

Instruction to the Double: a promising socio-constructivist method for medical education

L'Instruction au Sosie : une méthode socioconstructiviste prometteuse pour l'enseignement médical

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Abstract

Instruction to the Double is a method used in work psychology. Its key interest is that it bridges the gap between real and prescribed work. From a theoretical standpoint, *Instruction to the Double* is embedded in Vygotskian socio-constructivism. It aims at developing the learners' power to act. In practice, learners select a practical situation from their work experience and participate in an interview where the learner presents step-by-step instructions to a facilitator as to how intervene in that situation. The facilitator must focus on the *how*, rather than the *why*. Learners subsequently access the recorded interview and transcript. The method's potential for development resides in surprising learners with the discrepancy between what they think they do, and what they say they do. Such discrepancy facilitates learner's development of their power to act. *Instruction to the Double* can be a promising learning method in medical education, especially for post-graduate and continuing professional development learners.

Résumé

L'Instruction au Sosie est une méthode utilisée en psychologie du travail. Son principal avantage est qu'elle comble le fossé entre le travail réel et le travail prescrit. D'un point de vue théorique, *L'Instruction au Sosie* est ancrée dans le socioconstructivisme vygotskien. Elle vise à développer le pouvoir d'agir des apprenants. Dans la pratique, les apprenants choisissent une situation réelle tirée de leur expérience professionnelle et participent à un entretien au cours duquel ils fournissent à un facilitateur des instructions étape par étape sur la manière d'intervenir dans cette situation. Le facilitateur doit se concentrer sur le comment, plutôt que sur le pourquoi. Les apprenants peuvent ensuite consulter l'enregistrement de l'entretien et sa transcription. Le potentiel de développement de la méthode réside dans sa capacité à révéler l'écart entre ce que les apprenants pensent faire et ce qu'ils disent faire. Cet écart facilite le développement de leur pouvoir d'agir. *L'Instruction au Sosie* peut constituer une méthode d'apprentissage prometteuse dans l'enseignement médical, en particulier pour les apprenants du troisième cycle et de la formation professionnelle continue.

Introduction

Situated authentic learning and teaching methods, such as simulation and clerkships, are designed to help students develop competences through experiences with multidimensional cases.¹ These methods are based on the authenticity of the learning environment “as close as possible from reality” to “create meaning from the real activities of daily living.”² However, despite increasing

attempts to provide high fidelity learning experiences of work, there is still a gap between a learning environment and a real working environment. In this context, we consider it important to consider additional methods to help address this gap. Referring to our background in occupational health and work psychology, we would like to invite educators to consider a method called *Instruction to the Double* (*Instruction au Sosie*, in French).

In this article, we aim to illustrate some limitations of situated learning methods to demonstrate that *Instruction to the Double*—a method used in work psychology—can be helpful in medical education, by developing the *power to act*.

We also report on some uses and limitations of such a method in medical education to outline best uses of *Instruction to the Double* in medical education.

Simulation and clerkships: two situated learning methods with limitations in bridging the gap between prescribed and real work

Health educators have increasingly used simulation since the year 2000 because it provides learning experiences that closely mimic real work environments.³ This implies that simulated work environments are artificially replicated.⁴ Simulation helps learners develop procedural or communication skills. It requires a scenario meant to anticipate a clinical situation. This corresponds to the *task* (or *prescribed work*) in work sciences which is what the worker is required to do (e.g. a cake recipe, which lists all steps required to bake a cake. Each step is a task). *Activity* (or *real work*) corresponds to what the worker does (e.g., baking a cake), and includes both the prescribed work, and all the non-prescribed and unanticipated work.⁵ There is a gap between prescribed and real work that is never filled by additional guidance: following the list of tasks to the letter never allows workers to work effectively (when they do so, it is called “work to rule”), which means that workers always have to do more than they are formally asked.⁶ This gap is inherent in any work situation and requires the intervention of a human worker to address it. In this perspective, no matter how developed simulation scenarios are, they will never be *real work*.

The notion of prescribed vs. real work,⁵ and the notion of hidden curriculum⁷ in health sciences education are closely linked, in that those hidden curricula arise from the gap between how things should be done (*the prescribed work*) and how things are really done in practice (*the real work*). Real work is not formalized, and is difficult to visualize, even for workers doing it. All of this already provides some relevance to the use of work sciences methods in medical education.

Clerkship rotations in clinical wards provide learners with experiences that closely resemble real work. Rotations are a form of experiential learning aimed to develop situated clinical skills. Experiential learning is a way to construct knowledge and meaning from real-life experience.⁸ Dornan et al., define “experience” as authentic (real as opposed to

simulated) human contact that helps students learn about health, illness and disease, and how to be a doctor.⁹ However, even in the case of clerkships, there may be some gaps between healthcare workplace settings and a learning environment. Not all workplace settings will make good learning environments. Workplace environments are particularly selected based on location or availability of supervisors. Authentic learning environments are required to expose learners to a variety of cases, whereas the reality of some clinical settings might be characterized by a lack of such variety.¹ Notwithstanding the value of clerkships in medical education, direct supervision influences the authenticity of the learning experience as described in the *Hawthorne effect*.¹⁰ Following research under the supervision of Elton Mayo conducted between 1927 and 1933 at the Western Electric Company, this term refers to the modifying effects of being the subject of investigation regardless of the nature of the investigation itself. Since that time, if the research conducted by Mayo has been criticized, it is acknowledged any intervention in a workplace has an influence on productivity and work outcomes regardless of the nature of the intervention itself.

Hence, neither simulation nor clinical rotations totally address the gap between prescribed and real work in a learning environment, which generates blind spots. Finding ways to help medical students, residents, and physicians in continuing education to work on their activity may help bring a more comprehensive learning experience, closer to the reality of workplaces. Some methods used in work psychology, in a sub-field called *clinics of activity*, such as *Instruction to the Double* are designed for the investigation of real work and could be of interest in medical education.¹¹

A method inspired by the Vygotskian tradition

Instruction to the Double is a method initially described by Italian Occupational Medicine Specialist, Ivar Oddone, in the 1970s.¹¹ This method has been revisited in work psychology by Yves Clot, in the 1990s. The methodology of *Instruction to the Double* (i.e. the goal we want to achieve with the method) is to help workers develop the *power to act* of workers on their work environment, on the work organization, and on themselves.

The concept of *power to act* (sometimes also translated as *empowerment*) is close to the concept of *agency* described by Bandura.¹² The difference resides in that *agency* described an individualistic vision of performance (with social factors influencing the individual), whereas *power to*

act is defined by Canguilhem as a collective perspective (social factors are part of the individual).¹³

Overall, the vision we defend here of the power to act is one driven by the learner, rather than achieving conformity against an external standard. Hence, *Instruction to the Double* does not aim at achieving pre-determined learning objectives selected by the teacher. It aims at helping participants developing their *power to act*. According to Clot, the *power to act* is strongly tied to the notion of meaningful work (i.e. a work that makes sense to the worker).¹⁴ When work makes more sense to a worker, the worker can contribute more, can be more creative: their range of action extends. In other words, the worker develops themselves, and by developing themselves, their health, as defined by Georges Canguilhem is improved. Canguilhem developed a normativist approach to health, summarized as follows:

*I am feeling well as I am able to be accountable for my own actions, to bring things into existence, and to make links between things that would not exist without me.*¹³

Overall, improving the worker's power to act help them do a better job and be healthier.

Instruction to the Double also aims at exploring the worker's *reality of the activity*. It is critical to understand that being active, in our perspective, is certainly not just "looking active." The reality of one's activity may not be visible: people might be doing things automatically without being psychologically engaged, while they may seem passive they may be extremely engaged psychologically. This leads to a common misconception in medical education that the more students "move" or do things, the more active they are. We can refer to Yves Clot's definition of the reality of the activity.¹⁵

We distinguish between the realized activity, on the one hand—that is, what the practitioner actually does and which is observable through the result of her or his work—and the reality of the activity, on the other hand—which represents the non-realized possibilities, as Vygotsky called them. These non-realized possibilities refer to what the practitioner does not do, what she or he tries without succeeding, what she or he gives up doing, what she or he thinks she or he would do if the circumstances were more favorable, or even what she or he eventually does to avoid responding to the expectations of others.

More simply said, we can write this in the form of an equation: *Reality of the activity = realized activity + non-realized possibilities*

Instruction to the Double aims to explore the larger entity of the reality of the activity. Hence, the method allows individuals to explore what they are unable to do, the kind of connections that may be invisible, the kind of dilemmas they are facing and how they are resolving them.

How *Instruction to the Double* works in practice

The method requires that a group of similar workers (e.g. six to 10 general surgeons), guided by a trained facilitator which we will call *the double*, initially select a practical problem they want to understand (e.g. deciding whether an appendectomy should be performed with a laparoscopy or as an open appendectomy). The group then schedules work sessions over a year, approximately once every two months. All participants must participate in all work sessions, during which one of the participants has a 45-minute one-on-one interview with the researcher, while the rest of the group listens in. The participant should prepare for the interview by selecting a task they will perform in the near future (e.g., they may consider an upcoming appendectomy that is in their schedule the week after, with a 35-y.o. male patient with no past medical history). This must be a real situation; the case should not be fictional. Confidentiality must be preserved, and participants do not share elements that could help identify a patient.

For the interviews, the participant is called the *instructor*, because it's they who provide the instructions to the double. The facilitator is called the *double*, meaning they do not have the expertise of the participant, but they should be able to perform the task based on the instructions they will receive. The interview starts when the facilitator asks to the participant the following question: "give me all of the instructions that I need so I can take your place, so that nobody notices that we switched roles." After this, the double will ask the instructor practical questions (e.g. *what time should I arrive to the operating room? do I have a fob to access to the locker room? do I know whether I have a resident working with me that day?*). The instructor is not asked to justify their answers: the double is not asking the instructor why they are doing things the way they do it; the double is only seeking instructions to switch roles with the participant.

The instructor describes how the situation is likely to happen (e.g., *you arrive at 7.45 am, your fob is going to be in your bag that you have prepared the day before, there will be a PGY-1 surgery resident named Sacha and this is their first rotation in the specialty...*). The instructor may be willing to provide additional context or details: the primary purpose of the interview is to obtain the information to

take the place of the instructor. The instructor does not need to be provided with the reasons why the procedure is the way it is: they must focus on the *how*, rather than the *why*.

Ouvrier-Bonnaz and Werthe explain that the double's questions supposedly aim to obstruct the instructor's flow of speech to make them reflect deeply about the actions and the context to reveal tacit or informal tips about what he does.¹⁶ Instructors may realize that what they said to the double differs considerably with what they intended to say.

The double must ensure that the instructor carefully explicates things that may look obvious. After 45 minutes, the double ends the interview, and the instructor provides their immediate feedback on their experience (they say how they feel, what surprised them, what frustrated them...). It is normal that they are surprised by the difference between what they thought they would say, and what they actually said.

Finally, the audience of colleagues who silently listened to the interview can comment, ask questions which are usually about the main differences in the way to proceed (e.g., they may identify differences in the assignment of residents working with them, some may know them well in advance, some may not, this may generate some discomfort for the surgeon doing the procedure). After the meeting, the instructor is invited to write a commentary about their own interview.

According to Clot, the purpose of this method is not simply to get a commentary about work, but the discussion is deemed to have the power to change working situations. In other words, the sessions make experiential knowledge more visible to the participants, so they can appraise it, and improve their practice in-between workshops. *Instruction to the Double* is an action method aiming to produce knowledge through a transformative experience.¹⁷

This method is based on the principle of *repetition without repetition*, that is, experiencing the same thing several times, but never exactly in the same way. For instance, the participant will anticipate the appendectomy before the interview, then they discuss it with the facilitator, then they directly comment on it, then they discuss about it with the group, then they do the real appendectomy, then they think about the differences between the real task and how they described it to the facilitator (the double), then they write their commentary. This method is based on the Vygotskian conception of consciousness, defined as *the lived experience of a lived experience* or the *experience to the square*.¹⁸ This method is based on the counterpoint of

Auguste Comte's positivism.¹⁴ Comte considered that knowledge comes first and then drives action, whereas Clot, while using *Instruction to the Double*, considers that it is the opposite: the knowledge originates from action and movement. Hence, *Instruction to the Double* should not be considered as a research tool primarily: it is first and foremost a method aiming at developing the power to act. Research and publications are secondary to this primary goal.

The difference between Instruction to the Double and Interview To The Double (ITTD)

Instruction to the Double has been used in a variety of different professional contexts: education sciences,¹⁹ graveyard diggers,²⁰ or union workers.²¹ Patricia Dionne, Simon Viviers and Frédéric Saussez have used it in high school education in Quebec, to better understand the practices of teachers in providing vocational advice to students.²² It has also been used in the field of healthcare, albeit more rarely in medical education. Béatrice Brignon, Marion Gapin and Nathalie Pantaléon have used *Instruction to the Double* with chief nurses in their early stages of their career, to further investigate challenges with forced job changes in healthcare.²³

Annie Goudeaux and Kim Stroumza have used *Instruction to the Double* in initial training in nursing,²⁴ as a research and innovative tool, to achieve improved professionalization and faster efficiency on rotation sites. The researchers have noted that it could help students as they silently listen to the others, comparing their own practices to those explicated by the interviewee. Participants can also comment when they feel that the gaps between the real activity and the prescribed work are too wide. The authors concluded that there was a need to implement another interview between the supervisor and each student, so they could talk about the technicalities and so the method would be usable in the context of initial training. However, this implies that the interviewer must be an expert in the topics that are discussed by the group, thus contradicting the spirit of the method, as the naivety of the interviewer is supposed to obstruct the natural flow of thinking by asking unexpected questions.

A number of publications report on the use of the interview to the double, referring to another key author, Davide Nicolini, a professor of organization studies.²⁵ In fact, most of the publications in English on *Instruction to the Double* are based on Nicolini's contributions are called the *interview* (instead of *instruction*) to the double and abbreviated as ITTD. While the actual process of being interviewed by an instructor is quite similar (Table 1) the

two approaches differ fundamentally with regards to goals and theoretical underpinnings.

In Nicolini's view, the ITTD is a way to gather information and to formalize it with a view to "*articulate and represent practice*". Whereas in Clot's view, *Instruction to the Double* is a way to use the language to transform the real and develop the interviewee's power to act: "analyzing everyday work activity is not a goal per se, but a way in which to trigger transformation.¹⁷ In other words, Clot seeks transformation of work practices themselves while Nicolini seeks to describe and formalize the work experience. This is also reflected in the differences in the names of the method: the *interview* aims to collect information, the *instructions* aims to help someone do something.

Several publications have used the ITTD in the context of medical education. Bektı has worked with residents in neurology and orthopedic surgery, using Nicolini's ITTD in combination with semi-structured interviews aiming to understand how medical professionalism is conceptualized by residents, in the context of the implementation of competency-based medical education (CBME) in Indonesia.²⁶ The main results were a categorization of ideological discourses around professionalism. Cadieux and her team have worked with surgery residents from Dalhousie University (Canada), using a "semi-structured format based on a modified ITTD technique," in which residents were not asked to imagine a future activity, but to recall a past recent day when they were operating.²⁷ The aim was to "increase understanding of preoperative strategies utilized by senior surgical residents and identify how social and material forces come together to shape practice." Authors have made the choice to use *Instruction to the Double* as a research tool, rather than as an instructional method. The authors have described and categorized strategies used by residents in preoperative preparation (such as developing their technical skills, improving their procedure knowledge, enhancing patient-specificities, and knowing the preferences of the senior surgeon).

Table 1. Similarities and differences in the instruction/interview to the double between Clot and Nicolini

| | Instruction to the Double described by Clot et al. | Interview to the double (ITTD) described by Nicolini |
|--|--|--|
| Parenthood | Both authors refer to the original method as first described by Ivar Oddone in the 1970, and used with workers from the Fiat car factory in Turin (Italy). Initially, the method led to long monologues from workers. Both authors (Clot and Nicolini) conduct interviews. | |
| Type of questions asked by the double | Questions to the individual by the double should rather start by "how", "what", "when", rather than "why." | |
| Recording and transcription | The interview is tape-recorded and transcribed. | |
| Standalone method | Can be used as a standalone method or with others. Jargon is to be explained by the interviewee to the double during the interview. | Should be used with additional methods, such as ethnographic studies, to better understand technical terms and jargon used by respondents. |
| Theory | Cultural-historical (Vygotskian) approach | Practice Theory |
| Collective approach | Interviews are conducted in front of a group of similar workers | Interviews are one on one. There is no mention of any place dedicated to a group of workers. |
| Topics discussed | Topics are selected by the group of workers themselves (user-driven) | Topics are selected by the researcher (researcher-driven) |
| Methodology | To develop the power to act. Language is considered not only as a way to explain, but as a way to think and act. | To formalize the workers' experience to facilitate transmission (to elicit narratives of practice). |

Challenges and opportunities for using Instruction to the Double in medical education

Despite the apparent encouragements to develop innovative tools in medical education, most approaches remain entrenched in a behaviorist perspective.²⁸ Innovations involve technologies, such as quizzes on tablets or smartphones) rather than theory-driven methods for teaching and learning.²⁸

Furthermore, accreditation standards at all levels of medical education (undergraduate, post-graduate, and continuing professional development) lead to greater standardization and centralisation of the educational experience,²⁹ thus promoting top-down approaches where the learner has little autonomy in determining learning objectives.

Accreditation bodies may require institutions to deliver "active learning" methods: some institutions have successfully addressed this requirement by implementing

methods inspired by problem-based learning.²⁹ These methods aim to facilitate better integration of basic and clinical sciences, improve retention of information, strengthen hypothetico-deductive reasoning, and better prepare students for their independent medical practice.³⁰ However, it seems that evidence is nuanced with usually greater student satisfaction, but mixed results in terms of knowledge accumulation and practice-based outcomes. Furthermore, there may be room for discussion about what “active method” means in this context. It seems more likely that what is considered an active student here is rather a student that looks active on the surface—from the outside—rather than a student who is psychologically engaged in a thoughtful activity. We need to remember that the real engaging psychological activity may be difficult to capture and may be totally disconnected from what students may look like from the outside.

Hence, due to insistent calls for more innovation coupled with increased standardization reducing opportunities for innovation; medical education faces a considerable challenge. In our experience, the introduction of workshops using *Instruction to the Double* at University of Alberta without formal pre-determined learning objectives has generated interest from faculty and stakeholders, as well as from those who participated in them.

Instruction to the Double is a truly innovative method for medical education as it is not restricted to repurposing behaviorist approaches using IT or smartphones. It is also a promising tool at stages of learning where the need for a formalized transmission of knowledge is required. The method requires participants to be able to share their practical experience. Therefore, in the field of medical education, continuing professional development or post-graduate medical education are better suited than undergraduate medical education for such method.

Conclusion

Instruction to the Double is a method suited to help learners develop their professional practice, one of the ultimate goals in medical education. The method simultaneously supports such things as socialization with peers, sharing reflections on professional challenges, leading to practical changes in their practice. With the increasing emphasis on teaching complexity and developing competence in medical education, *Instruction to the Double* method is appropriate. As the method is participant-driven, in that they choose the objectives and topics they wish to explore, it is a method that affords access to experiential learning from peers. As the approach

leaves the discussion open, it is better suited for learning that does not require a high level of standardization. The key for *Instruction to the Double*'s effectiveness is to highlight the gap between what students think they do and what they say they do. This maximizes the method effectiveness in helping learners develop their *power to act*.

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