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"I just stand around and look friendly" – Comparing medical students' and physicians' ward round scripts

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ABSTRACT

Background: Even though ward rounds are important learning opportunities for medical students, unfavourable ward round scripts of students and physicians may hinder learning in such situations. We investigated medical students' and physicians' ward round scripts with respect to (a) the content focus of ward round activities, and (b) the potential of these activities for knowledge construction.

Methods: We conducted standardized interviews with 50 medical students and physicians in internal medicine at different expertise stages. Activities participants labelled as typical for ward rounds were coded with respect to their content focus and their potential with regard to knowledge construction.

Results: Regarding content focus, especially residents mainly named activities bound to patient care. Teaching- and learning-related activities were very rare, but more frequently mentioned by students and more experienced physicians. With respect to potential for knowledge construction, students regarded significantly more passive activities (= low potential for knowledge construction) as typical for ward rounds, especially when they described their own role.

Conclusions: Medical students should be supported in their development of conceiving ward rounds as valuable learning opportunities. Residents should be asked to take their teaching responsibility seriously, for example by demanding an active engagement of the students during ward rounds.

Introduction and aims of the study

Ward rounds represent a daily routine in hospitals all over the world. They constitute complex situations that require accurate decision-making, distributing responsibilities and fulfilling different needs at the same time. Ward rounds mainly serve two purposes: first, they aim at providing patients with high-quality medical treatment which includes the execution of medical (i.e. physical examination), social (i.e. communication with patients), and administrative (i.e. documentation) activities (Norgaard et al. 2004). Second, they serve as educational encounters for physicians and students (AlMutar et al. 2013).

Even though ward rounds are a daily routine, Claridge (2011) found that only 18% of foundation year doctor learning occurs on ward rounds, and identified a number of obstacles for learning to take place during ward rounds, such as 'lack of time, increasing patient numbers, and an absence of team consistency' (p. 558).

We argue that one additional reason might be that medical students often might hold unfavorable ward round scripts (Schank 1999). In other words, they might not conceive ward rounds as learning opportunities, which in turn might lead them to view their own role during ward rounds as rather passive. This is problematic, since a passive engagement in learning situations has a lower potential for knowledge construction and learning than a more active and constructive engagement (Chi and Wylie 2014). A passive engagement in ward rounds on behalf of the students might further become more likely when more experienced members of the ward round team largely neglect the educational value of ward rounds.

Thus, the empirical study reported in this article seeks to uncover medical students' conceptions of ward rounds, in

Practice points

- Even though ward rounds are seen as important learning opportunities for medical students, unfavourable ward round scripts of students and physicians may act as learning barriers in such situations.
- Standardized interviews with $N = 50$ medical students and physicians studying or working in internal medicine at different expertise stages (final year medical students, medical interns, residents, and senior physicians) at a university hospital showed that ward rounds were hardly regarded as an arena for teaching and learning.
- Especially students described ward rounds as a mainly passive experience, particularly with respect to their own role.
- Medical students should be supported in their development of conceiving ward rounds as valuable learning opportunities, especially by emphasizing their role as active and constructive learners.
- Especially residents should be asked to take their teaching responsibility in ward rounds seriously, for example by demanding an active engagement of students during ward rounds.

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particular with respect to the kinds of activities that they expect to happen and to engage in during rounds, and to contrast their conceptions with those of more experienced ward round teams (medical interns, residents and senior physicians).

Conceptualizing ward round-specific knowledge as scripts

How individuals understand situations, and how they know how to act in them is at the core of Schank's (1999) script concept (see also Kiesewetter et al. 2016). According to these authors, scripts are memory structures individuals develop through repeated experience with certain classes of situations. They consist of knowledge about situations, actors, and their typical actions in such situations (Schank 1999).

As Fischer et al. (2013) argued, scripts consist of four components: play, scenes, scriptlets, and roles. The *play* component comprises knowledge about the overall situation a person is currently facing, such as the ward round. The *scene* component covers knowledge about the phases of the play (Kellermann et al. 1989). In the ward round script, a doctor may for example expect a sequence of the following scenes: chart consultation, communication with patient, treatment planning. The *scriptlet* component encompasses knowledge about the activities that typically occur within a scene, e.g. asking patient questions, inviting students to perform a physical examination etc. Finally, the *role* component represents knowledge about the 'actors' within the play, i.e. the persons expected to be present in the situation. In a ward round, this might be the patient, the nurse, the medical student, the resident, or the senior physician.

We argue that an application of the script concept to the ward round context is promising, because it offers a theoretical lens through which to conceptualize medical students' and physicians' knowledge about ward rounds. For the purpose of this article, we specifically focus on the scriptlet and the role components of ward round scripts, i.e. the knowledge and expectation of the kinds of activities that medical students and physicians regard as typical for their own and for each others' roles.

Content focus of ward-round related activities and their potential for knowledge construction

As described, knowledge about typical activities of the different individuals involved in a certain situation (in our case: in ward rounds) is stored in so-called scriptlets (Fischer et al. 2013). In the context of this article, we look at activities that occur during ward rounds from two perspectives: (a) their content focus, and (b) their potential for knowledge construction.

Content focus

With respect to their content focus, we differentiate between medical, social, administrative, and teaching and learning activities that are linked to the two main purposes of ward rounds: providing treatment to patients (Norgaard et al. 2004) and education of ward round participants (AlMutar et al. 2013). *Medical* activities refer directly to the treatment of the patient. Examples are 'clarify medical goals,' 'give treatment-related suggestions' or 'take blood sample' (see O'Hare 2008; Tariq et al. 2010). *Social* activities refer to interactive tasks that help establish a trustful atmosphere within the ward round team and between the team and the patient. In that way, they may serve medical, administrative, and teaching and learning purposes rather indirectly. Examples are 'greet the patient,' 'listen actively,' or 'account for the patient's emotional situation' (see Weber et al. 2007). *Administrative* activities correspond to organizational aspects that emerge in the course of the ward round. Examples are 'distribute tasks and responsibilities among the ward members' or 'update patient's record' (see Herring et al. 2011; Amin et al. 2012). *Teaching and learning-related* activities, which are crucial for meeting the aforementioned educational goals of ward rounds, include e.g. 'ask students to make suggestions for further treatment,' 'provide explanations regarding biophysical processes and symptoms of the patient' or 'give feedback to student answers' (see Tariq et al. 2010; Claridge 2011).

Potential for knowledge construction

Activities that occur during ward rounds can also be assessed with respect to their potential to advance knowledge construction processes, especially on the medical students' side. A theoretical model by which visible (i.e. behavioral) activities can be judged for their potential for knowledge construction is the so-called ICAP model (Chi and Wylie 2014). In reverse order, the ICAP model differentiates the following visible activities: Students are *passive* when no particular activity is externally visible. In the ward round context, examples would be 'standing around' or 'listening to an explanation.' In contrast, students are *active* when they at least show some physical activity that is observable from the outside. Examples might be 'measuring blood pressure' or 'taking notes.' Next, students are *constructive* when they visibly use information they encounter to construct inferences. An example would be to 'provide an explanation of the patient's symptoms' after having observed that her temperature has increased. Finally, *interactive* activities refer to activities by which several participants in the ward round situation jointly construct knowledge. Examples would be 'discussing a patient with the ward round team' or 'jointly develop decisions for further treatment.' The ICAP model assumes that the potential for knowledge construction will increase from an engagement in passive over active, constructive on to interactive activities. It is important to note that the relation between observable activities and underlying cognitive processes is not a deterministic, but rather a probabilistic one: For example, it may well be possible to learn a lot by listening to a complex explanation presented by a resident, especially when it is given in a well-structured way. Also, an engagement in interactive activities is no guarantee that participants engage in high-level knowledge construction (see Weinberger et al. 2010). Yet, across empirical studies, evidence hints towards the validity of the hypothesis that moving from passive to interactive activities is associated with increased learning, at least in learning contexts outside of medical education (see Menekse et al. 2013).

Research questions and hypotheses

The main goal of this study is to uncover the characteristics of beginning medical students' ward round scripts and to compare them with the ward round scripts of more experienced students and physicians. Thereby, we focus on the scriptlet and the role component of their scripts: We interviewed medical students, students in their practical, residents, and senior physicians and asked them what kinds of activities they would expect the different participants of a ward round to engage in during a ward round situation (expert-novice-paradigm; Nievelstein et al. 2008; Schmidt and Boshuizen 1993).

Regarding *content focus*, research question 1 asks whether the scriptlets that are part of medical students' and more experienced physicians' scripts differ with respect to the emphasis individuals put on medical, social, administrative and teaching-related activities. Prior studies (Eteläpelto 2000; Schmidt and Rikers 2007) using expert-novice comparisons found that novices often show insufficient strategies for identifying, interpreting and maintaining key elements of situations they encounter. Based on these results, we expected medical students' scriptlets to more frequently refer to activities that are neither linked to educational nor medical goals (i.e. fewer social activities; H1a), when compared to the scriptlets of more experienced participants. In turn, the scriptlets of more experienced ward round participants should more frequently refer to activities that serve the attainment of medical and educational goals of ward rounds (i.e. more medical and more teaching- and learning-related activities; H1b) than the scriptlets of the medical students.

Regarding *potential for knowledge construction*, research question 2 asks whether the scriptlets of medical students differ from those of more experienced students and physicians with respect to the potential that the activities they refer to have for knowledge construction. Based on research that indicates that medical students often show low learning benefits from participating in ward rounds, and in accordance with the ICAP model, we hypothesized that the scriptlets of medical students in their first years would more often refer to passive activities than the scriptlets of more experienced students and physicians (H2a). We expected this to especially be the case when looking at the activities participants would expect from the student role (H2b).

Methods

Sample

Our sample consisted of $N = 50$ medical students and physicians studying or working in internal medicine at a University Hospital. We differentiated between four groups of participants: The *Medical Student* group comprised of 15 students in their third year of medical studies ($M = 3.00$, $SD = 0.00$) with a focus on internal medicine in which they spent a one-week clerkship at an internal medicine ward. The *Medical Interns* group consisted of eleven medical students having $M = 6.18$ ($SD = 0.60$) years of medical experience who at the time of data collection were passing their compulsory 16-week-clerkship in internal medicine. This is part of their practical and, at the same time, last year of medical education in Germany. The *Resident* group encompassed 12 residents who on average had about $M = 8.53$ years of medical experience ($SD = 1.20$). Finally, the *Senior Physicians* group consisted of 11 physicians who had $M = 19.5$ years ($SD = 9.94$) of medical experience and were responsible as ward or senior physicians. In accordance with the Declaration of Helsinki, the study was approved by the local ethics committee; participation was voluntary and based on informed consent. No financial compensation was provided.

Procedure

We conducted an interview study based on the structure laying technique developed by Scheele and Groeben (1988). This technique can be applied to make an analysis of interview data more economic than usual. The basic idea of this technique is to document the main concepts that are uttered by the interviewee already during the interview on cards and to lay them open on a table or pin them on a whiteboard. Also, the interviewer tries to arrange the cards in a meaningful way, based on the interviewee's utterances. At the end, the interviewee inspects the cards and is granted the opportunity to add, (re-)move, or edit them to finally arrive at a more complete picture of their perspective on the topic. Typically, then, only the final structure outline (i.e. the content and arrangement of the cards) is subject to analysis. This has the effect that transcribing interview data becomes obsolete. Also, coding becomes easier because the unit of analysis can simply be defined as the content of each card, while in transcribed interview data, typically a segmentation of the data is necessary (which often is not very easy to apply objectively).

In line with this approach, two trained interviewers ran individual standardized interviews asking interviewees questions on a typical ward round in internal medicine. More concretely, participants were asked to name participants (roles), phases (scenes) and activities (scriptlets) that they regard as typical for rounds. While interviews were conducted, the interviewer noted information provided by the interviewee on color coded cards representing the four script components, and arranged them on a table to map the interviewees' statements (see Figure 1). The resulting structure was presented to the interviewee, edited according to the interviewee's suggestions and consensus of gained information was reached through discussion between interviewer and interviewee. Right after the interviews, participants filled in a short questionnaire to assess basic demographics and the acceptance of the interview technique.

Variables

The initial structures were recoded and transferred to Excel sheets. To account for differences in wording regarding more or less identical activities, we developed an inductive-deductive coding scheme that covered 140 activities.

Content focus

To assess each activity's content focus, we developed a coding scheme that differentiated the categories *medical, social, administrative* and *teaching and learning*. Initial coding revealed that some activities that were mentioned by some interviewees did not match any of these categories.

Figure 1. Exemplary map of the ward round script of one medical student. Half-round shapes on top represent scenes (i.e. representation of phases of a ward round), cards in the left column indicate roles (i.e. representation regarding what participants form a ward round team), cards in rows represent scriptlets (i.e. activities that were mentioned as typical for each role).

Therefore, we added a category labelled as *non-demanding activities* which included activities that were neither linked to the ward round goal 'provide patient care' nor to the goal 'provide learning opportunity.' An example from the data of one medical student was: 'I just stand around and look friendly.' Inter-rater reliability was assessed based on independent double-coding of 20 percent of the data by two raters, counterbalancing for different expertise groups, gender and field of internal medicine. Inter-rater reliability was very satisfying (Cohen's $\kappa = 0.87$).

Potential for knowledge construction

In a next step, all activities that were mentioned by the participants were coded with respect to their potential for knowledge construction, based on the ICAP framework (Chi and Wylie 2014). For that purpose, each activity was categorized as an instance of a passive, an active, a constructive, or an interactive activity, based on a coding scheme that was specifically designed for this study. Again, inter-rater reliability was assessed through independent double-coding of 20 percent of the data by two raters, and reached a very good level (Cohen's $\kappa = 0.86$).

Statistical analyses

For all types of activities, frequencies were calculated and transferred to SPSS. To account for variance in the absolute numbers of activities mentioned per participant ($M = 29$ activities, $SD = 14.02$, $min = 8$, $max = 70$) and group (medical students: $M = 31.99$, $SD = 14.64$; medical interns: $M = 23.00$, $SD = 8.76$; residents: $M = 28.91$, $SD = 14.71$; senior physicians: $M = 36.33$, $SD = 18.18$), relative frequencies were calculated for each activity category and each participant. Because of small sample sizes and skewed distribution of data, we used nonparametric tests to test for significant differences of mean frequencies regarding content focus (RQ1) and potential for knowledge construction (RQ2) between groups: To test possible effects of group membership on the dependent variables, we calculated Kruskal-Wallis tests. In cases in which these led to significant effects, we additionally ran Bonferroni-corrected Mann-Whitney *U*-tests to see which groups differed from each other on these dependent variables. For all analyses, the alpha level was set to 5%.

Results

Preliminary analysis

Interviews took 15.89 minutes on average ($SD = 6.88$). Interview duration did not differ significantly between groups, but a high variance was found within groups. Overall, right after each interview, participants largely confirmed that the gained structure was consistent with their understanding of a typical round ($M = 3.64$ on a four point scale, $SD = 0.56$), indicating a high validity of our data. No group differences were found in this regard.

Research question 1: Content focus of activities

Research question 1 asked whether there would be between-group differences regarding the content focus of the activities that participants regarded as typical for ward rounds. Descriptively, rounds were perceived as mostly involving medical (43%) and social activities (35%), whereas administrative and teaching- and learning-related activities only played a minimal role. A little more frequent were non-demanding activities. This pattern was–with minimal exceptions in the Residents group–similar across the four groups (see Table 1).

Using Kruskal-Wallis tests, we found no significant group differences with respect to the relative frequencies of medical, social, and administrative activities. Yet, we did find a significant group effect on non-demanding activities, indicating that medical students regarded more of such activities as typical than individuals at higher levels of expertise ($H(3) = 9.735$, $p = 0.019$). Subsequent Mann-Whitney *U*-tests showed that medical students mentioned a significantly higher amount of non-demanding activities than residents ($U = 35.50$, $p < 0.01$) and senior physicians ($U = 39.00$, $p < 0.01$), which at least partially corroborates H1a that

Table 1. Relative mean frequencies (standard deviations in parentheses) for the content focus of activities named by the different groups.

	Medical students M (*SD*)	Medical interns M (*SD*)	Residents M (*SD*)	Senior physicians M (*SD*)	Total M (*SD*)
Content focus of activities					
Medical	0.37 *(0.15)*	0.48 *(0.19)*	0.46 *(0.12)*	0.41 *(0.12)*	0.43 *(0.15)*
Social	0.35 *(0.14)*	0.31 *(0.19)*	0.36 *(0.14)*	0.37 *(0.16)*	0.35 *(0.15)*
Administrative	0.07 *(0.09)*	0.05 *(0.06)*	0.11 *(0.25)*	0.08 *(0.10)*	0.08 *(0.15)*
Teaching- and learning-related	0.05 *(0.08)*	0.02 *(0.03)*	0.01 *(0.03)*	0.06 *(0.06)*	0.04 *(0.06)*
Non-demanding	0.16 *(0.10)*	0.14 *(0.29)*	0.06 *(0.09)*	0.08 *(0.06)*	0.11 (0.13)

Table 2. Relative mean frequencies (standard deviations in parentheses) for passive, active, constructive, and interactive activities for the different groups.

	Medical students M (*SD*)	Medical interns M (*SD*)	Residents M (*SD*)	Senior physicians M (*SD*)	Total M (*SD*)
Potential for knowledge construction					
Passive	0.32 *(0.14)*	0.15 *(0.10)*	0.16 *(0.08)*	0.17 *(0.10)*	0.21 *(0.13)*
Active	0.26 *(0.10)*	0.31 *(0.11)*	0.40 *(0.14)*	0.36 *(0.17)*	0.33 *(0.14)*
Constructive	0.31 *(0.11)*	0.41 *(0.14)*	0.34 *(0.12)*	0.38 *(0.14)*	0.36 *(0.13)*
Interactive	0.10 *(0.09)*	0.13 *(0.11)*	0.10 *(0.08)*	0.09 *(0.06)*	0.10 *(0.09)*

Table 3. Relative mean frequencies (standard deviations in parentheses) for passive, active, constructive, and interactive activities as mentioned for the role 'medical student' by the different groups.

	Medical students M (*SD*)	Medical interns M (*SD*)	Residents M (*SD*)	Senior physicians M (*SD*)	Total M (*SD*)
Potential for knowledge construction					
Passive	0.68 *(0.26)*	0.56 *(0.21)*	0.53 *(0.17)*	0.38 *(0.14)*	0.54 *(0.20)*
Active	0.10 *(0.12)*	0.24 *(0.22)*	0.17 *(0.07)*	0.34 *(0.20)*	0.21 *(0.15)*
Constructive	0.20 *(0.20)*	0.14 *(0.13)*	0.26 *(0.12)*	0.26 *(0.20)*	0.22 *(0.16)*
Interactive	0.02 *(0.05)*	0.06 *(0.11)*	0.04 *(0.07)*	0.02 *(0.03)*	0.03 *(0.07)*

stated that medical students' scriptlets would more frequently refer to activities that are neither related to patient care (i.e. medical activities) nor educational purposes (i.e. teaching- and learning-related activities). Yet, contrary to our expectations, we did not see a similar pattern with respect to social activities.

Further, even though they were generally very rarely mentioned, we found an effect of group membership on the relative frequencies of teaching- and learning-related activities ($H(3) = 6.619$, $p < 0.01$): Senior physicians ($U = 34.00$, $p < 0.01$) and medical students ($U = 61.00$, $p = 0.02$) mentioned a significantly higher amount of these activities than residents. Thus, H1b was not supported: Contrary to our expectations, the scriptlets of the medical students did not refer significantly less often to medical activities, and medical students even more frequently included teaching- and learning-related activities than residents.

Research question 2: Potential for knowledge construction of activities

The second research question referred to possible group differences regarding the potential for knowledge construction. Overall, the descriptive analyses showed that about one third of the named activities were constructive, while another third were considered active. Passive activities amount roughly to 20%, and interactive activities had roughly a 10% frequency (see Table 2).

A Kruskal-Wallis test revealed a significant effect of group membership on the relative frequencies of passive activities ($H(3) = 18.247$, $p < 0.001$): In line with H2a, we found that passive activities were mentioned significantly more often by medical students than by medical interns ($U = 23.00$, $p < .01$), residents ($U = 18.50$, $p < .01$) and senior physicians ($U = 33.50$, $p < .01$).

Further explorative analyses revealed additional group differences with respect to active activities ($H(3) = 9.707$, $p = 0.021$): Residents reported significantly more of these activities than students ($U = 38.00$, $p = .01$). No significant effects of group membership were found for constructive ($H(3) = 5.19$, $p = .16$) and interactive activities ($H(3) = 5.30$, $p = .92$).

When only considering activities participants regarded as typical for the medical student during ward rounds, it can be seen that this role is associated with predominately passive activities (54% on average, see Table 3). The amount of passive activities assigned to the medical student differed significantly between the four groups ($H(3) = 9.455$, $p = 0.016$). In line with hypothesis H2b, we observed that especially medical students regarded their own role as characterized by more passive activities than other groups did, e.g. as compared to senior physicians ($U = 14.00$, $p < .01$).

Discussion

This study aimed at uncovering the characteristics of medical students' ward round scripts, as compared to the scripts of more experienced students and physicians. Given previous findings that medical students often do not really benefit from their participation in ward rounds (e.g. Claridge 2011), our main assumptions were that medical students might not regard (a) ward rounds as real learning opportunities, and (b) activities in ward rounds as having limited learning potential using the ICAP model (Chi and Wylie 2014), especially when describing their own role within a ward round team.

Overall, our results provide partial support for the first of these two assumptions, and rather clear support for the second assumption. Regarding the first assumption, we found that medical students seem to regard non-demanding activities as more typical to happen in ward rounds than residents and senior physicians. That said, it appears that medical students might have a less strong conception of ward rounds as venues for patient care and educational purposes than physicians have (see also Claridge 2011). Yet, this effect was only present for non-demanding activities, but not for social activities.

Surprisingly though, and contrary to our expectations, medical students regarded teaching- and learning-related activities as more typical for ward round situations than residents. Together with the fact that also senior physicians seem to expect more teaching- and learning-related activities to happen in ward rounds, this result might indicate that especially bearers of the two roles that actually can be expected to engage the most in teaching (senior physicians) and learning (medical students) take the educational purpose of ward rounds more seriously. From an educational perspective, one might however wish also residents and perhaps even medical interns to engage in teaching (and learning) activities in order to broaden the learning opportunities for medical students (AlMutar et al. 2013). From a script theory point of view, this would mean that it would be valuable to scaffold the development of ward round scripts that not only include scriptlets associated with activities that serve the provision of patient care, but also student learning (Fischer et al. 2013). This becomes even more important when we look at the overall very low frequencies of teaching- and learning-related activities we observed across groups. This indicates that the educational purpose of ward rounds that was described by AlMutar et al. (2013) seems to be far less emphasized than the purpose to provide care to the patient. Thus, from our perspective, efforts need to be taken to underscore the educational role of ward rounds in terms of their potential to advance knowledge and skill acquisition of medical students.

This implication seems valid also when considering the results related to research question 2. There, we saw that across groups, but especially in the group of medical students, passive activities were the most frequently expected kinds of activities to be observed in ward rounds. This became even clearer when we only looked at the activities participants regarded as typical for the medical student members of ward round teams: especially medical students themselves, but also the remaining stakeholders assigned that role the highest amount of passive activities. This is regrettable since Chi and Wylie (2014) point to the low potential of an engagement in passive activities for knowledge construction. Also, and in line with results on research question 1, these results indicate that teaching and learning does not seem to be in the focus of the ward round participants. Thus, it seems not to be far-fetched that students might benefit from instructional interventions that emphasize the 'medical student' role as a more constructive or even interactive one and encourage students to involve in discussions or asking questions. There is a need to support more experienced physicians (especially residents, according to our results) in taking responsibility for teaching and to explicitly prompt student engagement to foster student learning in the course of ward rounds.

Limitations and future research

Of course, this study is not without limitations. First, with a total of $N = 50$ interview participants our sample size per group was rather small. Thus, larger studies are needed to judge the generalizability of our findings. Second, our study relied exclusively on self-report data. In other words, we do not know if participants would actually act the same way they would expect from themselves in actual ward rounds. Thus, future studies should try to also collect objective data, e.g. through recording and analyzing videos of real ward rounds. And third, our approach might be criticized for too bluntly transferring the ICAP model from school learning to professional learning in the ward round context: While in school, learning is typically structured from outside (i.e. a teacher), learning in the ward round context might more strongly require students' agency (Eteläpelto et al. 2013). Also, it is an open empirical question whether the ICAP hypothesis also holds true in the professional learning context.

Despite these limitations, we believe that our study shows that both the script concept (Schank 1999) and the ICAP framework (Chi and Wylie 2014) are useful to identify qualitative differences in the ward round scripts of students and more experienced physicians. With respect to the script concept, our study however used only the idea that scripts consist of different components that are hierarchically ordered (based on Schank 1999). Yet, we see potential value in exploring the script concept further in the ward round context. For example, it would be interesting to investigate whether the different stakeholders possess certain variations of an overall 'ward round script' and whether the availability of these variations increases with increasing experience. Likewise, doctors at higher expertise levels might also more smoothly switch between the two purposes of ward rounds (providing care to the patient, and teaching medical students and interns) than doctors at lower expertise levels or medical students.

At a methodological level, we found the structure laying technique to be a valuable instrument to assess participants' ward round scripts with a high validity. Practically, our study underscores the need to make both students and physicians more aware of the educational purpose of ward rounds, and to turn them into real learning opportunities for students by actively involving them in the course of actions.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Glossary

Ward round scripts: Are cognitive representations of the typical course of a ward round. They are acquired through repeated experience with ward round situations.

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