

## **Learning Device and Method**

### **Technical field**

The present invention relates to a learning device and a corresponding learning method.

### **Background**

A particular task or brainteaser consists of its description and may typically be resolved through some milestone way based on certain logic and rules. One example of a task for learning and practicing of English grammar skills according to prior art is schematically represented in fig. 1.

For the sake of simplicity, an example brainteaser corresponding to fig. 1, that is having only one such possible way with more than one milestone is discussed in the present section. The description of the example brainteaser is not intended to restrict the scope of other possible tasks and brainteasers.

Referring to fig.1, milestones are represented by numbers 1, 2, 3, etc... and transitions between those milestones are represented by numbering as T1-2, T2-3, etc... While resolving the brainteaser, on each milestone mentioned above the user is completing the part of the solution using a logic, rules and data available on that milestone and passing thereafter to the next milestone. Completing all the milestones in a right way (by using right logic, applying right rules, etc...) leads the user to the resolution of the brainteaser.

For example, let's consider the example shown in fig. 2, that a user may encounter while learning and practicing on-paper his/her English grammar skills (English grammar examples are taken for illustration purposes only).

Among all possible tasks and brainteasers that exist, it is possible to distinguish the ones of the same type or of very similar type from the point of view of the logic and rules to be used for its resolution, though the data available to the user

within its description can be different. As a example demonstration for this, the example shown in fig. 3 is of the same type to one shown in fig. 2.

For the user, one of the goals of practicing a series of such examples is to get his mastery to the level that will allow him to resolve such examples confidently, by himself or herself, without making mistakes.

The limitations of conventional practicing lies in the need of making the entire solution of the example without knowing if the solution is being built in a right way or not; a further limitation can be seen in a chance of being stuck in the middle or even in the beginning of the solution of the example with no idea of how to progress further.

### **Summary of invention**

In a first aspect the invention provides an electronic system for interactive learning of a rule or a method applied in a correct manner in finding a solution for a determined a task. The system comprises a display unit that displays the determined task to be learned by a user; an input unit that inputs an interaction of the user; a controller unit that is configured to monitor the user's input interaction for finding the solution to the determined task and subsequently to identify that the user is failing in finding the solution of the determined task by identifying that the user fails to apply the rule or the method, or that the user fails to apply the rule or the method in the correct manner. The system further comprises a helper unit that is configured to provide assistance to the user with targeting or relevant information in the form of any one of at least text support, graphical support and sound support, whereby the information concerns either one of the rule or the method to be applied while finding the solution to the determined task as well as the correct manner in which the rule or the method is to be applied.

In a second aspect the invention provides a method for monitoring a user during an interactive learning activity of a rule or a method applied in a correct manner in finding a solution to a determined task. The method comprises displaying the determined task to be learned by the user; inputting an interaction of the user; and monitoring the user's input interaction for finding the solution to the determined

task. The method further comprise identifying that the user is failing in finding the solution of the determined task by identifying that the user fails to apply the rule or the method; or that the user fails to apply the rule or the method in the correct manner. The method also comprises providing assistance to the user with targeting or relevant information in the form of any one of at least text support, graphical support and sound support, whereby the information concerns either one of the rule or the method to be applied while finding the solution to the determined task as well as the correct manner in which the rule or the method is to be applied.

In a third aspect the invention provides a data carrier storing a computer program, which when read by a computer causes the computer to execute the inventive method for monitoring.

### **Brief description of the drawings**

The invention will be better understood in the light of description of preferred embodiments and accompanying drawings, whereby

figure 1 represents an example of milestones in a task for learning and practicing of English grammar skills;

figure 2 represents an example of the task of learning and practicing of English grammar skills on paper;

figure 3 represent an example of the task of learning and practicing of English;

figure 4 represent an example embodiment of a system constructed according to the invention;

figure 5 illustrates an example response of the inventive system to an input from the user;

figure 6 illustrates an further example response of the inventive system to an input from the user;

figure 7 represents an example of the task of learning and practicing of Chemistry skills and illustrates a response of the inventive system to an input from the user; and

figure 8 represents an example of the task of learning and practicing of Mathematic skills and illustrates a response of the inventive system to an input from the user.

### **Description of the invention**

The present description of preferred embodiments presents an electronic device that implements a system of interactive learning or/and practicing in resolution of tasks and brainteasers, for example such as the ones known from prior art and presented in the *background* section.

The system addresses conventional limitations of learning and/or practicing by providing a user, in case the user needs it, a possibility of being held on the right track of practicing a given example. The system further provides a user with support that is specifically relevant to the issue(s) being practiced, that is, the system forbids the user to progress departing from one milestone by leaving the right track to another milestone and subsequently to the successful resolution of the example.

More specifically, the system may comprise the features illustrated schematically in fig.4 and listed as follows:

- a display unit;
- an input unit;
- a controller unit; and
- a helper unit.

The display unit is configured to visualize the description of the task or brain-teaser to be resolved as well as to represent its intermediate states while the user is working with it.

The way in which the system operates with the user will be shown based on the example presented in fig. 2. In order to continue to the next milestone, the user is required to pass the first milestone by entering his answer to the current milestone by means of interaction with the input unit, that in this case can for example be a keyboard, a mouse or any other input device.

In case that the entry done by the user is wrong, the controller unit will not let the user go for the next action and the helper unit will support the user with relevant support—in this case for example a text hint, but it may alternatively or in addition be a graphical hint or an audible hint—see fig.5. That support will help the user to complete the current action in a right way before going for the next action. Other examples are shown in figures 7 and 8 in chemistry and mathematics respectively.

An illustration of what may happen when the user completes the action without making a mistake is shown in fig. 6—no hints will be displayed to the user. In this manner the user may continue until the task is resolved. The system may subsequently offer the user a further task of the same type as the previous task, so that the user can achieve an improved practice of his or her skills.

The controller unit and the helper unit may be realized with minimal practical restriction through a combination of hardware and software means.

## Claims

1. An electronic system for interactive learning of a rule or a method applied in a correct manner in finding a solution for a determined task, the system comprising:
  - a display unit that displays the determined task to be learned by a user;
  - an input unit that inputs an interaction of the user;
  - a controller unit that is configured to monitor the user's input interaction for finding the solution to the determined task and subsequently to identify that the user is failing in finding the solution of the determined task by identifying
    - that the user fails to apply the rule or the method; or
    - that the user fails to apply the rule or the method in the correct manner; and
  - a helper unit that is configured to provide assistance to the user with targeting or relevant information in the form of any one of at least text support, graphical support and sound support, whereby the information concerns either one of
    - the rule or the method to be applied while finding the solution to the determined task as well as
    - the correct manner in which the rule or the method is to be applied.
2. A method for monitoring a user during an interactive learning activity of a rule or a method applied in a correct manner in finding a solution to a determined task, the method comprising:
  - displaying the determined task to be learned by the user;
  - inputting an interaction of the user;
  - monitoring the user's input interaction for finding the solution to the determined task;
  - identifying that the user is failing in finding the solution of the determined task by identifying
    - that the user fails to apply the rule or the method; or
    - that the user fails to apply the rule or the method in the correct manner; and

providing assistance to the user with targeting or relevant information in the form of any one of at least text support, graphical support and sound support, whereby the information concerns either one of the rule or the method to be applied while finding the solution to the determined task as well as the correct manner in which the rule or the method is to be applied.

3. A data carrier storing a computer program, which when read by a computer causes the computer to execute the method for monitoring of claim 2.

## **Abstract**

An electronic system for interactive learning of a rule or a method applied in a correct manner in finding a solution for a determined a task comprises a display unit that displays the determined task to be learned by a user; an input unit that inputs an interaction of the user; a controller unit that is configured to monitor the user's input interaction for finding the solution to the determined task and subsequently to identify that the user is failing in finding the solution of the determined task by identifying that the user fails to apply the rule or the method, or that the user fails to apply the rule or the method in the correct manner. The system further comprises a helper unit that is configured to provide assistance to the user with targeting or relevant information in the form of any one of at least text support, graphical support and sound support, whereby the information concerns either one of the rule or the method to be applied while finding the solution to the determined task as well as the correct manner in which the rule or the method is to be applied.

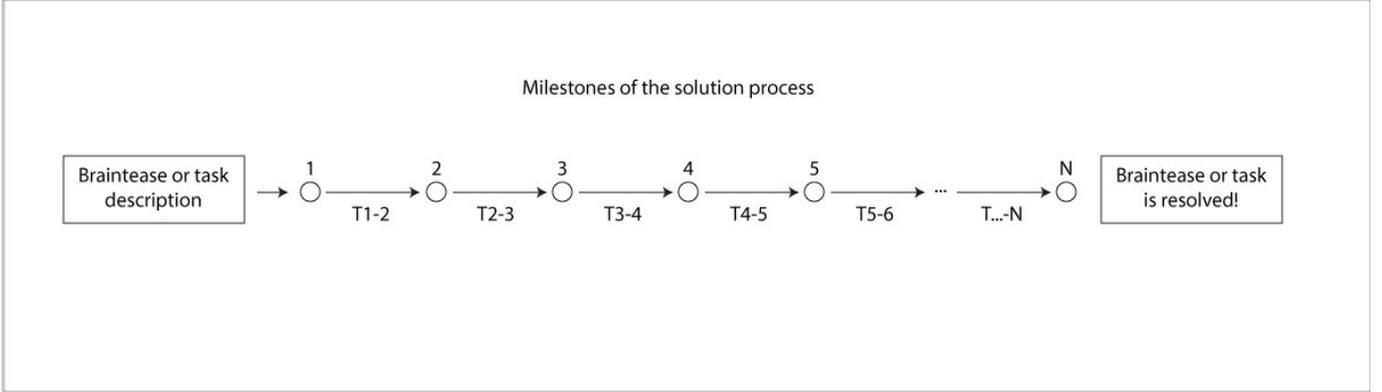


Fig. 1



**Complete the sentence describing the picture**

is eating \_\_\_\_\_ food

using pronouns

Fig. 2



Complete the sentence describing the picture

i s d o i n g \_\_\_\_\_ H o m e w o r k

using pronouns

Fig. 3

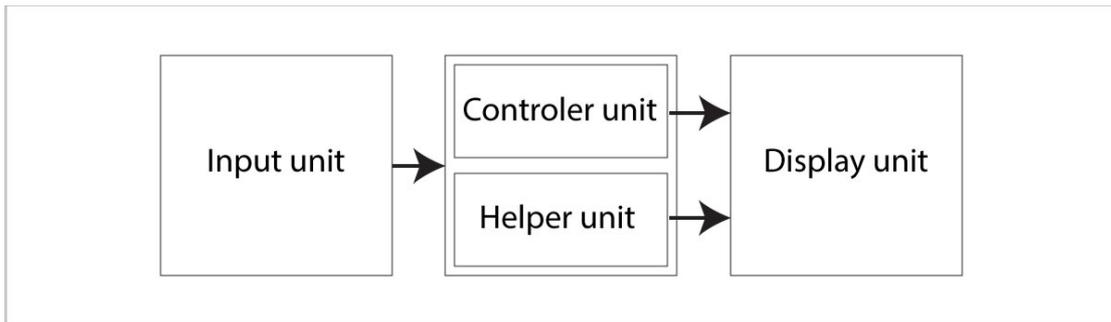


Fig. 4



Complete the sentence describing the picture

i s e a t i n g  f o o d

using pronouns



Complete the sentence describing the picture

i s e a t i n g  f o o d

For animals we use "It"  
instead of "he" and "she"

Fig. 5



Complete the sentence describing the picture

I t i s e a t i n g  f o o d



Complete the sentence describing the picture

I t i s e a t i n g i t s f o o d

Fig. 6

