From Lecture to Learning Tasks: Use of the 4C/ID Model in a Communication Skills Course in a Continuing Professional Education Context

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abstract

This article describes the use of four-component instructional design (4C/ID), a model to plan educational interventions for complex learning. This model was used to design a continuing education course on communication skills for health professionals in a context that is hierarchical and communal. The authors describe the 4C/ID model and provide an example of its application in designing the course. In the 4C/ID model, learning tasks serve as the backbone of the course, with lectures and other supportive information organized around them. The 4C/ID model is different from traditional models that base the course on lectures on different topics and connect part-task assignments to these topics. The use of the 4C/ID model to develop the educational intervention moves the paradigm from lectures to learning tasks to better prepare learners for real practice.

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The goal of continuing education for health professionals is to improve patient outcomes (Forsetlund et al., 2009). The effectiveness of this education varies according to the choice of methods used (Forsetlund et al., 2009; Griscti & Jacono, 2006; Raza, Coomarasamy, & Khan, 2009). Didactic methods, such as lectures, are frequently used, although they are proven to be less effective than some other methods. Interactive methods that include more assignments that require active participation are recommended (Griscti & Jacono, 2006). This recommendation, however, does not clearly show how to organize either lectures or assignments (Forsetlund et al., 2009; Griscti & Jacono, 2006; Raza et al., 2009). In practice, assignments are often provided to supplement lectures and are organized in a serial manner to introduce learning objectives one by one (Cant & Cooper, 2010; Lim, Reiser, & Olina, 2009; van Merriënboer & van Dijk, 1998).

In health care settings, however, professional tasks are usually complex and require the integration of multiple objectives (Janssen-Noordman, Merriënboer, van der Vleuten, & Scherpbier, 2006; van Merriënboer & Tjiam, 2013). Research shows that when different parts of a complex task are introduced separately, it cannot be assumed that learners are able to integrate the different parts in real practice and apply the acquired skills under different conditions (Lim, Reiser, & Olina, 2009).

Four-component instructional design (4C/ID) (van Merriënboer & Kirschner, 2013) is a model used to plan educational interventions for teaching complex tasks. In this model, the competence to be learned is introduced as early as possible through different learning tasks. These learning tasks are "whole-tasks" that are intended

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to mimic real-life situations that learners face in their professional life. Courses based on this model emphasize learning tasks, not lectures or presentations, as in traditional models. These learning tasks are organized in a systematic manner, considering the level of complexity of the tasks and the amount of guidance that must be provided to the learners (van Merriënboer, Clark, & de Croock, 2002; van Merriënboer & Kirschner, 2013).

With the 4C/ID model, learners are expected to be able to adapt the skills from the course under different conditions in real practice (van Merriënboer et al., 2002; van Merriënboer & Kirschner, 2013). Learners do not have to master all knowledge in the classroom. As lifelong learners, they will be able to search for the information that they need to approach different problems by themselves. In this way, the 4C/ID model helps to promote a time-efficient learning experience.

This article describes the use of the 4C/ID model to design a continuing education course for health professionals in a nursing setting. The example that is used is a communication skills course on patient advocacy in the area of informed consent in Indonesia. The context is described, a brief introduction to the 4C/ID model is provided, and application of the model in this course is discussed.

CONTEXT

In Southeast Asia, where the course was conducted, the culture is strongly hierarchical and communal. A strong hierarchical culture implies a large difference in power between people of different social positions, and strong communality indicates the prominent influence of the group on the individual (Hofstede, Hofstede, & Minkov, 2010). This culture influences many aspects of life, including the health care system. One effect is the strong hierarchical relationship between physicians and patients (Claramita, Utarini, Soebono, van Dalen, & van der Vleuten, 2011) as well as between physicians and nurses (Lee, Lee, Kong, Kim, & Kim, 2009; Susilo et al., 2013). The communality is visible in the strong involvement of family members in health decision making that sometimes overrides the patient's autonomy (Susilo, Nurmala, van Dalen, & Scherpbier, 2012; Susilo et al., 2013).

To ensure that patient autonomy is respected within these cultural constraints, nurses can serve as patient advocates. In the informed consent process, nurses ensure that patients voluntarily make informed decisions (Lee et al., 2009; Susilo et al., 2013). The role of the nurse as patient advocate in informed consent requires integration of clinical knowledge, communication skills, and legal and ethical considerations (Susilo et al., 2013). This integration is highly complex, and its application in a real setting is challenged by contextual factors (Susilo et al., 2012, 2013).

Previous publications in similar areas did not clearly describe the underlying instructional design principles used to develop courses (Krimshtein et al., 2011; Meyer et al., 2011). Nurses must adapt their communication skills to these challenging contexts, and this requires complex learning (Susilo et al., 2013). Introducing the main principles of informed consent and communication skills in lectures, followed by practicing the distinct principles, may not be sufficient to prepare nurses for this role. A more comprehensive model to promote integrated learning and enhance knowledge transfer is therefore necessary.

MODEL

The use of the 4C/ID model has been reported in different health profession educational settings, such as a physiotherapy curriculum (Verheyden, Handgraaf, Demirci, & Grüneberg, 2011), an online pharmacotherapy course (Pittenger & Olson-Kellogg, 2012), and urology training (van Merriënboer & Tjiam, 2013). This brief description is intended to support further discussion of the use of this model. More comprehensive descriptions of the model have been published elsewhere (Janssen-Noordman et al., 2006; van Merriënboer et al., 2002; van Merriënboer & Kirschner, 2013).

An educational intervention based on the 4C/ID model has four components: learning tasks, supportive information, procedural information, and part-task practice (Janssen-Noordman et al., 2006; Tjiam et al., 2012; van Merriënboer et al., 2002). Learning tasks, which provide the core of the instructional design, are introduced as whole-tasks and are in concordance with the principles of authenticity and variability (van Merriënboer & Kirschner, 2013). Authenticity can be achieved by designing learning tasks that are based on real-life tasks. In contrast to real-life tasks, learning tasks often include support or guidance and can be performed in either the real setting or a simulated setting (Gulikers, Bastiaens, & Kirschner, 2004). Variability can be added by introducing different learning tasks that represent different conditions encountered in professional practice. Exposure to these various tasks prompts learners to recognize essential patterns embedded in a certain competence and develop a problem-solving approach that can be adapted to different contexts in real practice (van Merriënboer et al., 2002; van Merriënboer & Kirschner, 2013).

The learning tasks are organized into task classes with different levels of complexity. In one course, simpler task classes should precede more complex ones. One task class

preferably consists of several varied learning tasks with a similar level of complexity. The difference among learning tasks in one class is in the level of guidance provided to learners. The amount of guidance provided decreases from one task to another until the learners can perform the task independently (van Merriënboer et al., 2002).

Learners need supportive information so that they can master the learning tasks. This information should be provided in a way that helps learners to develop cognitive strategies and mental models. Cognitive strategies can be used as a problem-solving approach, whereas mental models serve as a map of the learning domain, or an organization of knowledge describing how different topics are related. In the 4C/ID model, lectures delivered by experts are categorized as supportive information. Supportive information can also be introduced during self-study by searching and reading necessary resources on the learning tasks. Cognitive feedback is another type of supportive information. It is provided after learners perform a learning task and should encourage learners to reflect on the quality of their acquired cognitive strategies and mental models (van Merriënboer et al., 2002).

Procedural information is information that is provided just in time, when learners are performing the tasks. It is given as if "someone is looking over your shoulder and guiding you while you are performing" (van Merriënboer & Kirschner, 2013). Procedural information supports primarily the routine aspects of tasks (van Merriënboer et al., 2002). To encourage learners to become independent professionals, procedural information should be provided in a "scaffolding" manner, which means that the intensity of guidance decreases from one learning task to the next (van Merriënboer & Kirschner, 2013).

Part-task practice is provided to strengthen one or more specific routine aspects of the tasks. The part-task that is practiced is a part of the whole-task that recurs in a similar manner in different contexts. Part-task practice is not an obligatory element of the 4C/ID model and is provided only as specific routine aspects of the whole-task need to be developed to a very high level of automaticity.

The learning tasks provide the core of the educational program. Supportive information is linked to task classes (i.e., tasks at the same level of complexity) because it allows tasks to be performed at a specific level of complexity. More supportive information is needed for more complex tasks. The procedural information is coupled with the individual learning tasks because the necessary information is provided just in time, as learners need it. Part-task practice is only introduced after the routine aspect of the task has been introduced in the context of a learning task so that the learner understands how part-task practice might contribute to whole-task performance.

SIDEBAR 1
OUTLINE OF THE COURSE

Day 1

Refresher training for group A in both communication skills and teaching skills.

Day 2

Introduction.

Modeling example: Role-plays of nurse-patient and nurse-physician interactions (supportive information).

Reflection on the role-plays to build on communication skills (learning task 1.1).

Lecture on the legal aspects of informed consent (supportive information).

Practice of communication skills in small groups (learning task 1.2).

Discussion of cases involving informed consent and presentation of discussion (learning task 1.3).

Day 3

Practice of communication skills in a real setting (learning task 2.1).

Day 4

Report of experience from a real setting (learning task 2.2).

Course evaluation.

COURSE

The 4C/ID model was used to design a communication skills course (Sidebar 1) (van Merriënboer & Kirschner, 2013). The content was based on previous needs assessments published elsewhere (Susilo et al., 2012, 2013). The process used to design the course was iterative and involved experts in communication skills and course development from The Netherlands and Indonesia. The role-play was tested among trainers. To assess feasibility and pursue support, the final design was also discussed with managers from the local institution that hosted the course.

The course was designed at two levels: training in teaching communication skills and training in communication skills specifically related to informed consent. Consequently, there were two groups of learners (groups A and B). The members of group A had received training in teaching communication skills in the previous year, and this group focused on strengthening their teaching skills. Group B focused on learning communication skills.

The main facilitators were three experts in communication skills, and they guided the learning process throughout the course. Additionally, members of group

TABLE 1
EXAMPLE OF A 4C/ID BLUEPRINT (TASK CLASS 1)

Task Class 1

Members of group B are confronted with situations in which they need to construct steps and practice communication skills in a simulated setting.

Supportive information: *Modeling example.*

Group B watches a role-play on communication skills that focuses on exploring patient concerns. Two learners volunteer to play the roles of nurse and patient.

Supportive information: *Modeling example.*

Group B watches a role-play on communication skills that focuses on negotiation skills to discuss patients' concerns with the physicians. Two learners volunteer to play the roles of nurse and physician. Leary's Rose is used as a tool to map negotiation.

Supportive information

A lecture on the legal aspects of informed consent by a medicolegal expert.

Learning Task 1.1: *Case Study*[a]

Group B is asked to reflect on both role-plays. In a constructivist way, the group members discuss important steps and principles of communication skills training in informed consent practice. They also provide feedback for the role-play participants.

Procedural information: A handout of Leary's Rose is provided.

Learning Task 1.2: *Conventional*[b]

Group B is asked to practice communication skills in small groups. Group members play the roles of professionals and patients. Scenarios are provided. The role-plays are coached by members of Group A.

Procedural information: Both the members of group A and the main facilitators are available in each group to answer questions.

Learning Task 1.3: *Conventional*

In small groups, members of group B are asked to discuss cases on informed consent practice. They present the results of the discussions in plenary sessions.

Procedural information: The regulation from the Ministry of Health on informed consent practice in Indonesia is provided.

Supportive information: *Cognitive feedback*

Group B receives feedback on their reflection in learning task 1.1, the practice of communication skills in learning task 1.2, and the presentation in learning task 1.3.

Note. [a]A type of learning task in which the problem, the goal, and the solution are given. Learners are asked to evaluate the case. bA type of learning task in which the problem and the goal are given. Learners are asked to find the solution (van Merriënboer & Kirschner, 2013).

A, who were trained in teaching communication skills, had the opportunity to coach participants in group B when they were practicing communication skills in small groups. To support this practice, the course was conducted over a period of 4 days (Sidebar 1). Group A participated in the course from day 1 to day 4. Group B participated from day 2 to day 4. Day 1 was designed to refresh the teaching skills of group A. For the next 3 days, group A, together with the facilitators, practiced teaching communication skills to group B.

The teaching skills course focused on the skills needed to facilitate a communication skills role-play and provide feedback. The communication skills course focused on the exploration and negotiation skills needed in the informed consent setting (von Fragstein et al., 2008). Leary's Rose was introduced to map different positions in the negotiation of informed consent. This model helped to explain that people can choose to oppose or to collaborate in negotiation as well as to be in an equal or in a hierarchical relationship with their counterparts. This assumption behind Leary's Rose is that one way of interacting will lead to another way of interacting. For example, if one party interacts in a dominant way, reflecting a perception of the other party as "subordinate," the other party will intuitively react by presuming an inferior position (van Dijk, 2009). By understanding this natural response, a nurse, when facing a hierarchical relationship with physicians in a negotiation, can choose to avoid this natural tendency and maintain equality.

Participants in this continuing professional education had graduated from a formal educational program and had professional experience. The competence acquired from the course thus deepened participants' previously developed competence as professionals. In addition to nurses, other health professionals were invited to participate in each group. Group A consisted of seven nurses, three pharmacists, two physicians, one midwife,

TABLE 2
EXAMPLE OF A 4C/ID BLUEPRINT (TASK CLASS 2)

Task Class 2

Members of group B are confronted with situations in which they need to practice communication skills in a real setting, with real patients, family members, and colleagues (physicians or nurses).

Learning Task 2.1: *Conventional*[a]

Group B is asked to practice communication skills in different encounters in real settings, with real colleagues and real patients. Members of group B pair with members of group A, who observe their performance and lead feedback sessions immediately after the encounters.

Procedural information: Group A is available to answer questions.

Learning Task 2.2: *Case Study*

In small groups, members of group B report experiences from real contexts and reflect on the challenges. They are asked what they would like to do differently. If necessary, they are asked to perform role-plays as part-task practices. Members of group A lead the small groups report.

Procedural information: Both group A and the main facilitators are available in each group to answer questions.

Part-task practice: Role-plays on specific skills that group B would like to practice.

Supporting information: *Cognitive feedback.*

Members of group B receive feedback from group A on their communication skills in learning tasks 2.1 and 2.2.

Note. [a]A type of learning task in which the problem and the goal are given. Learners are asked to find the solution (van Merriënboer & Kirschner, 2013).

one physiotherapist, and one staff member from the medical records unit. Group B consisted of 15 nurses, a midwife, and a pharmacist. Other health professionals were expected to benefit from this course because they frequently face similar situations as patient advocates in their working context (Fischer, Bader, & Sweitzer, 2010; Hammer, Berger, Beardsley, & Easton, 2003).

Application of the 4C/ID model is shown with the example of the communication skills course, which was the course attended by group B. Tables 1 and 2 show examples of 4C/ID blueprints that describe the course content from day 2 to day 4. The blueprints show how the four components of the 4C/ID model (learning tasks, supportive information, procedural information, and part-task practice) were organized, including how to structure different supportive information around the learning tasks and coordinate the learning tasks with the procedural information and part-task practice. A more comprehensive discussion about the implementation of the 4C/ID model is provided below.

IMPLEMENTATION OF THE MODEL IN THE COURSE

As recommended by the 4C/ID model, learning tasks make up the core of the training. Role-plays are used extensively from the start. To ensure authenticity and variability, role-play scenarios were modified from different real clinical cases from previous studies of informed consent (Susilo et al., 2012, 2013). Cultural constraints, such as hierarchy among physicians and nurses (Lee et al., 2009; Susilo et al., 2013) and strong involvement of the family (Claramita, Nugraheni, van Dalen, & van der

SIDEBAR 2
EXAMPLE OF A SCENARIO FOR ROLE-PLAY

Spirit Under the Tree

A 5-year-old boy is admitted to the hospital with a high fever and vomiting. These symptoms happen almost every month, but the boy does not need hospitalization every time. The physician's diagnosis is chronic tonsillitis, and tonsillectomy is recommended. The physician explained why a tonsillectomy is needed and how it will be conducted. You are a nurse, and you witnessed the explanation. The family did not ask any questions.

When you come in the next day to ask about the plan for the boy's treatment, you find out that the family is having a difficult discussion. The grandmother insisted on taking the boy to a traditional healer because she believed that the disease was caused by the boy playing under a sacred tree. She will pay for the traditional healer but will not pay for surgery. The patient's mother is very shy and anxious. She wants the patient to undergo surgery and does not believe in the spirit under the tree. Nevertheless, as it is common practice in a hierarchical culture to honor the wishes of a more senior member of the family, she does not express her own preference openly. The father asks a lot of questions about the surgery, but is afraid to consent because he needs his mother's financial support.

The doctor said that the nurse should "take care" of the grandmother and convince the parents to agree to the surgery.

key points

Communication Skills

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1. Four-component instructional design (4C/ID) is a model to plan educational interventions for teaching complex tasks, such as communication skills in informed consent, in a systematic and integrated fashion.
2. In this model, learning tasks serve as the backbone of the course, with lectures and other sources of supportive information organized around them.
3. Learning tasks are introduced as whole-tasks, structured according to their level of complexity, and reflecting different real-world tasks.
4. As the integration of the complex task starts right from the beginning of the learning process, learners will be more likely to transfer acquired skills into the real setting.

Vleuten, 2012; Susilo et al., 2012, 2013), are represented in the scenarios. One example is shown in Sidebar 2.

Increasing complexity can be seen from the difference between the task classes. The first task class is simpler than the second one. The first task class was conducted in a safe simulated setting between peers. The second task class required learners to practice in a real setting, with real patients and real colleagues.

Decreasing guidance can be seen from the diminishing roles of the main facilitators in the first task class. After moderating the role-plays, in learning task 1.1, the main facilitators encouraged learners to reflect on the role-plays and inductively construct the principles of communication in informed consent. In learning task 1.2, role-plays were conducted in small groups moderated by participants from group A. The main facilitators observed and answered questions. Finally, the facilitators were not present in the group discussion (learning task 1.3) and only provided cognitive feedback after group presentations.

The lecture on informed consent was provided as supportive information to help learners develop a mental model of all relevant factors and how they were interrelated. This lecture was provided in the middle of the course, not at the beginning, and was linked with a group discussion. Demonstrations of communication skills, followed by reflection as a learning task, also served as supportive information to help learners develop cognitive strategies. Another type of supportive information that was used was cognitive feedback from facilitators and peers. This feedback was provided after learners conducted the role-plays and practiced in the real setting.

During role-plays, the facilitators were present to observe the learners and provide procedural information. Another type of procedural information was the handout of Leary's Rose (van Dijk, 2009), depicting the model that could be consulted as needed during role-plays.

The authors provided "on-demand" part-task practice, which is only performed when necessary. On day 4, after reporting experiences from practicing in the real setting, learners could strengthen specific skills in additional role-plays.

CONCLUSION

This article described the use of the 4C/ID model in a communication skills course on patient advocacy in informed consent, which is a complex skill. Rather than introducing these complex skills in separate lectures on different topics and part-task assignments, the course provided learners with an opportunity to master the skills through different whole learning tasks. This approach allows learners to practice communication skills and teaching skills in the area of informed consent in an integrated fashion. Because integration of the complex skills has been started during the learning process, learners will be more likely to transfer the skills later on in the real informed consent setting.

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