The student shall demonstrate the knowledge and skills required for medical practice and to complete the foundations years (AT) required for registration as a physician*	*The student shall demonstrate the knowledge and skills required for registration as a nurse*
Additional training	1.5 years of foundation (internship) 5 (or more) years of residency	Specialist programmes (e.g. intensive care, midwifery)
Design of clinical education	Early clinical attachment (year 1-2) Clinical rotations (year 3–6)	Clinical placements (year 1–3)
Organisation of clinical education	Integrated in clinical courses (intertwined with theoretical education)offered by the university in clinical departments	Separate courses (between theoretical courses) offered by clinical departments in collaboration with universities
Assessment of clinical education	Attendance at rotations; theoretical and clinical exams at the end of each course	Assessment of placements; theoretical and clinical exams for courses offered by the universities

[2] Högskoleförordningen 1993:100, avaliable in English at www.uhr.se

Medical and nursing programmes in Stockholm

In Stockholm, the medical programme is offered by Karolinska Institutet (KI), a single-faculty medical university. The 5.5-year programme lead to a master's degree in medicine and is followed by a 1.5-year internship. The medical programme at KI has a traditional curriculum with a preclinical as well as a clinical phase, although with some early clinical attachment (Nilsson, Josephson, Kiessling, Bexelius, & Ponzer, 2009). In the clinical phase, courses are offered by clinical departments within the university at the hospitals and at primary care settings where theoretical education is mixed with clinical rotations. Rotations in each clinic last for two to twelve weeks. During these rotations, students are assigned a ward, out-patient clinical, surgical or emergency department for a period of time that could last between two hours to 21 days. Clinical rotations are assessed by theoretical and clinical exams. Clinical exams are usually designed as some variant of an Objective Structured Clinical Examination and are taken at the end of each semester. During rotations, the requirement of students is usually attendance only.

Nursing programmes are offered by four educational institutions in Stockholm; KI, Sophiahemmet University, Ersta Sköndal University College and The Swedish Red Cross University Collage. The three-year programmes lead to a registration as a nurse and a bachelor's degree in nursing and combine theoretical courses with clinical placements, approximately 50% each. Theoretical courses are run exclusively at the universities while clinical placements are undertaken within hospitals and primary care settings. Clinical placements last approximately two to eight weeks, and students are usually assigned to a single ward for the entire placement. Clinical placements are examined by a teacher from the university in collaboration with a clinical teacher and the supervisor. Clinical exams also constitute a component of the programmes. Each clinical ward decides on how supervision is organised meaning that some wards have a traditional supervisory model while others have adopted a model whereby the student has several supervisors. There are also examples (Manninen, 2014) of clinical education wards.

For both medical and nursing students, clinical education is undertaken at hospitals and primary care settings all over Stockholm. Most hospitals have substantial academic affiliations, meaning that the universities' clinical departments are situated within the hospitals and employees hold responsibility within the hospital and the university simultaneously. More recently, a few primary care units have also been awarded academic affiliations in order to increase research and educational intensiveness.

Selection in Study I

Study I was set within the medical and nursing programme at KI. As students' experiences of clinical placements were explored, students with substantial experience were deliberatively sought for. Therefore, students in the later stages of the programmes were invited, and the line of purposeful sampling was followed (Creswell, 2012). The medical students were from the ninth and tenth semesters while nursing students came from the fourth semester. At the

time of data collection, KI had no nursing students in year 3 due to a temporary admission break; therefore, students from the fourth semester were included.

Selection in Studies II–IV

Studies II–IV was set at clinical departments at academic hospitals in Stockholm. Three sites were selected for data collection, of which an overview is presented in Table 3. Selection of sites was a process of negotiation with gate keepers to gain access to field observations (Høyland, Hollund, & Olsen, 2015). Negotiations could include emails and conversations with clinical managers or head of departments which through agreeing on the importance of educational research provided access. In the selection of sites, there was an intention to obtain diversity of medical specialties and the phase of clinical training students at that site were currently in.

Table 3. An overview of the three sites in *Studies II–IV*

Site	Type of department	Medical students	Nursing students	Specific site for field observations
One	Orthopaedics	8th-semester students in orthopaedics rotation	3rd-semester students in first hospital-based clinical placement	Clinical ward, out-patient clinic, emergency department and clinical training centre
Two	Nephrology	5th-semester students in internal medicine rotation	3rd-semester students in first hospital-based clinical placement	Clinical ward
Three	Paediatrics	10th-semester students in paediatrics rotation	5th-semester students in specialised clinical placement	Clinical ward

The three sites comprised various clinical settings; an orthopaedics department, a nephrology department and a paediatrics department. In the first site, the orthopaedics department, field observation settings included wards, out-patient clinics, emergency rooms and clinical training centres. In the two other sites, field observations took place mainly on a ward.

4.4 DATA COLLECTION

Data for the thesis was collected over a period of three years. An overview of the data collection is presented in Table 4. Two data collection tools were used: individual interviews and field observations. Both are commonly found in qualitative research and are suitable for exploring social phenomena in their natural setting (Lingard & Kennedy, 2010). Through the researcher's active engagement with interviewees or participants, qualitative data collection tools are not simply a way of 'collecting' information but an opportunity to 'generate' knowledge together with informants (Kvale & Brinkmann, 2009).

Table 4. An overview of the data collection

	Study setting	Time	Data	Interviewees
Study I	Medical and nursing programme at KI	February-March 2012	15 semi-structured individual interviews	8 nursing students 7 medical students
Studies II-IV	Site one	April 2013	Four days of observations 8 follow-up interviews	2 medical students 2 medical supervisors 2 nursing students 2 nurse supervisors
	Site two	November 2013	Four days of observations 5 follow-up interviews	1 medical student 1 medical supervisor 2 nursing students 1 nurse manager
	Site three	September-October 2014	Four days of observations 3 follow-up interviews	1 medical student 1 nursing student 1 nurse supervisor

Interviews can be thought of as an active process in which a relationship is being built between the interviewer and interviewee (Kvale & Brinkmann, 2009). Interviews usually seek to provide a rich exploration of a phenomenon, and therefore, semi-structured interviews in which interviewer and interviewee can chose to pursue relevant areas of interest are commonly employed (Lingard & Kennedy, 2010).

Qualitative observations enable the researcher to gain insight into the actuality of the phenomenon (Angrosino & Rosenberg, 2011). In practice, field observations can comprise shadowing and participation in everyday activities including those of a merely social character (Creswell, 2012). The degree to which an observer actually participates in practice differs; therefore, 'participant observations', which is often referred to, is faced with some definitional challenges (Atkinson & Pugsley, 2005; Creswell, 2012; Reeves, Peller, et al., 2013). However, within the field of healthcare, participant observations almost never concerns participation in patient care but instead engagement in for example coffee breaks and informal conversations (Atkinson & Pugsley, 2005).

Study I

The individual interviews in *Study I* were conducted in a semi-structured manner. Thus, while an interview guide with predetermined question areas was followed, there was also an opportunity for the interviewer to delve deeper into certain aspects arising during the interview (Kvale & Brinkmann, 2009). The interview guide was based on areas of interest found in the current literature on learning environments and on a previous study (Liljedahl et al., 2015). All interviews started with the question: 'Why did you want to participate in this study?' followed by 'What is the purpose of your clinical placements?'. After having covered aspects such as learning experiences, supervision and organisation, students were finally asked to identify the main strengths and weaknesses of clinical placements.

Invitations to participate in the study were sent out via email to all students in the ninth and tenth semesters of the medical programme and to all students in fourth semester of the nursing programme. Those who were first to respond to the invitation were included in the study. The exact number of interviews was not decided beforehand; rather, there was issue of the availability of participants and the resources needed to conduct the interview, such as the question of time for interviewers.

The interviews with the nursing students were held by me while those with the medical students were performed by a co-author who at that time was a nursing student (CPF). Interviews were held in places convenient for the interviewees: sometimes the library at a university, other times the hospital. The interviews lasted between 30 and 60 minutes. They were audio recorded and then transcribed verbatim. Interviewees received a minor compensation for their effort.

Studies II–IV

The data for *Studies II–IV* was collected through field observations and follow-up interviews. For *Study II*, data from observations and follow-up interviews concerning medical students were included. For *Study III*, data from observations and follow-up interviews concerning nursing students were included. For *Study IV*, all data from the three sites were included in the analysis.

Close and 'in situ' field work was undertaken as the aim was to explore the phenomenon of workplace learning. As interdependence between affordances and engagement were in focus, interactions between various stakeholders (e.g. students, supervisors, other staff, and patients) were considered to be of interest. A non-participant approach was considered suitable, as it puts the observer in the field and at the same time at a distance from the study sites (Creswell, 2012; Hammersley & Atkinson, 2007). Further, and in line with the case study methodology, follow-up interviews with key informants were used to reflect and deepen the observations and to make use of multiple sources of data in the present inquiries (Yin, 2014).

Field observations for *Studies II–IV* were performed in an unstructured manner, which means that students were shadowed over an entire day but that there were no predefined learning activities under specific observation. When a member of the research team had negotiated access to a site with a gatekeeper, observations were scheduled at a time suitable for both the workplace and the observer. Workplace gatekeepers were a clinical manager at sites one and two and a clinical teacher at site three. To be able to perform observations, it was considered important that the observer was welcome to the workplace to facilitate the availability and accessibility of the data (Høyland et al., 2015).

Members of the site, usually a clinical supervisor, asked students who were currently undergoing clinical placements at the site whether they could consider being shadowed for a day or two. All students who were asked agreed to this, and observations were scheduled on days suitable for both the participant and me, the observer. Each day, I followed a specific

student for an entire shift, but came across several more students as they were all on the same ward and, in a few cases, even worked in pairs.

Students were shadowed for an entire day, from the point of arrival on the ward to the point of departure. I wore the same uniform as the students and followed them to patient rooms and rounds as well as teaching activities. I presented myself as a medical student and researcher but assumed a low profile and seldom interacted with other members at the sites if they did not explicitly address me. However, during the course of the day, I established relationships with the students, which gave me insights into their thoughts and emotions and provided me with a solid basis for the follow-up interview. I was able to establish relationships with other members at the site, providing opportunities for interviews, some of which was formal and of a follow-up nature and others of a more informal, conversation-like nature.

Extensive observational and reflective field notes were taken, handwritten and transcribed as soon as possible following the observations. Observational field notes contained mere descriptions of activities whereas reflective field notes comprised my own responses and preliminary interpretations (Creswell, 2012).

In close connection with the observations, follow-up interviews were held with students, supervisors and a clinical manager. Even though an interview guide had been constructed and covered aspects such as introduction, supervision, learning activities etc., the follow-up interviews were primarily about reflecting upon the activities observed. The follow-up interviews were audio recorded and transcribed verbatim.

4.5 DATA ANALYSIS

The data collection and analysis constituted an iterative process meaning that initial analyses were performed during the data collection and these analyses guided further data collection (Yin, 2014). In all the studies, the analytical process was an interactive and collaborative activity among the research team even though I was mainly responsible for moving the process forward.

Study I

Although originally employed in the quantitative tradition, content analysis is now being extensively used in qualitative research (Graneheim & Lundman, 2004). In essence, content analysis has to do with classifying content into categories and themes to provide a description which represents the phenomenon in a satisfactory way (Elo & Kyngäs, 2008). The degree of interpretation can be expressed as an analysis of either manifest or latent content (Graneheim & Lundman, 2004). Manifest content refers to visible and obvious components in a text which can be thought of as ‘what the text says’ and is usually presented as categories. Conversely, latent content notes the underlying meaning of the text, sometimes referred to as ‘what the text is talking about’ and is presented as themes. As *Study I* sought to describe students’ experiences, content analysis served to analyse students’ ‘stories’ without preconceptions about what the CLE entailed (Hsieh & Shannon, 2005).

Content analysis in *Study I* was primarily guided by the analytic process developed by Elo and Kyngäs (2008). Data from medical and nursing students were analysed separately from each other, however in parallel. After an initial reading of the transcribed data, meaning units in the text were identified. Each interview was read by at least two of the researchers. Meaning units were then arranged into content areas, and during discussions in the research team, content areas were arranged into categories. The data in *Study I* was extensive. To organise this data, a framework of 'before', 'during' and 'after' clinical placements was used to make sense of the stories the students had shared. The framework took inspiration from the 3P-model outlined by Biggs (2003), describing learning and teaching according to presage, process and product. 'Before' included students' approach to clinical placements and their understanding of their role; 'during' concerned the experiences of everyday life as students; 'after' involved the implicit influences which framed students' orientations as both students and professionals.

After the organisation of meaning units into categories, all interviews were read once more and coded in a software programme (Dedoose, 2013). Revisiting interview transcripts allowed for the categories to be refined and for latent themes to be derived (Graneheim & Lundman, 2004).

Studies II–IV

In *Studies II–IV*, the data analysis assumed a thematic approach. In the literature, content and thematic analyses are conceptually intertwined and a strict line between them is difficult to draw. Content analysis is generally primarily concerned with the accurate representation of data including a distinction between the manifest and latent content, whereas thematic analysis integrates manifest and latent content with context and searches for patterns in the data (Braun & Clarke, 2006; Vaismoradi, Turunen, & Bondas, 2013). The choice of employing a thematic approach was the notion that these studies sought to explore interdependence and practices within workplaces. In line with the interpretative orientation, a representative or generalisable description of workplaces was therefore undesirable. Rather, specific aspects of the process of learning were considered important and of interest; hence, the search of sense-making patterns in the data, performed as a thematic analysis, was suitable (Boyatzis, 1998; Braun & Clarke, 2006). Boyatzis (1998) emphasises that a thematic approach follows the line of first recognising an important moment, second, encoding the moment into an identified pattern and, third, the interpretation of the pattern into a theme. Although this is here described as linear, the process of a thematic analysis often takes an iterative path, that is, the researcher moves back and forth between the data and the emerging findings.

The thematic approach to the analysis in *Studies II* and *III* took inspiration from both Braun and Clarke (2006) and Boyatzis (1998). An inductive stance was taken; however, the understanding of the phenomenon of CLEs was guided by the conceptual framework of WPP.

Following an initial reading of the manuscript, it was considered that 'significant events' were a suitable tool for assisting the data analysis (Henderson, Berlin, Freeman, & Fuller, 2002). This took inspiration from critical incident analysis – a way of analysing detailed accounts of observable events of significance for the practical problem of current interest (Flanagan, 1954). Here, 'critical' does not necessarily refer to an incident of a negative character. As such, Henderson and colleagues (2002) choose to instead use the term 'significant' so as not to mislead users into negative undertones. From the observational data, 12 significant events for *Study II* and seven significant events for *Study III* were identified. Excerpts from the follow-up interviews detailing the incident were also identified. The significant events were discussed in the research team, and preliminary themes were identified.

Following this, the entire dataset was arranged into a framework of 'intended', 'incidental' and 'cultural' learning activities (Table 5), as outlined by Hafler et al. (2011). In this way, it was easier to interpret students' interactions in CLEs as learning activities were arranged according to their character. Within each type of learning activity, data was sorted into categories, and the preliminary themes were adjusted to fit the patterns present across the categories. In the final stages of the analysis, discussions within the research group as well as with a wider scientific network were used to accurately phrase and describe the themes.

Table 5. Framework of arrangement of data used in *Studies II* and *III* (adopted from the work of Hafler et al. (2011))

Type of learning activity	Description	Example from the data
Intended learning activities	Formally structured and intended social activities	Experiencing procedures novel to the student (Medical context)
Incidental learning activities	Informal, unplanned and unscripted social activities	Knowing where things can be found at the ward (Nursing context)
Cultural learning activities	Invisible and ethereal kind of influences	Low expectations on what students might remember (Medical context)

The thematic approach in *Study IV* was also guided by Braun and Clarke (2006) and Boyatzis (1998), however, a deductive stance was taken. The dataset was analysed according to the conceptual framework of teaching and learning regimes outlined by Trowler and Cooper (2002) (described in the background). Following an initial reading of and familiarisation with data, a search for patterns was performed collaboratively in the research team. Thereafter, an in-depth reading and identification of meaning units were conducted. The meaning units were grouped into themes and integrated into the TLR framework. As various TLRs are understood to be co-existing, the analytical process was open to the existence of several TLRs in both contexts.

4.6 TRUSTWORTHINESS

> *No method is absolutely weak nor strong, but rather more or less appropriate in relation to certain purposes.*
>
> (Sandelowski, 2000, p. 335)

The inherent aim of interpretative inquiries is to better understand and, if necessary, reconstruct the understanding of the phenomenon under study (Lincoln et al., 2011). Therefore, the ultimate quality criteria of research are neither the power if the data nor the generalisability of the results, but the extent to which the findings advance the shared construction relating to the phenomenon (Lincoln et al., 2011). As such, there are fewer methodological 'standards' in the interpretative tradition. The issue of quality in a qualitative study can instead boil down to the 'so what' factor – the study's possibility of advancing understanding of the phenomena (Lingard & Kennedy, 2010). Nevertheless, it is important to justify the methodological choices. Various methodological concepts have been proposed as useful in the area of qualitative research. Some scholars have argued for the use of checklists when reporting research so as to assure quality in qualitative research (Kitto, Chesters, & Grbich, 2008; O'Brien, Harris, Beckman, Reed, & Cook, 2014). Others have however argued that such efforts are based on philosophical assumptions corresponding to post-positivist paradigms and that it can in fact be counterproductive to use checklists uncritically (Barbour, 2001; Varpio et al., 2015). The following section on trustworthiness will address some of the ways in which credibility, dependability and transferability (Graneheim & Lundman, 2004; Lincoln et al., 2011) were addressed in this thesis. Factors relating to reflexivity and ethical issues will also be addressed.

Investigator and data triangulation

With reference to credibility, this research was methodologically driven by the aim and research question of each study (Graneheim & Lundman, 2004; Lingard & Kennedy, 2010). This meant that methodological and theoretical issues were continuously discussed in the research group, and decisions concerning which path to take were consensually derived among the co-authors. The core research group comprised, except for me, a medical education researcher with expertise in qualitative methodologies and with a background in sociology (KBL), a medical doctor and medical educator (EB) and a medical doctor and professor of medicine with experience of medical education research (SP). For each study, the research group were deliberatively designed to comprise various perspectives and the expertise needed for that specific inquiry; thus, investigator triangulation was employed (Reeves, Peller, et al., 2013). For example, in *Study I*, a nursing student (CFP) was recruited to the research team to conduct interviews with medical students and to participate in the analysis. It was considered useful to also include a nursing student in the research team for that study, and it was also considered beneficial that someone else with a greater outsider perspective then I could assume performed interviews with medical students. Additionally, a nurse and educational developer (LEB) was included in the research team to contribute from

the perspective of a teacher and nurse. Further, in *Study III*, a nurse and educational researcher (SK) was included in the research team, as we lacked the nursing perspective in the analytical process of that study. Someone with an insider's perspective on clinical nursing education was beneficial in the analytical procedure and to assist in the interpretation of the findings.

Some would argue that investigator triangulation is a way of reducing researcher bias as the influence of a single investigator's views and opinion can be limited (Johnson, 1997). Here, however, investigator triangulation was used as an attempt to bring in several perspectives to enhance the richness of the description on workplace learning (Sandelowski, 2000). In contrast to avoiding researcher bias, others would argue that investigator triangulation enhances the credibility of inquiry through the generation of multiple perspectives (Graneheim & Lundman, 2004; Reeves, Kuper, & Hodges, 2008; Reeves, Peller, et al., 2013).

Means of triangulation were also used in the data collection (Reeves, Peller, et al., 2013). The data was triangulated both by including interviewees with various perspective (supervisors, students) and by including multiple sources of data (interviews, observations) (Yin, 2014). As with investigator triangulation, data triangulation was not an effort to reduce bias but to reveal the various ways of understanding, describing and conceptualising the phenomenon under study. The multiple sources of data were here used to mirror each other, meaning that the follow-up interviews assisted in the interpretation of field notes and vice versa.

Observer effect

When collecting data through observations, consideration needs to be taken of what is called the observer or Hawthrone effect. The observer effect refers to the suspicion that the studied phenomenon is somewhat altered by the effect of being observed (Lingard & Kennedy, 2010). This is sometimes assumed to negatively influence the quality of the data as data is no longer reflective of reality (LeCompte & Goetz, 1982). However, others have argued that with the non-evaluative approach that observers usually take and with the long time spent in the field, it is unlikely that participants are able to alter their actions as an effect of being observed (Atkinson & Pugsley, 2005). Nevertheless, observations should be conducted together with considerable reflexivity from the researcher (Atkinson & Pugsley, 2005).

The procedure for the observations was carefully considered during discussions among the research group as well as continuous during the observations. To reduce the participants' experience of being observed, I continually stated that the intention of the study was to understand how CLEs might work and not to evaluate or assess clinical education. I also introduced myself not only as a researcher but also as a medical student. This meant that the participants possibly experienced me as an insider and as 'on their side' rather than a controller coming 'from above'. Further, as an insider in the clinical environment there were aspects I understood quite quickly and about which I did not have to inquire in order to understand, which made it possible for me to assume the non-participatory role.

Use of theories

To enhance the quality of each study, suitable theories were used to assist with various phases of the research process. It has been argured that theoretical perspectives may advance research findings from a specific context or setting to a more general level, thus enabling transferability (Kuper, Lingard, & Levinson, 2008). Theories may be applied in various ways in qualitative research (Reeves, Albert, Kuper, & Hodges, 2008). In this thesis, the socio-cultural perspective on learning was helpful in narrowing down the overall aim into focused research questions for each study. CLEs can be challenging to grasp; therefore, theories like CoP and WPP were regarded as essential in explicating what was being referred to when the concept of CLEs was used. Moreover, these theories assisted in maintaining a focus on the phenomenon in the iterative process of qualitative inquiry. Theories can also be beneficial in enhancing the transferability of the research findings (Reeves, Peller, et al., 2013) as they are understood as conceptual and explanatory in nature (Hodges & Kuper, 2012). As such, the use of theories in the analysis and interpretation of the findings can, together with detailed descriptions of the study setting, assist readers in transferring the results to their own settings (Graneheim & Lundman, 2004).

Researching workplace learning as a medical student

In the interpretative tradition, the researcher can view herself as a tool in the research process (Lingard & Kennedy, 2010). As such, it is not possible for the researcher to distance herself from the data or findings, but she can instead use her previous knowledge in, e.g. the interpretation of the data (Lincoln et al., 2011). Consequently, it is crucial for the researcher to be explicit about her role and to be reflexive throughout the research process (Graneheim & Lundman, 2004; Reeves, Peller, et al., 2013).

When I started this research project, I was a medical student engaged in the development and advancement of medical education at Karolinska Institutet through the student union. Even though the union can be seen as a political organisation, our main focus was simply to improve medical education; however, we had no explicit preconceptions of how that was supposed to be done. Through this engagement, I became interested in educational issues. In my understanding, there were many conceptions and assumptions around students' learning which were frequently referred to by students, teachers and educators; however these conceptions seemed to be based on individuals' experience (which could be extensive) rather than research. My initial intention with this research was therefore to investigate the *true* nature of learning in the clinical environment. Therefore, I have strived to be as open-minded as possible regarding what the studies would show, and I deliberately chose mainly inductive approaches. Along the way, I have however altered my intentions with this research towards an interpretative approach already reported on.

In the beginning, especially in *Study I*, it was difficult to distinguish my role as a student from that of a researcher. As I was at the beginning of doctoral education, I was not very familiar with the interpretative tradition and had not yet developed proficient analytical skills.

Moreover, in some phases of this research, I conducted research in parallel with being a medical student, which made it challenging to not confuse the experiences of the interviewees with my own experiences as a medical student. For example, in the analysis of *Study I*, it was important to dig deep enough in the data, and somehow immerse myself in the data and make it a part of me. In my experience, this enabled an analysis which made use of me as a student still being profoundly based in data. During the data collection and initial analysis of *Studies II-IV*, I took a study break from the medical programme. It was beneficial to distance myself from the clinical environment and especially from the role of a medical student as I could develop as a researcher somewhat independently from the role as a student or medical doctor. Importantly, I had no prior personal experience from any of the three site observed.

I believe my position as a student was valuable in many ways when researching workplace learning. During interviews and observations, my own identity as a student enabled power imbalances to be mitigated. In my experience, students participating perceived me as a peer, and thus, I think they shared things with me that they would not have shared with a teacher or someone perceived as coming from the outside. However, I also noticed a few situations where supervisors seemed to perceive me as some kind of educational expert; thus, considering their supervisory practice to a greater extent than usual. So, although researching learning in the setting which I am also a learner was challenging; however also beneficial in many ways.

Ethical considerations

Ethical considerations are pivotal in research and can refer to a range of matters; from ethical codes in the research process to the consideration of the role of research in society (Illing, 2010). Throughout this research process, ethical issues were continuously discussed in the research team. All studies were approved by the Regional Ethical Review Board in Stockholm (2010/1998-31/5, 2012/418-32) and conducted in accordance to the Declaration of Helsinki (World Medical Association, 2002). The data was handled to assure confidentiality and anonymity for participants.

Informants were given information about the nature and aim of the study in connection with the invitation to participate. In *Study I*, information was provided in the invitation email sent out to students. For *Studies II–IV*, information was given to participants by the member of the site which in turn had received information from the research team in the conversations leading up to observations. All participation was voluntary and informants learnt that they could withdraw their participation at any time and without mentioning a reason for dropping out. In connection to the follow-up interviews, informed consent was obtained written from participants. During observations it was in some cases difficult to determine to what extent individuals could be regarded as participants, and thus should be given the opportunity to give their consent. For example, there were, except for the supervisor, nurses working at the ward who interacted with the nursing student which I shadowed. Naturally, I introduced myself to them but in many cases, their encounter with the nursing students could last for only a short moment. Thus, I chose not to consider them as participants even though they

appear in the field notes. Approval to conduct observations was given from the head of the clinical departments and all students and supervisors gave their consent.

When I shadowed students during observations, I watched them interact with and care for patients by themselves and without the supervisor present. There could have been situations where I, according to my medical knowledge, noticed a student exposing a patient for possible harm. This scenario was discussed in the research team which came to the conclusion that I, in that case, naturally would interrupt the observation in order to protect the patient. Thus, I was during observations also attentive to the way in which patient care was performed and prepared to intrude if needed.

Ethical considerations also concerns who is given a voice to speak and in what way that voice is heard (Paradis, 2015). In the Swedish context, most researchers in medical education have either a nonmedical background or a background as healthcare professionals together with an extended experience as teachers or educational developers. Therefore, most research are conducted from either an outside perspective or from an inside perspective; however, in those cases from the perspective of a teacher. Being a teacher yourself and having students as research subjects put the researcher in an inferior power position (Pope, 2005). This thesis can as such contribute with a novel perspective on workplace learning as the student perspective pervaded the entire research process. Conversely from the teacher perspective, the perspective I could assume in researching students' learning was that of a peer. These finding might therefore provide a different view then the stories usually told. Noteworthy, the findings described here do not necessarily reflect workplace learning more truthfully then previous descriptions. Such an argument would not align with the philosophical positioning. Nonetheless, I believe they can shed light on workplace learning from a perspective which perhaps previously has been neglected.

5 FINDINGS

This thesis investigated workplace learning among undergraduate medical and nursing students by means of qualitative inquiries in four consecutive studies. While *Study I* addressed workplace learning from the perspective of students' experiences, *Studies II* and *III* adopted observations to explore interdependence of affordances and engagement in relation to students' interactions within clinical environments. Finally, *Study IV* employed a deductive approach to identify the teaching and learning regimes underpinning the practice of workplace learning. This chapter presents the findings of the thesis.

5.1 WORKPLACE LEARNING AMONG MEDICAL STUDENTS

I appreciate just to be there and meet a lot of patients (...) that you throw yourself into the clinical work.

(Medical student, *Study II*)

Workplace learning among medical students was addressed in *Studies I, II* and *IV,* thus contributing with complementary perspectives on the current issue.

Medical students' experiences of the clinical learning environment

In *Study I*, students' perspectives on workplace learning were addressed as medical students were interviewed regarding their experiences of the CLE.

The analysis of manifest content in data revealed that for medical students, the overall aim of clinical placements was to observe real cases and to learn from experienced supervisors. They understood attendance as the only demand on them as students and that their main responsibility was to learn. Even so, they strived to be as active in patient care as possible in order to contribute to patient care and to ease the workload of supervisors. As a tool for learning and to ensure adequate learning, they used checklists provided by the course. The medical students experienced freedom in engaging in what they found valuable for their own learning during clinical placements and reported that, along the way, they understood what was important for them to learn. As it was not always obvious to them who were supposed to supervise them, they actively sought a supervisor at the start of a placement. The medical students tried to quickly establish a relationship with the supervisor so that the supervisor would engage them. They experienced that they learned by observing the supervisor interacting with patients and by reflecting upon the supervisor's relationship with patients. Over time, the medical students grew accustomed to having short relationships with supervisors and experienced that they had learned how to relate to supervisors. When faced with difficulties with a supervisor, for example, they assumed a hands-off approach as they were aware of the limited time supervisors had in which to teach.

In the analysis of latent content in data, it was found that medical students seemed to have adopted an *acceptance* approach whereby they adjusted to the situations in which they found

themselves. This meant that they would maintain a low profile during dysfunctional placements, with the expectation that the next one would be better. Moreover, for medical students, the relationship with supervisors entailed finding someone who would engage them; they thus seemed to be *searching for a supervisor*; they would thus promote themselves to find such a supervisor. Finally, medical students emphasised learning by observing supervisors and viewed supervisors as examples of either good or bad practice. In that sense, they had a *doctor-centred approach to learning*.

Medical students' interactions with clinical learning environments

In *Study II*, the medical students' interactions with their CLEs were explored using observations whereby medical students were shadowed and the interdependence between the affordances of the workplace and the individual engagement of students were analysed. In other words, *Study II* sought to explore how students and workplaces interact in terms of creating a learning environment. The analysis concluded that the affordances of the workplace included three dimensions: (i) *a marginal status in the healthcare team*, (ii) *access to an array of potential activities* and (iii) *exposure to authentic complexity*. Further, the individual engagement of students comprised the following aspects: (i) *adapting to circumstances*, (ii) *estimating the value of taking initiative* and (iii) *navigating situations as they appear*. The three themes found in *Study II* reflect the influences that these interactions have on medical students.

Fitting in by adapting to a marginal status

The medical students were a natural component of the clinical environment and they were met in a friendly way; thus, their presence seemed legitimate. They were not expected to contribute to patient care but to participate in practice for the sake of their own learning. As such, medical students seemed to be given a peripheral role and, by extension, a marginal status in the healthcare team. They appeared attentive to both the role they were given and what they were expected to learn. They promptly established a relationship with the supervisor and tried to disturb as little as possible. Medical students thus adjusted to the circumstances in which they found themselves and seemed to strive to fit into the workplace by adapting to the marginal status given.

Being selective by estimating the value of potential activities

From the perspective of the workplace, the clinical environment entailed unlimited possibilities for medical students in terms of the potential activities available, and it was expected that clinical rotations would enable medical students to gain various experiences. The potential activities were made accessible to medical students as rotations were of an unscripted nature, thereby offering opportunities for medical students to engage in the activities available on that specific day. For the medical students, the unscripted nature of rotations meant that they needed to take initiative and seek guidance to become involved and engaged in clinical practice. They perceived rotations as opportunistic and dependent on whom they happened to run into. Medical students therefore sought support from peers and

assisted each other in determining which of the afforded activities to engage in. As such, they seemed to continuously estimate the value of taking initiative. Sometimes, they followed the line of least resistance and could choose not to show up as they thought their absence would go unnoticed. In that sense, the medical students were selective in terms of what they engaged in and could leave the rotation if they did not perceive it as rewarding.

Being easy-going by navigating complexity

The medical students were posted in regular healthcare workplaces and were thus exposed to everyday complexities whereby planned activities could sometimes be omitted. The workplaces sought to provide space for medical students by engaging them despite a busy schedule of their own. Medical students observed supervisors dealing with several assignments simultaneously and dealt with their own opportunistic everyday lives as students. In coming across different circumstances, the medical students quickly found their way and seemed proficient at managing situations. Learning activities therefore seemed to have a spontaneous character; however, medical students were not bothered and approached the complexity of rotations in an easy-going manner.

Practice of workplace learning in the medical context

In *Study IV*, practices of workplace learning were explored using the TLR theoretical framework. In the medical context, two divergent teaching and learning regimes were identified: (i) *reproducing practice* and (ii) *engagement in professional development*. Although determining which regime of teaching and learning dominated the medical context was outside the scope of *Study IV*, there were indications that the *regime of reproducing practice* dominated the medical context.

Regime of reproducing practice

In the regime of reproducing practice, teaching and learning were built on an ambition to educate the next generation in an efficient and effective way. Clinical education was designed to expose students to a variety of clinical practices and experiences, and supervisors took on the role of guides, showing their workplace to visitors, the students. Underpinning this regime was a fear that students might miss out on knowledge; supervisors therefore regularly used opportunities to emphasise the critical mass of knowledge, which in their opinion, every student ought to know. The practice of teaching and learning entailed that supervisors demonstrated procedures and practices that students could imitate.

Regime of engagement in professional development

The regime of engagement in professional development emphasised the student's conceptual and professional development as essential in teaching and learning. Learning was not understood as a quick fix but as a long-term engagement in creating knowledge rather than incorporating others. Supervisors here took on the role of a mentor and carefully strived to make students engage in a reciprocal manner. In this regime, the existence of various practices was regularly emphasised and acknowledged. Actors in this regime demonstrated

trust in the system of medical education that students would eventually learn sufficiently. In this regime, teaching was about facilitating the student's own reasoning. Students occasionally seemed intimidated by this approach and tried to dodge the situation. This regime therefore challenged the traditional role of medical students.

5.2 WORKPLACE LEARNING AMONG NURSING STUDENTS

> *There's a lot that I still cannot manage. Practically, I don´t know anything at all (laughs). But still, I am given a lot of responsibility here.*
>
> (Nursing student, *Study III*)

Workplace learning among nursing students was explored with the use of complementary perspectives in *Studies I, III* and *IV*.

Nursing students' experiences of the clinical learning environment

In *Study I*, experiences of the CLE were explored using qualitative interviews to address nursing students' perspective on workplace learning.

Regarding the manifest content in the data, the nursing students experienced the overall aim of clinical placements as being able to experience nursing in a real setting, emphasising that they learnt by being as independent as possible. In particular, they viewed clinical placements as an opportunity to translate theory into practice and to experience daily life as a nurse. Nursing students reported a large variation between different placements and their formal intended learning outcomes as abstract and challenging to interpret. During clinical placements, they put a great deal of effort into enhancing their relationship with their supervisor so as to facilitate trust from the supervisor. The experienced model of supervision differed; sometimes, they were the supervisor's 'tail', and at other times, they were allowed to be active in the care of patients. The nursing students found it difficult to balance their own expectations with those of their supervisor and described the interaction between them and the supervisor as challenging and involving struggle. Towards the end of the placement, however, they usually became part of the working team and were able to learn general treatment by establishing their own relationships with patients. As nursing students became more experienced as students, they seemed to develop independence in terms of how they wanted to learn, elaborate on the learning outcomes and identify the learning activities in which they wanted to engage. As such, nursing students tried to make the most out of each clinical placement.

For the analysis for latent content in data, it was found that the nursing students seemed to have *high expectations of placements* whereby they both demanded a high quality placement and viewed themselves as responsible for their own learning. This also meant that they would actively engage in a dysfunctional placement. Further, in order not to be the 'tail', nursing students strived to *extricate themselves from the supervisor*. They wanted to be independent

and active in the care of patients. Finally, nursing students seemed to have a *patient-centred focus in their learning* as they articulated the importance of their relationships with patients for their own learning.

Nursing students' interactions with clinical learning environments

By exploring the interdependence between workplace affordances and individual engagement, *Study III* investigated the manner in which the nursing students were influenced in their interactions with their CLEs. As in *Study II*, student influences were also described in terms of three distinctive themes covering the following dimensions of CLEs: community of clinical learning, design of clinical learning and context of clinical learning. Workplace affordances included: (i) *offered conditional membership*, (ii) *entrusted to provide care* and (iii) *exposure to pragmatic reality*. Further, students' individual engagement comprised: (i) *striving to fill out the role*, (ii) *trying to handle the responsibility* and (iii) *challenging basic values*.

Being aspirational in taking up the offered role

In the clinical setting, the nursing students were a natural and desirable part of the healthcare team. Nursing students were actively introduced to ward traditions, and newcomers to the clinical environment were generally accepted. Nursing students were invited into the professional community as supervisors gently guided them in terms of how to act in different situations. However, they were expected to align with professional norms, in which sense, the offer of membership seemed conditional. Nursing students were eager to perform all tasks correctly and could seem anxious about whether or not they had remembered everything they were supposed to. Nursing students thus demonstrated ambition to fill out the role of a professional nurse and strived to take up this role in an aspirational way.

Being overwhelmed by the responsibility of care

The role, responsibilities and progression of the nursing students seemed carefully considered as clinical education had been designed to provide a clear structure for student learning. This usually meant that the nursing students were given responsibility to care for patients through, e.g. being trusted to receive notifications. They were thus entrusted to provide care for patients; however, supervisors clearly demonstrated full responsibility for patients by being available for students at all times. The nursing students grasped the responsibility and engaged in their patients' well-being. Responsibility seemed to be an energy-intensive assignment, in which sense, the future professional role of a nurse was unimaginable for nursing students. As such, the students seemed stressed and overwhelmed when bearing responsibility for patients.

Being hesitant to negotiate own values with reality

In the clinical environment, the nursing students were exposed to everyday healthcare, which could entail finding themselves stuck between different views on patient care such as when some hospitalisations might be deemed unnecessary from a nursing perspective. Further, the

workplace provided an example of how nursing was put into practice, and as such, the nursing students were exposed to a pragmatic reality built upon the ward's experience and tradition whereby, e.g. making fun of a patient's explanations of symptoms could be accepted. Nursing students could disagree strongly with supervisors' or other staff members' assumptions about patients as those assumptions did not align with the students' own ambitions and views regarding high quality patient care. Nursing students often discussed these issues with peers, thus confronting their own basic values with those of the workplace. During such negotiations, the nursing students showed hesitance to adjust to the workplace culture and wished they would never develop such preconceptions about patients.

Practice of workplace learning in the nursing context

In *Study IV*, two teaching and learning regimes were found when investigating how workplace learning was put into practice in the nursing context; (i) *participation in a partnership* and (ii) *membership in a stipulated community*. Determining which regime was dominating the nursing context was very delicate. However, in the three departments inquired in *Study IV*, the *regime of participation in a partnership* seemed dominant.

Regime of participation in a partnership

In the regime of participation in a partnership, teaching and learning were built on a close and trusting student-supervisor relationship whereby the supervisor served as an advocate for his or her protégé, the student. The student and supervisor together defined what was important for the student to learn, which was then prioritised for learning to take place in a safe environment. Both the student and supervisor advocated for students' independence in providing care, and it was central for the student to be knowledgeable about the routines and practices of the workplace in order to gain access to learning. The nursing student and supervisor were partners who formed a team which, in close collaboration, could face challenges together.

Regime of membership in a stipulated community

In the regime of membership in a stipulated community, teaching and learning were understood to entail securing the student's knowledge and independence through stipulated progression. Here, the supervisor served as a guard, assuring a minimum required level of knowledge and skills, and the student like a contender claiming the right to practice nursing. The roles of a supervisor and student were pre-set, and as such, students were expected to adapt to the routines and practices to gain access to the community of professional nurses and, consequently, learning. The relationship between the student and the supervisor was of a formal character, and learning was about becoming a member of the professional community through a negotiation about basic values.

5.3 OVERVIEW OF FINDINGS

Overviews of findings related to medical students (Figure 3) and nursing students (Figure 4) are presented below.

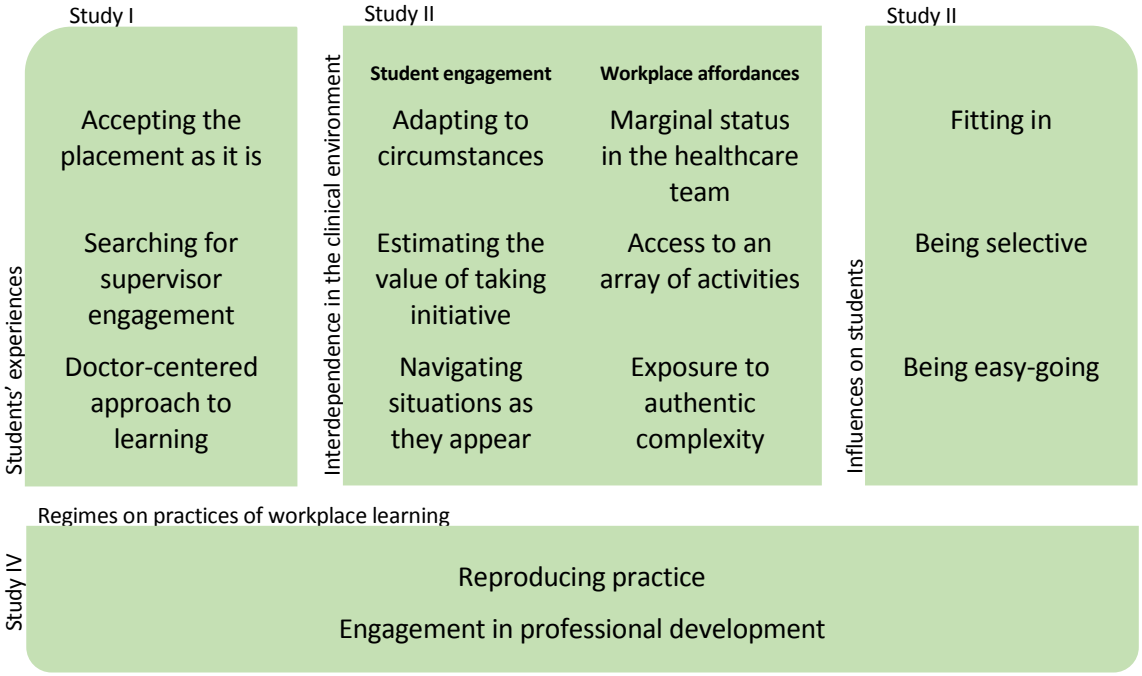

Figure 3. An overview of the findings relating to workplace learning among medical students

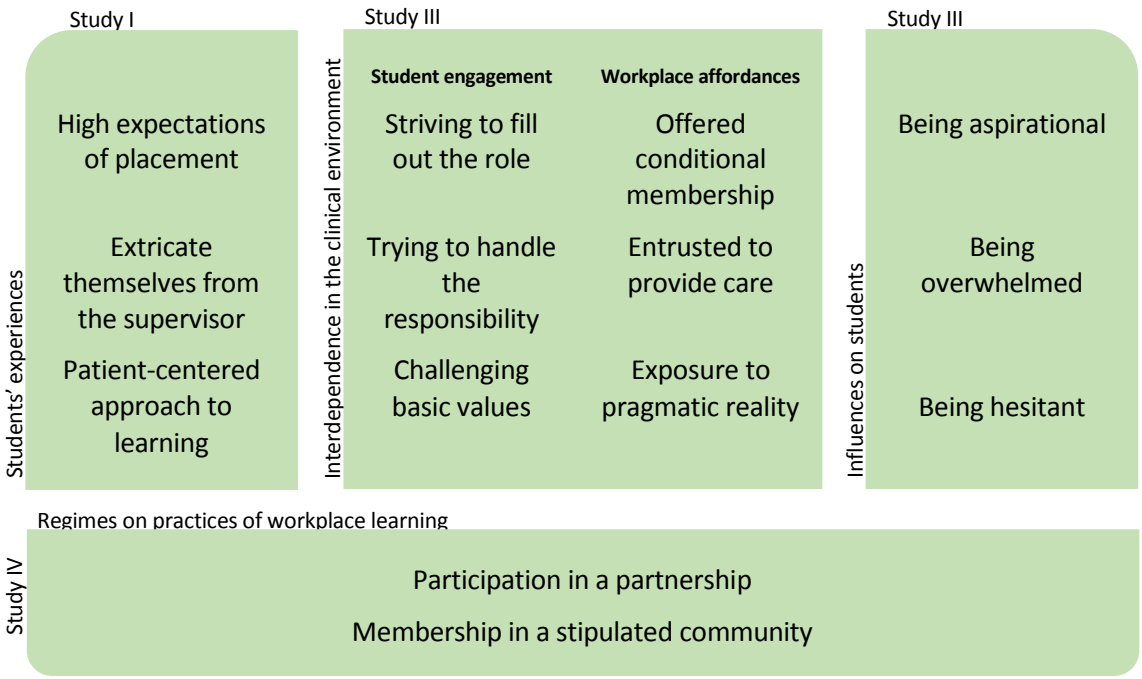

Figure 4. An overview of findings relating to workplace learning among nursing students

6 DISCUSSION

This thesis set out to explore workplace learning among undergraduate medical and nursing students which was performed in four consecutive studies. All studies adopted a socio-cultural perspective on learning and employed qualitative approaches embedded in an interpretative tradition of inquiry. The four studies contributed with complementary perspectives on workplace learning, including students' experiences (*Study I*), students' interactions with clinical learning environments (*Studies II* and *III*) and practices of workplace learning (*Study IV*). As a whole, this thesis therefore holds the potential to give insight into the nature of workplace learning in the clinical environment. In particular, the findings of the thesis can inform the current practice of clinical education, an issue that is more or less under constant consideration. Additionally, the thesis gives insight into the appropriateness of contemporary theoretical views on workplace learning in the research field of medical education.

Importantly, this thesis included empirical data from two groups of students (medical and nursing students), a rare occurrence in research. The inclusion of these adjacent professions enables contrasts of interest to be drawn. It is important to note that this thesis did not seek to compare the medical context with the nursing context. Both the various ways in which clinical education is arranged and the different outcomes of each programme (See Table 2) make such comparisons difficult. For *Studies II* and *III*, data concerning medical and nursing students were deliberately analysed separately in different studies to not overestimate differences between them. Nevertheless, I believe that the inclusion of two cases revealed aspects of workplace learning which would not have otherwise been visible. This was also in line with the case study methodology employed here (Yin, 2014) where the medical and nursing contexts can be viewed as two cases in the exploration of workplace learning.

This thesis was performed within the scientific field of medical education, which is primarily focused on the education of physicians but has also increasingly included research on other healthcare professionals. Accordingly, the findings will be discussed in relation to scientific research within this field. Naturally, some references will also be made to the field of nursing education when discussing the findings concerning nursing students.

This discussion will elaborate on the main findings and their relation to the empirical and theoretical literature. Finally, I will make some remarks on learning in the clinical environment and discuss the limitations.

6.1 INITIAL INTERPRETATIONS

> *In effect, I have to say that everyone working here, even in the emergency department, the nurses and such… everybody is really nice.*
>
> (Interview with medical student, *Study II*)

Workplace learning among undergraduate medical and nursing students entailed engagement in authentic healthcare environments and involved multiple interactions between students, supervisors, other staff, other students and patients. For the medical students, workplace learning entailed access to a variety of activities in the role of a marginal member of the healthcare setting. As marginal members, students needed to navigate through authentic healthcare left, to some extent, to their own devices. For the nursing students, workplace learning involved being entrusted to take active part in, and responsibility for, patient care. Following participation, students needed to negotiate their basic values with those of the workplaces. The findings indicate that each context (medicine and nursing) held fundamental variations regarding the way in which workplace learning was practiced as well as the pedagogical underpinnings of that practice. The variations in the practice of workplace learning were evident in the medical and nursing students' ways of approaching CLEs (*Study I*), and the way workplaces afforded opportunities for learning to students and how students themselves elected to engage in workplaces (*Studies II* and *III*). Finally, this was supported by the fact that the regimes of teaching and learning in these two contexts was demonstrated as being built upon varying understandings of learning (*Study IV*). Students were newcomers in the clinical environment and as such, were exposed to, and to some extent enculturated into, the practice of workplace learning in their respective context of workplace learning.

Without comparing workplace learning in the medical and nursing context to any greater extent, it could still be interesting to consider some of the preconditions these two professions face in the Swedish context which might be assistive in understanding the findings. The medical programme aims to prepare students for the mandatory internship, after which students receive their legal registration as medical doctors followed by several years of residency. Upon graduation from the medical programme, medical students are hence not expected to work independently as doctors. Instead, they will for an additionally seven years (approximately) practice medicine under supervision. By contrast, the nursing programme aims to prepare students for a profession as students upon graduation from the nursing programme receive their registration and are expected to work independently as nurses. Nursing students can therefore the very week after graduation take on the full responsibilities of a nurse. These different preconditions in the two professions studied here might help explain some of the variations in workplace learning between medical and nursing students. Further, the practice of clinical education can be understood as a product of aspects such as tradition, culture and history (Hodges & Kuper, 2012), and in Sweden, the medical and nursing programmes have in some ways been more different than similar, an historical

development which is without the scope of this thesis to expand on. However, it is important to keep this in mind when interpreting these findings.

6.2 WORKPLACE LEARNING

For future healthcare professionals, clinical environments are essential settings for learning. In line with contemporary workplace learning models based on empirical research, high quality learning is now understood to be facilitated through student participation in patient care in combination with sufficient support from supervisors (Dornan et al., 2014; Manninen et al., 2013). From the perspective of Guile and Griffiths' (2001) five models of workplace experience, the development of healthcare professional education can therefore be described as having left the traditional model and progressed into more sophisticated ones.

In the literature, students have previously repeatedly reported having been mistreated in various ways, for example, through teaching by humiliation (Lempp & Seale, 2004) and supervisors using their privileged positions (Melincavage, 2011). Thankfully, this was not the case in this thesis. In referring to interactions within learning environments, students continuously used expressions like: "*Everybody is really nice"* (Medical student) and *"Everyone here has been so nice to us"* (Nursing student). Therefore, it is fair to say that healthcare professionals in these contexts made a concerted effort to make students feel welcome and appreciated. Nevertheless, the clinical environment presented challenging and sometimes stressful situations for students (*Study I*); issues highlighted in the findings in the consecutive studies.

Relational interdependence in the workplace

By broadening the perspective on workplace learning to include not only students' perceptions but also the affordances of the workplace and the engagement of individuals (Billett, 2011), a deeper understanding of the nature of workplace learning from a socio-cultural perspective is possible (Bleakley et al., 2011b). The socio-cultural perspective taken in this thesis illustrated how workplace learning was a product of interdependence between various aspects. The way in which clinical placements were arranged seemed to influence how teaching and learning were put into practice, which in turn affected how individuals engaged with activities (and vice versa). For example, in terms of the nursing students' participation in patient care, placements seemed deliberately designed to enable students to develop independence (*Study III*). Further, the workplace entrusted them to provide care for patients as supervisors involved students in patient care (*Study III*). Moreover, students' development towards independence was prioritised in the practice of workplace learning in the nursing context (*Study IV*). Finally, the nursing students purposefully engaged in the social community of placements (*Study I*) and strived to fill out the role they were afforded (*Study III*). With regards to workplace learning, it was thus impossible to distinguish the chicken from the egg; was it the engagement of students who gave them opportunities to participate or did the opportunities for participation make students engaged? Therefore, to consider learning environments as created in relational interdependence (Billett, 2004) seems

to be a suitable approach to workplace learning. Nonetheless, students can be considered to be in an inferior power position, as they are both newcomers and novices in relation to the clinical environment. Therefore, in *Studies II* and *III*, findings were comprehended in terms of how students were influenced by CLEs and not the other way around.

In a more recent publication from Billett (2016), he argues that effective learning environments in healthcare are made up of three bases; (i) practice curriculum, (ii) practice pedagogics and (iii) personal epistemological practices. Practice curriculum describes the way activities and experiences are deliberatively ordered to provide learners with structure for learning. Practice pedagogics include the activities and interactions mediating experiences and therefore hold the potential to strengthen learning. Personal epistemological practices refer to how individuals engage with activities and are argued to be personally mediated. In findings emerging in this thesis, all these three bases were visible as important mediators of workplace learning. Billett (2016) himself advocates that these practical bases are important tools for understanding how rich learning experiences can be created.

Based on the aforementioned conceptualisation of learning environments outlined by Billett (2004, 2016), I shall now go deeper into the two contexts investigated in this thesis.

Bilateral detachment in the medical context

> *Clinical rotations depend on how dedicated you are and if you happen to run into the right person.*
>
> (Interview with medical student, *Study II*)

There were indications in findings that clinical education for medical students seemed to be arranged to enable an exposure to a variety of clinical practices. This could be seen in how students wanted to observe real cases during clinical placement (*Study I*) and in how workplaces afforded students with an array of potential activities (*Study II*). Additionally, the exposure to ‘everything’ was evident in the fear that students would miss out on knowledge as shown in the *regime of reproducing practice* (*Study IV*). In relation to the five models of work experiences presented by Guile and Griffiths (2001), workplace learning studied here resembles the *traditional* model were students are launched into the work setting, however, traces from the next three models could also be seen. Implicitly, the practice curriculum (Billett, 2016) in the medical context comprehended activities and experiences which exposed students to yet unexplored areas of clinical practice. Together, this indicates that the exposure to variety was understood as an artefact for learning: *the greater the exposure, the greater the opportunities for learning*. This is a well-known assumption in rotation-based clinical education (Holmboe, Ginsburg, & Bernabeo, 2011). In my interpretation, the medical context seemed to assume that the rotation-based curriculum would result in sufficient learning for students. As such, the medical context here seemed to have a high reliance on the very structure of medical education. From a socio-cultural perspective, it has been argued that “learning cannot be designed; it can only be designed for” (Wenger, 1998, p. 229).

Accordingly, to take for granted that a certain level of exposure inevitable will result in learning might be a preconception not necessarily aligned with reality.

Here, the emphasis on variety meant that each placement was of short duration in time, sometimes only a few hours on each ward or out-patient clinic. The findings in this thesis suggest that rather than enabling opportunities for learning, the rotation-based approach made students deselect activities (*Study II*). The unscripted nature of clinical environments in combination with continuously needing to establish new relationships with supervisors (*Study I*) and the individual focus in learning (*Study IV*) made participation in practice difficult to access. Further, students did not strive towards participation as they did not prioritise it but instead emphasised the worth of engaging in the activities they viewed as valuable (*Studies I* and *II*). Structural aspects of the practice pedagogics (what mediates experiences) (Billett, 2016) thus implied a passive student role as there seldom was time or engagement enough for anything else. As such, the practice of workplace learning studied here was not in line with contemporary views on workplace learning advocating students' participation in patient care as crucial for learning (Bleakley & Bligh, 2008; Boor et al., 2008; Dornan et al., 2014; Steven, Wenger, Boshuizen, Scherpbier, & Dornan, 2014). Even though an underlying ambition of involvement and active participation were indeed present, the organisation and practice of workplace learning made it difficult for both students and workplaces to succeed in turning students into active participants. Van der Zwet et al. (2011) suggested that workplaces need to create 'developmental space' for students in order for them to truly learn from doing, particularly with respect for the student's role and the meaning attached to it. Workplace learning, they argue, need to create such space for students, so as they can be allowed to be learners (van der Zwet et al., 2011). I would argue that the practice of workplace learning studied here, very rarely allowed for such space to be created, as exposure were prioritised at the expense of continuity.

The emphasis on exposure rather than continuity was not only visible in the arrangement of workplace learning; it also seemed embedded in cultural aspects of practice pedagogics. Workplaces afforded students a marginal status and thereby neglected to make them participants (*Study II*). Thus, the degree of invitation can be considered low (Billett, 2011). Further, students demonstrated a low degree of engagement as they simply accepted and adapted to the environment (*Studies I* and *II*). Students' personal epistemologies (Billett, 2016) thus entailed a hands-off approach and they deliberately chose not to engage in any deeper sense within the clinical environment. Consequently, both supervisors and students seemed to find it sufficient only with exposure, irrespective of the degree of participation. Billett (2002b) however argues that experiences in themselves not automatically lead to learning. Instead, activities and experiences need to be engaged with adequately for effective learning to take place (Billett, 2016).

I would argue that three aspects formed the bases which characterised medical students' workplace learning; (i) a practice curriculum emphasising an exposure to variety, (ii) a practice pedagogics featured by low degrees of invitation as an effect of time constraints and

the assumption of an passive student role, and (iii) personal epistemologies of deliberately selecting not to engage in clinical environments as it would not pay off in terms of learning experiences. Workplace learning in the medical context thus seemed to be characterised by *bilateral detachment*. Workplaces tended to detach from students as students were not valued as participants or involved in care (*Study II*) and students detached from workplaces as their initiative were likely to not pay off in terms of learning (*Study II*). This *bilateral detachment* created a downward spiral, which from a WPP perspective results in learning of limited quality (Billett, 2002b).

Noteworthy, detachment here has little to do with a poor attitude or a lack of motivation and does not refer to the characteristics of individuals, neither that of supervisors nor that of students. Instead, detachment can be thought of as a state whereby neither students nor workplaces manage to engage sufficiently to create a viable learning environment due to, e.g. insufficient time, support or organisation for learning. Additionally, in-depth engagement in activities and procedures did not seem valued by the workplace learning culture and therefore it was rarely advocated or sought for. Instead, as seen in the dominant *regime of reproducing practice*, efficiency and effectiveness were guiding the way in which teaching and learning was enacted (*Study IV*). However, there were examples of the opposite. In the *regime of engagement in professional engagement*, the traditional role of a medical student was challenged, and the supervisors tried to make space to discuss with students instead of 'telling' them what to do. As such, there are indications that a change is on the way and that the future of workplace learning for medical students looks promising. It is however fair to say that the way in which workplace learning for medical students is currently arranged (practice curriculum) and practiced (practice pedagogics) does not support students' active participation in practice.

Dilemmas regarding loyalties in the nursing context

> *The placement is mentally pressuring… Tiptoeing around someone [the supervisor], that's exhausting. You'll have to show yourself in the best light, be alert all the time and always in a good mood.*
>
> (Interview with nursing student, *Study I*)

In this thesis, clinical education for nursing students seemed to be arranged to enable them to be actively involved in patient care. Students valued opportunities to interact with patients independently from their supervisors (*Study I*) and they were allowed to do so as the workplaces entrusted them to care for patients (*Study III*). Clinical placements were designed to be of sufficient duration for students to be able to develop independence and to negotiate membership in workplaces (*Studies I* and *III*). From a WPP perspective, clinical education was therefore designed to ensure students' engagement in patient care (practice curriculum) and, additionally, workplaces invited students to do so (practice pedagogics). The descriptions of nursing students' CLEs point towards a practice curriculum which was well

aligned with the practice pedagogics (Billett, 2016), meaning that what was intended by the curriculum also worked out that in practice as the pedagogics employed fulfilled these purposes. As such, there were opportunities for high quality learning in the nursing context (Billett, 2016). The nursing context reminds of the *work process* model of work experiences, which focuses on students attuning to the work context (Guile & Griffiths, 2001).

Each workplace held its own routines, practices, values and norms concerning patient care, which did not necessarily align with those of the student (*Study III*). As students attended several placements during the nursing programme, they were being exposed to various practices and could at times find themselves in situations where they needed to choose which practice to align to (*Study I*). Moreover, there was an emphasis on relational aspects of learning, meaning that students needed to succeed in their relationships with supervisors in order to gain access to learning (*Studies I* and *IV*). This was evident in how students strived to fill out the role they were offered by the workplace (*Study III*) and struggled with the relationship with the supervisor (*Study I*). In that sense, students wanted to belong to the workplace. Previous research, especially studies employing the theoretical perspective of CoP, has repeatedly shown how students strive towards participation and membership in the communities of clinical environments (A Hägg-Martinell, Hult, Henriksson, & Kiessling, 2014; Thrysoe, Hounsgaard, Dohn, & Wagner, 2010). In particular, belongingness has been pointed out as crucial and as a necessary prerequisite for learning in clinical environments (Thrysoe et al., 2010). Findings in this thesis indicate, in line with the aforementioned literature, that the nursing context implicitly understood learning to occur almost exclusively through relationships. In particular, this is evident in the two regimes of teaching and learning described in *Study IV*. In the *regime of participation in a partnership*, learning was thought to be facilitated through a close collaboration between the student and supervisor and in the *regime of membership in a stipulated community* learning was part of negotiating with the professional community. By contrast from the medical context, the nursing context instead held relationships as an artefact for learning; *the closer relationships, the greater opportunities for learning*. In my interpretation, the nursing context seemed to assume that a close relationship was needed for learning to take place. The nursing context thus based their practice pedagogics to a high degree on the participation metaphor acknowledging the relational view on learning (Sfard, 1998).

According to WPP, the individual engagement of students is just as important as what workplaces afford students (Billett, 2011). As demonstrated in *Study III*, students could be hesitance to align to the workplace culture. This can be viewed as an example of personal epistemologies of students (Billett, 2016); their own values concerning e.g. patient care hindered them to engage in all learning opportunities of workplaces as they were not willing to compromise with these basic values. As such, there were situations when they could elect not engage in the workplace due to differences in opinions. In one way, this might not be a problem at all; students might not need complete engagement at every clinical placement. However, as the nursing context had such a heavy emphasis on relationships, there might be a risk that students are put in difficult situations. If, for example, a student does not agree with

the practice of the workplace, it can be risky to speak up, as he or she in that case is likely to endanger the relationship with both the supervisor and other staff. From a socio-cultural perspective, it is obvious that it in some cases can be of higher importance to belong to the community then following one's own beliefs (Egan & Jaye, 2009; Wenger, 1998).

Here, I would argue the three bases comprehending nursing students' workplace learning to be the following; (i) a practice curriculum emphasising participation in patient care, (ii) practice pedagogics which was characterised by an invitational approach to students through an relational view on learning and (iii) personal epistemologies of students which in one way strived towards participation but in another way distanced themselves from practice in another way as they were hesitant to align with workplace norms. Together, this indicates that workplace learning for nursing students entailed an experience of *dilemmas regarding loyalties*. I have here touched upon several possible dilemmas; those of a moral character when students did not agree with workplaces concerning how patients were treated being one of them (*Study III*). Moral dilemmas for nursing students in clinical education have been highlighted before. Monrouxe et al. (2014) used student narratives to explore moral dilemmas in clinical education and described how nursing students experienced and reflected upon dilemmas, but not necessarily spoke up as they wanted to fit in. Research has also shown how students who were patient-centred in their approach and identified themselves as the patient's advocate demonstrated moral courage when facing poor practice (Bickhoff, Levett-Jones, & Sinclair, 2016).

Here, however, nursing students were also put in other dilemmas, for example when university teachers advocated for the performance of a procedure in one way when the clinical supervisor promoted a contradictory practice being (*Study I*). Nursing students' main dilemma thus seemed to be in terms of loyalties. As the nursing context valued relationships very high and as central for learning, nursing students to some extent needed to be loyal to the workplace. Especially, this could be seen in the *regime of participation in a partnership* where the student and supervisor built a trusting relationship with each other (*Study IV*). There might be a risk that students facing dilemmas relating to loyalty will be hindered in their learning as relationships in this context enabled access to learning. Consequently, the opportunities for learning enabled by the smart arrangement of clinical education and the invitational qualities of workplaces in combination with student engagement might be overshadowed by the vulnerability faced by students enduring dilemmas relating to loyalty. So, while the nursing context successfully have developed and implemented a workplace learning curricula in line with contemporary views on learning, there might be side effects that need to be taken into consideration.

6.3 THEORETICAL PERSPECTIVES ON WORKPLACE LEARNING

> *Without theory, experience has no meaning […] one has no questions to ask. Hence, without theory, there is no learning.*
>
> (Deming, 1993, p. 105)

Ten years ago, Alan Bleakley (2006) argued that socio-cultural theories showed the best potential in describing workplace learning. It is fair to argue that he was right, as the number of publications building on a socio-cultural perspective within medical education has been steadily increasing ever since, not least in the last few years. By employing socio-cultural theories in this thesis, an exploration of workplace learning beyond individuals' perception and individual learning was possible, including the analysis of the social and cultural contexts of learning (Bleakley et al., 2011a).

The current thesis explored workplace learning using three different theories, all of which can be found in the family of socio-cultural theories: communities of practice (CoP), workplace participatory practices (WPP) and teaching and learning regimes (TLR). Applying them to the context of clinical education demonstrated some of their inherent strengths and weaknesses in the context of their adequacy as a theory of workplace learning in the clinical environment. An overview of the contribution of the thesis to contemporary theories of workplace learning is presented in Table 6.

Communities of practice

Communities of practice were the theoretical starting point of the empirical work substantiating this thesis. The theory of CoP holds practice at the centre for how individuals find meaning through engagement in various activities (Wenger, 1998). This means that CoP as a theory can be applied to various practices, such as the practice of care or the practice of teaching and learning. In this thesis, the central practice was that of learning. CoP was beneficial in the development of an understanding of workplace learning as: first, it acknowledges interactions and relational aspects as central to learning and; second, it holds meaning and the development of an identity as core factors in entering a CoP. Further, it was useful to consider the *shared repertoires* of clinical environments, especially in *Study I* where nursing and medical students seemed to hold various norms, values and routines around learning. Additionally, it was useful in *Study II* to interpret how students were made members in the workplace and in *Study III* to discuss how students' experiences of belongingness were connected to learning.

CoP as a theoretical framework continues to be influential in medical education research. Recently, Cantillon et al. (2016) utilised the CoP perspective to describe how clinicians constructed their identity as teachers. Likewise, Hägg-Martinell et al. (2016) used CoP to describe how medical students enter, adapt and try to become accepted in clinical workplaces.

Table 6. An overview of the contribution of this thesis to contemporary theoretical perspectives on workplace learning

Theoretical perspective	View on learning	Strengths when applied to workplace learning among undergraduates	Weaknesses when applied to workplace learning among undergraduates
Communities of Practice	Learning as a social act where new members develop an identity through meaningful participation in practice.	Learning is viewed as relational. Meaning and identity are highly relevant in workplace learning. Norms, values and routines can be understood as a *shared repertoire.*	Workplace learning is involuntary. CoP underestimates the impact of hierarchies, policy and organisational aspects on the practice of workplace learning.
Workplace Participatory Practices	Learning as a relational interdependence between workplace affordances (invitational qualities) and individual engagement (personal agency).	Workplace learning is bidirectional, depending on both workplace affordances and individual engagement. Agency and intentionality are highly relevant in workplace learning. Learning is not separated from work.	Freedom of choice is not evident among undergraduates. Complete participation is not intended for undergraduates. Unclear relation to time.
Teaching and Learning Regimes	Learning is guided by a set of assumptions and rules relating to, and underpinning, the practices of teaching and learning.	Holistic view of what guides teaching and learning. Power-dynamics and rules of appropriateness are highly relevant in workplace learning.	Clinical workplaces are not primarily designed for teaching and learning. Clinical workplaces newly established as teaching regimes. Student's role in a TLR regime is vague.

CoP has also been established as a salient workplace learning theory within nursing education (Morley, 2016). For example, research has shown that nursing students tend to understand themselves as participating in a CoP of nurses to a greater or lesser extent (Thrysoe et al., 2010).

The findings in this thesis also shed light on the potential weaknesses of CoP when applied to learning in the clinical environment. A CoP is characterised by voluntary membership, driven by individuals' passion and commitment (Wenger & Snyder, 2000). However, in clinical education, neither students' nor supervisors' engagement in learning is voluntary. Students are usually required to attend clinical placements to fulfil their educational programme requirements and clinicians supervise students as part of their assignment and employment. For both students and supervisors, it seems likely that the lack of voluntarily participating in CLEs is a major limitation of the use of CoP in scholarly work concerning workplace learning. Instead of viewing workplace learning as part of a vocational practice (by definition, non-voluntary), and thereby included in one's professional role, the understanding of

workplace learning as a CoP confirms a view of clinical education as dependent on enthusiasts rather than professionals.

Additionally, as CoP is known to be an informal and distinct relational theory (Wenger, 1998), it might neglect or underestimate the influences of the surrounding world on workplace learning. Clinical environments are especially known to comprise hierarchies of various kinds (Dunn & Hansford, 1997; Hager, Brown, & Bleakley, 2006; Paradis, Leslie, & Gropper, 2016). Further, higher education and clinical environments do not exist in vacuums but are influenced by government stakeholders, e.g. through educational policies (Barman, Silén, & Laksov, 2014). Similarly, Roberts (2006) highlighted the concern of how a CoP operates within formal structures of organisations. For example, in *Study I*, where CoP was used, structural and organisational differences between the two groups of students are likely to describe some of the differences seen in their experiences.

Based on the weaknesses alluded to above, I therefore concur with Fuller and colleagues (2005) and challenge the suitability of viewing CoP as the dominant workplace learning theory. Accordingly, in the studies following *Study I*, I turned to alternative socio-cultural theories which, in my interpretation, seemed more promising in describing the nature of learning in a workplace setting.

Workplace participatory practices

WPP advocates for learning environments to be dependent on both the affordances of the workplace and the engagement of individuals (Billett, 2004). In particular, the framework argues these two dimensions to interdepend in a relation manner; thus, considering workplace learning as a bidirectional act. As such, the framework of WPP aligned with the conceptualisation of CLEs in *Studies II* and *III*, namely that CLEs were created in interaction between students and workplaces. In particular, as WPP considers learning environments to be constructed in relational interdependence between workplaces and individuals, the complex and situational nature of interactions in clinical environments seemed to be acknowledged representatively.

In WPP, individuals' agency and intentionality are viewed as core features behind their engagement in workplaces. Individuals are understood to bring with them personal epistemologies, that is, what should be learnt and how it can be learnt (Billett, 2016). In previously published models of workplace learning in medical education, participation in work activities has for example been understood to be enhanced if students' positive state of mind is developed and maintained by motivating students (Dornan et al., 2007). Students' motivation was here understood to be determined by how these students were treated in the clinical environment. Motivation was thus seen as a consequence of previous experience rather than internally governed. According to Billett (2011), individual engagement is shaped by agency based on students' personal histories and, as such, is perhaps a much more stable, personal and inherent feature than motivation (as described by Dornan et al.). The advantage of considering individual agency and personal epistemologies in the exploration of workplace

learning in this thesis was that students' individual variations and intentionality became visible. This was obvious in how the nursing students in *Study III* demonstrated hesitance to aligning with workplace norms. From my interpretation, this was neither a lack of motivation nor an issue of exclusion; students' own agency inhibited them to become full participants in practice. There is also a possible limitation to WPP here. In Billett's work, it seems like individuals always have the possibility to elect the degree to which they engage in a workplace (Billett, 2002b). However, in relation to students it is worth considering the extent to which they had this possibility. There are inherent power imbalances between workplaces and students. These might be even more established by the fact that students are assessed and their future careers are in that way in the hands of the workplace. By contrast, an employer always has the choice to leave the workplace and apply for another position elsewhere. So, the extent to which students could elect to engage can be questioned. As such, TLR might for this specific aspect of workplace learning be a more suitable framework.

In WPP, learning is not viewed as separate from work (Billett, 2002b); thus, the labelling of 'workers' and 'learners' in somewhat artificial. In medical education, the combination of 'worker' and 'learner' is well known, especially since doctors under specialist training combine learning with working (e.g. Skipper, Nøhr, Jacobsen, & Musaeus, 2016). Billett (2016) further argues that learning is not restricted to intentional educational activities, but can instead be found in all kinds of activities. In his opinion, there might be a risk that learners do not engage in educationally valuable activities as they are not viewed as such by neither the workplace nor the learners. Adopting this view of workplace learning in the context of undergraduate students enabled a broader view of what learning was understood to be as well as what an educational activity could be. For example, taking a WPP perspective on the medical students' workplace learning, such as in *Study II*, revealed the marginal status students were given in relation to the practice of care. One can argue that the medical students in *Study II* indeed were members in some sense as their presence and role as learners were legitimate. However, the assumption that work and learning are integrated suggests that students' status as neither learners nor workers was evident.

It is important to mention that herein also lies, as per the thesis, the most prominent limitation in applying WPP to workplace learning among undergraduate students. In the clinical environment, undergraduate students can never be complete workers, first and foremost, due to legal constraints such as medical responsibility and prescription allowances. Second, and perhaps more worthy of consideration, a healthcare professional programme never intend for students to become full participants in a workplace as it is not part of the curriculum. In that sense, students will always be workplace guests.

Another limitation of WPP is its unclear relation to time. It is evident that WPPs are founded in the workplace's history and tradition (Billett, 2002b). However, the amount of time needed for an individual to understand what the workplace is affording them as well as time needed to develop engagement seems, to me, elusively described. Reasonable, it seems rather to be a matter of long term commitment (years) than a quick fix (days). However, in the design and

practice of undergraduate students' clinical education, time is a scarce commodity and therefore, under constant debate. Thus, WPP could benefit from considering how the time factor interplays within workplace affordances and individual engagement.

To date, there are only a few examples of empirical studies adopting the framework of WPP to learning in the clinical environment. Newton et al. (2009) analyse the invitational qualities of workplaces to explore nursing students' workplace learning. Chen and colleagues (2014) have utilised WPP to investigate early clinical experiences for medical students in the context of student-run clinics in the USA. In these two examples, as well as in this thesis, conceptualising learning in the clinical environment according to WPP alluded to new perspectives on the current issue. In line with the strengths pointed out here, I would therefore advocate for an extended use of WPP when studying learning in clinical environments. The limitations highlighted however need be taken into consideration in the further application of WPP to the context of undergraduate students. In particular, I would urge the future advancement of WPP to consider the degree to which individuals in various roles (e.g. an undergraduate student) can be expected to participate. Also, dimensions of power imbalances and time need to be considered.

Teaching and learning regimes

With basis in the aforementioned limitations with CoP and WPP, the framework of TLRs demonstrated promise in providing complementary perspectives on workplace learning. In *Study IV*, the framework of TLRs was therefore used deductively to describe and interpret learning in clinical environments. To the best of my knowledge, this was the first time TLRs was adopted to clinical environments, thus offering a novel approach to workplace learning. The concept of TLRs was developed in the context of higher education. It can be understood as a set of relations situated in local communities but also influenced by organisational factors such as top-down policies or educational reforms. This was the case in this thesis where the practice of workplace learning could be seen as being influenced by both local and organisational factors. As such, the TLR framework proved to take a holistic view of workplace learning, incorporating various factors considered to guide teaching and learning.

Furthermore, perhaps the most prominent contribution of TLRs was the acknowledgement of power dynamics and rules of appropriateness salient in TLRs. In workplace learning, these features were highly relevant and assisted in the development of an understanding of how teaching and learning were put into practice. The TLRs emphasised that learning in the clinical environment was not always a cheerful and harmonious activity but also included hierarchies and distributions of power.

However, the TLR framework also demonstrated potential limitations. As the TLR framework is primarily developed for teaching and learning within higher education, it might not be perfectly suited for clinical environments. Clinical environments are usually designed primarily for patient care, not for teaching and learning. However, this can be the case for universities since some hold research as their main activity. Furthermore, many universities

have a long tradition of teaching whereas the teaching responsibilities of a clinical workplace have only recently have been formalised. This is evident, e.g. in how many clinicians find it difficult to reflect upon their development as teachers (Stenfors-Hayes, Hult, & Dahlgren, 2012). Finally, one can argue that the role of students is limited in the framework of TLR as it is a teacher-oriented framework. As such, the TLR framework is not in perfect alignment with the conceptualisation of learning environments advocated for in this thesis. However, as mentioned, it was still assistive in advancing our understanding of workplace learning in clinical environments.

A socio-cultural perspective on workplace learning

In sum, the three socio-cultural learning theories applied here all demonstrated strengths and weaknesses in relation to their suitability as workplace learning theories. While CoP has contributed with important insights into the nature of workplace learning, the lack of voluntariness in clinical education is difficult to neglect and will most likely impact the way students engage and interact with CLEs. In my interpretation, it is troublesome to disregard this feature of workplace learning concerning undergraduate students. Additionally, as Fuller and colleagues (2005) note, CoP tends to neglect the contribution of individuals, in this case students, in the creation of a community. In particular, the contribution and significance of students' personal epistemologies in the creation of CLEs was evident in the findings of this thesis.

By contrast, the perspective of WPP addresses some of these limitations by acknowledging the bidirectional nature of workplace learning. Thus, viewing CLEs as a relational interdependence between workplace affordances and individual engagement was a useful way of making sense of the findings here. Therefore, WPP demonstrates to date the most promising theoretical framework for understanding workplace learning in the clinical environment; although with a few limitations. As a complement, TLRs can be useful in interpreting what guides teaching and learning; however it does not at the time seem suitable as a prominent workplace learning theory.

6.4 LEARNING IN THE CLINICAL ENVIRONMENT

> *You yourself are responsible for your own learning and you will have to make the best out of the situation if you really want to learn.*
>
> (Interview with nursing student, *Study I*)

This thesis set out to investigate learning in clinical environments. Learning in authentic environments was highly valued by both the nursing and medical context investigated here. The strengths of learning from an authentic setting were regularly stressed and as such, learning in the clinical environment was prioritised and of high value. Similarly, in the literature, the value of learning in authentic clinical environments is well established (Bleakley, 2006; Manninen et al., 2013; van der Zwet et al., 2011). The importance of

learning in clinical environments does therefore not seem to be under debate. Rather, it is the manner in which clinical education is designed and enacted which needs to be considered.

The two cases of workplace learning in clinical environments studied here (medical and nursing context) highlighted various aspects as pivotal in relation to the nature of learning in work-based settings. In these final remarks on learning in the clinical environment, I would like to draw attention to four prominent features of workplace learning which has emerged in this thesis: (i) structure, (ii) epistemological assumptions, (iii) inherent capacities and (iv) student agency.

First, learning in the clinical environment seems highly dependent on the structure and design of clinical education. For example, the effects of the length of placements are from a socio-cultural perspective substantial. Acknowledging the social nature of learning as done in this thesis, revealed how students needed to establish relationships within the clinical environment. On the one hand, shorter placements can make relationships superficial and temporary, something that can make learning inaccessible. On the other hand, longer placements could make relationships take attention from learning as the social aspects of entering a workplace were considerable. Another example relates to how learning activities were arranged. The underlying ambition with clinical education within each programme studied here (e.g. exposure to variety or developing independence) were evident in the way placements were arranged and structured. Therefore, alternative goals were difficult to arrange for within the current structure. This could be seen in the *regime of engagement in professional development* in the medical context where supervisors within a rotational schedule tried mixed results to challenge the traditional role of students with (*Study IV*).

Second, the way in which learning in the clinical environment are practiced seems to be influenced by epistemological assumptions related to teaching and learning. Especially, this was seen in *Study IV* where the nursing context was built upon a relational view on learning whereas the medical context had adopted a more individualistic view on learning. Roughly said, the medical context seemed to lean more towards a psychological perspective on learning whereas the nursing context acknowledges socio-cultural views to a higher degree (Hager, 2011; Mann, 2011). It might here be interesting to consider how medicine as a scientific field traditionally has been dominated by the post-positivist paradigm whereas alternative paradigm has been more commonly found within nursing. As such, it seems like the dominating epistemological assumptions in each context were highly influential regarding the way in which individuals approached learning. In general, discussions concerning which epistemological assumptions are guiding the way in which teaching and learning is practiced are rare in medical education. Nonetheless, they were in this thesis found to be of high influence for learning in the clinical environment.

Third, learning in the clinical environment could in many cases be regarded as a success due to individuals' capabilities and engagement to make something of it; that is, their inherent capacities. In many cases, the creation of a fruitful CLE was dependent on the commitment of a single supervisor and a single student in that specific situation. At times, the circumstances

were fair and the no extraordinary engagement was needed for students and supervisors to create learning opportunities of acceptable quality. However, at other times, the conditions for creating learning opportunities were scarce. Still, individuals, both supervisors and students made a substantial effort to make it work anyway and their ambition and interest in providing student with learning opportunities of high quality was substantial. Piquette et al. (2015) described how supervisors and trainees in some cases managed to modify challenging conditions and turn it into a 'learning momentum'. Likewise, I would argue that the seemingly unfavourable conditions were compensated by the inherent capacities of individuals.

Fourth, and final, learning in the clinical environment were not entirely dependent on how well workplaces succeeded in inviting and including students. The way in which the agency of students influenced their way of engaging with clinical environments was prominent. Student agency can be thought of as their unique personal histories which have been socially derived through their previous experiences (Billett, 2011). Agency thus are more stable and inherent then e.g. motivation or interest of students. Importantly, student agency seemed in this thesis to be shaped by the practice curriculum and pedagogics of the workplace. Agency of students is as such not autonomous from the workplace. It was this emerging insight that caused the shift towards Billett's conceptualisation of workplace as learning environments in this thesis in the first place. Similarly, scholars have in recent years argued that students' part in creating CLEs is just as important as the workplaces' (Duvivier, Stalmeijer, van Dalen, van der Vleuten, & Scherpbier, 2014; van der Zwet, Dornan, Teunissen, de Jonge, & Scherpbier, 2014). This might be a reflection of the conceptual development in the research concerning workplace learning where socio-cultural perspectives gain interest at the expense of psychological ones. To conclude my final remarks on learning in the clinical environment, I will in the following section make an argument for the way in which student agency can be considered to be the main message of this thesis.

From consumer to stakeholder

As mentioned in the introduction, CLEs have been extensively researched in medical education. Following the discourse of a psychological view on learning, a number of questionnaires have been developed and validated in order to measure students' perceptions of the environment. Even though the limitations of these instruments are regularly emphasized, they are used in a manner which entails a view of CLEs as a feature which is consumed by students. Workplaces deliver clinical placements which are consumed by students and afterwards students will evaluate through grading the placement in a number of aspects. I would argue that this discourse endorse the notion of a passive student receiving education. For example, one of the items in UCEEM reads as follows: *I am encouraged to participate actively in the work here* (P. Strand et al., 2013, p. 1023). This could be read as students are expected to passively wait until someone encourages them to participate in patient care; thus, their role as consumers are reproduced in this discourse. Noteworthy, questionnaires can be of value in advancing knowledge on how CLEs operates. However, the

way in which many are currently designed might reflect the reciprocal nature of workplace learning.

By contrast, the discourse argued for in this thesis entails the view of students as co-creators of CLEs. Acknowledging the social nature of learning shed light on how the same recipe will not work everyone; instead, learning is dependent also on the learner and his/her abilities, incentives, and intentionality, that is, agency. In line with the aforementioned arguments that CLEs are not a stable institution but rather created in interactions between students and the workplace setting, as the main message of this thesis I would therefore argue for an upgrading of students as an important stakeholder in workplace learning. In the case where students are viewed as active agents in refining and reshaping practice, their agency can be sufficiently acknowledged. Such a development would not only give proper weight to students' ability to be co-creators of CLEs, it would also increase their responsibilities as learner in the clinical environment.

6.5 METHODOLOGICAL CONSIDERATIONS

This thesis serves as an important contribution to the research field of medical education as it strives to go beyond student satisfaction and perceptions in the exploration of workplace learning (Bleakley et al., 2011b). The two cases included in this thesis (the medical and nursing contexts) can be viewed as a multiple case study exploring workplace learning (Baxter & Jack, 2008; Yin, 2014). Including students from two professions was helpful in advancing the understanding of workplace learning as it enabled contrasts between the two professions, the two cases, to be drawn (Baxter & Jack, 2008; Larsson, 2009).

Sandelowski (2000) argues that instead of inappropriately naming a study something that it is not, one can describe the overtones from other methodologies that have been used. Likewise, Varpio and colleagues (2015) have advocated for methodological flexibility, suggesting that one can intentionally borrow, for example, a data collecting tool from a research tradition without fully immersing oneself into that tradition. Indeed, *Studies II–IV* held substantial overtones from the ethnographic tradition. The way in which the phenomenon was approached methodologically was influenced by the way of defining a culture-sharing group and giving substantial weight to beliefs, values and norms (Creswell, 2012). However, I would not label them as such, as in my view, it would have required a longer and more persevering commitment to field observation in a single setting than was the case here. In line with Sandelowski (2000), I have sought to explicitly describe the overtones used here instead of dropping various methodological names.

One major challenge in utilising the case study methodology is usually defining the case (Yin, 2014). This was equally true in this thesis. Initially, the data in *Study I* was analysed as a whole, meaning that students' (both medical and nursing) experiences of the CLE were analysed. However, this strategy proved to be challenging. Describing medical and nursing students' experiences was like trying to portray what apples and oranges look like in one picture. Consequently, in *Study I*, the nursing and medical students' experiences were

reported in parallel. This experience from *Study I* had two consequences for the subsequent studies. First, the case under study for *Studies II–IV* was focusing on the profession rather than one site of data collection. Initially, the intention was to view a single site as one case, but the insights from the analytical process in *Study I* led to this decision. Second, the decision was made to analyse data from observations of medical and nursing students separately to not overemphasise the differences between the two groups of students. Thus, even though data for *Studies II* and *III* were collected during the same time period, analyses of the two data sets (observations and interviews regarding medical and nursing students respectively) were performed separately in time.

The amount of data collected in this thesis was limited. This could be regarded as restricting the credibility of the findings as prolonged and persistent observations might be needed to fully understand the phenomenon (Houghton, Casey, Shaw, & Murphy, 2013). The decision not to gather extensive amounts of data was however a deliberate choice as priority was given to sufficient time to analyze data, a strategy advocated by many (Baxter & Jack, 2008; Kvale & Brinkmann, 2009). Additionally, there was an emphasis on the theoretical anchoring of the data, analysis and findings which was given priority over large amount of data. Importantly and as previously mentioned, the amount of data is in the interpretative tradition not by default correlated to methodological quality. Instead, priority is given to the extent to which the findings advance our understanding of a phenomenon (Lincoln et al., 2011).

It is possible, and even likely, that another researcher would have noted different aspects during observations and, likewise, would have interpreted the data differently, consequently coming up with different themes. According to Preissle (2006), the conceptual framing (i.e. explanation) of qualitative inquiries is dependent on philosophical and theoretical assumptions. As such, the way in which qualitative research is executed is determined by what the researcher brings to the study in terms of conceptualisations and theoretical orientation. Therefore, reproducibility was not an aim. Instead, I have attempted to be explicit about what theories I have employed (e.g. Figure 2) and how I have used them for users to make sense of the findings (Preissle, 2006). Further and as previously mentioned, the analytical processes were performed in a research group where diversity in experiences and theoretical perspectives as well as methodological competence was sought for. Therefore, interpretations have been a collaborative activity towards consensus.

Including two different groups of students in the same research project, shed light on the difficulties involved in comparing seemingly comparable groups of students. Here, the initial intention in comparing medical and nursing students' experiences in *Study I* led to an analysis of contrasts instead. Likewise, the extent to which findings are transferable to international settings can be questioned. It has been highlighted that the practice of medical students' workplace learning differs around the world. Dutch and North American contexts (and I would also add the Swedish context) seem to involve students as participants in practice to a greater extent than in the British context (Dornan, 2012). Similarly, as nursing education

programmes varies the world over not the least in terms of academic status, these comparisons are challenging.

Since the work on this thesis was initiated, medical education has continued its development into the research field, building on sound conceptual frameworks and systematic research programmes. Only a few years ago, the field was criticised for not precisely and sufficiently describing how inquiries were informed by conceptual frameworks and for lacking epistemological discussions (Bunniss & Kelly, 2010; Rees & Monrouxe, 2010). However, it is now argued that a change is underway as the number of studies employing conceptual frameworks seems to be increasing (Teunissen, 2016). In this thesis, I have tried to address the aforementioned critique through the use of relevant theories of workplace learning and by being explicit about my epistemological and ontological assumptions.

I took a socio-cultural perspective in this thesis. Hodges and Kuper (2012) highlighted that engaging with theories in medical education is not a simple task. They argue that the use of theories requires extensive reading to understand them, and the ability to articulate ones beliefs and embrace discussions involving diverse points of view. In particular, employing socio-cultural theories seems to be a great challenge. The field of medical education have long been influenced by cognitive perspectives which might make it challenging to completely embrace into a socio-cultural one (Bleakley et al., 2011b). Sfard (1998) argue that research in education tend to describe learning in a cognitive manner as the acquisition metaphor are so deeply embedded in the field. This tendency seem to origin from the deep post-positivist roots of medical education (Varpio et al., 2015) and I believe that I am no exception. With my medical background and as a novice researcher, it has been a challenge to enter the medical education research field, especially with regards to qualitative methods and socio-cultural theories. Therefore, traces from other methodological and theoretical perspectives can very well be visible in the thesis.

7 CONCLUSIONS

This thesis explored workplace learning among undergraduate medical and nursing students through employing a qualitative approach to inquiry situated in an interpretative tradition. As such, the thesis sought to describe some of the ways in which workplace learning are constituted. Findings in this thesis can be summarised in the following conclusions:

- Workplace learning was demonstrated to be built upon fundamentally varying perspectives on learning in the medical and the nursing context respectively. Epistemological assumptions in each context therefore had major implications for the way in which workplace learning was practiced.

- Workplace learning for medical students was arranged according to an ambition to expose students to a variety of clinical practice. Workplaces' degree of invitation can be considered low as they neglected to invite medical students to participation in patient care. Likewise, medical students' engagement can be regarded as being limited as they deselected activities they did not perceive as rewarding enough in terms of learning. For medical students, workplace learning was thus characterised by a *bilateral detachment*. The way in which workplace learning among medical students is currently arranged and enacted does not seem to support students' active participation in practice.

- Workplace learning for nursing students was organised for students to be actively involved in patient care and workplaces' invitational ability was prominent. Nursing students' engagement was directed towards participation in patient care while at the same time comprising a hesitance to negotiate their basic values and align with workplace norms. Nursing students could face *dilemmas regarding loyalties* as the relational view on learning was extensive in the nursing context. So even though workplace learning among nursing students was in line with contemporary views on learning, there might be substantial side effects.

This thesis has alluded to limitations with the influential theoretical framework of communities of practice and has instead suggested workplace participatory practices as to a higher degree reflect to the nature of workplace learning, not the least as student agency are adequately addressed. This thesis therefore argues that workplace learning is best described as a relational interdependence between workplace affordances and individual engagement.

In line with a shift in the understanding of CLEs from a measureable and stable institution towards acknowledging the social nature of learning in the clinical environment, the main message in this thesis argues for an upgrading of students as a powerful stakeholder in workplace learning; so as not to view students as consumers of clinical education.

7.1 IMPLICATIONS FOR PRACTICE

Findings in this thesis raise some questions regarding the way in which clinical education is designed and enacted in currently. Importantly, there seems to be a great interest among students, supervisors and teachers to create learning opportunities of high quality. It can therefore be argued that the starting point of any implementation project looks promising.

With reference to the medical context, there are some fundamental implications stemming from this thesis. I believe the emphasis on exposing students to a variety of clinical practices needs to be questioned. The incentive behind the exposure emphasis is adequate as students may have use of various experiences in their future professional work. However, this strategy had substantial consequences for the quality of their learning as participation in practice was challenging to arrive on. Based on this thesis, I would suggest medical faculties offering medical programmes to consider the way in which clinical education is arranged and designed. As a suggestion, I believe medical students' workplace learning would benefit from continuity in terms of practice, supervision and location. Such initiatives have already been taken at several universities in Sweden. Moreover, extended and coherent rotations have been suggested in a governmental investigation (SOU 2013:15). Longitudinal integrated clerkships (LICs) are currently introduced in many medical programmes over the world to address the lack of continuity associated with short rotations (Thistlethwaite et al., 2013). The suspicion that students in LICs would miss out on knowledge has, at least to some extent, been disproved as students in LICs perform even better in examinations then students in traditional curriculum (Latessa et al., 2015). To date, LICs therefore look promising; however, studies on long-term effects are still not available. Further, Chen and colleagues (2014) have recently challenged the traditional focus on breadth where students need to acquire a certain level of expertise before being included as participants in practice and instead suggested students to achieve depth in a narrow clinical area during an extended period of time. They argue that students in the curricular model prioritising depth would be able to enter legitimate participation earlier and build their educational breadth over time (Chen et al., 2014). Consequently, there are both examples and arguments in the literature supporting the challenge of rotation-based curriculum highlighted here.

Further, I would suggest the medical context to address the perspective of learning enacted, not the least given that the dominating *regime of reproducing practice*, in my interpretation, demonstrated a rather simplistic view of learning. The success of a reform in line with the abovementioned is likely to be dependent on the way in which it is interpreted and implemented by students and supervisors. Therefore, to simultaneously make an effort to advance the understanding of learning in the medical context seems reasonable.

Some suggestions for implications based on the side effects identified in the nursing context can also be made. The practice curriculum and pedagogics described in this thesis were certainly beneficial in terms of the quality of students' learning. The power imbalances and students' status as newcomers could, by contrast, overshadow learning. I believe the vulnerable position students are faced with during clinical education needs to be addressed.

Noteworthy, the inferior power position is reinforced by the fact that students are being assessed and that clinical placements are mandatory. As a suggestion, I believe students can benefit from being a critical mass of students at each ward. By extension could clinical education wards, such as the one described and inquired by Manninen (2014), be preferable alternatives to regular clinical placements. In the case where students learn together with peers, power imbalances might be mitigated.

The heavy emphasis on relationships is also worth reflecting upon. I believe supervisors and students can have trusting relationships constituting a solid base for learning without being like friends or siblings. The *regime of participation in a partnership* might work well for students and supervisors who get along and have instant chemistry. However, in other cases, the student might not get access to learning as the relationship with the supervisor becomes insufficient. I would therefore suggest the nursing community to consider the way in which relationships are used as a basis for learning.

As epistemological assumptions had such major influence on workplace learning practices, I would urge both the medical and nursing context to reflect upon the underpinnings of educational practices that guide supervision and learning in the clinical environment. The varying assumptions relating to learning identified in the two contexts also raise questions relating to interprofessional collaboration and interprofessional education (IPE). Physicians and nurses are supposed to collaboratively deliver patient care together on a daily basis, something that can be a real challenge. Enhancing teamwork was one of the reasons why IPE was initiated in the first place; however its effectiveness has been challenging to demonstrate (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). I believe this thesis might have important clues here. If these two professions hold different views on what can be learnt and how it can be learnt, it might cause tensions between them when are supposed to learn together. Therefore, I would suggest IPE initiatives to consider the way in which the varying epistemological assumptions might impact students' approaches to IPE activities. Additionally, I would suggest IPE educators to reflect upon which epistemological assumptions their IPE activities are based upon.

Finally, a central implication of this thesis relates to educational development. Here, findings shed light on how the practice of workplace learning was a product of various aspects which interdepended in a relational manner. Therefore, attention needs to be made to all of these aspects in the case of an implementation process.

7.2 FUTURE PERSPECTIVES

Some suggestions for future research have emerged during this work. In line with upgrading students to be considered as a powerful stakeholder in workplace learning, I would argue for a shift of focus in research from how students perceive and experience clinical education to instead inquiry their contribution in the creation of CLEs. For example, questionnaires including items inquiring student agency and engagement could be useful as well as phrasing items in a way which assumed co-creation instead of consumption of CLEs.

I would also suggest future research to further explore epistemological assumptions and the way in which they guide the practice of workplace learning. For example, Strand and colleagues (2015) recently investigated physicians' conceptions of learning which resulted in a description of three metaphors of learning. More studies like Strand et al.'s would be useful in the further advancement of knowledge on learning in the clinical environment. In a previous study, it was found that the philosophy of care seemed to be associated with philosophy of learning (Laksov, Boman, Liljedahl, & Björck, 2015). It would therefore be of interest to expand the perspective on workplace learning to include not only students, but all learners at a workplace. It would be of interest to explore how professionals learn, in particular professionals who combines the role of professional and learner (e.g. residents).

The socio-cultural perspective proved to be powerful in exploring workplace learning among undergraduates. In particular, WPP was useful to understand and interpret the nature of learning in the clinical environment and I would therefore suggest for an extended use of WPP in medical education. The lesson that I have learnt during this work is however that socio-cultural theories takes some time to get through and understand in-depth. It might be appealing to apply a certain theory as part of an effort to enhance quality. I would however suggest for theories to not be used uncritically and briefly, but under careful consideration and with a deliberate purpose.

8 POPULÄRVETENSKAPLIG SAMMANFATTNING PÅ SVENSKA

Både läkare och sjuksköterskor har under sin grundutbildning långa perioder av praktik på sjukhus, vårdcentraler och andra sjukvårdsinrättningar för att lära sig de kunskaper, färdigheter och förhållningssätt som behövs för att kunna utföra yrket på ett patientsäkert sätt. Praktikperioderna brukar sammanfattas i begreppet klinisk utbildning och kan innefatta träning på dockor och simuleringar, men är till största delen uppbyggt på att studenterna deltar i den sjukvård som bedrivs på den platsen där de har sin praktik. Denna avhandling har titeln *Lärande i den kliniska miljön* och fokuserar på hur läkarstudenter och sjuksköterskestudenter lär sig i klinisk utbildning.

Traditionellt sett har lärande främst kopplats samman med formella utbildningar inom ramen för ett universitet eller högskola. Lärandet som sker på en arbetsplats (exempelvis, på ett sjukhus) har dock erhållit allt större intresse inom medicinsk pedagogik de senaste årtionden och detta lärande erbjuder andra utmaningar och möjligheter jämfört med lärande på ett universitet. Lärande som sker i ett sammanhang företrädesvis designat och organiserat för en verksamhet (exempelvis, vård) brukar kallas arbetsintegrerade lärandet (AL)[3]. Inom AL är det inte bara studenter som lär sig utan alla aktörer inom organisationen kan anses lära sig nya kunskaper genom att utföra arbete tillsammans med andra.

Historiskt har AL beskrivits med förklaringar som utgår från individer (psykologiska teorier) men alltmer används istället modeller som utgår från sociala sammanhang (sociokulturella teorier). I denna avhandling användes tre sociokulturella teorier: Praktikgemenskaper (Communities of practice), Deltagande praktiker (Workplace participatory practices) och Regimer för undervisning och lärande (Teaching and learning regimes). Dessa teorier kan belysa olika aspekter av lärande i den kliniska miljön.

Syftet med denna avhandling var att undersöka arbetsintegrerat lärande för läkarstudenter och sjuksköterskestudenter. Avhandlingen ville inte bara undersöka studenternas erfarenheter av AL utan också utforska arbetsplatsens sätt att bjuda in studenter och studenternas sätt att engagera sig i arbetet på arbetsplatsen samt identifiera vilka underliggande antaganden om undervisning och lärande som styrde hur AL praktiserades.

Avhandlingen sökte inte efter att avslöja några sanningar utan ville istället hitta ett möjligt sätt att beskriva lärande i den kliniska miljön. Arbetet var således kvalitativt och istället för att samla in stora mängder data lades stor vikt vid att djupgående analysera datan. För att samla in data användes individuella intervjuer med studenter och handledare samt observationer i kliniska miljöer. Jag skuggade studenter under hela dagar och skrev anteckningar kring vad som hände och hur jag preliminärt tolkade dessa. En djuplodande

[3] Även begreppet verksamhetsintegrerat lärande (ViL) och verksamhetsförlagd utbildning (VFU) används för att beskriva studenters lärande i en arbetsbaserad kontext. ViL är dock begränsat till att åsyfta studenters lärande medan AL här kan åsyfta samtliga aktörers lärande.

analys gjordes sedan tillsammans med de andra forskarna i gruppen. Alla studenter och handledare deltog frivilligt i studierna.

Avhandlingen visar att det fanns en mängd olika aktiviteter som läkarstudenterna skulle kunna engagera sig i. De hade ingen egentlig betydelse i sjukvården utan fick på många sätt klara sig på egen hand. Därför anpassade de sig efter omständigheterna och hade en relativt passiv inställning. Läkarstudenternas lärande var därför inte organiserat på det sättet som forskningen menar är viktigt för att studenter ska kunna lära sig på ett bra sätt.

För sjuksköterskestudenterna visar avhandlingen att lärandet var organiserat på ett sätt som gjorde det möjligt för dem att vara med i vården av patienter. De lärde sig alltså genom att få tillåtelse av sjukvården att ta ansvar för patienterna självständigt. Sjuksköterskestudenter kunde ibland uppleva att vården inte bedrevs på det sätt som de föreställde sig och de hamnade då i dilemman kring hur de skulle agera. Ibland blev de tveksamma till om de verkligen ville vara en del av arbetsgemenskapen. Så även om sjuksköterskestudenters lärande var organiserat på ett sätt som gjorde att de kunde lära sig mycket så fanns det även nackdelar med detta.

Lärande i den kliniska miljön verkade vara byggda på helt olika sätt att förstå lärande. Bland läkarstudenter fanns en tanke om att man lärde sig genom att kunna mer. Bland sjuksköterskestudenter fanns istället mer fokus på hur resan mot att kunna mer såg ut. Dessa olika sätt verkade till stor del påverka hur man sedan organiserade AL.

När teorin Praktikgemenskap användes så visade det sig att den inte var helt perfekt för att tolka och förklara AL. Istället visade det sig att Deltagande praktiker på ett mycket mer träffsäkert sätt beskrev det sätt som lärande sker på i den kliniska miljön. Därför föreslår jag i avhandlingen att Deltagande praktiker borde användas i första hand i kommande studier.

Tidigare har många tänkt att AL går att mäta och att det är något stabilt som inte ändrar sig så mycket beroende på vilken student som har praktik. Det har dock blivit allt vanligare att sociala aspekter tas med i beräkningen när det pratas om lärande i den kliniska miljön. I denna avhandling är det tydligt att studenten inte kan betraktas som en konsument av AL utan måste uppgraderas till att vara en inflytelserik aktör i AL. Studentens roll i att bidra till lärande i den kliniska miljön har kanske underskattats förut.

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