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Learning medical professionalism with the online concordance-of-judgment learning tool (CJLT): A pilot study

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Abstract

Context: Professionalism development entails learning to make judgments in ambiguous situations. A Concordance of Judgment Learning Tool (CJLT), comprised of 20 vignettes involving professionalism issues, was developed. Students obtained a measure of how concordant their judgments were with a panel of experts and learned from given explanations.

Method: Twenty clinical vignettes implying professionalism issues were written including, for each, four possible courses of action. Expert panel, nominated by all clerkship students, was made up of attending physicians that best represented professionalism role models. Experts completed CJLT and gave explanations for their answers. All clerks were invited to answer each vignette, and then received automated expert feedback including explanations.

Results: Seventy-nine students sat for the activity. The optimized test included 20 cases and 54 questions (Cronbach's alpha coefficient of 0.64). Student – expert concordance scores ranged from 54 to 77 with a mean at 64.6 (standard deviation 5.1). Satisfaction survey results indicated high satisfaction and relevance of tool despite some pitfalls. Post-test focus group data revealed relevant experiential learning on professionalism issues.

Discussion: Students' scores and perceptions suggest pedagogic relevance of the CJLT in fostering professionalism development in clerkship. CJLT is user-friendly and shows promise as a situation experiential learning activity.

Introduction

Being a competent doctor is a concept that has evolved over time. We now define it as the fulfilment of roles supported by a set of competencies (Srinivasan et al. 2011). If we recognize that these competencies are important, there is a need to define them clearly and provide learners and their teachers with tools that allow their development and assessment. Such tools have been successfully developed and implemented for some competencies, but it has proven to be more challenging for others.

One of the CanMEDS competencies, Professionalism, is a complex, multi-dimensional construct that varies across historical time periods and cultural contexts (Hodges et al. 2011). Even though it is essential for modern medical practice (Cruess & Cruess 2006), fostering its development and assessing it are complex undertakings (van de Camp et al. 2004).

The literature is sparse regarding ways to teach professionalism. Highlighting that there is no consensus on the best way to teach professionalism, Birden's (Birden et al. 2013) systematic review on the topic reports a variety of methods: writing critical incident reports, interview with faculty, educational program using scenarios of professional dilemmas, professionalism courses, group discussions between faculty and

students using scenarios, student's clinical observations of preceptors (SCOOP) and reflective writing with individualized faculty feedback (Birden et al. 2013) and an online curriculum (Wiecha & Markuns 2008). Most of those methods are time-consuming and rely heavily on face-to-face contact, making the practice somewhat prohibitive in resource-strained medical teaching sites. The need for a tool that is simple and effective with minimal time requirements on educators and stakeholders is clearly felt.

Literature review also reveals that a reduced emphasis on biomedical aspects of medical education to make way for an increased emphasis on moral development is important

Practice points

- There is no consensus on what is the best way of teaching professionalism.
- Clerkship represents a window of opportunity for acquiring appropriate notions about professionalism.
- CJLT allies cognitive apprenticeship with critical thinking.
- CJLT is shown to be a flexible and effective to tool to foster professionalism and to assess its development.

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and, second, that critical and guided reflection is the teaching approach most suited for professionalism (Birden et al. 2013). Indeed, general guidelines for assessing professionalism have been described (van Mook et al. 2009b) and state, among others, that feedback provided by formative assessment has the potential to change behavior (Phelan et al. 1993; Papadakis et al. 2001; Goldie 2013) and that using instruments which provide descriptive comments are most effective (Hunt 1992).

Clerkship is when medical students begin to make sense of what they've been learning about professionalism and ethical decision making (Belling & Coulehan 2006). Clerkship therefore presents a unique window of opportunity to acquire appropriate professionalism notions and consolidate them. But, as stated by van Mook et al. (2009a), the informal curriculum constitutes a hefty barrier to medical professionalism education. It is therefore not only necessary to help clerks acquire the correct notions about professionalism, but they must also learn to choose appropriate courses of action when confronted with ethical or moral dilemmas in clinical practice.

A novel approach to teaching professionalism

We developed an online tool to foster professionalism in clerkship derived from the script concordance test (SCT) principles (Lubarsky et al. 2011). Our tool presents students with an ethical or moral situation and prompts them to judge possible courses of action. It provides immediate feedback from an expert panel accompanied by detailed explanations that justify their judgments.

We think that the Concordance of Judgment Learning Tool (CJLT) will induce relevant reflection via the comparison between the student' reasoning and the expert panel's. We suppose that because the student will have been in contact with a similar situation, he or she will feel more prepared when the situation happens in his real life. If this is the case, CJLT will have been a useful and efficient learning tool. We also posit that the results and insights gained by using the CJLT could be used to document a student's progress in professionalism skills.

Methods

The project was submitted and approved by the ethical research committee of Université de Montréal.

CJLT development methodology

A literature review was conducted and used to create a framework for selecting professionalism situations. Appropriate contextual cues were gained from the first author's own experience in Ethics workshops given in the surgery rotation of the clerkship program. The situations were then enriched and agreed-to in collaboration with senior Faculty members involved in the clerkship program. Thirty clinical situations were written and classified according to the three dimensions defined by van de Camp et al. (2004):

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Ten items each for the individual, institutional and interactional dimensions.

CJLT vignette validation and selection process

The clinical situations were then validated by two focus groups. The first group was composed of five clerks (three in 1st year, second in 2nd year), and the second was composed of three residents in general surgery (two junior and one senior). Participants were asked to comment about the clarity and the plausibility of the vignettes and possible courses of action. Overall, comments and suggestions were taken into account in the vignette writing process.

As a result, 10 vignettes were discarded in this process, either because the situation was too simple or implausible. Other vignettes were eliminated because they were not clear enough or the issue presented was not relevant to undergraduate students or to professionalism. The version used in the pilot study had 20 vignettes: four for van de Camp et al.'s individual dimension, seven for the institutional dimension and nine for the interactional dimension.

Each vignette had four questions describing a possible course of action within the described situation. For each course of action, a participant could compare his answer with the expert's and then read the expert explanations. To ensure optimal access for students and experts, whose time is highly constrained, a web-based platform was used to administer the CJLT as well as the satisfaction survey (Figure 1).

Expert panel member selection

Third- and fourth-year students (clerks) at Université de Montréal MD undergraduate program completed an online survey to select attending physicians whom they considered role models of professionalism. A total of 50 professors were named. The 25 most popular were contacted and 10 accepted to participate. They were asked to complete the CJLT and to justify their answers in a few words through an online platform. The first author aggregated and summarized expert panel comments for each question to facilitate comprehension for the students.

Pilot study participants

The CJLT was administered online to all third- and fourth-year students ($N = 390$), on an individual access basis. It was presented as optional, whose results would be used formatively and would not count for their academic average. Students were given access to the CJLT for a period of a month.

Assessing CJLT pilot study

In order to gain some insight into the CJLT experience, a survey was sent out to all 79 clerks who voluntarily participated. The survey items measured student satisfaction with the CJLT and included a 5-point Likert scale of agreement (Table 1). Qualitative comments were aggregated and analyzed.

Concurrently, an e-mail invitation for a focus group was sent to all 79 participants. A total of eight ($n = 8$: four from

The clinical case :

One of the patients who had surgery is your friend's brother. Your friend is also a clerk and is not in the same rotation as you are. But, there was a complication during the operation. The evening after the surgery your friend calls you at home to have some news about his brother's surgery.

Your selection is highlighted in yellow:

You	This attitude...
	-2: totally unacceptable
Tell him that you cannot talk about it	-1: hardly acceptable
because it is confidential.	-
	+1: acceptable
	+2: totally acceptable

Your selection is highlighted in yellow:

Evaluation & selection of experts

-2: totally unacceptable	Not chosen by the members of the panel of reference
-1: hardly acceptable	Not chosen by the members of the panel of reference
-	Not chosen by the members of the panel of reference

Figure 1. Example of a clinical case.

Table 1. Satisfaction survey questions.

Question

Q.1 Did you find that the CJLT presented authentic situations? Did it portray real-life clinical situations?

Q.2 Did you find that the CJLT was a relevant exercise? Do you think it is useful to assess professionalism?

Q.3 Did you find that the CJLT was useful to learn? Did it improve your learning about professionalism?

Q.4 Was the CJLT a pleasant experience? Did you enjoy this learning tool?

Q.5 Did you find the CJLT challenging?   Did you find it difficult to adapt to this learning tool?

Q.6 Overall, did you find the CJLT a valid exercise? Would you find it useful to learn with such a tool in the future?

Table 2. Focus group questionnaire.

Do you have prior experience with the script-concordance test?

What have you learned by using the CJLT?

Has the CJLT exercise changed your understanding of certain situations involving professionalism? Explain.

Did you find the CJLT difficult? Explain.

Where you being honest when you answered the CJLT questions? Explain.

Do you think that the CJLT could be useful to their training in professionalism? Why or why not?

What is the most appropriate moment in the training to introduce the CJLT?

Do you think CJLT should be mandatory? Explain.

Would you recommend CJLT to your colleagues? Why or why not?

Overall impression and comments

third- and four from fourth-undergraduate year) accepted our invitation to discuss their experience a month after the exercise (see questionnaire presented in Table 2). The discussion was moderated by the third author, recorded and transcribed. The verbatim data were analyzed by the first, second and third authors using thematic analysis (Patton 2002). The aim of the focus group, as opposed to the survey, was to gain a more nuanced understanding of the CJLT experience as opposed to overall satisfaction.

Results

A total of 79 ($n=79$) students participated in the exercise. Mean score distribution is presented in Figure 2. As can be seen, the distribution is fairly normal, with the average score being 64.6, which constitutes a measure of the concordance between clerk's choice of action and an expert's course of action in matters related to professionalism. Reliability of scores with the original 80 items was 0.40. Iterative elimination of items with negative items/total correlation led to a satisfying set of 54 items with Cronbach alpha at 0.64. The resulting, post-test version of the tool contained 20 vignettes. Table 3 presents the number of items per van de Camp et al.'s dimensions.

A total of 55 (of 79) clerks answered the satisfaction survey (Table 2). Due to a programing error, data from 20 subjects could not be analyzed. The results show that the clerks globally appreciated the exercise (76% agreement) and found it realistic and authentic (87% agreement). Some had heard of the SCT, but none of them had prior experience with it or
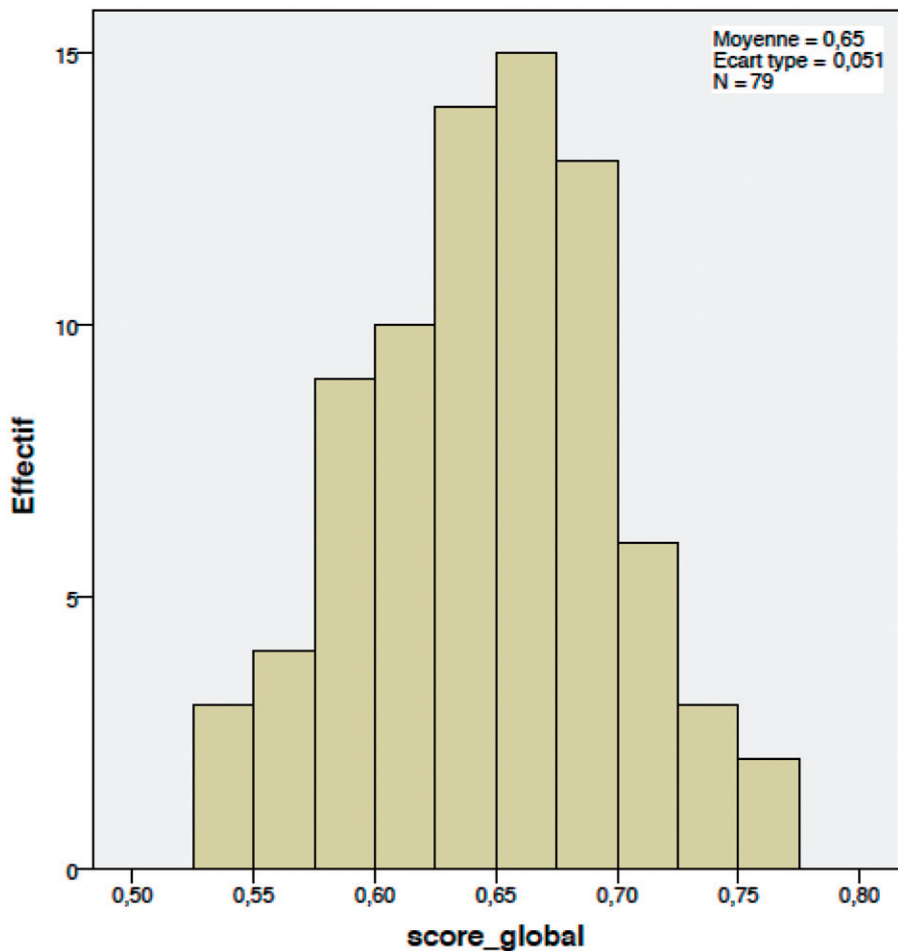
Figure 2. Student score distribution on concordance of judgment test.

Table 3. Post-test version distribution of items per van de Camp et al.'s dimensions.

van de Camp et al.'s dimensions	Pre-test version 80 items	Post-test version 54 items
Individual dimension: 4 vignettes	16 items	8 items
Institutional dimension: 7 vignettes	28 items	19 items
Interactional dimension: 9 vignettes	36 items	27 items

similar tools. Among them, 78% of the participants agreed that it was easy to adapt to this new tool. The majority indicated that they would want to use it as a learning tool in the future and they could learn from it (64% and 62%, respectively). Most thought that it could be a relevant method to assess professionalism; however, some were in disagreement (13%) and a fifth of the respondents (21%) gave a neutral answer. This could indicate reluctance to being assessed for professionalism using the CJLT.

The focus group participants thought the CJLT exercise was a bit long but a pleasant and very realistic experience and would recommend it to their peers. They suggested that the instructions at the beginning of the tool should be more comprehensive and that an example question or a

demonstration should be provided. A few of them admitted that it was only after completing a few questions that they understood how the tool worked. They stated that because the CJLT was web-based and easily accessible it made it easier for them to use it at convenient times. They had the impression that this activity filled a gap in their training and that it should be mandatory for all students.

More importantly, they indicated that the exercise led to new learning. For example, they admitted to hesitating before choosing answers:

> I knew that what I *should* do in the described situation was not the answer I gave. I felt the right answer would put me in a difficult position with my supervisor. (M-3)

Students tend to hesitate between the desired answer and what they would really do in a given situation. The expert panel explanations helped them in this regard by confirming their intuition and confirming they should have chosen the "right answer". Students were aware that the gap between their answers and the experts' reflected the highly interpersonal form of teaching and learning conceptualized by Hafferty (1998) as the informal curriculum: the students knew that the panel would answer this way even though in their real-life experience it would be otherwise.

Thus, students appreciated the different nuances and aspects of the expert panel comments. Generally, experts' explanations generated a reflective process that resulted in modified perspectives about appropriate courses of action in given situations. It also bolstered their confidence to discuss delicate issues with peers and educators. In this respect, the CJLT's evidenced impact on learning proved encouraging.

Finally, students suggested that completing the exercise at two different times, during the first year and during the second year of clerkship, was probably best. This would allow clerks to gain an appreciation of their progress in terms of professionalism over the two-year period. They suggested that small group sessions to discuss salient issues could be a complement to the overall process.

Discussion

The survey results and comments correlated with the focus group results. The focus group allowed us to enrich our understanding of students' experience with the tool. Overall, students were satisfied with the CJLT experience and said that they had learned from it. In light of this, it is our view that CJLT deployment in clerkship would be a positive step forward in professionalism education.

The main finding of the pilot study is that revealing the gap between the appropriate course of action and the "real-life" course of action can lead to meaningful learning for clerks. This topic, which emerged spontaneously in the focus group discussions, refers specifically to the *informal curriculum.* Raising awareness about it and its impact on learning was an unexpected result of the pilot study.

The challenge, from a pedagogical standpoint, is to convert the discrepancies between student and expert answers into learning opportunities that would strengthen student resolve to adopt appropriate courses of action in their "real-life" practice. In this sense our hypothesis is confirmed: access to expert rationale with regards to dilemmas involving professionalism favors critical reflection about appropriate courses of action.

The clerks appear to learn through our online tool and appreciate it; hence the CJLT represents an interesting solution to the problem of the scarcity of educational resources. Birden et al. (2013) states that the keys to teaching professionalism are the longitudinal nature of the learning and critical observation of professional behavior in health care delivery settings. As the focus group participants suggested, the CJLT could be administered at multiple times during clerkship as a mandatory exercise for first-year students and second-year students, as a pass or fail activity in both cases.

This tool could be used at levels other than clerkship; in residency, and continuous professional development too. The only modifications needed involve making the clinical vignettes more complex. It is too soon to consider it as an assessment tool considering the desirability bias, but we think it can measure the evolution of a student in professionalism.

Study limitations

The relatively unknown CJLT methodology and the voluntary nature of the exercise explain a large part of the low participation rate (79 of a total 390 clerks). Another explanation for the low participation rate is that many students started the exercise and gave up, mainly because of the time required to complete it.

A few comments were made in the focus group about the clarity of the instructions for the exercise. A sample situation could have been provided at the beginning of the test to clarify what was expected of participants. Furthermore, the clarity of the situation presented in the vignette is partly related to our methodology. There must be a certain degree of uncertainty in the situation. Hence, even though we defined four possible courses of action for each situation, it is possible that some actions were not appropriate to the given situation as perceived by all participants.

The desirability bias in the experts' answers cannot be ignored, for they too are subject to the informal curriculum. Thus, because the decision to include them in the expert panel was made on the basis of what students think a role model of professionalism is, we assume that their answers and explanations reflect the appropriate course of action in each situation. Hence, there is some degree of overlap between what a role model thinks is professionally appropriate and what the student thinks. However, scores reveal that the concordance between student and panel answers is reliable and gives ample room for student improvement.

One could argue that our work is comparable to the situational judgment test (SJT) (Patterson et al. 2012). The concepts are similar but the main difference lies in the SCT influence in our project. In the SJT, the answers' modalities are varied (Schubert et al. 2008). Indeed, you can classify different responses to a situation or you can select the best proposition (as a multiple-choice question). Either way, there is a "best answer" (the one chosen by the majority of the experts) and the results obtained are expressed in a 1 or 0 form (Buyse & Lievens 2011). In our tool, more than one appropriate course of action is possible, as is the case when panel members give different, but appropriate, responses. Points are awarded on the basis of the degree of concordance between student and aggregate expert answers, not on the basis of selection of a single answer. This feature allows us to consider our approach distinct.

Conclusion

Professionalism education is a challenging endeavor and there is no consensus about a pedagogical model of how professionalism is developed (Birden et al. 2013). Consequently, teaching strategies tend to vary widely and tend to be very time consuming. The CJLT would represent an alternative with three principal advantages, as supported by the results of our pilot study.

First, it is a learning tool that confronts the student with authentic ethical and moral dilemmas that he is already familiar with. The result is raised awareness of the gap that exists between the way one *should* act in a given situation and the way one *does* act. Revealing and reflecting about this discrepancy affords an experiential learning value to the CJLT.

Second, the learning that takes place with the CJLT is done within the confines of a dialogue between the expert and the

student. Provided that the expert explanations are rich and varied, students can gather not only different perspectives on ethical and moral issues and courses of action but can also compare their stance to those of their superiors. In this sense, the CJLT is innovative as it allies cognitive apprenticeship with critical thinking skill development.

Finally, the user-friendly aspect of the CJLT is not a trivial matter. Increasingly, clinical educators in teaching hospitals experience severe time constraints. This also applies to clerks who are busy transforming their biomedical knowledge into skills useful in a hospital ward. The CJLT as it was presented here is completed online at times and at a pace determined by each student. Hence, it is truly an effective professionalism-learning tool that can be inserted easily into already heavy work schedules.

Glossary

CanMEDs: Competency framework published by the Royal College of Physicians and Surgeons of Canada that underscores medical training in Canada and abroad.

Concordance-of-Judgment Learning Tool (CJLT): A learning tool that confronts the student with authentic ethical and moral dilemmas that he/she is already familiar with, resulting in a raised awareness of the gap that exists between the way one should act in a given situation and the way one does act.

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leads multiple research teams that work on the pedagogical aspects of this methodology.

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