How to Use a Wiki in Education:
'Wiki based Effective Constructive Learning'

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ABSTRACT

Learning effectiveness depends on a large range of parameters. Learners' activity has an important impact on long-term learning and comprehension of difficult concepts [1]. **Collaboration** is also an important parameter for learning efficiency. Collaboration does not work per se [2]; an appropriate **Script** is a capital factor for succeeding. We will describe our engagement in **scripting advises** based on the use of a Wiki. **The creation of a hypertext** is **an integrative part of our collaborative script. A Wiki is a powerful tool for constructivist learning environments because it facilitates collaboration.** The workshop aims to describe approaches to improve collaborative learning. We will give advice how to conduct a learning session with a Wiki and an appropriate script.

Categories and Subject Descriptors

K.3.1 [**Computer Uses in Education**]: Collaborative learning.
D.2.2 [**Design Tools and Techniques**]: User interfaces.
However, while there are numerous studies of collaborative

General Terms: Performance, Human Factors

Keywords: Wiki for Learning, Collaboration, Learning Strategies, Script, Classroom Moderation, Strategies for Effective Scripts, Definition of a Script

1. Definition of a collaboration Script

A collaboration script in educational science is the description of a pedagogical scenario with several distinct phases. Some scripts are defined in an iterative way, but from the student's point of view, they are run as a linear sequence. Each phase of the script specifies how students should collaborate and solve a given problem. This requires five attributes:

1. the task that students have to perform,
2. the composition of the group,
3. the way that the task is distributed within and among groups,
4. the mode of interaction and
5. the timing of the phases.

Dillenbourg [3]

Formulating a collaborative script includes the adaptation of the attributes to the used Wiki engine: E.g. the distribution of the different tasks to accomplish has to permit the participants to publish content to the Wiki. Also the mode of interaction has to be represented within the Wiki; that means that participants comment inputs of other members, correct mistakes, build links …

2. Putting into Action of a learning unit with a Wiki and an appropriated script

Getting there is half the fun [4].

The first steps to set up such a course are similar to those of a script for a conventional course. The main goals must be formulated. The goals must be identified, not necessary the detailed learning subjects but the major goals. Pedagogical transposition of the subject is not important. A major difficulty is to formulate a 'real life case' or problem in relation to the education goal and the learners' needs and level. If learners get involved for the first time with a collaborative hypertext, a brief introduction to the use of the Wiki is necessary. We used to plan an exercise, where each learner had to make a short personal presentation of himself and of another member of the learning community. The different presentations had to be commented and linked together. Commenting presentations is important to getting used to formulate personal opinions about inputs of other members and to show up different ways of collaboration. The introduction took about an hour time. Next the description of the methodological approach has to take place. The main goal, working methods, communication channels, the way collaboration takes place and the timetable have to be formulated. In some courses we carried out, we choose to put all this information in the Wiki. In other courses, we decided to explain it to all participants. It might be useful to combine both approaches. **One difficulty** we often encountered was the difficulty of the learners to get involved in the work of other participants of the learning community. It is particularly appropriate to develop a **'communication and comment culture'** right from the beginning. Learners have to comment on and correct the work produced by other members of the learning community. Each participant must agree with the contribution of the other learners . The pedagogical justification of this 'comment culture' is that involving learners in making comments about the concepts of other learners helps construct personal knowledge and enhances meta-cognitive capacities.

2.1 Start and maintain student's activities

A further parameter to measure the success of the adopted script is the activity of the participants. In the script, different ways of activating learners must be formulated; first of all there is the launch activity. For the learners, it has to be a motivating, easy and quickly achievable task to accomplish. It might be formulated such that, learners have a choice between different tasks or can even decide to formulate a new related task. In our courses it turned out to be important that **students can produce a certain amount of input within a short time**. Starting with a too difficult task proved to be non productive for the rest of the course. Students showed low motivation to collaborate and to share experiences. **Quality regulation of the inputs** is not so important at the beginning.

After a certain amount of input is produced and a rough structure of the hypertext is created, learners have to be invited to read other inputs and to comment on them. This activity will be repeated several times all along the course.

Other activities must be prepared; the point in time they will take place depends on the evolution of the hypertext. A list of possible activities will be described in the following section.

2.2 Script cycles

We use the term 'scripting elements' as an activity emerging from a scripting attribute. Some of these elements are used several times during the course. A scripting cycle as shown in figure 1 describes possible sequences of different activities. It is not necessary that the sequence of activities follows this order. Nor is it a given that a moderation or script element has to trigger some follow up activities. The teacher or leader of the course should be prepared to give an input or propose a specific activity at the given time.
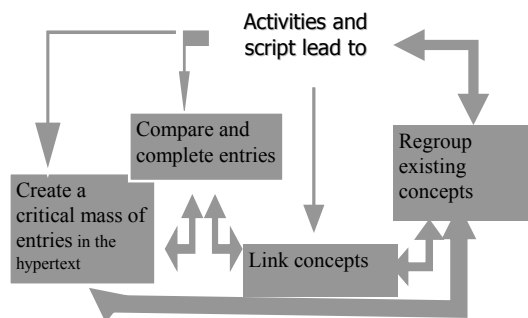

Figure 1. Activity cycle [5]

The element 'Compare and complete entries' takes place for the first time after the learners have produced a critical mass of input into the Wiki. **Comparing, commenting** and completation **of other inputs** is important not only to know, what other members of the learning community produce but it also has a self evaluation effect. If all other contributions reach a better quality than the learners' own work they are motivated to increase the quality of their work. Sometimes in our courses it was necessary for the teacher to read and correct the produced texts. If some

contextual mistakes remain in the hypertext it may cause subsequent errors.

A further element to mention in the script is how to **link concepts** (inputs of participants). When participants know the concepts of others they should be asked to look for similarities within different inputs and set a hyperlink between the inputs. **The links should be negotiated among learners**. Negotiation has an important pedagogical background. Negotiating or discussing with other learners requires each participant to formulate their own opinion about the subject. This leads to awareness of personal opinions. Negotiation leads to the construction of another, more precise concept of the treated subject (self explanation effect [6]).

After linking existing concepts, a further element can take place to reinforce interaction among learners: **Distilling relevant information** and regrouping concepts is quite a difficult activity. Accurate guidance may be needed from the teacher or an example should be described in the hypertext Not every scenario offers good opportunities to include such an activity.

After one Scenario cycle has been performed there are many possibilities to continue the learning process. The cycles can be repeated once, or several times. It is important in the second or third cycle to call on participants to improve the quality of their inputs. Not every participant will accomplish his cycle at the same time. Moderation has to be individual.

3. REFERENCES

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